

A Profile Of Consumers With High-Rate Home Loans

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Using the 1995 and 1998 Survey of Consumer Finances, we provide a profile of households with high-rate home-secured loans and explore the extent to which these loans reflect risk-based pricing. We find that risk-related characteristics are determinants of having high-rate loans, but that race, marital status, age, education, region, shopping behaviors, and type of financial institution also are significant.
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Introduction

One of the goals of federal financial regulators is to create a fair, level playing field for both consumers and financial institutions in the marketplace. In such a marketplace, resources are allocated efficiently and effectively and both producers and consumers are better off. Oftentimes, information disclosure is the key consumer protection strategy employed to try to create this level playing field. Information is not always forthcoming, however, or is presented in a way that is not clear to consumers. Such market failures, especially with respect to home-secured loans, have federal and state regulators turning their attention to “predatory” lending (e.g., Housing and Urban Development [HUD], 2000).

Predatory lending has not been explicitly defined by federal regulators, but it can involve loans that carry high costs -- either in terms of interest rates or fees -- or practices such as “packing” (adding unnecessary insurance coverage) or “flipping” (frequent re-financing of the loan, usually with fees and charges rolled into the re-financed amount), and features such as prepayment penalties, balloon payments, and mandatory arbitration clauses. Such loans are often based on the value of the asset (i.e., the house), rather than on the borrower’s ability to repay the loan. Some consumer advocates define predatory as “a loan which is unsuitable to that homeowner’s particular situation” (Nathan, 1999, p.7). Anecdotally, the victims of predatory lending are alleged to be elderly, Black, and widowed women (Carr & Kolluri, 2001).

While most of the focus on predatory lending has been on home-secured loans, there are other high-rate loans in the market, including high-rate auto loans with interest

rates ranging from 15% to 25%, credit cards with interest rates ranging from 20% to 40%, payday loans that can carry annual percentage rates of 300% or more, and rent-to-own transactions with implicit interest rates over 100%. These other subprime markets have also grown substantially since the early 1990’s. However, a discussion of these financial institutions as part of the high-rate loan industry is outside the scope of this paper, which focuses on home-secured loans.

Predatory lending is often wrongly equated with subprime lending, which is lending to people with poor or minimal credit records or who are otherwise deemed to be higher risk. Subprime loans are priced to reflect the added risk the financial institution is taking with this type of loan. The recent expansion of credit markets to people with B, C, and D levels of credit (subprime, as opposed to “A” credit that is prime) has contributed to the democratization of credit. However, while subprime lending may be a step forward in improving marketplace efficiency, it carries with it the concern that the risk-premium fairly and accurately reflects the added risk of the loan.

While some studies have explored the subprime market, there are virtually no quantitative data to study predatory lending. Much of the evidence of predatory lending is anecdotal, including testimony at hearings by the Federal Reserve Board in 1996 and 2000 (Federal Reserve Board, 2000), hearings conducted by HUD and Treasury in 2000 (U.S. Department of Housing and Urban Development, 2000), and hearings conducted by the U.S. Senate in 2001 (U.S. Senate, 2001). Although we are not able to examine predatory lending *per se*, the purpose of this study is to provide a profile of households with high-

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rate home-secured loans and to explore the extent to which these loans reflect risk-based pricing. While exploratory in nature, this study will shed some light on the determinants of holding a high-rate home-secured loan and whether factors other than risk-related characteristics are associated with having a high-rate loan. Results can be used to augment the anecdotal evidence on lending practices in the financial marketplace and to provide some implications for community development professionals and educators.

Background on Subprime Lending

Generally, consumers with “B” credit have some 90-day past-due notices on their credit record, but are now current; expected delinquencies are 2% to 5% and expected losses are between 1% and 3%. Consumers with “C” credit may have some write-offs and judgements, but have made subsequent payments on some or all of the credit lines; expected delinquencies are 5% to 10% and expected losses are between 3% to 10%. Consumers with “D” credit have had chargeoffs and judgements that have not been repaid; expected delinquencies and losses are between 10% and 20%. Some lenders also count “A-” credit as subprime; these loans may not meet the underwriting standards or have some other characteristics that increases their credit risk (Cocheo, 1999).

Although risk-based lending has been going on for some time, financial institutions began in earnest to move into this subprime market in the early- to mid-1990's (Cocheo, 1999). In one estimate, the size of the subprime mortgage market grew from \$290 billion in 1995 to \$415 billion in 1999 (Feldman & Schmidt, 1999). Others reported that the number of institutions reporting subprime loans grew from 21 in 1993 to 239 in 1998, and that the loan volume has increased from 15,594 loans to 220,511 loans over those five years (Canner & Passmore, 1999). According to another study, subprime home equity lending accounted for 15% of all home equity lending in 1997 (Kalser & Novak, 1997).

While many banks have a unit in their corporation dedicated to the subprime market, there are also lenders who specialize in subprime lending to low income, low wealth households (Day, 2000; Poverty Inc., 1998). Between 1993 and 1998, these subprime lenders increased their share of applications for conventional home-purchase loans 12-fold (from 0.8% to 10.4%); they accounted for about 6% of such loans extended (Canner & Passmore, 1999). Among subprime loans, three-fifths were made to consumers with A- credit, 26% were made

to B credit consumers, 10% were made to C credit consumers, and less than 2% were made to consumers with D credit (B & C Delinquencies Down, 1999).

The trend toward automated underwriting may help ameliorate the effects of subprime lending. The theory is that automated underwriting will better integrate prime and subprime lending, smoothing the prices between these two markets. The resulting, more efficient pricing structure is estimated to save subprime borrowers an average of \$120 per month (Bogdon & Bell, 2000).

In the U.S., there are effectively several tiers of financial institutions. The mainstream financial institutions include commercial banks, thrifts and savings banks, and credit unions. These institutions are regulated by state and federal authorities and are subject to regular examinations for safety and soundness and compliance with regulations. A secondary tier includes institutions such as finance and loan companies and vehicle finance companies. These institutions are generally not subject to federal examinations, although they are required to comply with state and federal regulations. These second-tier institutions often target higher risk consumers and usually charge higher rates (Hogarth & Hilgert, 2001). The third tier institutions include those designated as the alternative financial service sector: check cashers, wire transfer companies, rent-to-own, pawn brokers, and payday lenders. In some states these institutions are regulated, and may be subject to state examination. They are required to comply with federal regulations; so, for example, a payday or pawn lender must disclose the APR of the loan. In general, interest rates increase as one moves down through the tiers, but the perceived level of personalized attention also increases as one moves from the mainstream to the alternative institutions (e.g., Swanson, Hogarth & Segelken, 1993; Lewis, Swagler & Burton, 1996).

The Home Ownership and Equity Protection Act (HOEPA), part of the Truth in Lending Act, and its implementing regulation, Regulation Z, provide special disclosures and rights of rescission for certain high-cost loans (Federal Reserve Board, 1996 & 2001b). Specifically, if the interest rate is eight percentage points higher than the relevant Treasury security rate for first liens (or 10 percentage points for second liens), or if loan costs and fees are above eight percent of the loan amount (or \$480 in 2002), then additional disclosures are triggered. While these disclosures are designed to protect unsuspecting consumers from high-cost loans, including potentially predatory loans, they are often

perceived as part of the blizzard of papers that need to be signed at application and at closing, and their effectiveness is questionable.

Beyond the provisions of HOEPA, there is no federal predatory lending law.^a However, cities and states have enacted legislation to curb predatory lending. North Carolina was among the first to do so (Coalition for Responsible Lending, 2002) while Washington DC is among the most recent to pass legislation (Fleishman, 2002).

Consumers and High-rate Loans

Many of the previous studies on high-rate and subprime loans have focused on the industry side of the equation by assessing the risk premium and profitability of these loans (e.g., Avery, Bostic, Calem & Canner, 1996; Canner, Passmore & Surette, 1996). Other studies of consumer mortgage choice have not separated prime and subprime markets (Gabriel & Rosenthal, 1991; Linneman & Wachter, 1989; Zorn, 1993).

Lax, Manti, Raca, and Zorn (2000) estimated the probability of being in the subprime market relative to the prime market based on two models. The first model (the “risk-only model”) included only explanatory variables related to risk while the second model (the “expanded model”) included these risk variables plus demographic and knowledge variables. The analysis estimated the importance of risk factors in obtaining a subprime loan while at the same time the comparison between the two models provided a way to analyze other factors that were determinants of obtaining a subprime loan. In both models, all of the risk variables were significant. In the “expanded model,” age, education, neighborhood income, knowledge, and search behavior were also significant.

Pennington-Cross, Yezer, and Nichols (2000) modeled the choice of a subprime loan relative to a conventional prime mortgage or an FHA mortgage. They included variables relating to finances, credit history, demographics, and location of the house. An aggregate credit history variable was included in one model, while a decomposed set of credit history variables was included in a second model. Some individual measures of credit history (having few credit lines and the number of inquiries on the credit report) were insignificant; other individual credit history measures (e.g. the number of delinquencies) were significant, as was the aggregate measure. Some variables that were significant determinants of obtaining an FHA mortgage were not

significant predictors of holding a subprime mortgage. For example, marital status, the Gini coefficient for the household, being in an underserved census tract, and living in a high-rate area were significant in the FHA choice but not in the subprime choice.

The Lax et al. (2000) paper centered on first mortgages (either through purchase or refinance) while the Pennington-Cross et al. (2000) study focused on home purchase loans for borrowers that are eligible for an FHA mortgage. However, many of the high-rate loans of concern to policy makers are re-financings, home equity loans, and home equity lines of credit. Prior to 1992, most of these loans were used for home improvement; however Consumer Bankers Association data from 1995 indicate that about 35% of home equity lines of credit and 40% of closed end home equity loans were used for debt consolidation (Nathan, 1999), an indication that many borrowers were already experiencing financial difficulties.

Several studies have used data submitted by lenders as part of their Home Mortgage Disclosure Act (HMDA) reporting (Scheessele, 1997; Evanoff & Segal, 1996). However, it is possible for lenders to write refinance and home equity loans without triggering the reporting requirement of HMDA (Federal Reserve Board, 2002). Thus, studies that rely on lender-based data may understate the level and volume of high-rate loans. Using consumer-based data may contribute a different perspective to the characteristics of high-rate loans and those who hold them.

Data and Methodology

Given the growth in subprime and risk-based priced loans in particular, we wanted to be able to compare data over time to see if this growth was reflected among households. We used data from the 1995 and 1998 Survey of Consumer Finances (SCF). The SCFs are triennial surveys sponsored by the Federal Reserve with the cooperation of the Statistics of Income Division of the Internal Revenue Service (Kennickell, Starr-McCluer & Surette, 2000; Kennickell & Woodburn, 1997). The SCF is designed to provide detailed information on the financial characteristics of U.S. households, particularly families’ assets and liabilities. In conjunction with the Federal Reserve, the National Opinion Research Center at the University of Chicago interviewed 4,299 households in 1995 and 4,309 households in 1998.

To provide information that is both representative of total population but reliable for those assets concentrated in

affluent households, the SCF employs a dual-frame sample design consisting of both a standard, geographically based random sample and an over-sample of affluent households. Weights are used to combine information from two samples (Kennickell, McManus & Woodburn, 1996; Kennickell & Woodburn, 1997). Because of this dual sampling frame, it is essential to weight the data in the descriptive analyses.

Households with any type of home-secured loan -- mortgages (first or second), home equity loans, or home equity lines of credit – were included in this study.

Defining a High-Rate Loan

HOEPA and Regulation Z originally defined a high-cost loan as having an APR of 10 percentage points above the relevant Treasury index at the time of consummation (HOEPA first became effective in October, 1995). Loans that are classified as high-cost according to this definition are subject to additional HOEPA disclosures. Using this original classification, there were 15 households with high-rate loans in the 1995 SCF and 24 in the 1998 SCF. Using the new HOEPA definition of eight percentage points above the relevant Treasury index (Federal Reserve Board, 2001b), there were 22 households with high-rate loans in the 1995 survey and 35 households in the 1998.^b

Under HOEPA, a loan may be classified as high cost if it meets either an APR cut-off or a cut-off based on costs and fees (recall that in 2002, if loan costs and fees are above 8% of the loan amount or \$480, the additional HOEPA disclosures are triggered). Since the survey did not ask any questions regarding the amount of fees or any other costs, we were not able to include loan costs and fees in our definition of an HRL.^c This study focuses on high *rate* loans, rather than high *cost* loans.

Given the small sample size afforded by HOEPA and Regulation Z definition of high rate loans, and in order to have a large enough sample for analysis, for this study we used an alternative definition of a high cost loan based on the mean and standard deviation of the reported interest rate of the loan. The final sample contained 66 households from 1995 and 74 households from 1998. Out of necessity, we use the interest rate rather than the APR; the SCF asks respondents “What is the current annual rate of interest being charged on the land contract/loan?” Some respondents may have replied with an APR, but it is more likely that a contract interest rate was reported. We use this “interest rate” as a proxy for APR in this study.

To determine if a loan was a high-rate loan, we calculated the mean and the standard deviation of the interest rate for mortgages, home equity loans, and home equity lines of credit separately by type of loan and year. Loans with a “normalized” interest rate that exceeded two positive standard deviations from the normalized mean for the particular type of loan and year were considered to be high-rate loans (HRL). For example, the mean and standard deviation for the interest rate for mortgages in 1995 were 8.5% and 1.9%, respectively (Table 1), resulting in a cut-off for HRLs of 12.3%. The mean and standard deviation in 1998 were 8.3% and 1.9%, respectively, resulting in a cut-off for HRLs of 12.1%. In comparison, Staten and Elliehausen (2001) report average APRs of 13.26% to 14.75% for subprime mortgages between 1995 and 2000. Cut-offs were calculated separately for mortgages, home equity loans, and home equity lines of credit.

Table 1.
Summary Statistics of the Interest Rate by Type of Loan and Year

Type of loan	1995					1998				
	Medn	Mean	Std. Dev.	Min	Max	Medn	Mean	Std. Dev.	Min	Max
With any mortgage	8.0	8.5	1.9	2.5	24.0	7.9	8.3	1.9	2.6	22.0
High rate mortgage	13.8	14.4	2.1	12.5	24.0	14.0	14.6	2.3	12.3	22.0
Non-high rate mortgage	8.0	8.2	1.4	2.5	12.3	7.8	8.0	1.3	2.6	12.0
With any home equity loan	9.0	8.6	2.6	2.0	16.0	8.5	8.9	1.9	4.9	19.0
High rate home equity loan	16.0	15.6	0.5	15.0	16.0	13.0	13.7	1.6	13.0	19.0
Non-high rate home equity loan	8.0	8.4	2.4	2.0	13.0	8.4	8.7	1.4	4.9	12.5
With any line of credit loan	10.5	11.0	2.8	1.5	21.0	9.5	10.6	3.8	2.9	24.0
High rate line of credit loan	18.0	18.3	1.5	17.0	21.0	21.0	20.8	1.2	19.0	24.0

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Hon-high rate line of credit loan	10.5	10.7	2.3	1.5	16.0	9.5	9.9	2.7	2.9	18.0
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It is important to note that since some households have more than one loan and more than one type of loan (mortgage, home equity loan, or home equity line of credit), one or more of these may be an HRL. A household is classified as having an HRL under any of the following scenarios: it has one HRL of any type (thereby one type of HRL loan), it has two or more HRLs of the same type, or it has two or more HRLs of different types.

In the 1995 SCF, 1,939 households (41.1%, weighted) held some sort of mortgage, home equity loan or home equity line of credit; of these, 66 households (4.7%, weighted) held a high-rate loan under our definition. The results for the 1998 SCF are quite similar. Of the 1,925 households (43.7%, weighted) in the 1998 SCF that had a mortgage, home equity loan or home equity line of credit, 74 households (5.1%, weighted) had a high-rate loan.^d

Variables and Analysis

To explore the profile of households with HRLs, we looked at the characteristics of the loan and characteristics of the borrower, including various measures of risk associated with pricing the loan. Loan characteristics included the interest rate, type of loan (mortgage, home equity loan, home equity line of credit),

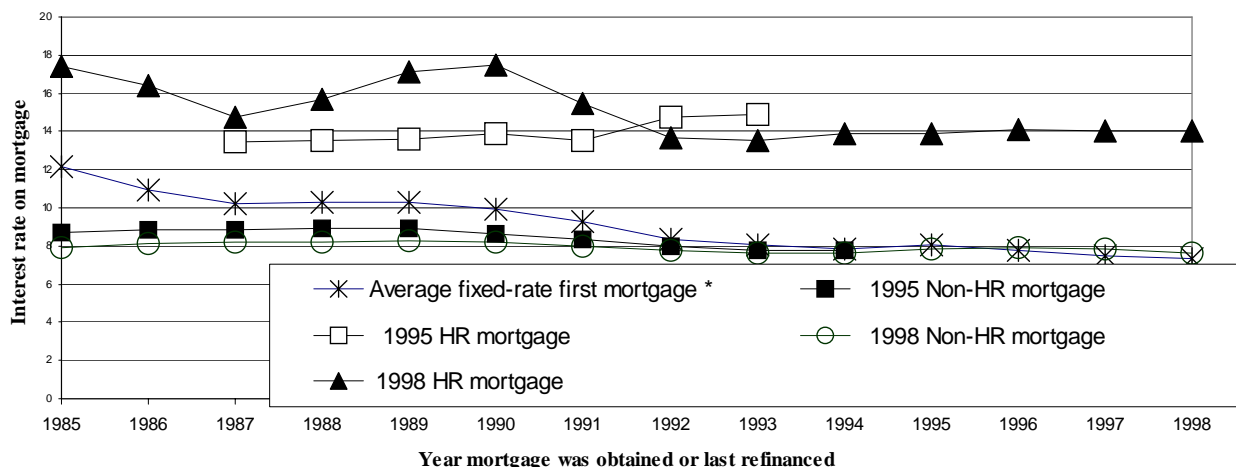
number and types of home-secured loans held, payment-to-income ratio, loan-to-value ratio, type of institution that made the loan, loan maturity, and purpose of the loan. Borrower characteristics included standard demographic and socio-economic variables (age, education, marital status, race, region, income) and other risk-related variables (spending patterns, being on time with payments, and credit history/credit rating). We begin by detailing descriptive characteristics of the loans and the borrowers. Next we estimate a logistic regression of the likelihood of having a high-rate loan, based on the Lax et al. and Pennington-Cross et al. models.

Results

Loan Characteristics

Interest Rate In both the 1995 and 1998 SCF the highest average interest rate, 11.0% and 10.6% respectively, was for home equity lines of credit, followed by home equity loans and mortgages (Table 1). The mean interest rate on mortgages and lines of credit was slightly higher for respondents in the 1995 SCF (8.5% and 11.0%, respectively) than for those in the 1998 SCF (8.3% and 10.6%, respectively). For both years, the interest rate ranges were similar (about 19 to 21 percentage points) with home equity loans having the most narrow range (14 percentage points).

Figure 1. Interest Rate (3-year moving average) by Type of Mortgage and Year Mortgage Was Obtained or Last Refinanced



* Contract interest rates on commitments for fixed-rate first mortgages. Source: FHLMC.

Table 2.
Types of Loans Held by Households by Rate of Loan and Year (in percents)

Type of Loan	1995			1998		
	HRL	Non-HRL	With any loan	HRL	Non-HRL	With any loan
Any mortgage, home equity &/or line of credit	4.7	95.3	100.0	5.1	94.9	100.0
Only one loan	88.7	91.1	91.0	81.8	88.4	88.8
Only mortgage	80.3	85.6	85.4	70.2	81.9	81.3
Only home equity	0.0	2.1	2.0	1.8	1.7	1.7
Only line of credit	8.4	3.5	3.7	9.8	4.9	5.1
Multiple loans	11.3	8.9	9.0	18.3	11.6	12.0
Mortgage & home equity	3.3	1.3	1.4	2.4	2.3	2.3
Mortgage & line of credit	8.0	6.8	6.9	14.7	9.0	9.3
Home equity & line of credit	0.0	0.2	0.2	0.0	0.1	0.1
Mortgage, home equity & line of credit	0.0	0.6	0.5	1.2	0.2	0.3
Any mortgage	91.6	93.9	93.8	88.5	93.4	93.1
Any home equity	3.3	4.1	4.1	5.3	4.3	4.3
Any line of credit	16.4	11.1	11.3	25.7	14.2	14.8

Table 3.
Distribution of High Rate Loans

Type of Loan	1995			1998		
	% of hholds	% of HRL¶	% of all loans¶	% of hholds	% of HRL¶	% of all loans¶
With any mortgage	100.0			100.0		
High rate mortgage	4.3	86.9	4.1	4.3	78.4	4.0
Non-high rate mortgage	95.7			95.7		
With only 1 mortgage	100.0			100.0		
High rate mortgage	2.9	53.5	2.5	1.6	26.6	1.4
Non-high rate mortgage	97.1			98.4		
With 2 mortgages	100.0			100.0		
High rate on 1st mortgage	1.9	3.5	0.2	1.0	2.0	0.1
High rate on 2nd mortgage	16.7	29.9	1.4	25.4	49.9	2.5
Non-high rate mortgage	81.4			73.6		
With any home equity loan	100.0			100.0		
High rate home equity loan	3.0	2.6	0.1	5.5	4.7	0.2
Non-high rate home equity loan	97.0			94.5		
With any line of credit loan	100.0			100.0		
High rate line of credit loan	4.4	10.5	0.5	6.4	18.7	0.9
Non-high rate line of credit loan	95.6			93.6		

¶ Total exceeds 100 because some households have more than one type of HRL.

¶ Total exceeds 4.7 for 1995 and 5.1 for 1998 because some households have more than one type of HRL.

Recognizing the potential volatility in loan interest rates, we plotted the three-year moving average interest rates for those with and without high-rate mortgages and the contract interest rates on commitments for fixed-rate first mortgages by the year in which the mortgage was

obtained or last refinanced and the year of the survey (Federal Reserve Board, 2001a). For the 1995 survey, we were only able to plot the interest rate on non-HRL mortgages until 1994 while data on the interest rate for HRL mortgages are only available between 1987 and

1993. As seen in Figure 1, the interest rate on non-HRL mortgages in both 1995 and 1998 has been almost identical to the average Federal Home Loan Mortgage Corporation (FHLMC) contract interest rate, particularly between 1991 and 1998. Households with a 1998 high-rate mortgage follow the same trend as the average FHLMC contract interest rates for fixed-rates, although there is a difference of more than six percentage points for almost all years. Between 1994 and 1998, the interest rate for those with and without a high-rate mortgage appears to have leveled off at 14% and 8%, respectively.

Type of Loan In both 1995 and 1998, the majority of households held only one home-secured loan (91% in 1995 and 89% in 1998, Table 2), and most of these were primary mortgages (85% in 1995 and 81% in 1998). Among those with HRLs, the majority had only one loan (89% in 1995 and 82% in 1998); again, most of these were primary mortgages (80% in 1995 and 70% in 1998). It is important to note that we do not know if these mortgages are the original purchase money mortgage or if they represent refinancing an earlier mortgage, nor do we know if consumers who refinanced drew any equity out of their homes at the time of refinancing

There was some growth in the proportion of all households holding multiple loans from 1995 (9%) to 1998 (12%). In the majority of these multiple-loan cases, the household had a mortgage in combination with either a home equity loan or a home equity line of credit. The growth in line-of-credit loans was significant over the three years. For example, among households with high-rate loans, 16% held a line of credit loan in 1995 compared with 26% in 1998.

We next examined the distribution of HRLs (Table 3). Since we know that at least 70% of households with HRLs in both years received their HRL in the form of a mortgage, it is of interest to know whether this was a first or second mortgage. Overall, 4.3% of all households in 1995 and 1998 with a mortgage had a high-rate mortgage loan. Of all households with only one mortgage, less than 3% had a high-rate mortgage in either year. Of all households with two mortgages, less than 2% had a high-rate first mortgage. In 1995 and 1998, respectively, 17% and 25% of all households with two mortgages had a high-rate second mortgage. In comparison to mortgage and home equity loans, households with a line of credit loan were the most likely to have it be high rate.

The majority of all HRLs were mortgage loans for both surveys. In 1995, however, more than half of all HRLs were from a first mortgage while in 1998 almost half of all HRLs were from a second mortgage. For both years, line of credit loans were less than one fifth of all HRLs and home equity loans were less than 5% of all HRLs.

Who Are HRL Borrowers?

Demographic characteristics for households with loans by rate of loan are shown in Table 4. Keeping in mind that, anecdotally, the typical “victim” of predatory lending portrayed by the media is elderly, minority, widowed, and with limited education and income, the picture of HRL households provides an interesting contrast. While single females were more likely to have an HRL in 1995, there was no significant difference by marital status and gender in 1998. In both years, the largest proportions of households with HRLs were White. In 1995, Hispanics were more likely to have an HRL than Blacks; the opposite was the case in 1998. Compared with 1995, the 1998 HRL households tended to be younger, with more education, from slightly larger families, and to live in the South or the West. The 1998 HRL households were more likely to be employed or to report “other” as their employment status. In 1998, HRL households were more likely than their 1995 counterparts to be employed in finance and business and in public administration and defense. Furthermore, HRL households in 1998 were more likely to be working as operators, fabricators, or laborers or in a managerial or professional position.

These two surveys also revealed different economic characteristics of households with high-rate loans. In 1998 dollars, HRL households in 1995 had a mean annual income of \$48,550 (median of \$38,239) while the mean for the 1998 counterparts was \$51,059 (median of \$46,621).^e Not surprisingly, the HRL households in both years earned less than their non-HRL counterparts. The 1995 and 1998 HRL households had \$17,697 and \$24,443 less, respectively, than the non-HRL households.

The 1998 HRL households had lower net worth, both in comparison to non-HRL households as well as to the net worth of the 1995 HRL households. It is especially interesting to note that the median net worth of the 1998 HRL households was \$31,699, substantially lower than the \$49,224 figure for HRL households in 1995. Since the sample includes only homeowners, these relatively low figures for net worth may be an indication of the

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extent to which the HRL households have tapped the equity in their homes.

Another interesting comparison between the two survey years is in terms of the ratio of their income relative to the median income. According to this income status measurement, the 1995 HRL households were poorer.

Table 4.
Characteristics of Households with Loans by Rate and Year (in percents, except where noted)

Characteristic	1995		1998	
	HRL	Non-HRL	HRL	Non-HRL
Marital status & gender				
Married	73.3	75.5*	79.2	76.3
Single male	7.2	8.4	9.2	9.4
Single female	19.5	16.1	11.7	14.3
Race/ethnicity				
White	73.2	83.8*	81.5	83.6*
Black	9.8	7.9	11.5	8.5
Hispanic	11.4	4.5	4.5	5.0
Other	5.7	3.8	2.6	3.0
Age				
<=35	18.6	23.7*	27.4	20.1*
36-45	43.7	30.9	26.4	32.5
46-55	19.9	24.6	34.3	24.9
56-65	13.8	12.8	6.6	13.6
66-75	4.1	6.7	4.4	6.5
>=76	0.0	1.4	1.0	2.4
Education				
< High school	22.5	11.5*	13.8	9.8*
High school/GED	22.4	29.3	39.0	26.7
Some college	33.8	24.1	22.7	26.5
College or more	21.3	35.2	24.5	37.1
Hhold size				
1	14.5	12.4*	5.9	13.8*
2	28.3	31.9	33.7	30.2
3	13.6	19.9	24.4	18.8
>=4	43.6	35.9	36.0	37.2
With kids <18	52.3	47.7*	55.6	48.2*
Region				
Northeast	15.5	18.5	7.5	21.0*
North central	26.2	25.5	19.5	25.6
South	32.3	33.9	41.3	33.0
West	26.1	22.1	31.8	20.3
Employment				
Employed	88.4	84.9*	93.2	85.1*
Retired	8.4	7.9	0.4	8.7
Unemployed/laid off	0.0	2.2	0.7	2.7
Other not employed	3.2	5.0	5.7	3.5
Industry				
Agriculture	0.0	1.9*	2.4	1.4*
Mining & const.	10.1	9.2	10.6	10.7
Manufacturing	24.4	22.4	20.3	21.4
Retail/wholesale	14.2	13.4	13.5	12.7
Finance/business	9.3	12.0	13.2	13.9
Services	40.2	32.7	31.4	32.2
Pub. admin & defense	1.9	8.5	8.6	7.7
Occupation				
Manager & profess.	19.9	35.9*	35.2	40.9*
Tech, sales, & admin	27.5	24.9	17.7	19.1
Support serv.	4.3	7.1	2.4	6.8

Precision, craft & repair	27.2	14.1	13.1	16.1
	1995		1998	
	HRL	Non-HRL	HRL	Non-HRL
Operators/laborers	19.7	16.1	29.1	15.7
Farm, forestry, fishing	1.6	1.9	2.4	1.6
Mean family income ¶ ¶	\$48,550	\$66,247	\$51,059	\$75,502
Median family income ¶	38,239	47,799	46,621	53,716
Mean family net worth ¶ ¶	139,177	301,362	107,202	363,498
Median family net worth ¶	49,242	102,061	31,699	121,100
Income status				
<= 80% median	34.3	20.7*	19.4	21.5*
81-120% median	22.6	19.0	29.8	18.3
>120% median	43.1	60.3	50.8	60.2
Search behavior				
Little or no shopping	16.1	17.1*	15.4	18.0*
Moderate shopping	63.4	57.3	51.9	58.1
Great deal of shopping	20.5	25.6	32.6	23.9

* Chi square significant $p < 0.03$

¶ In 1998 dollars

¶ T-tests performed between those who have an HRL and those who do not; significant at 0.0001

More than a third of all HRL households in 1995 earned less than or equal to 80% of their regional median income (based on four regions) compared with approximately 19.4% of all 1998 HRL households.^f Interestingly, the greatest proportion of HRL households in both surveys earned more than 120% of the regional median income. One explanation for why the greatest proportion of HRL borrowers in both surveys were in the highest income category (121% or more) might be that HRL households must have enough collateral (for example, a higher down payment) or higher income (resulting in a lower PTI) to compensate for other deficiencies, such as poor credit records, in their loan application.

The SCF also included information regarding a borrower's search behavior when making decisions about credit or borrowing. About one out of six households in both surveys reported "little or no" shopping when making a major purchase decision, while more than half of the HRL households in both surveys described their shopping behavior as "moderate." HRL households in the 1998 survey, however, were more likely to respond

that they did "a great deal of shopping" -- one-third of the 1998 households with an HRL did "a great deal of shopping" compared with one-fifth of their 1995 counterparts.

Are High-Rate Loan Borrowers Riskier?

We analyzed the differences between the two surveys according to some risk-based characteristics (Table 5). We first calculated two traditional standards used by lenders to estimate risk: the monthly payment to income ratio (PTI) and the loan to value ratio (LTV).^g Borrowers with a higher PTI ratio are perceived to have greater risk since they need a larger proportion of monthly income to fulfill the loan payment. Similarly, borrowers with a high LTV ratio are presumed to be riskier since they have less of an equity stake in their property (Lax et al., 2000). Although the HRL households in both surveys had the same PTI ratios (0.24), the 1998 HRL households appeared to be riskier due to their higher LTV ratios. In both surveys, however, compared with non-HRL households, the HRL borrowers had both higher PTI and LTV ratios. For example, in 1998, the mean PTI ratio of HRL households was 0.24 compared with 0.21 for non-HRL households. Similarly, in 1998, the mean LTV of HRL households was 0.67 compared with 0.56 for non-HRL households.

A household's spending and borrowing behavior could also explain why some households are considered to be riskier. More than 70% of all HRL households in both years spent all of their income each month, compared with about half of those without high-rate loans. HRL households in 1998 were also more likely to borrow to cover their expenses. Even among households that spent all of their income, HRL households in 1998 were also more likely to borrow to cover their expenses: 35% of HRL households who spent all their income reported borrowing money in 1998, compared to 27% in 1995.

HRL households were about twice as likely to be behind in their payments than non-HRL households. The 1998 HRL households were not only more likely to be behind in their payment schedule, but they also were more likely than their 1995 counterparts to be behind by 60 days or more. These 1998 HRL households were also more likely to have applied for a loan in the past five years. In fact, more than half of the 1998 HRL households that applied for a loan in the past five years were turned down in comparison to slightly less than half of the 1995 HRL households. The 1998 HRL households that applied for a loan and were turned down were also more likely to not

be given as much credit as applied for and they were less likely to reapply.

HRL households may have been turned down or not given as much credit due to the credit records of the borrower. More than 42% of HRL households in 1998 responded that they were turned down because of their credit records or history from another institution, compared with 36% of HRL households in 1995. HRL households in 1998 were also more likely to report problematic information given by credit rating services or credit bureau reports. Interestingly, HRL households in 1998 were less likely to report being turned down because they lacked an established credit history.

Another interesting comparison is to examine the type of credit that households were denied. More than a quarter of the 1995 and one-third of the 1998 HRL households (25.4 and 35.6%, respectively) said that they were turned down or not given as much credit on a credit card. Compared with the 1995 HRL households, the HRL households in 1998 were much more likely to be turned down for a mortgage. Over 30% of HRL households in 1998 reported being turned down for this type of loan compared with 14% of HRL households in 1995.

Roughly the same proportion of HRL households in 1995 and 1998 (19% and 20%, respectively) had perceived in the last five years that they would be turned down for credit. There were different reasons across the years, however, for being turned down. The two most important reasons given by the 1995 HRL households were because of their financial characteristics and credit records or history from another institution (45% and 42%, respectively). The 1998 HRL households cited credit records or history from another institution and credit bureau reports as the two principal reasons that they would be turned down (57% and 21%, respectively).

What Are the Characteristics of High-Rate Loans?

Institutions. One question that arises when considering HRLs is the type of institution providing the loans. Table 6 and Figure 2 show some interesting differences between 1995 and 1998 with respect to the institutions providing loans by type of loan. In 1998, households with any type of HRL were more likely than those in 1995 to obtain their high-rate loan from a finance or loan company. Although 31% of the 1998 HRL households obtained their loans from commercial banks, these households were much less likely than their 1995 counterparts to use this type of institution. It is also interesting to note that between the 1995 and 1998

survey there was also an increase in the proportion of households that had obtained loans from finance and loan institutions among those who did not have HRLs (from 20% to 29%, respectively).

Table 5.
Risk-Based Characteristics of Households with Loans by Rate and Year

Characteristic	1995		1998	
	HRL	Non-HRL	HRL	Non-HRL
Mean Payment to Income ratio	0.24	0.22*	0.24	0.21*
Median PTI ratio	0.17	0.14	0.18	0.16
Mean Loan to Value ratio	0.60	0.57*	0.67	0.56*
Median LTV ratio	0.62	0.54	0.75	0.57
Save some income	29.7	44.8*	28.6	46.6*
Spend all income	70.3	55.2	71.4	53.4*
Spend all income & borrow to cover expenses	27.5	24.9*	35.2	24.1*
Spend all income & don't borrow to cover expenses	72.5	75.2	64.8	75.9
Borrow to cover expenses	19.3	13.7*	25.2	12.9*
Do not borrow to cover expenses	80.7	86.6	74.8	87.1
Payment schedule on loans				
On or ahead of schedule	69.2	82.0*	58.9	85.8*
Behind schedule	30.8	17.9	41.1	12.4
No. of months behind in payment schedule				
Behind < 2 mo.	20.8	12.7*	22.4	8.8*
Behind >=2 mo.	10.0	5.2	18.7	5.4
Applied for loan in last 5 years	82.1	85.4	90.5	85.1*
Applied for loan and had problem				
Turned down	48.2	20.1*	52.2	23.4*
Not given as much credit	7.7	2.8	8.7	2.8
Turned down and able to reapply for full amount				
Yes	65.1	50.0*	43.0	50.3
No	16.6	26.8	31.9	33.3
Did not reapply	18.3	23.2	25.1	16.4
Reasons for being turned down/not given as much credit				
Personal char. of borrower	--	0.6*	--	1.9*
Haven't established credit history	6.6	5.5	3.6	7.3
Credit rating/credit bureau report	11.6	12.9	13.5	6.4
Credit record/history from other inst.	35.8	32.9	42.5	33.4
Lack of assets/collateral	0.0	4.0	3.0	2.5
Amount of debt; size of other payments	18.6	21.5	17.9	21.5
Other credit charact. of borrower	---	1.8	--	1.7
Financial charact. of borrower	14.5	14.0	19.0	19.5
Other	7.4	4.6	0.6	1.2
No reason given	5.6	2.3	--	4.8
If turned down, type of credit applied for				
Mortgage	14.2	15.5*	30.5	16.2*
Car loan	20.9	13.4	16.5	19.0
Other installment loan	15.5	10.9	7.8	8.2
Credit card	25.4	39.1	35.6	34.6
Equity loan	5.3	2.9	6.0	2.8
Line of credit	5.3	8.8	3.7	10.3
Other	13.5	9.3	0.0	9.0
Thought might be turned down for credit in last 5 years	18.8	12.0*	19.9	9.6*
Reason thought might be turned down				

Characteristic	1995		1998	
	HRL	Non-HRL	HRL	Non-HRL
Personal char. of borrower	--	--	2.2	4.9*
Haven't established credit history	--	3.9*	1.5	5.1
Credit rating/credit bureau report	--	2.2	21.4	5.3
Credit record/history from other inst.	41.6	41.8	57.4	38.4
Lack of assets/collateral	--	5.7	--	1.1
Amount of debt; size of other payments	9.1	13.7	1.6	16.8
Other credit charact. of borrower	--	--	0.3	--
Financial charact. of borrower	45.3	25.8	6.2	22.0
Other	3.5	7.1	3.2	5.8
No reason given	--	--	6.2	0.6

* T-test or Chi-square significant p< 0.02

In both 1995 and 1998, the HRL households obtained their mortgages primarily from two types of institutions: finance or loan companies and commercial banks. However, between 1995 and 1998, the principal source of credit for HRLs shifted away from commercial banks and towards finance and loan institutions. While 46% of high-rate mortgages in 1995 were obtained from a commercial bank, only 20% used this institution in 1998. In 1995, 38% of households with a high-rate mortgage obtained their mortgage from a finance or loan institution compared with 66% of all households with a high-rate mortgage in 1998. The cell sizes for home equity loans and home equity lines of credit are relatively small, rendering further analysis pointless.

Purpose of Loan Another question that arises is whether the purpose of these loans has changed over time. For both 1995 and 1998, households with a high-rate mortgage used their mortgage primarily for three purposes: home purchase, home improvement or repairs, or bill consolidation and personal loans (Table 7 and Figure 3). The distribution, however, among these three reasons differs by year. As mentioned previously, more than half of the high-rate mortgages in 1995 were for a first mortgage while almost half of the high-rate mortgages in 1998 were for a second mortgage. Therefore, it should come as no surprise to see that households in 1998 with an HRL were half as likely to use the loan to purchase a home and were more than twice as likely to use the HRL for home improvement or repairs. Another interesting observation is that in 1998, households with a high-rate mortgage were more than three times as likely to use it for bill consolidation and personal loans. The top two reasons for having a high-

rate line of credit for both years were for bill consolidation/personal loans and to purchase a car.

Figure 2.
Institution From Which Obtained Loan, by Type of Loan and Year of Survey.

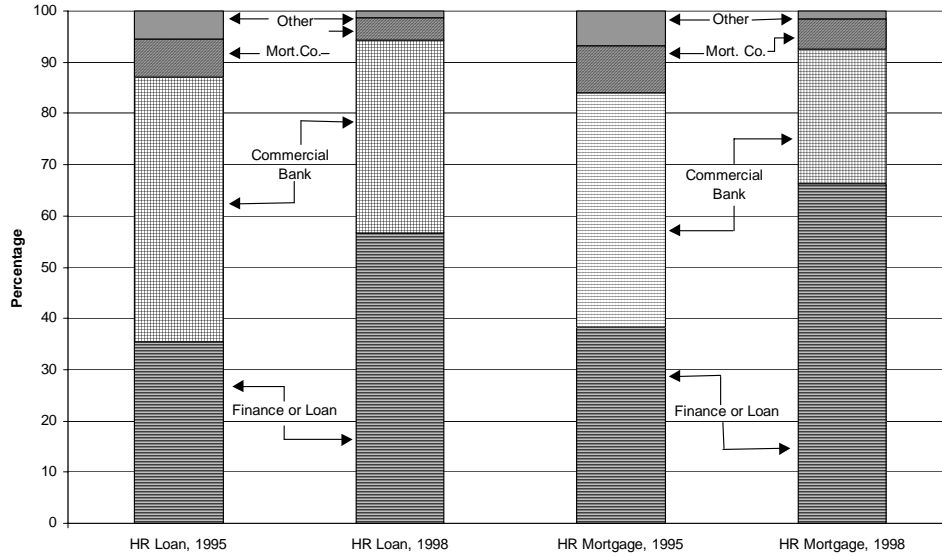


Figure 3.
Purpose of Loan, by Type of Loan

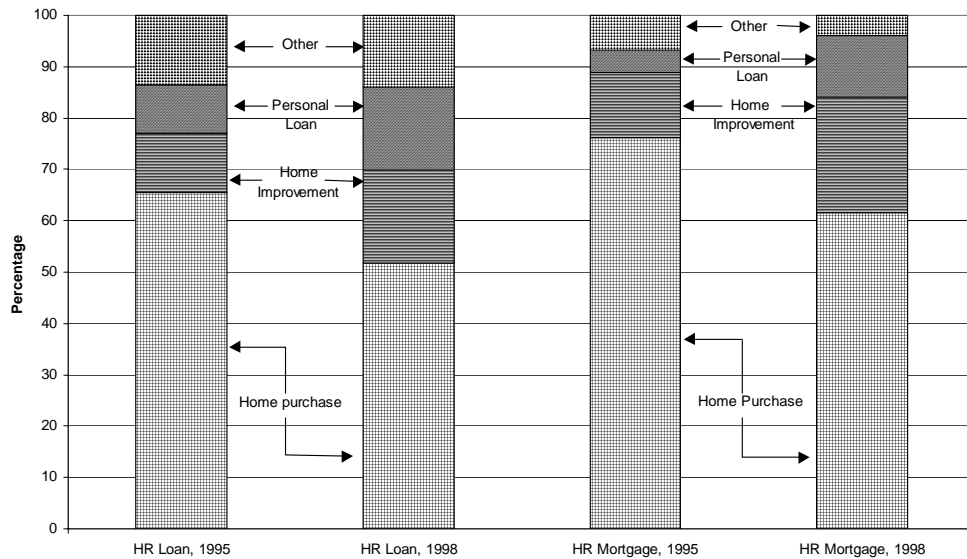


Table 6.
Type of Lending Institution by Type of Loan, Rate, and Year (in percents)

	1995		1998	
	HRL	Non- HRL	HRL	Non- HRL
Obtained loan from				
Commercial bank	48.6	54.1*	30.5	52.0*
Credit union	2.9	6.4	7.3	6.6
Finance or loan	35.5	19.8	56.6	29.4
Brokerage	3.2	1.1	--	1.2
Mortgage company	7.4	13.1	4.3	9.0
Private source	1.4	3.5	1.3	0.9
Government	--	1.2	--	0.7
Other	1.0	0.8	--	0.2
Obtained mortgage from				
Commercial bank	45.7	51.4*	20.1	50.2*
Credit union	0.1	5.0	6.2	4.2
Finance or loan	38.2	21.7	66.4	32.1
Brokerage	4.0	1.1	--	1.1
Mortgage company	9.1	15.1	5.8	10.6
Private source	1.7	3.8	1.6	0.7
Government	--	1.2	--	0.9
Other	1.2	0.8	--	0.2
Obtained home equity loan from				
Commercial bank	--	69.9*	70.9	66.8
Credit union	--	6.0	--	10.2
Finance or loan	100.0	8.6	25.1	17.8
Brokerage	--	--	--	1.1
Mortgage company	--	0.2	--	0.3
Private source	--	4.6	4.4	3.8

Government	--	6.4	--	0.0
Other	--	4.3	--	--
Obtained line of credit from				
Commercial bank	79.8	72.2	57.6	60.5*
Credit union	16.7	18.1	11.7	20.9
Finance or loan	3.5	8.1	30.7	15.5
Brokerage	--	1.6	--	1.9
Mortgage company	--	--	--	0.2
Private source	--	--	--	0.9
Government	--	--	--	--
Other	--	--	--	0.1

* Chi-square significant at 0.001

Timing and Maturity The Surveys of Consumer Finances also include information about the year in which the mortgage was obtained and mortgage maturity (Figure 4). In the 1995 survey, the greatest proportion of borrowers with HRLs had obtained or refinanced their high-rate mortgage before 1991 while in 1998, roughly one half of the high-rate mortgages were obtained or refinanced in the last year (that is, 1997). Over 27% of HRL borrowers in the 1998 survey had obtained or refinanced their mortgage in 1995 or 1996. These numbers from the 1998 survey support estimates of the increase in the size of the subprime mortgage market, particularly between 1995 and 1998, but also reflect the interest rate trends over that period.

Table 7.
Purpose of Loan by Type of Loan, Rate, and Year (in percents)

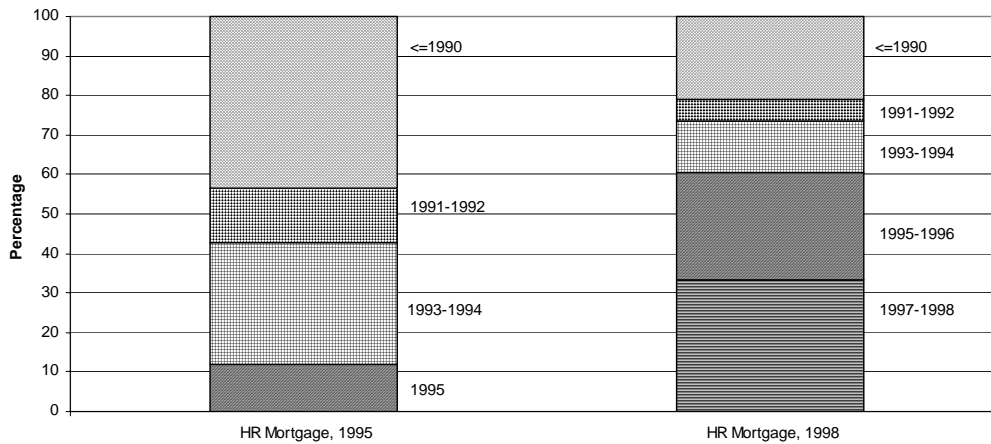
	1995		1998	
	HRL	Non-HRL	HRL	Non-HRL
Purpose of loan				
Own home purchase	65.5	83.0*	51.7	79.0*
Home improvement or repair	11.5	6.9	18.2	7.7
Purchase car	4.8	1.6	3.0	2.6
Invest in business	4.8	1.7	4.0	1.6
Personal loan, taxes & insur., bill consol., car repair	9.5	4.3	16.0	6.5
Other ^a	3.9	2.6	7.1	2.7
Purpose of mortgage				
Own home purchase	76.4	94.2*	61.6	93.3*
Home improvement or repair	12.8	3.8	22.4	2.7
Purchase car	2.1	0.3	--	0.7
Invest in business	2.7	0.3	0.4	0.4
Personal loan, taxes & insur., bill consol., car repair	4.3	0.8	12.0	2.6
Other ^a	2.0	0.6	3.6	0.4
Purpose of home equity loan				
Own home purchase	--	9.7*	--	9.4*
Home improvement or repair	36.1	45.4	7.2	47.6
Purchase car	63.9	5.6	12.3	14.1
Invest in business	--	13.6	80.5	10.5
Personal loan, taxes & insur., bill consol., car repair	--	18.3	--	12.4
Other ^a	--	7.5	--	5.9
Purpose of line of credit				
Own home purchase	--	11.9*	--	4.3*
Home improvement or repair	0.1	19.7	7.9	28.7
Purchase car	26.0	11.3	18.6	11.8
Invest in business	3.7	10.3	12.9	6.6
Personal loan, taxes & insur., bill consol., car repair	42.2	29.6	39.4	30.4
Other ^a	28.1	17.3	21.3	17.8

^a Other includes the purchase of appliances, computer, entertainment equipment, boat, motorcycle, or camper; or expenses related to divorce, travel, wedding, medical, or education

* Chi-square significant at 0.04 or better

High rate mortgages in 1998 had a slightly shorter duration than those in 1995 (Figure 5). Approximately 26% of high-rate mortgages in 1995 and 1998 had a maturity of 14 years or less. The greatest proportion of high-rate mortgages in 1995 had a maturity between 15 and 29 years, but in 1998, a maturity of 30 years or more was the most common.

Figure 4.
Year in Which Mortgage was Obtained or Last Refinanced, by Type of Mortgage



Multivariate Analysis

It is evident that there are many factors operating in determining whether a household has an HRL. While recognizing the risks inherent in attempting a multivariate analysis with limited data, we adapted the Lax et al. and Pennington-Cross et al. models, incorporating credit risk measures, demographic variables, location, financial variables, and search behavior; we also incorporated the specific type of financial institution used by the consumer. Our dependent variable was one (1) if the household had an HRL and zero otherwise.

We estimated three separate logit models for the probability of having an HRL; the logit coefficients for these three estimations are given in the Appendix; the resulting odds ratios are given in Table 8. We first ran the same model separately for 1995 and 1998 (columns 1 & 2 of Tables 8). We next pooled the data from the 1995 and 1998 surveys and incorporated a time dummy to indicate the survey year (column 3 of Tables 8). Due to the limited number of observations relative to the number of variables included in our analysis, we will limit our discussion of significant results to the pooled data from 1995 and 1998.

Most of the credit-risk variables were found to be significant. Relative to households with an LTV under

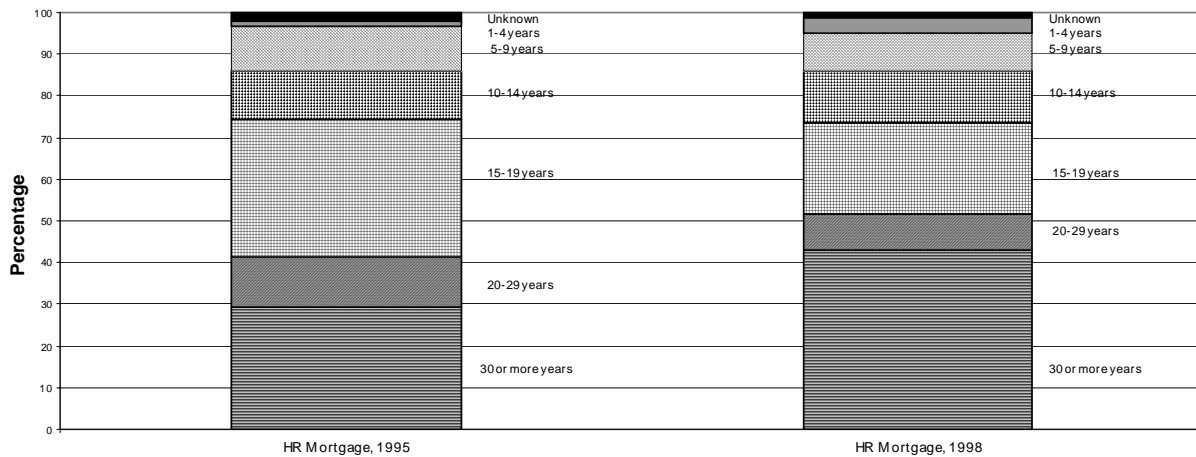
80%, households with LTVs between 80 and 89% were 1.4 times as likely to have an HRL, all else constant. Those with higher LTVs (greater than 89%) were 1.7 times as likely to have an HRL. Given that our LTV measure is conservative (that is, it is likely to be lower than the LTV at origination), we believe these odds ratios are also conservative; that is, they may underestimate the odds of having a high rate loan for those with higher LTVs.

Households with PTIs between 19 and 22% were only 70% as likely to have an HRL as those with PTIs less than 19%. These findings, while counterintuitive, may be due to the fact that we are using current payments and current income as our measure, rather than payments and income at loan origination. Recall that our measure underestimates the PTI at origination.

Households who spend all their income were about 1.5 times more likely to have an HRL than households who save some income each month. Compared with consumers who were current with their payments, consumers who were behind by less than two months were 1.8 times as likely to have an HRL, while consumers who were behind by more than two months were 2.6 times as likely to have an HRL. Compared with consumers who applied for and received the credit they applied for, consumers who applied for credit but

received a lower level were 3.7 times as likely to have an HRL. Consumers who did not apply for credit and did not think they would be rejected were 1.4 times as likely

Figure 5.
Maturity on Mortgage, by Type of Mortgage.



to have an HRL relative to those that had the full amount of credit approved.

Among the demographic and socioeconomic characteristics, race, age, education, region, and the income ratio were significant. Relative to otherwise similar Whites, Blacks were 1.4 times more likely to have a HRL, but there was no statistical difference between Hispanics and Whites or between other non-Hispanic races and Whites. Younger households were less likely to have an HRL; households 35 or under were only 80% as likely to have and HRL as an over-35 household. Consumers with only a high school education or less were 1.4 times as likely as those with some post-secondary education to have an HRL. Persons living in the West were 1.7 times as likely as those living in the Northeast to have an HRL, while those in the South were 1.4 times as likely to have an HRL. Households with income over 120% of the median were only 80% as likely as those with incomes under 80% of the median to have an HRL.

Relative to those who did a great deal of shopping, consumers who did either little or no shopping or moderate shopping were less likely to have an HRL. This result with respect to shopping seems somewhat counterintuitive, but may reflect the cases in which consumers with poor credit histories have to shop more extensively to find a lender willing to lend to them. Consumers who obtained their loans through finance companies (as opposed to a commercial bank, thrift, or credit union) were 2.5 times as likely to have an HRL. The year of survey dummy was not statistically significant.

Table 8.
Odds Ratio Estimates of Having a High Rate Loan

	1995	1998	1995 & 1998
Risk-based characteristics			
Loan to value ratio (relative to LTV<=.79)			
Loan to value ratio .80-.89	2.3†	0.8	1.4†
Loan to value ratio >.89	1.6	1.6†	1.7†
Payment to income ratio (relative to PTI <=.18)			
Payment to income ratio .19-.22	0.7	0.7	0.7*
Payment to income ratio >.22	0.9	1.4†	1.0
Spend income (relative to save income)			
Spend all income & don't borrow	1.4*	1.3	1.4†
Spend all income & borrow	1.5*	1.6†	1.5†
Payment schedule (relative to on or ahead of schedule)			
Behind in payments < 2 mo.	1.3	2.7†	1.8†
Behind in payments 2 mo. or more	1.7†	3.8†	2.6†
Credit history (relative to full amount of credit approved)			
Applied and given reduced amount	3.3†	3.9†	3.7†
Applied and rejected	3.2†	2.4†	2.8†
Didn't apply/didn't think would be rejected	1.7†	1.1	1.4*
Didn't apply/thought would be rejected	1.4	3.8†	1.7
Demographic characteristics			
Race/ethnicity (relative to White)			
Hispanic	2.0†	0.7	1.3
Black	1.1	1.7†	1.4*
Other race or ethnicity	1.2	0.5	0.9
Married	1.2	1.1	1.2
Age less than or equal to 35	0.5†	1.2	0.8*
Education less than or equal to 12 years	1.2	1.9†	1.4†
Geographic region (relative to Northeast)			
North Central	1.0	1.4	1.2
West	0.9	2.4†	1.7†
South	1.1	1.7†	1.4†
Socioeconomic characteristics			
Income ratio (relative to <= 80% of median regional income)			
Income ratio 81-120% of median	0.8	2.0†	1.2
Income ratio >=121% of median	0.4†	1.5*	0.8*
Other characteristics			
Shop around for best terms (relative to those who do a great deal of shopping)			
Little or no shopping	0.9	0.5†	0.7†
Moderate shopping	1.2	0.5†	0.8*
Loan from a finance or loan institution	2.0†	3.4†	2.5†
Year = 1998	n.a.	n.a.	1.0

* Significant at 0.05 level † Significant at 0.01 level

Simulation of the Probability of Having a High Rate Loan

In addition to looking at the odds of having a high rate loan, it is possible to construct simulated probabilities of having a high rate loan using the logistic regression parameters and manipulating the values of the variables of interest. There are at least two possible ways to do this (Greene, 2000, Chapter 19). One is to use the regression parameters with the individual respondent's values, calculate individual probabilities, and then look at the mean probability among the subgroups of interest (for example, calculate the probability of each individual having a high rate loan, and then compute the mean probability for Whites, Blacks, Hispanics, and others). This technique allows the researcher to answer the question, "If I were to make a random draw among all White households (or of the variable of interest), what is the expected value of the 'probability of having a high rate loan' that I would find?" An advantage of this technique is that it is based on the actual values of the individual's variables and does not force people to be "average." However, to the extent that some variables are highly correlated with each other (for example, having a poor credit history and being behind on payments), it really does not hold "all else constant" (that is, the average probabilities may really reflect the effects of credit history rather than payment history).

Another technique is to use the regression parameters and the mean values of the independent variables to calculate the probability of having a high rate loan. Then, holding all else constant, various values for the variable of interest can be substituted into the equation (for example, substituting values of one and zero for having more than a high school education to compare the probability of having a high rate loan for those with and without post-secondary education, all else constant). This technique allows the researcher to answer the question, "Holding all else constant, what difference does education make on the probability of having a high rate loan?" The advantage of this technique over the one above is that it is based on the "all else constant" premise, which allows a slightly better estimation of the variables' effects. A disadvantage is that it makes use of mean values that may not really be present in the data (people are either married or not [observed as a 0 or a 1]; they are not "0.78" married).

In logistic regression, this procedure of "evaluation at the means" can result in over- or underestimation of the overall probability. In our case, the predicted probability of having a high rate loan estimated at the means of all

variables was 0.028, while the actual proportion of households with high rate loans in our sample was 0.049 – our model underestimates HRL households. Following Bae, Hanna and Lindamood (1993), we adjusted the calculations for the predicted probabilities so that at the mean values of the independent variables, the predicted probability is equal to the mean for the sample.

Among the risk-based characteristics, those related to payment and credit history have the largest effects on having a high rate loan (Table 9). Being behind two months or more on payments increases the probability of having an HRL by about seven basis points relative to those paying on time (from .044 to .110). Receiving less credit than applied for increases the probability of having an HRL by about 12 basis points relative to those receiving the full amount applied for (from .037 to .154).

Having only a high school education, being Black, and being Hispanic were each associated with about a two basis point increase in the probability of having an HRL. This finding lends some credence to the anecdotal evidence that so-called predatory lenders target minorities and consumers with lower education levels.

It is somewhat disconcerting to note that the probability of having an HRL increases for each level of shopping effort, albeit only one basis point per level. As mentioned before, this counterintuitive finding may reflect households who have to shop more extensively to find lenders willing to lend to them.

Borrowing from a finance and loan institution, rather than a commercial bank or other “first-tier” financial institution, is associated with a five basis point increase in the probability of having an HRL. It’s important to keep in mind that this finding holds all other risk factors constant, implying that it is the consumers’ choice to use these second-tier institutions.

Discussion and Conclusions

First, it is important to recognize the limitations of this study -- the prevalence of high-rate loans, by our definition, is fairly low; only about 5% of consumers with home-secured loans have these high-rate loans.^h In part, this is a function of our definition of high-rate loan, restricting the sample to the upper tail of the distribution. However, if interest rates were normally distributed with the same mean and standard deviation for both groups, we would expect to find only 2.5% of the sample in this upper tail. We can also make the case that our study understates the extent of HRLs since we were unable to

account for high up-front fees; many “high-cost” loans are deemed high cost by nature of their fees and up front costs, rather than by their interest rates. Thus, we might expect these exploratory results to be more fully confirmed if we had data on both loan interest rates and fees. The limited size of our sample tempers our confidence in the multivariate results; these should be considered only an initial attempt to explore the relationships among the variables.

The typical picture of the “victim” of a predatory loan portrayed by the media is an elderly, widowed, minority homeowner, with low income and limited education. Controlling for some risk factors, we find that older households were more likely to have HRLs, but that unmarried households were less likely to have these high rate loans. However, we do find that being a minority, having low income, and having limited education are significant determinants of holding high-rate loans, and are consistent with the anecdotal picture of a victim of predatory lending.

Other significant determinants were the risk-based characteristics, particularly a consumer’s payment schedule and credit history. Consumers who had higher risk-based profiles were 1.4 to 3.7 times as likely to have a high-rate loan. Several interesting implications arise from this finding. First, consumers need to know how their payment history relates to their credit record and, as a corollary, the importance of managing their finances to pay their bills on time.

Second, for many of these consumers perception is reality, even if the perception is false. Approximately one out of five consumers with HRLs in both 1995 and 1998 thought they would be turned down for credit, and more than two-fifths thought it was due to their credit history with another institution. While there is no way to know if these consumers really did have poor credit records, they behaved as if they did by accepting the terms of a high-rate loan. Understanding the components of credit reports and what creditors look for may help give consumers the confidence to shop for lower cost loans.

Third, consumers with HRLs were between four and seven times as likely as those without HRLs to use the loan for debt consolidation, including personal loans and other “bill consolidation.” Some of these bills may have been unsecured credit card debt. Consumers who used home-secured loans for bill consolidation have traded unsecured debt for secured debt, which may not be in the

household's best financial interest in the long run. Financial literacy initiatives (e.g., Greenspan, 2001; O'Neill, 2002) can help consumers understand the trade-offs involved in different types of loans, and re-emphasize the importance of managing their finances to pay their bills on time.

Table 9.
Simulated Probabilities of Having a High Rate Loan*

	1995	1998	1995 & 1998
All variables evaluated at means	0.047	0.051	0.049
Risk-based characteristics			
Loan to value ratio			
LTV <=.79	0.041	0.049	0.044
LTV .80-.89	0.093	0.041	0.067
LTV >.89	0.069	0.075	0.074
Payment to income ratio			
PTI <=.18	0.051	0.048	0.050
PTI .19-.22	0.034	0.039	0.038
PTI >.22	0.044	0.062	0.050
Spend income			
Save income	0.039	0.043	0.041
Spend all income & do not borrow	0.056	0.058	0.058
Spend all income & borrow	0.064	0.076	0.069
Payment schedule			
On or ahead of schedule	0.044	0.043	0.044
Behind in payments < 2 mo.	0.059	0.115	0.080
Behind in payments 2 mo. or more	0.076	0.158	0.110
Credit history			
Full amount of credit approved	0.035	0.040	0.037
Applied & given reduced amount	0.134	0.166	0.154
Applied & rejected	0.113	0.096	0.105
Didn't apply/didn't think would be rejected	0.072	0.054	0.063
Didn't apply/thought would be rejected	0.064	0.166	0.081
Demographic characteristics			
Race/ethnicity			
White	0.045	0.051	0.047
Hispanic	0.086	0.036	0.060
Black	0.050	0.080	0.064
Other race or ethnicity	0.056	0.025	0.043
Marital Status			
Not married	0.041	0.047	0.043
Married	0.049	0.052	0.051
Age			
Less than or equal to 35	0.030	0.060	0.041
Greater than 35	0.054	0.049	0.051
Education			
Less than or equal to 12 years	0.051	0.073	0.060

Greater than 12 years	0.044	0.041	0.043
Geographic region			
Northeast	0.043	0.033	0.038
North Central	0.049	0.065	0.056
West	0.048	0.096	0.072
South	0.052	0.069	0.060
Socioeconomic characteristics			
Income ratio			
	1995	1998	1995 & 1998
Income ratio <=80%	0.077	0.035	0.055
Income ratio 81-120%	0.039	0.087	0.056
Income ratio >=121%	0.034	0.060	0.044
Other characteristics			
Shop around for best terms			
Little or no shopping	0.041	0.032	0.035
Moderate shopping	0.051	0.039	0.045
A great deal	0.043	0.078	0.058
Institution from which obtained loan			
Finance or loan institution	0.078	0.110	0.090
Other institution	0.040	0.035	0.039
Year of survey			
	1995	--	--
	1998	--	--
			0.048
			0.050

* Probabilities calculated using the means of all variables except for the variable of interest. For example, for institution, we used the means for all other variables and supplied values of 1 (finance or loan institution) and 0 (not finance or loan) in the equation to arrive at the .090 and .039 probabilities for the 1995 & 1998 combined surveys.

Many consumer advocates cite the prevalence of home improvement scams among predatory lenders. Our finding that a large proportion of HRL consumers (16% in 1995 and 31% in 1998) obtained their loans for home improvement lends some support to these allegations. Perhaps the best defense against this situation is to teach consumers to shop around for their loans.

Consumers with HRLs were twice as likely to obtain these from finance and loan companies than non-HRL borrowers. Such lenders tend to serve higher risk consumers, but there is probably some self-selection going on, with consumers who don't know that they might qualify for an A or A- loan applying for loans with B and C lenders. Most of these finance companies have no incentive to steer these A-level customers to commercial banks, thrifts, or credit unions, so consumers end up paying higher prices than necessary for their loans. Again, the best defense against this situation may be to teach consumers to shop around for their loans.

It was somewhat disturbing to note the prevalence of high-rate mortgages, either first or second, held by

Profile of Consumers with High-Rate Home Loans

finance companies. Again, we wonder whether consumers are self-selecting by going to second-tier lenders when they might qualify for a lower cost mortgage with a bank, thrift, or credit union. It may be that some of these households can be counseled to work on improving their credit records so they can refinance their mortgage with a lower-cost institution.

Our study has shed some empirical light on the situations of consumers who hold high-rate loans. Due to the small sample size, this study primarily has focused on a descriptive presentation of the data, but we believe the results show the merit of looking at high-rate loans from both the institutional and consumer perspectives. However, given the relative low frequency of holding high-rate loans, special data sets may need to be constructed to accurately model determinants of holding a high-rate loan. Nonetheless, we find evidence that many high-rate loans are based on the higher risk profiles of the consumers; that is, that HRLs reflect the price of risk. But we also find some evidence that some sub-groups – minorities and households with less education – may be paying higher rates than their risk profiles would suggest.

**Appendix
Logit Estimation of Having a High Rate Loan**

	1995	1998	1995 & 1998
Intercept	-4.07†	-5.48†	-4.68†
Risk-based characteristics			
Loan to value ratio (relative to LTV<=.79)			
LTV .80-.89	0.82†	-0.26	0.37†
LTV >.89	0.46*	0.49*	0.50*
Payment to income ratio (relative to PTI <=.18)			
PTI .19-.22	-0.39	-0.39	-0.30*
PTI >.22	-0.10	0.32*	0.05
Spend income (relative to save income)			
Spend all income & don't borrow	0.31†	0.24	0.30†
Spend all income & borrow	0.38*	0.49†	0.43†
Payment schedule (relative to on or ahead of schedule)			
Behind in payments < 2 mo.	0.28	0.98†	0.59†
Behind in payments 2 mo. or more	0.54†	1.34†	0.94†
Credit history (relative to full amount of credit approved)			
Applied and given reduced amount	1.18†	1.35†	1.30†
Applied and rejected	1.16†	0.88†	1.03†
Didn't apply/didn't think would be rejected	0.52†	0.07	0.32*
Didn't apply/thought would be rejected	0.34	1.33†	0.54
Demographic characteristics			

Race/ethnicity (relative to White)				
Hispanic	0.68*	-0.37	0.22	
Black	0.08	0.53†	0.32*	
Other race or ethnicity	0.20	-0.77	-0.15	
Married	0.17	0.12	0.18	
Age less than or equal to 35	-0.62*	0.22	-0.25*	
Education # 12 years	0.17	0.62†	0.34†	
Geographic region (relative to Northeast)				
North Central	0.03	0.35	0.18	
West	-0.09	0.87†	0.53†	
South	0.07	0.50†	0.33†	
	1995	1998	1995	
			&	
			1998	
Socioeconomic characteristics				
Income ratio (relative to <= 80% of median regional income)				
Income ratio 81-120% of median	-0.23	0.71†	0.19	
Income ratio >=121% of median	-0.82†	0.43*	-0.27*	
Other characteristics				
Shop around for best terms (relative to those who do a great deal of shopping)				
Little or no shopping	-0.16	-0.61†	-0.41†	
Moderate shopping	0.22	-0.62*	-0.20*	
Loan from a finance or loan institution	0.69†	1.22†	0.90†	
Year = 1998	n.a.	n.a.	0.04	
Summary statistics				
Log likelihood Ratio	312.7	819.1	802.9	
R-Square	.032	.063	.041	
Max-rescaled R-Square	.124	.227	.152	

* Significant at 0.05 level † Significant at 0.01 level

Endnotes

- At the time of this writing (Summer, 2002), the Predatory Lending Consumer Protection Act of 2002 has been introduced in the Senate (S.2438), but no further action has been taken.*
- Using the 10-percentage point cut-off, with weights, these 15 households in 1995 and 24 households in 1998 represented 358,816 and 605,644 households, respectively. Using the eight-percentage point cut-off, with weights, these 22 households in 1995 and 35 households in 1998 represented 620,268 and 998,761 households, respectively.*
- The distribution of interest rates was slightly skewed; with the exception of high rate home equity lines of credit, the median interest rate was slightly below the mean interest rate. This may result in a slight overstating of the magnitude of high rate loans. However, the fact that we could not account for high fee loans probably results in an understatement of high cost loans (loans that are costly due to either high rates, high fees, or both). To some extent, the overstatement and understatement should cancel each other out, and the results should be close to painting a reasonably true picture of households with high cost loans.*
- Applying weights to the households under this definition, these represent 1,903,805 households in 1995 and 2,271,657 households in 1998 with high rate loans.*
- To adjust family income and net worth to 1998 dollars, we used the indices described in Kennickell, Starr-McCluer and Surette (2000). For the 1995 survey, we applied 1.0622 to net worth and 1.0904 to family income. For the 1998 survey, we applied 1.0135 to net worth, since figures were reported for 1997.*

- f. We used the 80% and 120% cut-offs because these are used under the Community Reinvestment Act to designate low-to-moderate and middle-income neighborhoods. These cut-offs are standards within the mortgage-lending industry.
- g. The PTI is based on current monthly payment and current income, since we have no information on the respondent's income at the time of loan origination. To the extent that household income rises over time, our measure of PTI may understate the original PTI used to price the loan. Suppose, for example, a household has a fixed-rate mortgage and at origination in 1990 their monthly payment was \$1,000 and their income was \$3000; their PTI at origination would be 0.33. Five years later, in 1995, it is likely that their income as measured by the SCF is now higher--for example, \$4,000--but their monthly payment is still \$1,000. Their PTI as we measured it in this study would be 0.25, an underestimate of the 0.33 PTI at origination. The LTV is measured as the current balance owed and the current value of the home; thus, the LTV as measured is likely to be lower than the LTV at the time of loan origination.
- h. Since our analysis is at the household level, our figures are based on the percentage of households, rather than the more commonly-used percentage of number of loans or percentage of dollar volume of loans. According to an Office of Thrift Supervision (2000) report, subprime loans made up about 6.3% of the number of loans and about 4.1% of the dollar volume of loans in 1999. Our definition is not the same as subprime in the OTS report, but our proportions are consistent with the volumes reported there.

References

- Avery, R. B., Bostic, R.W., Calem, P.S. & Canner, G.B. (1996). Credit risk, credit scoring, and the performance of home mortgages. *Federal Reserve Bulletin*, 82, 621-648.
- B & C Delinquencies Down in March, 1999 MIC data reveal (1999). *Inside B & C Lending*, May 31.
- Bae, M., Hanna, S. & Lindamood, S. (1993). Patterns of overspending in U.S. households. *Financial Counseling and Planning*, 4, 11-30.
- Bogdon, A.S. & Bell C.S. (2000). Making fair lending a reality in the new millennium, *Proceedings of a Fannie Mae Foundation Roundtable*, June, 1999. [WWW document] URL: http://www.fanniemaefoundation.org/programs/fair_lending.shtml.
- Canner, G.B. & Passmore, W. (1999). The role of specialized lenders in extending mortgages to lower-income and minority homebuyers. *Federal Reserve Bulletin*, 85, 709-723.
- Canner, G. B., Passmore, W. & Surette, B. J. (1996). Distribution of credit risk among providers of mortgages to lower-income and minority homebuyers. *Federal Reserve Bulletin*, 82, 1077-1102.
- Carr, J.H. & Kolluri, L. (2001). Predatory lending: An overview. FannieMae Foundation. [WWW document] URL: <http://www.fanniemaefoundation.org/programs/financial.PDF>.
- Coalition for Responsible Lending (2002). NC General Assembly passes predatory lending law. [WWW document] URL: <http://www.responsiblelending.org/Legislation%20-%20Main.htm#StateAction>.
- Cocheo, S. (1999). Give me your delinquents, your former bankrupts, yearning to borrow... *ABA Banking Journal*, 88 (8), 31-35.
- Day, K. (2000). Citigroup to alter "subprime" terms. *Washington Post*, November 8, E3.
- Evanoff, D. D. & Segal, L.M. (1996, November/December). CRA and fair lending regulations: resulting trends in mortgage lending. *Federal Reserve Bank of Chicago Economic Perspectives*, 19-46.
- Federal Reserve Board (1996). Rules on home equity credit under the Truth in Lending Act. [WWW document] URL: http://www.federalreserve.gov/boarddocs/RptCongress/he_study.pdf.
- Federal Reserve Board (2000). Public hearings on home equity lending. [WWW document] URL: <http://www.federalreserve.gov/Events/PublicHearings/>.
- Federal Reserve Board (2001a). Selected interest rates (H 15), historical data on conventional mortgages. [WWW document] URL: <http://www.federalreserve.gov/releases/H15/data/a/cm.txt>.
- Federal Reserve Board (2001b). Press release on final rule on amendment to Regulation Z (Truth in Lending) regarding the Home Ownership and Equity Protection Act (HOEPA) and predatory lending. [WWW document] URL: <http://www.federalreserve.gov/boarddocs/press/boardacts/2001/20011212/default.htm>.
- Federal Reserve Board (2002). Home Mortgage Disclosure Act, Regulation C. [WWW document] URL: <http://www.federalreserve.gov/regulations/regref.htm#c>.
- Feldman, R. & Schmidt, J. (1999, July). Why all concerns about subprime lending are not created equal. *Federal Reserve Bank of Minneapolis Fedgazette*. [WWW document] URL: <http://minneapolisfed.org/pubs/fedgaz/00-07/banking.html>.
- Fleishman, S. (2002, March 6). DC tries again to regulate predatory mortgage lenders. *Washington Post*, E3.
- Gabriel, S. & Rosenthal, S. (1991). Credit rationing, race, and the mortgage market. *Journal of Urban Economics*, 29(3), 317-379.
- Greene, W. H. (2000). *Econometric analysis*. New Jersey: Prentice Hall.
- Greenspan, A. (2001). The importance of education in today's economy. Remarks before the Community Affairs Research Conference of the Federal Reserve System, Washington, D.C. April 6. [WWW document] URL: <http://www.federalreserve.gov/boarddocs/speeches/2001/20010406/default.htm>.
- Hogarth, J. M. & Hilgert, M. A. (2001). Consumers' choice of financial institutions for home-secured loans. *Financial Counseling and Planning*, 12 (1), 9-26.
- Housing and Urban Development (2000). *Proceedings of the HUD-Treasury joint task force on predatory lending*. Washington DC: Department of Housing and Urban Development.
- Kalser, K. R., & Novak, D.L. (1997). Subprime lending: A time for caution. *Regional Outlook*, Federal Deposit Insurance Corp., New York, Third Quarter, pp. 1-5.

- Kennickell, A. B., McManus, D. A. & Woodburn, R. L. (1996). Weighting design for the 1992 Survey of Consumer Finances, Working Paper on Survey Methodology of Survey of Consumer Finances, Federal Reserve Board, Washington, D.C.
- Kennickell, A. B. & Woodburn, R. L. (1997). Consistent weight design for the 1989, 1992, and 1995 SCFs, and the distribution of wealth, Working Paper on Survey Methodology of Survey of Consumer Finances, Federal Reserve Board, Washington, D.C.
- Kennickell, A. B., Starr-McCluer, M. & Surette, B.J. (2000). Recent changes in U.S. family finances: Results from the 1998 Survey of Consumer Finances, *Federal Reserve Bulletin*, 86, 1-29.
- Lax, H., Manti, M., Raca, P. & Zorn, P. (2000). Subprime lending: An investigation of economic efficiency. Working Paper, Federal Home Loan Mortgage Corporation.
- Lewis, J. K., Swagler, R. & Burton, J. R. (1996). Low-income consumers' use of the alternative financial sector. *Consumer Interest Annual*, 42, 271-278.
- Linneman, P. & Wachter, S. (1989). The impacts of borrowing constraints on homeownership. *Journal of the American Real Estate and Urban Economics Association*, 17 (4), 389-402.
- Nathan, L. (1999). Borrower beware: Equity strippers are preying on elderly homeowners. *Communities and Banking* Federal Reserve Bank of Boston. [WWW document] URL: <http://www.bos.frb.org/comaff/pdf/spring99.pdf>.
- Office of Thrift Supervision (2000). What about subprime mortgages? *Mortgage Market Trends*, 4(1). [WWW document] URL: <http://www.ots.treas.gov/docs/19010.pdf>.
- O'Neill, P. H. (2002). Keynote address to Jumpstart coalition for personal financial literacy. [WWW document] URL: <http://www.ustreas.gov/press/releases/po3035.htm>.
- Pennington-Cross, A., Yezer, A.M. & Nichols, J. (2000). Credit risk and mortgage lending: Who uses subprime and why? Working Paper No. 00-03. Washington, DC: Research Institute for Housing America.
- Poverty Inc. (1998). It's boomtime for businesses that target people strapped for cash and credit. *Consumer Reports*, 63 (7), 8-33.
- Scheessele, R. M. (1997). The impact of manufactured home and subprime loans on HMDA rejection and origination rates. Housing Finance Working Paper Series, U.S. Department of Housing and Urban Development, November.
- Staten, M. E. & Elliehausen, G. (2001). The impact of the Federal Reserve Board's proposed revisions to HOEPA on the number and characteristics of HOEPA loans. Georgetown University Credit Research Center. [WWW document] URL: <http://www.msb.georgetown.edu/prog/crc/pdf/WP62.pdf>.
- Swanson, J. A., Hogarth, J. M. & Segelken, J. B. (1993). Voices of experience: Limited resource families and financial management. *Proceedings of the Family Economics and Management Conference* (American Association of Family & Consumer Sciences annual meeting), 13-28.
- U.S. Department of Housing and Urban Development (2000). Joint HUD-Treasury report on recommendations to curb predatory home mortgage lending. [WWW document] URL: <http://www.hud.gov:80/pressrel/treasrpt.pdf>.
- U.S. Senate (2001). Hearings on predatory mortgage lending: The problem, impact and responses. Held July 26 and 27. [WWW documents] URL: http://banking.senate.gov/01_07hr/72601/index.htm and http://banking.senate.gov/01_07hr/072701/index.htm.
- Zorn, P. M. (1993). The impact of mortgage qualification criteria on households' housing decisions: An empirical analysis using microeconomic data. *Journal of Housing Economics*, 3 (1), 51-75.

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