THE IMPACT OF THE FEDERAL RESERVE BOARD'S PROPOSED REVISIONS TO HOEPA ON THE NUMBER AND CHARACTERISTICS OF HOEPA LOANS

WORKING PAPER #61

July 2001

By

Michael E. Staten, Ph.D.
Distinguished Professor and Director, Credit Research Center
Georgetown University

Gregory Elliehausen, Ph.D.
Senior Research Scholar, Credit Research Center
Georgetown University

July 24, 2001

The Impact of The Federal Reserve Board's Proposed Revisions to HOEPA on the Number and Characteristics of HOEPA Loans*

by

Michael E. Staten
Georgetown University

and

Gregory Elliehausen
Georgetown University

*Michael E. Staten is Distinguished Professor and Director of the Credit Research Center at Georgetown University's McDonough School of Business. Gregory Elliehausen is Senior Research Scholar at the Credit Research Center. The authors conducted the analysis and prepared this report on behalf of the American Financial Services Association.

The Impact of The Federal Reserve Board's Proposed Revisions to HOEPA on the Number and Characteristics of HOEPA Loans

Introduction

In December 2000, the Federal Reserve Board invited public comments on its proposed revisions to Regulation Z that would alter the criteria for a mortgage loan to be covered by the Home Ownership and Equity Protection Act (HOEPA). In various presentations since December, the Board has indicated that its proposal was intended to strike a balance between curbing a variety of abuses that have been termed "predatory lending" and impeding the general growth of the legitimate subprime mortgage market. However, the lack of comprehensive data about either the size of the subprime market or the characteristics of subprime loans has limited the Board's attempts at estimating the extent of current HOEPA coverage (as a proportion of all subprime mortgage loans) or quantifying the proposed expansion of coverage.

Recent events provide reasons to worry that broad expansion of HOEPA coverage could reduce the flow of credit to subprime borrowers. In response to state and local initiatives that impose HOEPA-like tests and restrictions on mortgage loans, several major lenders have announced a reduction or exit from the affected markets.[1] In the spring of 2000, Freddie Mac announced that it would not purchase any mortgage loan that triggers HOEPA disclosures and protections.[2] Fannie Mae has adopted a similar policy. Loss of the ability to sell HOEPA loans in the secondary market raises the cost to a lending institution of making such loans and would likely reduce a lender's appetite for extending higher cost loans to higher risk borrowers. An FRB staff memorandum prepared for the Board of Governors raises the same concern that further extension of HOEPA coverage "could have a chilling effect and raise regulatory costs in a segment of the subprime mortgage market. This might deter interest of some predatory lenders in the market. It seems unlikely this effect would be restricted to predatory lenders alone, however, and it could cause some potential legitimate competitors to forego entry into this market where competition currently is alleged to be low." [3]

The following report utilizes information from a large population of mortgage loans originated or purchased by the subprime divisions of nine major national lenders to assess the impact of the Board's proposal on the number of loans covered by HOEPA. We also provide information on the types of loans and borrower characteristics that qualify as HOEPA loans under both the current and proposed rules.

---

[1]For example, *see* Erick Bergquist, "Industry Hits Back on Lending Abuse Laws," *American Banker*, January 26, 2001, pp. 1,9; Helen Egger, Testimony on behalf of Equicredit Corporation before the Federal Reserve Board, July 27, 2000.

[2]*See* editorial by David A. Andrukonis, Chief Credit Officer, Freddie Mac, "Freddie Mac Defends Purchase of Subprime Mortgages," *American Banker*, April 6, 2000, also available at www.freddiemac.com/news/analysis/ambankerlet.html.

[3]Durkin, Thomas A. and Canner, Glenn B., *Memorandum to the Board of Governors, Federal Reserve System, Regulatory Analysis of Proposed Revisions to Regulation Z Concerning Predatory Lending Practices*, December 6, 2000, p. 3-4.

The Data

In the summer of 2000, the American Financial Services Association commissioned PriceWaterhouseCoopers (PWC) to collect loan-level data on subprime mortgages from nine AFSA member companies. All of the loans in the resulting data set are closed-end loans secured by residential real estate (either first or second lien). More specifically, the data set includes ***all*** such loans ***originated*** by the subprime divisions of the participating companies between July 1, 1995 and June 30, 2000; a total of 1,410,643 loans. Table 1 displays the number and average dollar size of these originated loans by year and type of lien. The originated loans in the data set include an aggregate loan volume of $48.1 billion in first mortgages and $15 billion in second mortgages.

Table 1. **Number and Average Dollar Size of Originated Loans, by Type of Lien**

	First Mortgages		Second Mortgages	
Year	Number	Average Loan Size (dollars)	Number	Average Loan Size (dollars)
1995 (Q3 and Q4)	26,339	$45,445	49,023	$18,858
1996	90,275	52,462	100,865	19,426
1997	134,256	58,859	119,200	21,056
1998	168,282	68,184	138,187	23,561
1999	204,542	72,335	172,981	22,354
2000 (Q1 and Q2)	104,566	74,085	102,127	24,313
All Years: (July 1, 1995-June 30, 2000)	728,879	65,962	681,764	22,023

How representative are these data of the subprime mortgage market? Statistics on the magnitude of the subprime market are limited. However, using data reported under the Home Mortgage Disclosure Act (HMDA), a joint study issued by the U.S. Departments of the Treasury and Housing and Urban Development reported that 790,000 refinancing loans were originated by subprime lenders in 1998.[4] By comparison, the AFSA database contains approximately 306,000 subprime loans originated in 1998. Since not all AFSA member companies are required to report under current HMDA rules, we do not know the extent to which the AFSA loans are counted in the loans reported under HMDA.[5] Regardless, it is clear that the volume of subprime lending activity captured in the AFSA database is a substantial component of all subprime lending.[6]

As is the case in any survey, values on variables of interest were missing for some cases, because the participating companies differed in their ability to report the requested information for each loan. The large number of loans for which data were requested made machine-readable information essential, but the information systems in each of the companies did not capture values for all of the variables of interest. However, information on loan amount, date of origination, and term to maturity was present for virtually all originated loans. More importantly for purposes of this report, approximately 94 percent (1,329,305 loans) had complete information on these variables plus the annual percentage rate and either the

[4]U.S. Department of Housing and Urban Development and U.S. Department of Treasury, *Curbing Predatory Home Mortgage Lending: A Joint Report*, June 2000.

[5]Currently, a nondepository lender must report under HMDA only if its annual lending for home purchase and refinancing equals 10 percent or more of the dollar value of its total loan originations (mortgage and nonmortgage).

[6]Origination volume in the database for 1998 was equivalent to approximately 39 percent of the volume originated that same year by subprime lenders required to report under HMDA.

borrower's FICO score or payment history on the loan. These variables are essential for estimating the impact of current and proposed HOEPA triggers on both the volume of covered loans and the characteristics of borrowers. Consequently, these 1.3 million loans comprise the analysis data set upon which all subsequent charts and tables in this report are based. Table 2 displays some selected characteristics of both the loans and borrowers in the analysis data set.[7]

Table 2. **Selected Characteristics of Originated Subprime Mortgages, by Type of Lien**

(Percent of loans with characteristic)

Characteristic	First Mortgages	Second Mortgages
Loan Amount		
Less than $25,000	16.5	70.6
$25,000 – 49,999	26.9	22.8
$50,000 – 74,999	23.1	4.7
$75,000 or more	33.5	1.9
Total	100	100
Term to Maturity		
Less than 120 months	13.4	39.2
120 – 239 months	40.1	46.6
240 months or more	46.5	14.2
Total	100	100
Borrower Income		
Less than $25,000	25.6	15.6
$25,000 – 49,999	46.9	48.7
$50,000 – 74,999	14.6	18.5
$75,000 or more	5.4	9.1
Not ascertained	7.5	8.2
Total	100	100
FICO Score		
Less than 580	22.5	24.9
580 – 619	16.4	16.6
620 – 649	14.1	14.3
650 or more	27.4	22.6
Not ascertained	19.6	21.7
Total	100	100
Payment History		
Never 60+ days delinquent	72.5	66.6
Has been 60+ days delinquent	6.7	6.6
Not ascertained	20.7	26.9
Total	100	100
Number of Loans	686,886	642,419

[7]Appendix A contains a more detailed discussion of the data and several statistical imputations utilized to handle observations with missing values.

Current and Proposed HOEPA Coverage

A loan is currently covered by HOEPA if it satisfies either part of a two-part test. The first test ("APR test") involves the annual percentage rate (APR) on the loan. If the APR exceeds the rate on a U.S. Treasury security of comparable maturity by 10 percentage points or more, then the loan is subject to HOEPA protections. In the second test ("fees test") loans with non-interest fees that exceed the lesser of *1)* 8 percent of the loan amount or *2)* a fixed dollar amount that adjusts each year with the consumer price level ($465 in 2001) are covered by HOEPA.

The Board has proposed lowering the APR trigger for HOEPA coverage to 8 percentage points above the Treasury security of comparable maturity. In addition, it has proposed to add premiums on single-premium credit insurance to the fees test. Both the current and proposed HOEPA triggers apply equally to first and second lien mortgages.

We applied both the APR and fees tests to the 1.3 million originated loans in the analysis sample to calculate the percent of loans that would fall under HOEPA coverage under both the current and proposed rules. Figure 1 displays ***current HOEPA coverage*** by type of lien and also illustrates how much of the coverage is attributable to the APR test alone.

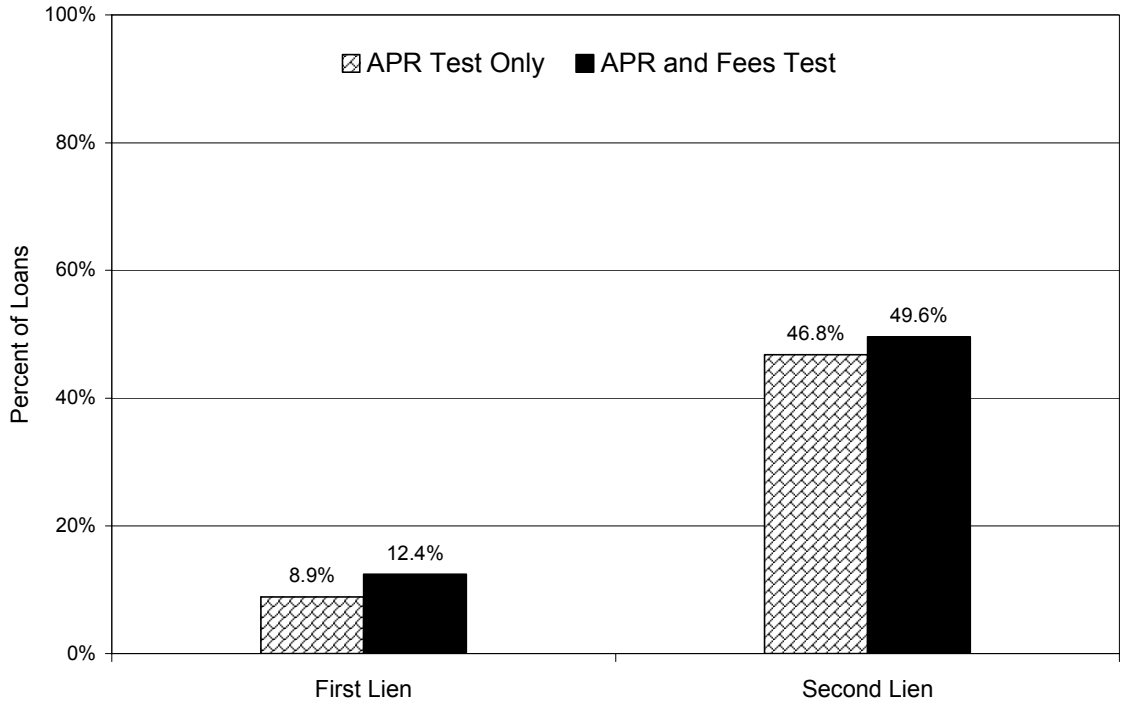

Figure 1*: Current HOEPA Coverage

Note: *Coverage of loans originated from July 1, 1995 through June 30, 2000.

During the 1995-2000 sampling period, 12.4 percent of originated first mortgages in the data set were HOEPA loans. Nearly three quarters of these qualified as HOEPA loans based on the APR test alone. A much higher incidence of HOEPA coverage occurs among second mortgages in the data set. Nearly half (49.6 percent) of all second mortgages originated during the 1995-2000 sampling period were HOEPA loans. Higher contract interest rates account for the large majority of the increased coverage. These estimates of current coverage are substantially higher than estimates that the Federal Reserve Board has cited as benchmarks from other surveys.[8]

Figure 2 displays a dramatic increase in the percent of loans subject to HOEPA protections under the Board's proposal to lower the APR trigger and incorporate premiums on financed credit insurance purchases into the "fees" test. The new proposal would bring 37.6 percent of all first mortgages and 81.1 percent of second mortgages under HOEPA coverage. The figure's separation of the impact of the APR test alone vs. the APR plus fees test is particularly instructive under the new proposal. For first mortgages, the proposal to lower the APR trigger to 8 percentage points above the corresponding Treasury security by itself boosts the percent of covered loans from 8.9 percent to 25.8 percent. The inclusion of insurance premiums into the "fees" test affects an additional 12 percent of all first mortgages that apparently have single premium credit insurance but do not have an APR above the trigger point.

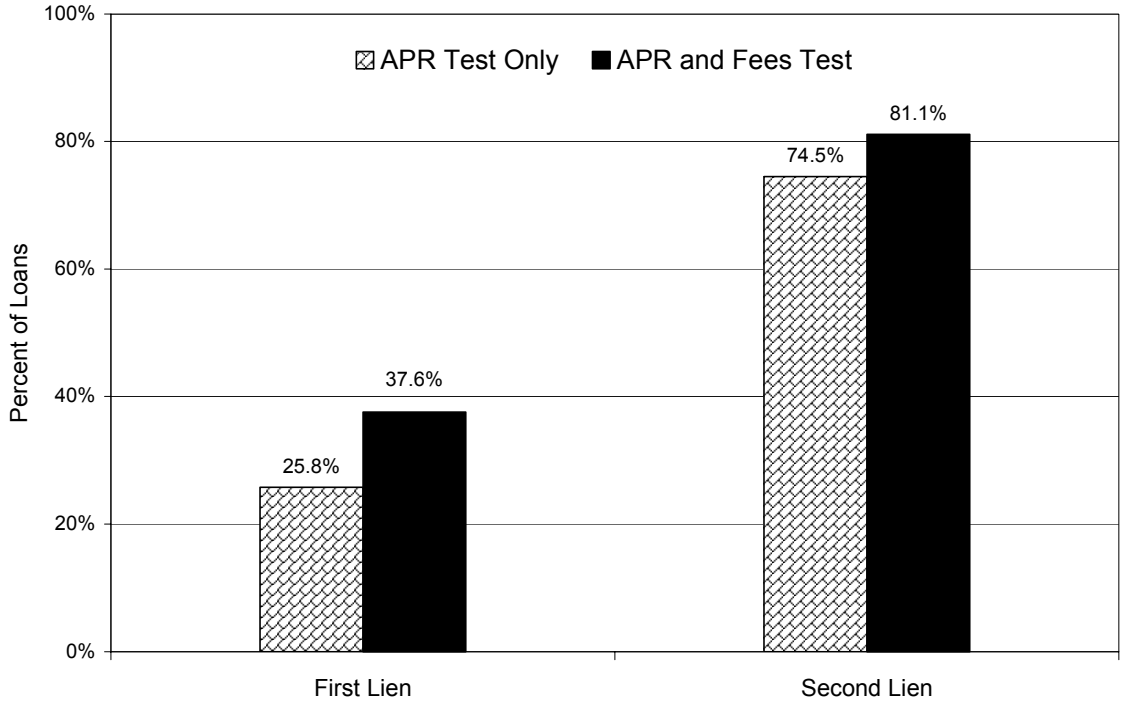

Figure 2*: HOEPA Coverage Under FRB Proposal

Note: *Coverage of loans originated from July 1, 1995 through June 30, 2000.

[8] "Data on this segment of the mortgage market are sparse, but a special survey by the Office of Thrift Supervision (OTS) estimates that the portion of subprime mortgage loans falling within the HOEPA's APR trigger is currently about 1 percent, with this segment of the market rising to about 5 percent under the proposal. From this standpoint, the effect of this change on the general growth in subprime mortgage lending should be modest." Speech delivered by Federal Reserve Board Governor Edward M. Gramlich at Cleveland State University, March 23, 2001.

Figure 2 also shows that under the Board's proposal, a large majority of all second mortgages made during the sample period would have become HOEPA loans. Lowering the APR trigger would boost the percent of second mortgages that were HOEPA loans from 46.8 percent to 74.5 percent. The inclusion of insurance premiums into the "fees" test affects an additional 6.6 percent of loans of all second mortgages that have single premium credit insurance but do not have an APR above the trigger point.

Figures 1 and 2 display HOEPA loans as a percent of all of the 1.3 million loans originated over the five-year sampling period. It is possible that market conditions have changed sufficiently over time such that HOEPA coverage of loans originated *in the most recent period* could differ from the full sample.[9] To examine this possibility, Table 3 breaks down the HOEPA coverage percentages by year of origination. It appears that a large part of the strong growth in the subprime market for first mortgages (shown earlier in table 1) consisted of relatively less risky loans not covered by HOEPA. As a consequence, the percentage of new originations covered by HOEPA was lower in the late 1990s than in 1995. A slightly different story is true for second mortgages. The percent covered under current HOEPA rules has risen since 1997 such that the proportion of HOEPA-covered second mortgages originated during the first 6 months of 2000 (54.1 percent) is a bit higher than the average for the entire period (49.6).

***Table 3*. Subprime Mortgages Subject to HOEPA, the FRB's Proposed Revision, and a Hybrid Revision, by Year of Origination and Type of Lien**

(Percent)

	Current Regulation	Proposed Revision	Hybrid Revision
	First Mortgages		
Year			
1995	26.7	60.9	60.9
1996	16.0	42.2	42.2
1997	10.9	31.2	31.2
1998	13.4	36.6	36.6
1999	10.7	35.2	35.2
2000	9.3	41.8	41.8
All Years	12.4	37.6	37.6

	Current Regulation	Proposed Revision	Hybrid Revision
	Second Mortgages		
Year			
1995	53.4	81.2	66.1
1996	44.6	76.7	60.0
1997	41.4	74.5	57.1
1998	49.3	83.5	60.9
1999	53.9	83.4	65.3
2000	54.1	84.7	67.5
All Years	49.6	81.1	61.0

[9] To illustrate how quickly the marketplace changes, in recent months several major subprime lenders announced that they will discontinue the sale of single-premium credit insurance product on mortgage loans. In its place the companies will offer a new credit insurance product purchased through monthly billing. This change will take place over the coming months as the companies gain regulatory approval for the new product in states across the country. Consequently, the percent of new loans that would be covered by HOEPA as a result of the Board's revised "fees" test would decline from the levels experienced in the AFSA data set.

Hybrid Proposal

The Federal Reserve Board is also considering an alternative proposal which would set different APR test triggers for first and second mortgages. Under this hybrid proposal a first mortgage would be deemed a HOEPA loan if the APR exceeded the rate on a comparable Treasury security by more than 8 percentage points, but a second mortgage would be deemed a HOEPA loan if the APR exceeded the comparable Treasury security rate by more than 10 percentage points. The premiums on financed credit insurance would be included in the "fees" test for both types of loans. Implicit in the hybrid proposal is an acknowledgement of higher market interest rates on second mortgages, commensurate with higher risk and smaller loan size, and an extra 2-percentage-point allowance for those differences before a loan reaches HOEPA status.

Figure 3 compares the calculations of covered loans under the hybrid proposal to coverage under both the current and original proposals. Since the hybrid proposal treats first mortgages in the same way as the Board's original proposal there is no change in coverage. However, retention of the 10 percentage point APR trigger point for second mortgages (vs. the 8 percentage points in the Board's original proposal) reduces the percent of covered loans from 81.1 percent to 61 percent, a sharp decline from the original proposal but still substantially higher than under the current HOEPA rules.

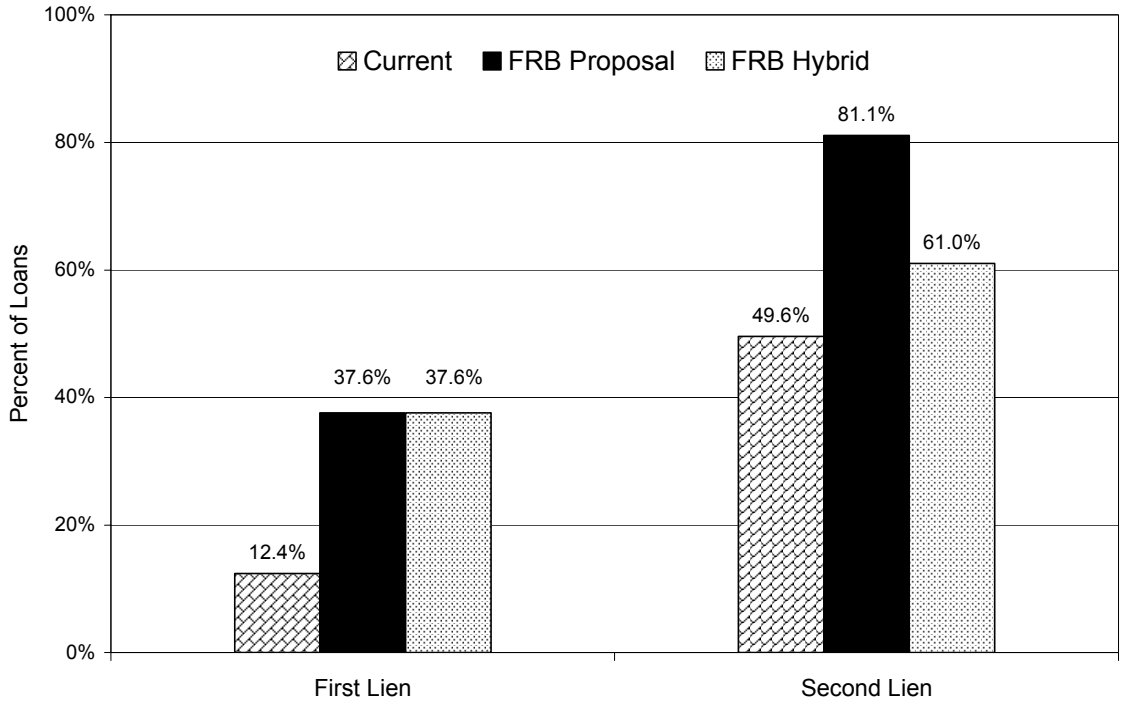

Figure 3*: Summary of HOEPA Proposals

Note: *Coverage of loans originated from July 1, 1995 through June 30, 2000.

Characteristics of HOEPA-Covered Loans

Given the concern that broader HOEPA coverage may reduce the supply of subprime credit, an important policy question is whether the proposed HOEPA regulations impact some groups of borrowers (and loans) differently from others. Table 4 displays a breakdown by loan characteristic of HOEPA-covered loans under both the current and proposed regulations. Specifically, the table examines the percent of covered loans broken down by loan amount, term to maturity, borrower income and the borrower's risk score (FICO score) at the time of origination. Generally speaking, for both first and second lien mortgages, the percent of loans covered by HOEPA (current and proposed) is higher for loans to borrowers who have lower incomes or whose credit history reveals them to be higher risk. HOEPA coverage is also higher for smaller loans and those with shorter terms to maturity. The smaller average size of HOEPA mortgages is consistent with the lower income and higher risk of their borrowers, since such borrowers tend to have lower values on their homes and qualify for smaller amounts of credit.

Figure 4 illustrates the disproportionate impact of both current and proposed HOEPA regulations on loans to low-income consumers. For first lien mortgages in the data set, 19.3 percent of loans to borrowers with annual incomes less than $25,000 are currently covered by HOEPA, compared to only 2.4 percent of loans to borrowers with annual incomes of $75,000 or more. These percentages rise under the Board's December, 2000 proposal to 51.8 percent of loans to borrowers with incomes less than $25,000 vs. 14.3 percent of loans to borrowers with incomes of $75,000 or more. A similar pattern is evident on second mortgages. Current regulations apply HOEPA protections to 57.4 percent of loans to borrowers with incomes less than $25,000 and 35.4 percent of loans to borrowers with incomes of $75,000 or more. The proposed revisions would take those percentages to 86.2 percent and 67.2 percent, respectively.

A similar pattern emerges with respect to borrower risk, as measured by FICO score (lower scores indicate higher risk). A higher incidence of HOEPA coverage on loans to higher risk and lower income borrowers is not surprising. A competitive subprime mortgage market will exhibit risk-based pricing. That is, competitive pressures will generally work to reward lower risk borrowers with lower rates as lenders attempt to attract them as customers. Higher risk loans will carry higher rates. Keeping in mind that the borrower's FICO score is only one of several dimensions of the loan transaction that determine risk to the lender, in a competitive market the borrowers with lower FICO scores will generally receive higher rates on their loans. Consequently, we would expect the HOEPA APR triggers to be exceeded more frequently on loans to borrowers with lower FICO scores. Indeed, the fact that we see such a pattern in this large sample of mortgage loans is consistent with a competitive market at work.

***Table 4*. Proportions of Subprime Mortgages Subject to HOEPA Under Current and Proposed Regulations, by Selected Loan Characteristics and Lien Type**

(Percent of mortgages within characteristics and lien group)

	Current Regulation	Proposed Revision	Hybrid Revision
		First Mortgages	
Characteristic			
Loan Amount			
Less than $25,000	35.8	75.6	75.6
$25,000 – 49,999	11.1	44.2	44.2
$50,000 – 74,999	7.6	28.5	28.5
$75,000 or more	5.1	19.7	19.7
Term to Maturity			
Less than 120 months	41.0	77.4	77.4
120 – 239 months	12.7	44.7	44.7
240 months or more	3.8	20.0	20.0

***Table 4 (continued)*. Proportions of Subprime Mortgages Subject to HOEPA Under Current and Proposed Regulations, by Selected Loan Characteristics and Lien Type**

(Percent of mortgages within characteristics and lien group)

	Current Regulation	Proposed Revision	Hybrid Revision
		First Mortgages	
Characteristic			
Borrower Income			
Less than $25,000	19.3	51.8	51.8
$25,000 – 49,999	12.1	38.6	38.6
$50,000 – 74,999	3.6	20.7	20.7
$75,000 or more	2.4	14.3	14.3
Not ascertained	14.8	32.0	32.0
FICO Score			
Less than 580	18.8	52.1	52.1
580 – 619	12.0	42.3	42.4
620 – 649	9.8	36.7	36.7
650 or more	7.0	26.8	26.8
Not ascertained	14.6	32.4	32.4

	Current Regulation	Proposed Revision	Hybrid Revision
		Second Mortgages	
Characteristic			
Loan Amount			
Less than $25,000	58.8	87.7	72.4
$25,000 – 49,999	31.3	70.2	45.0
$50,000 – 74,999	16.9	52.5	24.6
$75,000 or more	7.5	36.8	12.1
Term to Maturity			
Less than 120 months	65.3	90.2	76.5
120 – 239 months	40.7	76.0	56.7
240 months or more	35.4	72.4	44.4
Borrower Income			
Less than $25,000	57.4	86.2	71.2
$25,000 – 49,999	51.8	83.7	66.8
$50,000 – 74,999	39.9	74.3	52.5
$75,000 or more	35.4	67.2	41.8
Not ascertained	59.0	86.3	68.5
FICO Score			
Less than 580	63.3	90.5	73.8
580 – 619	50.6	85.1	64.9
620 – 649	45.7	80.0	59.7
650 or more	35.5	65.2	47.3
Not ascertained	50.3	84.3	66.3

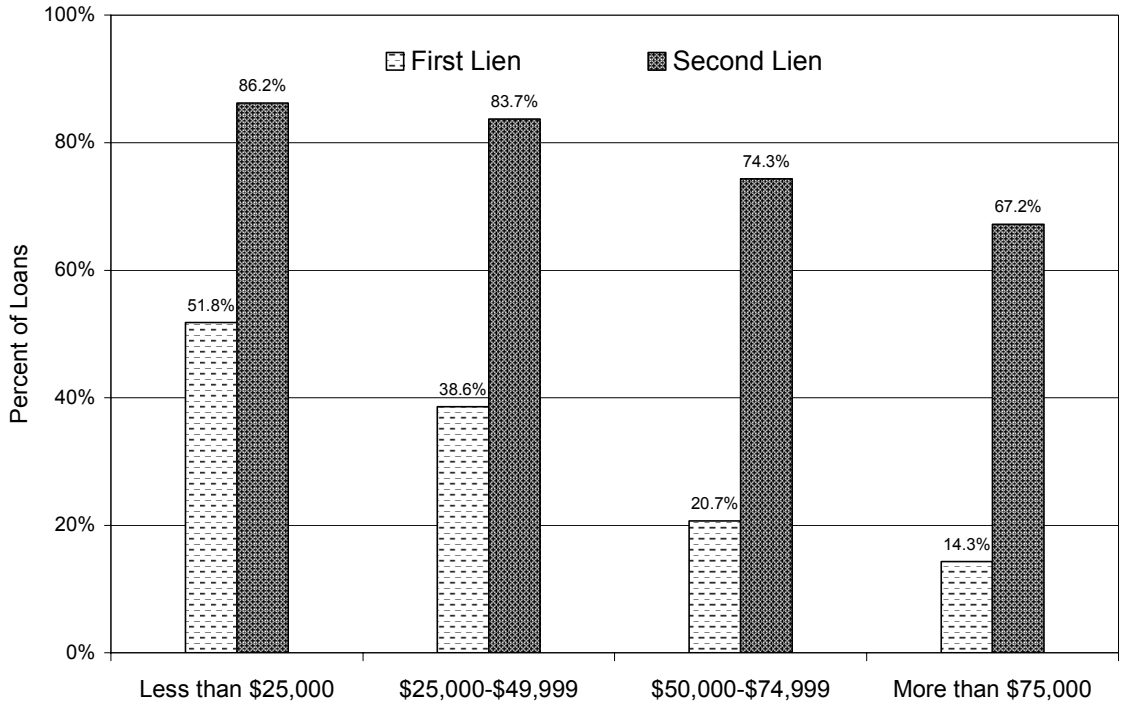

***Figure 4*: Percent of Loans Covered Under FRB HOEPA Proposal, by Borrower Income**

Credit Insurance on Subprime Mortgages

The Federal Reserve Board's proposal to alter the criteria for HOEPA coverage incorporates the premium paid on financed credit insurance (i.e., single-premium credit insurance) into the "fees" test. The proposal is an explicit attempt to discourage the sale of single-premium credit insurance. The Board has expressed concern that the repeated sale and financing of credit insurance on refinanced loans can be a way to "strip the equity from a homeowner." It further appears that the attempt to discourage sale of the product is at least partially rooted in oft-heard characterizations of credit insurance as a potentially abusive ("predatory") product because borrowers are frequently tricked or coerced into purchasing a product which is typically overpriced and not needed. [10] Critics use the term "packing" to refer to the practice of slipping the notice of insurance purchase past unwary borrowers, which enables lenders to achieve allegedly high penetration rates with an overpriced, unnecessary product.

[10] "Premiums for this insurance are generally financed in the loan amount, the insurance is often unnecessary, and premiums may be difficult to recover if the loan is cancelled. When loans are flipped, financed single-premiums for credit insurance can be a way to strip equity from a homeowner. We do not know how many additional mortgage loans this change would bring under HOEPA, but it is likely to greatly constrict the selling of single-premium credit insurance. Under the proposal, the provisions regarding other ways of selling credit insurance would not change, and these alternative ways of selling credit insurance would thereby be greatly encouraged." Excerpt from speech delivered by Federal Reserve Board Governor Edward M. Gramlich at Cleveland State University, March 23, 2001.

Here again, policymakers have been limited in their assessment of both the penetration of the single-premium insurance product and the impact of proposed regulations because comprehensive data on credit insurance coverage and associated premiums has been unavailable. Table 5 displays the incidence of credit insurance coverage for loans in the analysis sample. Among first mortgages, 28.3 percent had single premium credit insurance. For second mortgages, the penetration rate rose to 47.9 percent. Given that the product was purchased by less than half of all borrowers in the sample of 1.3 million loans, the argument of insurance "packing" finds no strong support in the data.[11] Moreover, the table reveals that borrowers with lower incomes, lower FICO scores and smaller loans are more likely to purchase insurance. Each of these patterns is consistent with past surveys of credit insurance purchase behavior which show that consumers facing uncertainty are more likely to purchase credit insurance, and are consistent with what economic theory predicts about the factors that drive the demand for insurance.[12]

***Table 5*. Percent of Subprime Mortgages with Credit Insurance, by Selected Loan Characteristics and Type of Lien**

(As a Percent of mortgages with the respective characteristics)

	First Mortgages	Second Mortgages
All Loans	28.3	47.9
Loan Amount		
Less than $25,000	61.5	55.7
$25,000 – 49,999	30.8	32.9
$50,000 – 74,999	21.0	18.0
$75,000 or more	15.1	10.3
Term to Maturity		
Less than 120 months	65.9	68.9
120 – 239 months	31.4	38.6
240 months or more	15.0	20.2
Borrower Income		
Less than $25,000	39.6	60.2
$25,000 – 49,999	28.9	53.1
$50,000 – 74,999	18.3	34.4
$75,000 or more	11.9	19.1
Not ascertained	18.1	55.3
FICO Score		
Less than 580	34.1	54.8
580 – 619	31.9	46.9
620 – 649	30.0	41.3
650 or more	22.3	32.4
Not ascertained	26.2	61.0

[11] Recently several major subprime lenders including CitiGroup, Household Finance and American General Finance have announced that they will no longer sell a single-premium credit insurance product on mortgage loans. In its place the companies will offer a new credit insurance product purchased through monthly billing. This change will take place gradually in the coming months as the companies gain regulatory approval for the new product in states across the country.

[12] For an overview of prior survey evidence and the results of a 1993 survey of the credit insurance purchase decisions of consumer installment borrowers, *see* John M. Barron and Michael E. Staten, *Consumer Attitudes Toward Credit Insurance*, (Norwell, Massachusetts: Kluwer Academic Publishers, 1996).

More Restrictive HOEPA Rules And the Supply of Credit: Mortgage Originations Following Passage of North Carolina's High Cost Loan Statute

The AFSA database provides a limited opportunity to examine the impact on the supply of credit consequent to tighter, HOEPA-like restrictions on high-cost loans. In July, 1999 the North Carolina General Assembly passed a law which was intended to reduce predatory lending by banning certain practices on all mortgage loans and creating a new category of high-cost mortgages subject to additional restrictions. The statute was enacted in phases. Some features became effective for loans originated on or after October 1, 1999.[13] The rest of the anti-predatory features became effective on July 1, 2000.

The anti-predatory features included a HOEPA-like trigger mechanism for classifying closed-end mortgage loans as "high-cost" loans.[14] Limits on the features of high-cost loans include the following:

- Lender must confirm that a borrower received home ownership counseling prior to closing the loan
- Lender must document borrower's ability to repay
- Limits on loan features include
  - No call provision
  - No balloon payment
  - No negative amortization
  - No increased interest rate as a consequence of default
  - No modification or deferral fees
- No financing of fees or charges if the borrower refinances a loan from the same lender.

In addition, for all mortgage loans (regardless of whether they are classified as high-cost) originated on or after July 1, 2000 the statute bans the financing of premiums on credit insurance and also prohibits the refinancing of mortgage loans without demonstrating a reasonable, tangible benefit to the borrower.

These requirements impose more restrictions on mortgage lenders than prevailed under HOEPA at the time of passage, increasing the cost of making mortgage loans to higher risk segments of the North Carolina market. Economic analysis generates the prediction that lenders would respond to higher costs by reducing the supply of mortgage credit. Because the AFSA data set contains information on the Zip Code of the property securing the loan, it can be used to test for changes in the volume and characteristics of loans originated in North Carolina over time and relative to surrounding states. The window for detecting changes in lending patterns following passage of the statute is narrow because the data set contains loans originated through the end of the second quarter, 2000 but not beyond. Consequently, many of the changes contained in the statute were known to be coming but not yet effective during the sampling period.

Nevertheless, Figures 5 – 12 provide some interesting evidence that suggests something was impacting the volume and type of originations in North Carolina, relative to other states, following passage of the anti-predatory statute. Figures 5 through 8 display the year-over-year percentage change in originations of first mortgages. The sequence of four charts examines originations by borrower income category. Figure 5 reveals that for borrowers with incomes less than $25,000, first mortgage originations

[13]These features included a ban on prepayment fees on first mortgages less than $150,000.

[14]The "high-cost" loan triggers are exceeded if a loan meets any of the following criteria: 1) APR would qualify the loan for HOEPA protections, 2) points and fees exceed 5 percent of the loan amount for loans greater than or equal to $20,000 or the lesser of $1,000 or 8 percent of the loan amount for loans less than $20,000, 3) loan allows for the assessment of a prepayment fee more than 30 months after closing.

fell precipitously in the fourth quarter of 1999 relative to the same quarter one year earlier, and the year-over-year decline continued through the end of the second quarter, 2000. Originations in South Carolina and Virginia do not display the dramatic decline in activity for these lower-income borrowers. A similar pattern is evident in Figure 6 for borrowers with incomes between $25,000 and $50,000. However, Figures 7 and 8 show that originations for the group of borrowers with incomes of $50,000 - $74,999 and also for the group with incomes of $75,000 and higher do not display markedly different patterns across the three states.

Figures 9 through 12 repeat the sequence for borrowers in consecutively higher income categories with second mortgages. With the exception of a sharp downturn in originations in South Carolina for borrowers with incomes less than $25,000 (although not as sharp as in North Carolina) the patterns through the sequence are remarkably similar to those observed for first mortgages.

A review of the charts strongly suggests that, beginning in the fourth quarter of 2000, something was affecting the lower income segments of the North Carolina subprime mortgage market differently than in the neighboring states. One possibility is the regulatory change in North Carolina. Although not all of the components of the statute had been implemented during this period, some components were in place and the regulatory climate for closed-end mortgage loans had certainly been altered. Lenders may have scaled back their promotion of closed-end subprime mortgage loans in anticipation of the phased-in enactment, which would have affected origination volume in advance of July 1, 2000. Of course, it is possible that some yet-to-be-identified factor may have produced this peculiar result. However, the timing and patterns are consistent with a reduction in supply by North Carolina mortgage lenders in response to the higher costs imposed by the passage of the lending statute.

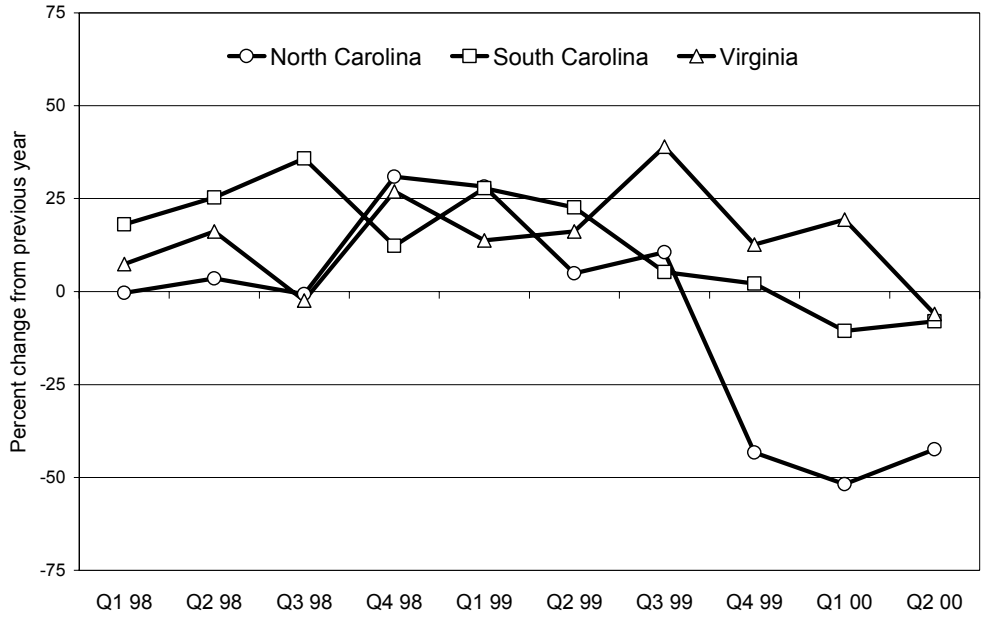

***Figure 5*: Year-over-Year Change in Originated Loans**
First Liens: Borrower Income < $25,000

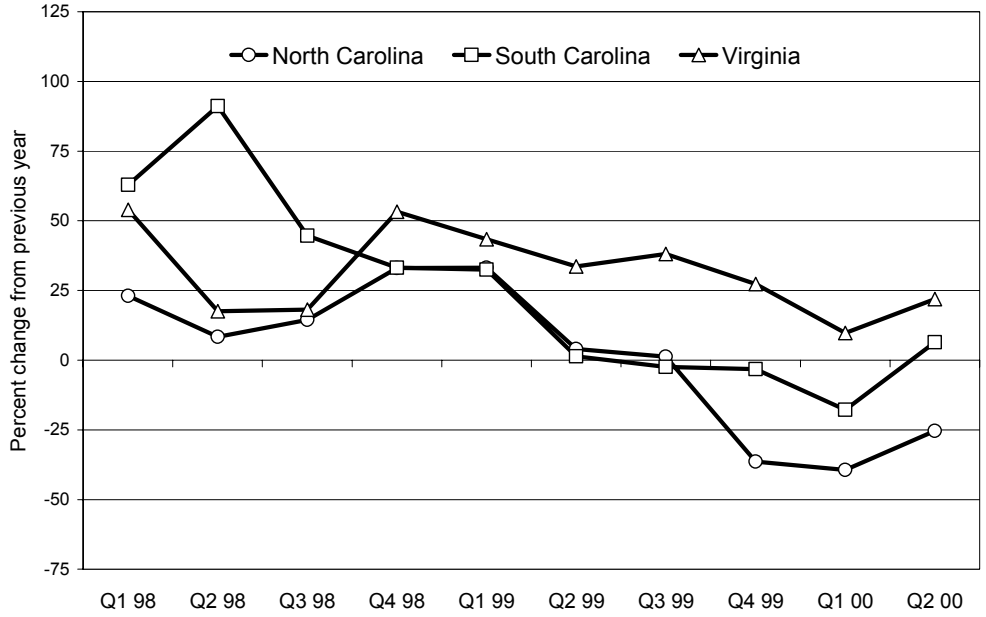

***Figure 6*: Year-over-Year Change in Originated Loans**
First Liens: Borrower Income $25,000-$49,999

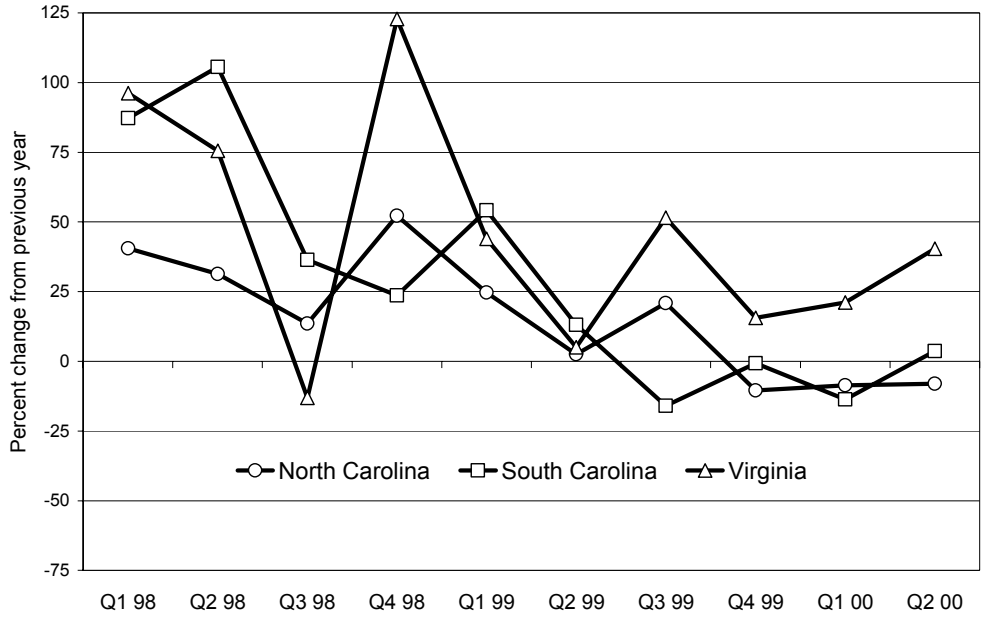

***Figure 7*: Year-over-Year Change in Originated Loans**
First Liens: Borrower Income $50,000-$74,999

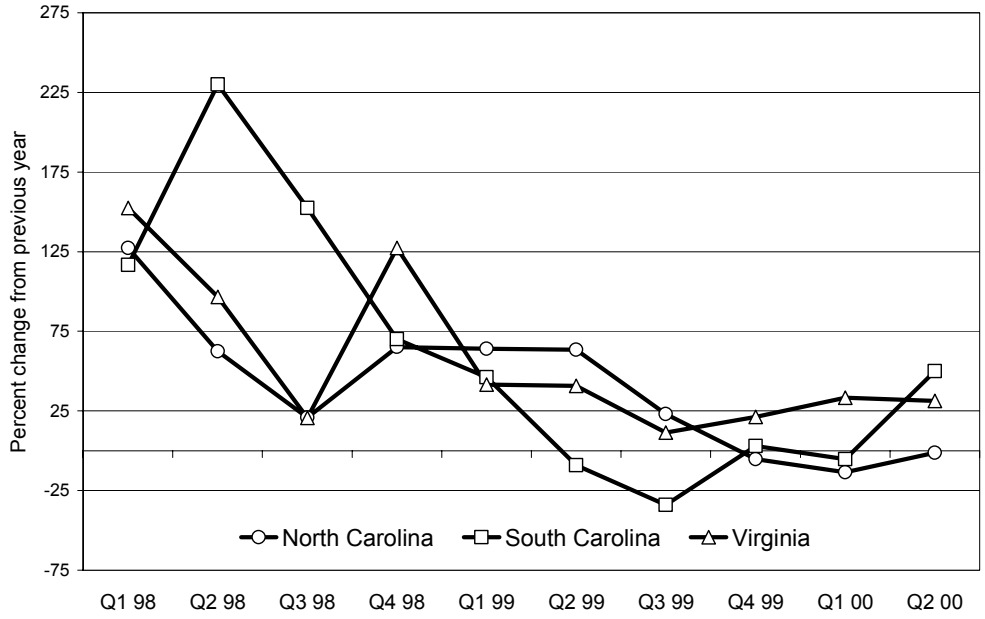

***Figure 8*: Year-over-Year Change in Originated Loans**
First Liens: Borrower Income $75,000 or more

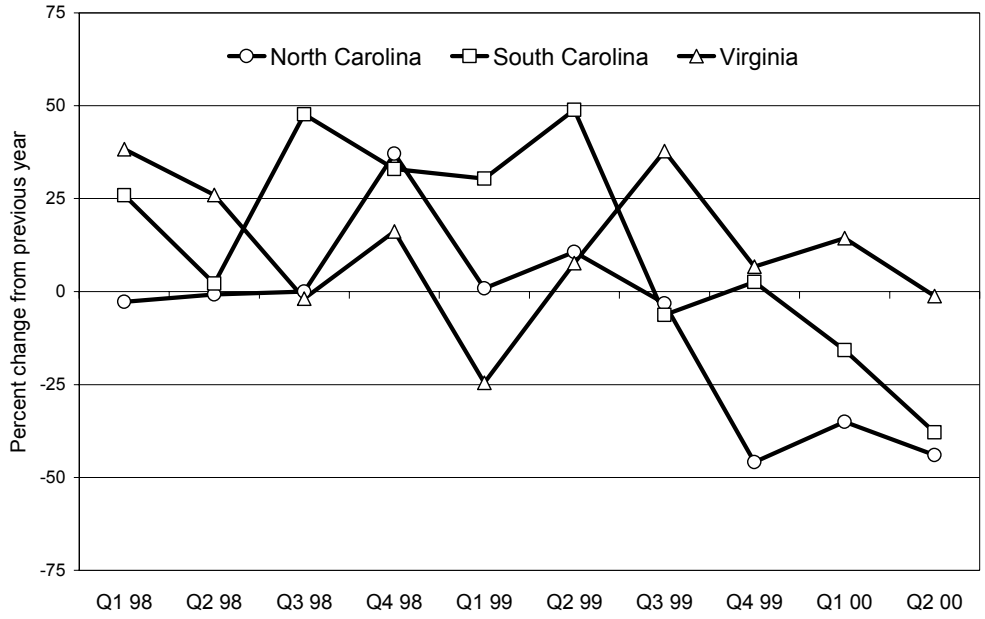

***Figure 9*: Year-over-Year Change in Originated Loans**
Second Liens: Borrower Income < $25,000

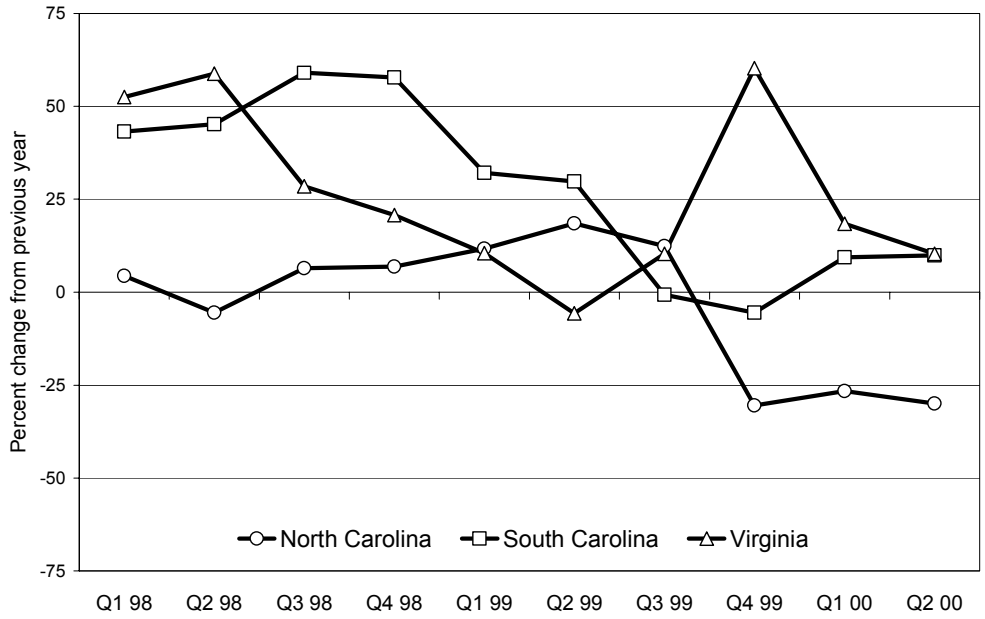

***Figure 10*: Year-over-Year Change in Originated Loans**
Second Liens: Borrower Income $25,000-$49,999

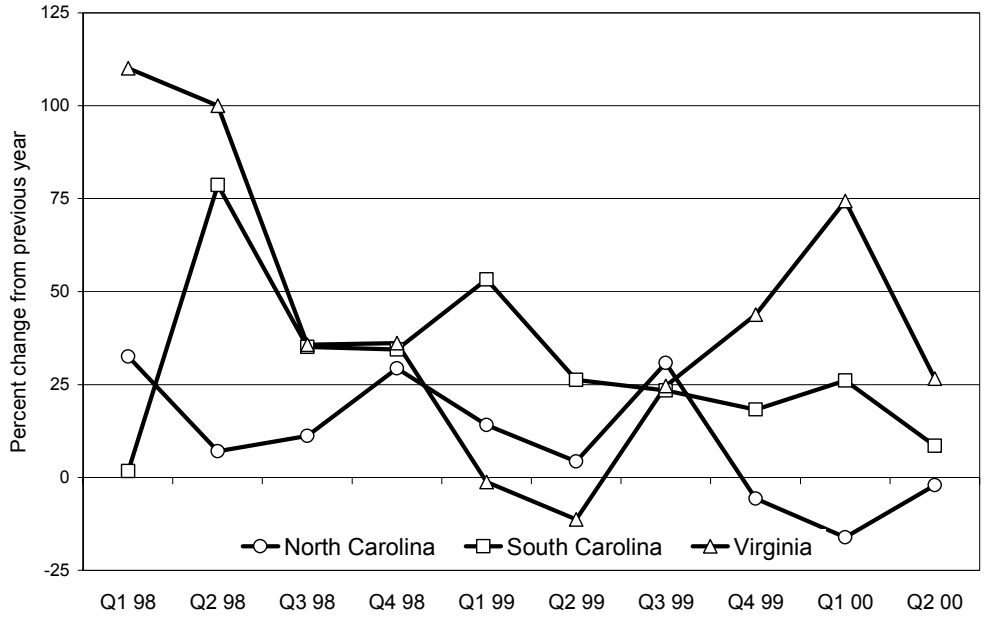

***Figure 11*: Year-over-Year Change in Originated Loans**
Second Liens: Borrower Income $50,000-$74,999

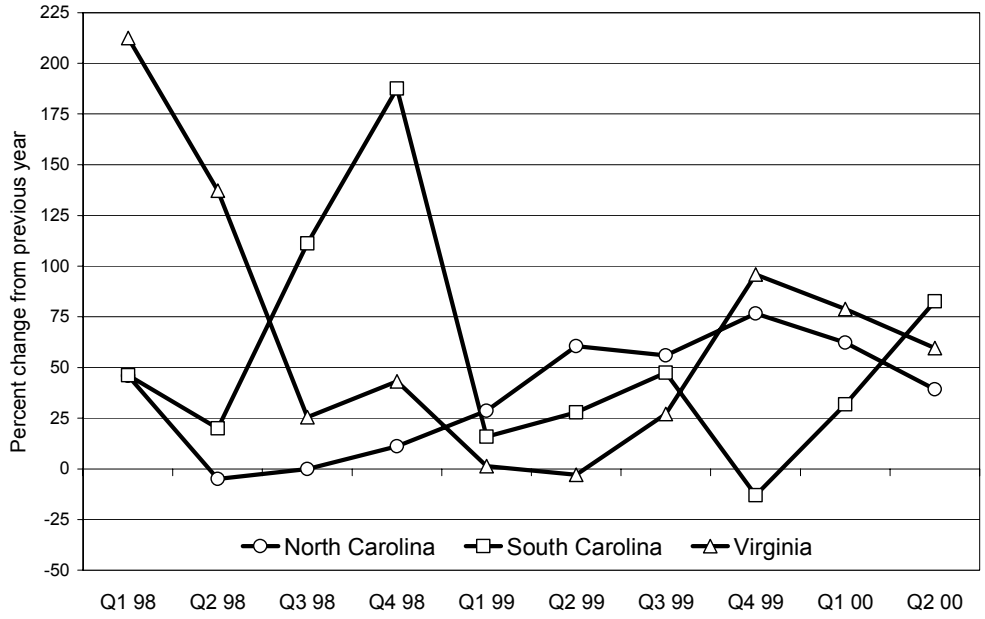

***Figure 12*: Year-over-Year Change in Originated Loans**
Second Liens: Borrower Income $75,000 or more

Conclusions

Analysis of 1.3 million subprime mortgages originated by nine major national lenders over a five-year period (third quarter, 1995 through second quarter, 2000) reveals that the Federal Reserve Board's proposed expansion of HOEPA coverage will dramatically increase the number of covered loans. Under the revisions which the Board proposed in December, 2000, the proportion of HOEPA-covered first mortgages that were originated by these lenders would jump to nearly 38 percent, as compared to about 12 percent under the current HOEPA triggers. Second mortgage coverage would jump to 81 percent under the proposal, as compared to about 50 percent under the current rules. The majority of the boost in HOEPA coverage results from lowering the APR trigger. However, the Board's proposal to include the premium on financed credit insurance in the "fees" test does have a significant impact on both first and second lien loans.

The expansion in HOEPA coverage falls disproportionately on loans to lower income and higher risk borrowers. For example, under the Board's proposal, the percent of first mortgages to borrowers with incomes less than $25,000 rises from 19 percent currently to 52 percent under the proposal. In contrast, the percent of HOEPA-covered loans to borrowers with incomes greater than $75,000 rises from 2.4 percent currently to 14.3 percent under the proposal.

Increased HOEPA coverage will raise the cost of subprime mortgage lending. HOEPA loans are more difficult to sell in the secondary market and also impose additional legal and regulatory risk on lenders. In a competitive subprime market these higher costs will be borne by borrowers. Moreover, the analysis shows that lower income and higher risk borrowers will bear most of the brunt of those higher costs. Therefore, an expansion of HOEPA coverage may lead to the unintended result of reducing the flow of home equity credit to such borrowers, forcing them to do without the credit or to use less desirable sources. The Federal Reserve Board has signaled its concern that overly broad HOEPA coverage could discourage legitimate lending. The results from an examination of subprime originations in the North Carolina market following passage of that state's anti-predatory lending law in 1999 reinforce those concerns.

Reducing the flow of credit to financially vulnerable borrowers may reduce the incidence of potential abuses, but the results from this report suggest that so many loans would be impacted by the Board's proposal that the number of legitimate loans affected may far outnumber the abusive ones. Of course, many of the abusive loans involve behavior that is already illegal under current statutes. Illegality has not prevented abuse. Consequently, those creditors willing to engage in such behavior may not be deterred by the prospect of more of their loans falling under the scope of HOEPA coverage.

Appendix A

Data Preparation

The data for this report were drawn from a data set containing information on mortgage loans originated or purchased by the subprime divisions of nine major lenders. The data set was produced for the American Financial Services Association (AFSA) by PriceWaterhouse Coopers from information collected in late 2000. All of the loans in the sample are closed-end loans secured by residential real estate. Specifically, the data set includes all mortgage loans that were originated between July 1, 1995 and June 30, 2000. In addition, each company supplied information on all loans originated during this period outside the company but subsequently purchased by the company. The 2,390,960 loans in the data set have an aggregate loan amount of $126.1 billion.

Loan-level data include loan amount, date of origination, term to maturity, type of lien, contract interest rate, total amount of fees, annual percentage rate at origination, credit insurance coverage and premium amount, purpose of loan, and payment history. Borrower characteristics at origination are also included. Among the borrower characteristics were income and FICO score.

Companies differed in their ability to report requested information. Information systems at the different companies generally did not have values for all of the variables listed above in machine readable form. The very large sample size precluded retrieval of missing values from paper records held by the respective companies. Consequently, many loans in the sample have missing values for some variables. Loan amount, date of origination, term to maturity, and current payment status were available for virtually all loans (*see* Table A1). Loan and borrower characteristics at origination were reported for 80-90 percent of the *originated* loans. In contrast, for *purchased* loans, loan and borrower characteristics at origination were reported well under half of the time.

Originated Loans

The analysis in this report is based exclusively on the sample of originated loans because that portion of the database contained far fewer missing values on critical variables. Of the 2.4 million loans in the data base, 1,410,643 (59.0 percent) were originated by the companies holding them.

The originated loans generally have sufficient information to permit analysis of the effects of changing HOEPA thresholds. Our analysis data set consists of all loans that had values reported for loan amount, term to maturity, the annual percentage rate at maturity, and either the borrower's FICO score or payment history on the loan. Term to maturity and annual percentage rate are especially important for determining HOEPA status. Loan amount is an important variable for imputation of missing fees, life insurance coverage, and lien type. FICO score or payment history was required because accounting for differences in risk was desired for some analyses. Of all originated loans, 1,329,305 satisfied these criteria and were included in the analysis data set (*see* Table A2).

Three additional variables were important for the analyses described in this report, but had missing values on some loan cases. To mitigate possible biases arising from dropping those cases, missing values were statistically imputed for lien type, total fees, and the amount of credit insurance

premiums. Statistical imputation is a common strategy for handling observations with missing data.[15] Statistical imputations make use of correlations among variables to assign values for missing items.

Missing lien type values were imputed using predicted probabilities from a logistic regression of lien type on loan amount, term to maturity, and annual percentage rate. Loans having a 50 percent or higher predicted probability of being a first mortgage were classified as first mortgages, and loans having a predicted probability less than 50 percent were classified as second mortgages.

For a few loans, availability of information on the contract rate permitted calculation of missing values for total fees. The remaining missing values for total fees were imputed. Total fees was regressed on loan amount, term to maturity, annual percentage rate, year of origination, and state, with separate models being estimated for first and second mortgages. Missing values were assigned the predicted value for total fees plus a random component drawn from a distribution with a mean of zero and variance equal to the regression mean square error.[16]

Missing values for credit life premiums were estimated using a two-stage procedure. In the first stage, missing values on whether the borrower had credit insurance coverage were estimated from logistic regression models of coverage as related to loan amount, term to maturity, annual percentage rate, appraised value of the house, year of origination, and state. Loans having a 50 percent or higher predicted probability of being covered by credit life were classified as covered, and the remainder of loans with missing credit insurance were classified as not covered. In the second stage, the amount of premium was regressed on loan amount, term to maturity, annual percentage rate, appraised value of the house, year of origination, and state. Loans with missing values predicted to have credit insurance coverage in the first stage were assigned the predicted premium amount plus a random component drawn from a distribution with a mean of zero and variance equal to the regression mean square error.

Overall, imputations for missing variables had a small effect on distributions of total fees and credit life premiums (see Table A2). However, many of the loans missing lien type were small and had relatively high annual percentage rates. The statistical model generally classified these loans as second mortgages. Thus, the percentage of second mortgages in the analysis data set is noticeably higher than the percentage derived from reported values alone.

Purchased Loans

The lower reporting of borrower characteristics and origination terms for purchased loans relative to originated loans has a reasonable explanation. Companies may routinely include information on initial loan terms and borrower characteristics in their information systems when they originate loans. However, much of this information may have little subsequent use. Consequently, neither the originating nor purchasing firm has an incentive to transfer or otherwise acquire that data in machine-readable form. As a consequence, purchased loans have mostly missing values for some of the key variables needed to assess the consequences of changing HOEPA thresholds. Annual percentage rate at origination was available for only 29.2 percent of loans, total fees for 19.8 percent of loans, and credit insurance premiums for 12.8 percent of loans.

[15]For a general discussion of statistical imputation for missing data, *see* R.J.A. Little and D.B Rubin, *Statistical Analysis with Missing Data* (New York: John Wiley, 1987) or R.J.A. Little and N. Schenker, "Missing Data," in *Handbook of Statistical Modeling in the Behavioral and Social Sciences*, Arinnger *et al.*, eds. (New York: Plenum, 1994).

[16]When regression imputation methods are used, a random component is typically added to the predicted value in order to prevent a reduction in the variance of the distribution of total fees.

While the lack of data do not permit an accurate estimate of the percentage of purchased loans that would be subject to the proposed and hybrid revisions, the data on originations permit a rough assessment. Purchased loans were on average larger than originated loans ($62,480 compared to $45,016), and annual percentage rates for purchased loans were lower than those for originated loans (13.26 percent compared to 14.75 percent). It is therefore likely that fewer purchased loans than originated loans subject to HOEPA. Similarly, fewer purchased loans would likely be subject to the proposed or hybrid revisions. Nevertheless, the statistics for larger originated loans in Table 4 in the report show that 20 percent or more of the originated loans in excess of $50,000 would be subject to the proposed or hybrid revision. Thus, a considerable percentage of purchased loans might well be covered by one or both of the revisions.

***Table A1*. Percent of Loans with Reported Values and Mean Values of Selected Variables, by Method of Acquiring Loans**

	Originated Loans		Purchased Loans	
	Percent Reported Values	Mean Value[1]	Percent Reported Values	Mean Value[1]
Loan Amount ($)	99.6	45,015.89	99.8	62,479.55
Term to Maturity (Months)	98.2	179.43	99.8	257.41
Type of Lien (Percent Second Lien)	79.9	42.43	97.3	41.04
Current Payment Status	93.5	—	97.9	—
APR at Origination (%)	97.1	14.75	29.2	13.26
Income of Borrower ($)	92.2	42,346.56	34.5	62,907.36
FICO Score	79.0	587.49	18.4	530.96
Payment History (Percent Ever 60+ days Delinquent)	74.7	10.06	27.0	17.23
Total Fees ($)	87.2	1,707.55	19.8	1,212.12
Credit Insurance Premium[2] ($)	70.0	646.16	12.8	408.41
Memo:				
Number of Loans[3]		1,410,643		831,786
Percent of All Loans		59.0		34.8

[1]Excludes missing values.
[2] Includes no credit insurance (premium = 0).
[3]148,531 (6.2 percent) of the 2,390,960 loans in the PriceWaterhouseCoopers data set do not report whether the loan was originated or purchased.

***Table A2*. Percent Reported or Imputed Values and Mean Values of Selected Variables for Originated Loans**

	All Originated Loans		Originated Loans in Analysis Data Set	
	Percent Reported Values	Mean Value[1]	Percent Reported or Imputed Values	Mean Value[1]
Loan Amount ($)	99.6	45,015.89	100	44,727.25
Term to Maturity (Months)	98.2	179.43	100	178.72
Type of Lien (Percent Second Lien)	79.9	42.43	100	48.33
Current Payment Status	93.5	—	100	—
APR at Origination (%)	97.1	14.75	100	14.84
Income of Borrower ($)	92.2	42,346.56	92.6	42,091.56
FICO Score	79.0	587.49	79.4	586.57
Payment History (Percent Ever 60+ days Delinquent)	74.7	10.06	76.3	8.72
Total Fees ($)	87.2	1,707.55	100	1,601.63
Credit Insurance Premium[2] ($)	70.0	646.16	100	625.07
Memo:				
Number of Loans		1,410,643		1,329,305
Percent of All Loans		100		94.2

[1]Excludes missing values.
[2]Includes no credit insurance (premium = 0).