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Risk-Based Capital; Proposed Rule

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

12 CFR Part 1270

RIN 2550–AA02

Office of Federal Housing Enterprise Oversight; Risk-Based Capital

AGENCY: Office of Federal Housing Enterprise Oversight, HUD.

ACTION: Notice of Proposed Rulemaking.

SUMMARY: Title XIII of the Housing and Community Development Act of 1992, known as the Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (1992 Act), requires the Office of Federal Housing Enterprise Oversight (OFHEO) to develop a risk-based capital regulation for the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) (collectively, the Enterprises). The regulation will specify a risk-based capital stress test (stress test) that, when applied to the Enterprises, determines the amount of capital that an Enterprise must hold to maintain positive capital throughout a 10-year period of economic stress. On February 8, 1995, OFHEO published an Advance Notice of Proposed Rulemaking (ANPR), which solicited public comment on a variety of issues concerning the development of the risk-based capital regulation. In light of the complex issues and decisions that OFHEO must address prior to issuing proposed risk-based capital standards and the challenge of developing the risk-based capital stress test, OFHEO has decided to issue the proposed risk-based capital regulation in two parts.

This first Notice of Proposed Rulemaking (NPR) addresses two key components of the stress test. The first is OFHEO's proposal of the procedures for establishing the ''benchmark loss experience,'' which is the basis for determining the extent of Enterprise credit losses during the stress test. This NPR describes the methodology and rationale OFHEO used to identify the proposed benchmark loss experience, responds to relevant ANPR comments, and describes how the benchmark loss experience will influence the risk-based capital stress test. In this NPR, OFHEO also proposes to use its House Price Index (HPI) in the stress test to estimate changes over time in the values of single-family properties securing Enterprise mortgages.

A second NPR will: specify the timing and content of risk-based capital reports to be submitted by the Enterprises; specify all of the remaining aspects of the risk-based capital stress test; and describe how the stress test will be used to determine the Enterprises' risk-based capital requirements.

DATES: Comments regarding this NPR must be received in writing on or before September 9, 1996.

ADDRESSES: Send written comments to Anne E. Dewey, General Counsel, Office of General Counsel, Office of Federal Housing Enterprise Oversight, 1700 G Street, NW., Fourth Floor, Washington, DC 20552.

FOR FURTHER INFORMATION CONTACT: David J. Pearl, Director, Office of Research, Analysis and Capital Standards; or Gary L. Norton, Deputy General Counsel, Office of General Counsel, Office of Federal Housing Enterprise Oversight, 1700 G Street, NW., Fourth Floor, Washington, DC 20552, telephone (202) 414–3800 (not a toll-free number).

SUPPLEMENTARY INFORMATION: The Supplementary Information is organized according to this table of contents:

Background

Title XIII of the Housing and Community Development Act of 1992, Pub. L. No. 102–550, known as the Federal Housing Enterprises Financial Safety and Soundness Act of 1992, established OFHEO. OFHEO is an independent office within the Department of Housing and Urban Development (HUD) with responsibility for ensuring that Fannie Mae and Freddie Mac are adequately capitalized and operating in a safe and sound manner. Included among the express statutory authorities of the Director of OFHEO (Director) is the authority to issue regulations establishing minimum and risk-based capital standards.[1]

Fannie Mae and Freddie Mac are Government-sponsored enterprises with important public purposes.[2] These include providing liquidity to the residential mortgage market and increasing the availability of mortgage credit benefiting low-and moderate-income families and areas that are underserved by lending institutions. The Enterprises engage in two principal businesses: Investing in residential mortgages and guaranteeing residential mortgage securities. The securities they guarantee and the debt instruments they issue are not backed by the full faith and credit of the United States.[3] However, financial market participants perceive that the United States Government would not permit the Enterprises to fail. This perception principally arises from the public purposes of the Enterprises, their Congressional charters, their potential direct access to Treasury funds, and the statutory exemptions of their debt and mortgage-backed securities from otherwise mandatory investor protection provisions.[4]

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[1] 1992 Act, section 1313(b)(1) (12 U.S.C. 4513(b)(1)).

[2] *See* 1992 Act, sections 1331–38 (12 U.S.C. 4561–67, 4562 note).

[3] *See* section 306(h)(2), Federal Home Loan Mortgage Corporation Act (12 U.S.C. 1455(h)(2)), and section 304(b), Federal National Mortgage Association Charter Act (12 U.S.C. 1719(b)).

[4] *See, e.g.*, 12 U.S.C. 24 (seventh) (authorizing unlimited investment by national banks in obligations of or issued by the Enterprises); 12 U.S.C. 1455(g), 1719(d), 1723c (exempting securities

Furthermore, the insolvency of either of the Enterprises would have serious consequences for the nation's housing markets and financial system.

OFHEO was created as the safety and soundness regulator of the Enterprises to reduce the risk of their failure. OFHEO's principal responsibilities include conducting examinations and establishing and enforcing compliance with capital standards. At least quarterly, OFHEO ascertains the amount of capital maintained by each Enterprise, computes its capital requirements, and determines its capital classification.[5]

Capital provides a cushion to absorb financial losses resulting from adverse economic conditions and other problems at the Enterprises. The 1992 Act prescribes that to be classified as adequately capitalized, an Enterprise must meet both a minimum capital standard and a risk-based capital standard.

Section 1362 of the 1992 Act prescribes the minimum capital standard for the Enterprises.[6] The minimum capital requirements are computed from ratios that are applied to the assets and specific categories of off-balance sheet obligations of the Enterprises. The minimum capital requirement for an Enterprise represents an amount of capital needed to provide protection against risk in general. The minimum capital standard is not designed to address specific credit risk exposures or exposure to interest rate risk. It does not represent the amount needed by an Enterprise to operate safely and soundly under all circumstances.

OFHEO published a proposed rule regarding minimum capital on June 8, 1995. Until 1 year after the effective date of a final rule on risk-based capital, an Enterprise need only meet the minimum capital standard in order to be classified as adequately capitalized.

Statutory Requirements for Risk-Based Capital

In contrast to the minimum capital requirement, the risk-based capital standard required by the 1992 Act addresses specific risk exposures. This standard determines the amount of capital necessary for an Enterprise to withstand adverse credit conditions and large interest rate movements simultaneously during a 10-year period, plus an additional amount to cover management and operations risk.[7] This 10-year period is referred to as the ''stress period.'' The level of capital required under this standard for an Enterprise will reflect that Enterprise's specific risk profile.[8] This NPR proposes two key components of the risk-based capital regulation.

Credit Losses in the Stress Test

The 1992 Act requires that the stress test subject each Enterprise to very large credit losses on mortgages it owns or guarantees. The frequency and severity of those losses must be reasonably related to the highest rate of default and severity of mortgage losses experienced during a period of at least 2 consecutive years in contiguous areas of the United States that together contain at least 5 percent of the total U.S. population.[9] This provision requires OFHEO to identify a ''benchmark loss experience,'' which is the default and severity behavior of mortgage loans, in a place and time meeting statutory requirements, that resulted in the highest loss rate for any such place and time.[10] In this context, default and severity behavior means the frequency, timing, and severity of losses on mortgage loans, given the specific characteristics of those loans and the economic circumstances affecting those losses.

Interest Rates in the Stress Test

The 1992 Act prescribes two interest rate risk scenarios, one with rates falling and the other with rates rising.[11] The 1992 Act further describes the path of the 10-year constant maturity Treasury (CMT) yield for each scenario, and directs OFHEO to establish the yields on Treasury instruments of other maturities in a manner reasonably related to historical experience.

In the falling rate scenario, the 10-year CMT yield decreases during the first year of the stress period, and then remains constant at the lesser of: (a) 600 basis points below the average yield during the 9 months preceding the stress period or (b) 60 percent of the average yield during the 3 years preceding the stress period. The 1992 Act further limits the decrease in yield to a yield no less than 50 percent of the average yield in the 9 months preceding the stress period.[12]

In the rising rate scenario, the 10-year CMT yield increases during the first year of the stress period, and then remains constant at the greater of: (a) 600 basis points above the average yield during the 9 months preceding the stress period or (b) 160 percent of the average yield during the 3 years preceding the stress period. The 1992 Act further limits the increase in yield to a yield no more than 175 percent of the average yield over the 9 months preceding the stress period.[13] The 1992 Act recognizes that interest rates can affect credit risk, specifically requiring that credit losses be adjusted for a correspondingly higher rate of general price inflation if application of the stress test assumes an increase of more than 50 percent in the 10-year CMT yield.[14]

New Business, Other Activities, and Considerations

The 1992 Act requires an assumption that the Enterprises conduct no new business within the stress period, except to fulfill contractual commitments to purchase mortgages or issue securities. The 1992 Act states that OFHEO may, 4 years after the final risk-based capital regulation is issued, incorporate assumptions about additional new business conducted during the stress

from oversight from federal regulators); 15 U.S.C. 77r–1(a) (preempting state law that would treat Enterprise securities differently from obligations of the United States for investment purposes); 15 U.S.C. 77r–1(c) (exempting Enterprise securities from state blue sky laws).

[5] Section 1364 of the 1992 Act (12 U.S.C. 4614) requires the Director of OFHEO to determine the capital classification of each Enterprise not less than quarterly.

[6] 12 U.S.C. 4612.

[7] 1992 Act, section 1361 (12 U.S.C. 4611).

[8] For purposes of the risk-based capital standard, the term ''capital'' means ''total capital'' as defined under section 1303(18) of the 1992 Act (12 U.S.C. 4502(18)) to mean the sum of the following:

(A) The core capital of the enterprise;

(B) A general allowance for foreclosure losses, which—

(i) shall include an allowance for portfolio mortgage losses, an allowance for nonreimbursable foreclosure costs on government claims, and an allowance for liabilities reflected on the balance sheet for the enterprise for estimated foreclosure losses on mortgage-backed securities; and

(ii) shall not include any reserves of the enterprise made or held against specific assets.

(C) Any other amounts from sources of funds available to absorb losses incurred by the enterprise, that the Director by regulation determines are appropriate to include in determining total capital. The term ''core capital'' is defined under section 1303(4) of the 1992 Act (12 U.S.C. 4502(4)) to mean the sum of the following (as determined in accordance with generally accepted accounting principles):

(A) The par or stated value of outstanding common stock.

(B) The par or stated value of outstanding perpetual, noncumulative preferred stock.

(C) Paid-in capital.

(D) Retained earnings.

The core capital of an enterprise shall not include any amounts that the enterprise could be required to pay, at the option of investors, to retire capital instruments.

[9] 1992 Act, section 1361(a)(1) (12 U.S.C. 4611(a)(1)).

[10] In this document, the word ''benchmark,'' when used as an adjective, refers to the benchmark loss experience.

[11] Section 1361(a)(2) (12 U.S.C. 4611(a)(2)).

[12] Section 1361(a)(2)(B) (12 U.S.C. 4611(a)(2)(B)).

[13] Section 1361(a)(2)(C) (12 U.S.C. 4611(a)(2)(C)).

[14] Section 1361(a)(2)(E) (12 U.S.C. 4611(a)(2)(E)).

period.[15] In doing so, OFHEO must take into consideration the results of studies conducted by the Congressional Budget Office and the Comptroller General of the United States on the advisability and appropriate forms of new business assumptions. The 1992 Act requires that the studies be completed within the first year after issuance of the regulation.

The stress test must take into account distinctions among mortgage product types and current loan-to-value (LTV) ratios, and may take into account any other factors that the Director deems appropriate. The 1992 Act does not require a specific adjustment for any of these factors, allowing the Director to determine how best to account for them. Likewise, the 1992 Act requires the Director to determine losses and gains on Enterprise activities not specifically addressed, and all other characteristics of the stress period not explicitly defined in the 1992 Act, on the basis of available information, in a manner consistent with the stress period.[16] These stress period characteristics could include, among others, mortgage prepayment rates and Enterprise funding policies, operating expenses, and dividend policies.

Management and Operations Risk

To supplement the amount of capital that would permit an Enterprise to meet the requirements of the stress test, each Enterprise must maintain an additional 30 percent of this amount to protect against management and operations risk.[17]

Regulation Development

General Approach

The mission of OFHEO is to protect the taxpayer by ensuring that the Enterprises are adequately capitalized and operating in a safe and sound manner. The principal objective of the risk-based capital standard is to reduce the risk of Enterprise insolvency. However, effective capital standards should promote prudent business practices and strategies and the maintenance of the financial health necessary to fulfill the Enterprises' public purposes. Although the stress test produces a single capital requirement, it effectively creates marginal capital requirements—incremental requirements for each additional dollar of business—for every type of product the Enterprises guarantee or hold in portfolio. Marginal capital requirements for mortgages held in portfolio will vary depending on the risk, as reflected in the stress test, of an Enterprise's funding strategy. These marginal capital requirements will have significant bearing on how the Enterprises choose to conduct their businesses.

OFHEO will seek to design the stress test so that the incentives it creates closely reflect the relative risks inherent in the Enterprises' different activities. To this end, OFHEO will incorporate, to the extent feasible, consistent relationships between the economic environment of the stress period and the Enterprises' businesses. Doing so will require modeling the Enterprises' assets, liabilities, and off-balance sheet positions at a sufficient level of detail to capture important risk characteristics.

However, as the level of detail of a stress test increases, so does its complexity, together with the time and other resources required to develop it. There are also practical limits to the number of variables that can be modeled from existing data. OFHEO, therefore, seeks to establish a level of complexity and realism in the stress test that appropriately weighs the associated benefits and costs.

OFHEO's stress test is composed of a number of components, some that correspond to subjects specifically cited in the 1992 Act and others that represent the infrastructure that makes the stress test operational. Figure 1 illustrates these components and their interrelationships. The infrastructure components—database, cashflows, and financial reports—are shaded gray. The unshaded components implement the specific requirements of the 1992 Act, as well as the many other aspects of the stress test that the 1992 Act either requires or permits OFHEO to determine.

Each of the components of the stress test involves one or more projects of varying complexity, resource intensity and expected duration. The diagram highlights in bold the completed components of the stress test that OFHEO proposes and describes in this NPR—the benchmark loss experience and a house price index.

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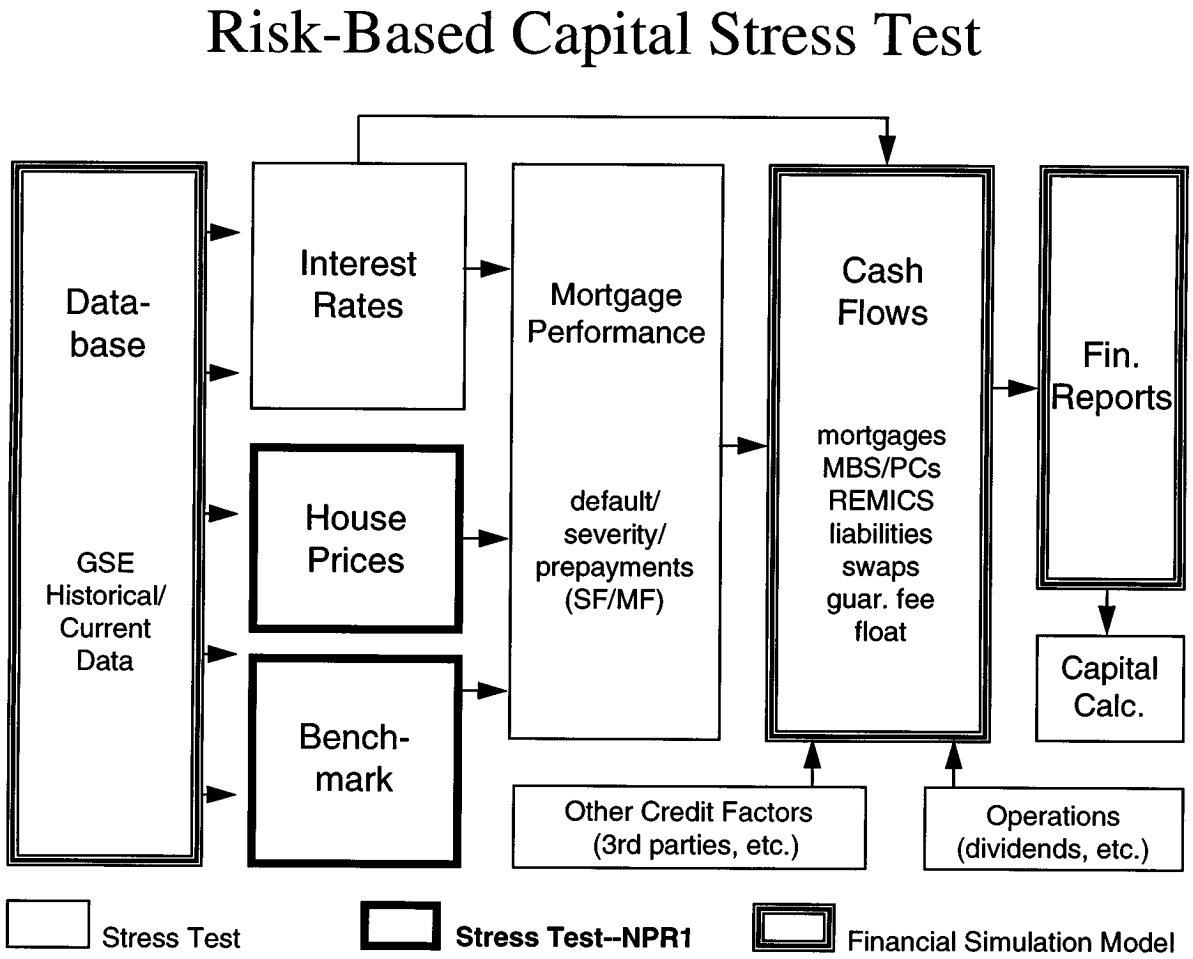
[15] Section 1361(a)(3)(C) and (D) (12 U.S.C. 4611(a)(3)(C) and (D)).

[16] Sections 1361(b) and (d)(2) (12 U.S.C. 4611(b) and (d)(2)).

[17] 1992 Act, section 1361(c)(2) (12 U.S.C. 4611(c)(2)).

Figure 1



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Advance Notice of Proposed Rulemaking

On February 8, 1995, OFHEO published an ANPR[18] as its first step in developing the risk-based capital regulation. The ANPR announced OFHEO's intention to develop and publish a risk-based capital regulation and solicited public comment on a variety of issues relating to that regulation.

The comment period for the ANPR ended on May 9, 1995, and was extended through June 8, 1995.[19] OFHEO received 15 comments on the ANPR from a variety of interested parties. Commenters included two Executive Branch Departments (Department of Housing and Urban Development and Department of Veterans Affairs), one financial institution regulatory agency (Office of Thrift Supervision), the Enterprises (Fannie Mae and Freddie Mac), four trade groups (Mortgage Bankers Association of America, America's Community Bankers, National Association of Realtors, and Mortgage Insurance Companies of America), two mortgage banking firms (PNC Mortgage Corporation of America and Norwest Mortgage, Inc.), one rating agency (Standard and Poor's Ratings Group), one thrift institution (World Savings and Loan Association), one private mortgage research firm (Mortgage Risk Assessment Corporation), and one individual (Professor Anthony Yezer of George Washington University).

The responses to the ANPR ranged from a comment on only one or two specific risk-based capital issues to an extensive analysis of every question or issue raised. OFHEO has been considering these comments in the development of its risk-based capital regulation.

Notice of Proposed Rulemaking

OFHEO will issue two separate NPRs before issuing a final risk-based capital regulation. This NPR addresses two key aspects of that regulation. The first is OFHEO's methodology for identifying and measuring the benchmark loss experience. The benchmark loss experience will be the basis for determining credit losses that the Enterprises will experience during the stress period. This NPR describes: (1) The proposed methodology (definitions, data, and procedures) that is used to identify the benchmark loss experience; (2) characteristics of the benchmark loss experience that was identified and proposed using this methodology; and (3) in general terms, the implications of the benchmark loss experience for mortgage losses in the risk-based capital test. OFHEO seeks comment on the methodology it used to determine the benchmark loss experience.

In the second key aspect of the regulation addressed in this NPR, OFHEO also proposes to use a weighted repeat transactions house price index, the HPI produced by OFHEO, rather than the Constant Quality Home Price Index (CQHPI), published by the Secretary of Commerce, referenced in the 1992 Act, to measure differences in seasoning of single-family mortgages in the stress test. The 1992 Act defines ''seasoning'' as the change over time in the LTV ratio of a mortgage.[20] Such changes result from changes in principal balance and changes in the value of the property. OFHEO proposes to use the HPI as the basis for estimating changes in property values and seeks comment about its choice of index.

At a later date OFHEO will issue a second NPR which will: (1) Specify and propose for public comment all of the remaining aspects of the risk-based capital stress test, (2) describe how the stress test will be used to determine the Enterprises' risk-based capital requirements, and (3) respond to all ANPR comments not addressed in this NPR. OFHEO will consider comments received in response to both NPRs in the final risk-based capital regulation.

OFHEO decided to publish two NPRs for several reasons. They include the complex issues and decisions that OFHEO must address prior to completing its proposal for the risk-based capital regulation and the challenge of developing the stress test infrastructure. Further, the development of the risk-based capital standard comprises multiple projects, most of which will not be concluded until later this year. Rather than delay in order to present an entire proposal, OFHEO believes the public interest is best served by publishing the results of completed projects that can be considered independently of the rest of the regulation. OFHEO's analysis, which identified the location, time and magnitude of the highest mortgage losses, may also be of public interest apart from the development of the risk-based capital regulation.

In the sections titled ''Issues, Alternatives Considered, and Comments Received,'' this NPR discusses the ANPR comments that related directly to the benchmark loss experience and house price index topics. There were certain other issues, such as the potential impact of improved underwriting standards on credit losses, the application of a regional recession to the Enterprises' books of business, and the impact of recent loss mitigation programs that were raised by ANPR commenters in discussing the credit stress benchmark. OFHEO believes that those issues are more appropriately addressed in the second NPR, which will discuss how, or whether, to account for these factors in the risk-based capital stress test.

Benchmark Loss Experience

Definitions, Data, and Procedures

OFHEO proposes to use the methodology (definitions, data, and procedures) described in this section to identify the benchmark loss experience. Alternatives OFHEO considered and the reasons for OFHEO's choices are discussed below in the section titled ''Issues, Alternatives Considered, and Comments Received.''

1. Definitions

The 1992 Act requires OFHEO to determine the highest rate of default and severity of mortgage losses in contiguous areas containing 5 percent or more of the U.S. population for a period of 2 or more years. OFHEO defined ''contiguous areas'' as all the areas within a state or a group of two or more states sharing common borders, and interpreted ''year'' to mean the calendar year in which a loan is originated (origination year). Thus, OFHEO's proposed methodology is designed to identify the combination of states and origination years from which mortgages had a higher loss rate than mortgages from any other qualifying state/year combination.

OFHEO defined ''defaulted loans'' as loans that, within 10 years following their origination, (1) resulted in pre-foreclosure sale, (2) completed foreclosure, (3) resulted in real estate owned (REO), or (4) resulted in a credit loss to an Enterprise. For any group of loans, OFHEO defined the ''default rate'' as the ratio of the aggregate original principal balance of the defaulted loans in the group to the aggregate original principal balance of all loans in the

[18] Risk-Based Capital, ANPR, 60 FR 7468.

[19] Risk-Based Capital, Extension of Public Comment Period for ANPR, 60 FR 25174 (May 11, 1995).

[20] Section 1361(d)(1) (12 U.S.C. 4611(d)(1)). This usage in the 1992 Act should not be confused with the usage of the same term in the mortgage industry. Within this industry, seasoning is synonymous with aging, which has important implications for patterns of both prepayments and defaults. *See* Linda Lowell, Mortgage Pass-Through Securities, in *Handbook of Mortgage-Backed Securities* 59, 78 (F. Fabozzi ed., 3rd ed., Probus 1992) (prepayments); Standard and Poor's, Residential Mortgages: Criteria, Statistics, *Credit Week*, Oct. 25, 1993, at 29 (defaults).

group. OFHEO defined ''losses'' on defaulted loans in categories 1, 2, or 3 above as the difference between: (1) The sum of the principal and interest owed when the borrower lost title to the property securing the mortgage; REO financing costs [21] through the date of property disposition; and cash expenses incurred during the foreclosure process, REO holding period, and property liquidation process; and (2) the sum of the property sales price and any other liquidation proceeds (except those resulting from private mortgage insurance proceeds or other third-party credit enhancements). Losses on defaulted loans not in categories 1, 2, or 3 above were defined as the amount of the financial loss to the Enterprise. For any group of defaulted loans, the ''severity rate'' was defined as the aggregate losses on those loans divided by the aggregate original principal balance of all loans in the group. ''Loss rate'' for a group of loans was defined as the product of the default rate for those loans and the severity rate for all defaulted loans in that group for which loss data are available.

2. Data

OFHEO used the proposed methodology to identify the benchmark loss experience using historical loan-level data from each of the two Enterprises. OFHEO's analysis was based entirely on fixed-rate mortgages or ''FRMs'' (which were defined as conventional, 30-year, fixed-rate loans secured by first liens) on ''single-family properties'' (which were defined as single-unit, owner-occupied, detached properties) that were originated from 1979 to 1993. Detached properties were defined as single-family properties excluding condominiums, planned urban developments (PUDs), and cooperatives. The data included only loans that were purchased by an Enterprise within 12 months after loan origination and loans for which the Enterprise had no recourse to the lender.

Table 1 lists by year the number of loans, by Enterprise, used in the analysis. Fannie Mae's loan totals in most years are lower than Freddie Mac's, because Fannie Mae's data set does not include data on securitized loans. That Enterprise has not retained such data in a form that permits historical analysis.

TABLE 1.—NUMBER OF LOANS USED IN ANALYSIS

Origination year	Freddie Mac	Fannie Mae	Total
1979	81,507	66,499	148,006
1980	41,551	23,572	65,123
1981	17,922	41,017	58,939
1982	30,005	39,094	69,099
1983	107,406	33,099	140,505
1984	85,829	14,381	100,210
1985	165,966	32,833	198,799
1986	674,684	111,878	786,562
1987	365,580	63,058	428,638
1988	214,299	55,265	269,564
1989	353,687	72,026	425,713
1990	268,877	71,081	339,958
1991	447,731	120,182	567,913
1992	641,929	203,672	845,601
1993	845,052	313,537	1,158,589

OFHEO separately analyzed default and severity data from each Enterprise. Default rates were calculated from loan records meeting the criteria specified above. Severity rates were calculated from the subset of defaulted loans for which loss data were available.[22]

3. Procedures

OFHEO calculated each Enterprise's cumulative 10-year default rate for a combination of contiguous states and consecutive origination years (state/year combination) by grouping all of the Enterprise's loans originated in that state/year combination. For origination years with less than 10 years of default experience, cumulative-to-date default rates were used. The two Enterprise default rates were then averaged, yielding an ''average default rate'' for that state/year combination.

An ''average severity rate'' for each state/year combination was determined in the same manner as the average default rate; for each Enterprise, the aggregate severity rate was first calculated for all loans in the relevant state/year combination. The ''loss rate'' for each candidate state/year combination examined was calculated by multiplying the average default rate for that state/year combination by the average severity rate for that combination. The default and severity behavior of loans in the candidate with the highest loss rate constitutes the benchmark loss experience.

Characterization of the Benchmark Loss Experience

To identify the state/year combination with the highest loss rate, OFHEO examined individual state data on defaults and severity for each Enterprise from 1979 through 1985. Based on that examination, OFHEO selected more than 250 potential benchmark areas with at least 5 percent of the U.S. population that appeared to have unusually high loss rates for periods of 2 or more consecutive origination years. [23] For each potential benchmark area, OFHEO calculated loss rates for each consecutive combination of 2-, 3-, and 4-origination years during the time span examined, making a total of nearly 4,000 candidate state/year combinations.

[21] The financing costs associated with properties acquired through foreclosure from the time of foreclosure through property disposition were calculated using the average from 1982 through 1992 of the 12-month Federal Agency constant maturity yield computed by Bank of America.

[22] Available data did not permit inclusion of loans on which credit losses occurred as a result of loan restructurings, interest rate buydowns, or pre-foreclosure sales.

[23] These combinations of states and origination years are referred to as ''candidate state/year combinations'' or ''candidates.''

OFHEO also analyzed possible candidate state/year combinations that involved mortgage origination years with less than 10 years of loss experience (1986 through 1993), and compared their cumulative-to-date loss rates with comparable cumulative loss rates for candidate state/year combinations involving earlier mortgage originations. None of the candidates involving recent mortgage originations had cumulative loss rates exceeding those of candidates including 10 years of loan histories.

Using the proposed methodology, OFHEO identified the candidate with the highest loss rate. OFHEO will monitor new loss data for loans originated in more recent years. If OFHEO determines at a future time that there is a more recent candidate with a higher loss rate than the one described below, OFHEO may establish a new benchmark loss experience.

Table 2 shows some of the principal characteristics of the benchmark loss experience identified using the proposed procedures described above.

TABLE 2.— BENCHMARK LOSS EXPERIENCE

States	Arkansas, Louisiana, Mississippi, and Oklahoma
Percentage of U.S. Population.*	5.3%
Origination Years	1983 and 1984
Loss Rate	9.4%
Average 10-Year Default Rate.	14.9%
Average 10-Year Severity Rate.	63.3%

*Based on the percentage of 1985 U.S. population as estimated by the Bureau of the Census.

Table 3 describes the aggregate data for each Enterprise used in calculating the rates in Table 2. Table 3 also shows each Enterprise's default and severity rates. A ranking of results for the 500 candidates with the highest loss rates appears in the supplementary table at the end of the section titled ''Benchmark Loss Experience.''

TABLE 3.—DATA ON LOANS DETERMINNIG THE BENCHMARK LOSS EXPERIENCE

	Freddie Mac	Fannie Mae
Original Balance of All Loans used in Default Rate Analysis (000s)	$316,930	$242,296
Original Balance of Defaulted Loans used in Default Rate Analysis (000s)	$35,742	$44,910
Default Rate	11.28%	18.54%
Original Balance of Defaulted Loans used in Severity Rate Analysis (000s)	$14,107	$30,749
Losses on Defaulted Loans used in Severity Rate Analysis (000s)	$8,597	$20,166
Severity Rate	60.94%	65.58%

Some comparisons with other loss experiences help put these results in perspective. Texas loans originated in the early 1980s are sometimes considered a reference point for high loss experiences. Using the methodology and data to identify the proposed benchmark loss experience, the worst loss rate for Texas was 7.3 percent for loans originated in 1982 and 1983. Loss rates within the state were very uneven, however. In the 2-digit ZIP Code including Houston, Beaumont, and Bryan (77xxx), the loss rate for those years was 11.0 percent. Similarly, in the El Paso and West Texas area (79xxx), the loss rate was 9.8 percent.

The loss rate of benchmark loans is much higher than a normal or typical rate. The aggregate loss rate for the contiguous 48 states and the District of Columbia for all origination years from 1979 through 1985 was 2.1 percent, which is less than one-quarter of the rate for benchmark loans. The benchmark loss experience can also be compared with Federal Housing Administration (FHA) experience. The 10-year cumulative default rate for FHA loans originated in all states and the District of Columbia in 1981 was 19.1 percent, more than one-quarter higher than the average default rate of the benchmark loss experience.[24]

The LTV ratios of loans are good indicators of the likelihood of default and the severity of losses on defaulted loans. Table 4 shows average default, severity, and loss rates from the benchmark loss experience. These rates further characterize the benchmark loss experience.[25]

TABLE 4.—DEFAULT, SEVERITY, AND LOSS RATES OF BENCHMARK LOANS BY LTV AT ORIGINATION*

LTV range	Average default rate	Average severity rate	Loss rate
≤60%	2.2%	43.5%	1.0%
>60%, ≤70%	3.5%	46.2%	1.6%
>70%, ≤75%	7.9%	50.1%	3.9%
>75 ≤80	9.4%	58.9%	5.5%
>80%, ≤85%	12.0%	55.0%	6.6%
>85%, ≤90%	17.7%	60.2%	10.7%
>90%	26.4%	69.0%	18.2%

*In addition to the benchmark loans classified by LTV range to produce these results, a large portion (roughly half) of the loans provided by one Enterprise have no LTV information available. The average default rate on those loans was 12.2 percent.

To place these rates in a broader context, they can be compared with the loss coverage requirements established by the rating agencies for the rating of securitized mortgage pools that are not guaranteed by the Enterprises. To receive a given rating, the security structure must incorporate protection against credit losses, with higher ratings requiring greater loss protection. Each rating agency has its own methodology for determining loss coverage requirements (the required loss protection as a percentage of the total loan principal at the time a pool is formed), but all are based in some way on stress tests or default models calibrated to various severe historical episodes. Different loss rates have

[24] An Actuarial Review for Fiscal Year 1994 of the FHA's Mutual Mortgage Insurance Fund: Final Report, Appendix F, May 8, 1995.

[25] Losses experienced by the Enterprises on loans with LTV ratios of more than 80 percent were reduced considerably from the loss rates shown in the table by proceeds of mortgage insurance. Overall, mortgage insurance proceeds offset more than one-quarter of the losses on benchmark loans. See discussion of mortgage insurance in the stress test in the section ''Implications of the Benchmark Loss Experience for the Stress Test'' below.

become associated in the industry with different ratings, which in turn have been associated with hypothetical or actual historical experiences of varying severity by the rating agencies in their publications.

The rating agency loss coverage requirements are a relevant industry point of reference from which to gauge the mortgage credit losses of the benchmark loss experience. A rating agency's loss coverage requirement represents a projected cumulative loss experience of a fixed pool of mortgage loans. Once the loans in a fixed pool are identified, none is replaced and no additional loans are added to the pool; the pool dwindles over time as loans mature, prepay, or default. The benchmark loss experience is, in effect, the average experience of two fixed pools, one for each Enterprise.

Four rating agencies are active in the rating of mortgage pools: Standard and Poor's Ratings Group (S&P), Moody's Investors Service (Moody's), Fitch Investors Service, Inc. (Fitch), and Duff & Phelps Credit Rating Co. (Duff & Phelps). Although their methodologies differ, they are sufficiently similar to permit a comparison of the benchmark results with each of the four rating scales. In all cases, the published ''base case'' loss coverage requirements apply to a large, nationally diverse pool of good-quality, newly-originated, 30-year, fixed-rate loans on owner-occupied, single-family dwellings; and the loss coverage requirements vary based on the distribution of LTV ratios in the pool.

For purposes of comparison, Table 5 shows the required loss coverage requirements, by rating agency and rating, for a hypothetical pool of newly-originated FRMs[26] with a given distribution of LTV ratios. These coverage requirements are indicative of rating agency requirements derived from agency publications. Requirements for actual pools are adjusted to take into account a variety of factors other than LTV ratios, such as different mortgage products, underwriting standards, servicing practices, and regional economic considerations.

Applying the LTV-specific loss rates of the benchmark loss experience (shown in Table 4) to a pool with the hypothetical LTV distribution shown in the note to Table 5 yields an overall loss rate of 6.2 percent, a rate roughly comparable to the loss coverage requirements for double A rated securities backed by such a pool.

TABLE 5.— LOSS COVERAGE REQUIREMENTS FOR A POOL WITH A HYPOTHETICAL LTV DISTRIBUTION, BY RATING LEVEL AND RATING AGENCY*

Rating level	S&P	Moody's	Fitch	Duff & Phelps
Triple A	9.2%	n.a.	9.1%	8.0%
Double A	5.7%	**7.0%	6.0%	4.9%
Single A	4.1%	n.a.	n.a.	2.7%

n.a. = not available.

Weighted Loss Rate, Benchmark Loss Experience, Using the Same Hypothetical LTV Distribution—6.2%

* Derived by OFHEO from numerical requirements published by the rating agencies, for a large, nationally diverse pool of newly-originated, single-family, 30-year, fixed-rate mortgages with LTV ratios of loans distributed as follows:

LTV range	Percent of loans in pool
0%<LTV≤60%	15
60%<LTV≤70%	15
70%<LTV≤75%	15
75%<LTV≤80%	15
80%<LTV≤85%	15
85%<LTV≤90%	15
90%<LTV≤95%	10

Loss coverage requirements for specific pools may reflect many pool characteristics other than LTV distribution. In this table, Fitch coverage rates are based on medians of individual Metropolitan Statistical Areas requirements; Moody's and Duff & Phelps rates are based on rates for mortgages with intermediate risk characteristics (those that receive a risk factor of one). For the underlying LTV-specific requirements and for further details, *see* S&P, Residential Mortgages: Criteria, Statistics, *Credit Week*, Oct. 25, 1993; Moody's, Moody's Approach to Rating Residential Mortgage Pass-Throughs, *Structured Finance Research and Commentary: Special Report* (1995); Fitch, Fitch Mortgage Default Model, *Fitch Research*, June 28, 1993; and Duff & Phelps Residential Mortgage-Backed Securities Group, The Rating of Residential Mortgage-Backed Securities, Oct. 1995.

** Moody's has informed OFHEO that its current practice differs from that described in its 1991 publication. The coverage requirement for ''AA'' rating, consistent with the assumptions of the table, now would be 5.6%.

Implications of the Benchmark Loss Experience for the Stress Test

The stress test subjects the Enterprises to severe credit losses and extreme interest rate changes. The benchmark loss experience will be the basis for determining mortgage credit losses that the Enterprises will experience during the stress period. Although the benchmark loss experience relates most directly to single-family FRMs,[27] losses on other mortgage assets and guarantees also will be related to the benchmark experience in the stress test in a manner that reflects the different risk characteristics of other mortgages compared with those of single-family FRMs.

The projection of credit losses on an Enterprise's loans in the stress period will not involve direct application of the loss rate of the benchmark loss experience. That experience reflects the specific characteristics of the benchmark loans and the economic circumstances affecting the default and severity behavior of those loans. The characteristics of an Enterprise's loans during any application of the stress test (stress test loans) will differ from those of benchmark loans in a number of important ways. In addition to differences in mortgage product type,[28] differences in the mix of LTV ratios may be especially important, and OFHEO will design the stress test to take account of them. These differences in LTV ratios will reflect differences between the original LTVs of benchmark loans and those of an Enterprise's stress test loans. LTV ratios of stress test loans also will differ from those of benchmark

[26] *See* issue 2. ''Data'' under section ''Definitions, Data, and Procedures'' above.

[27] The term ''single-family FRM'' is used to mean an FRM secured by a single-family property.

[28] The 1992 Act, section 1361(d)(2), defines ''type of mortgage product'' to mean a classification of mortgages based upon characteristics that include: (1) the type of property securing the mortgages (*e.g.*, single-family, PUD, etc.), (2) the interest rate type (fixed, adjustable, balloon, etc.), (3) the priority of the liens securing the mortgages, and (4) the terms of the mortgages (15 years, 30 years, etc.) (12 U.S.C. 4611(d)(2)).

loans because most stress test loans will not be newly-originated loans. The LTV ratios of stress test loans will reflect house price changes subsequent to origination. Many will have lower LTV ratios than they originally did, but some will be higher, and a few will have LTV ratios that are higher than the highest original LTV ratios of benchmark loans. OFHEO is also considering whether and in what manner to incorporate the effect of a loan's age on the likelihood and timing of default in the stress test. Loan age is another factor that will distinguish some stress test loans from those in the benchmark loss experience, because some of the stress test loans will be older than the oldest benchmark loans.

To incorporate properly the effects of differences in LTV ratios, age of loans, and mortgage product type in the stress test, OFHEO is examining the effects of these factors on the default and severity behavior of a broader sample of loans than those of the benchmark loss experience.

Differences between the economic environment of the stress test and the environment affecting benchmark loans might also be expected to affect loan performance. The levels and patterns of change in interest rates will differ considerably among alternative interest rate scenarios and will not match the interest rate history of the time period affecting benchmark loans. Such differences in interest rates might reasonably be associated with differences in prepayments and house prices, which could have a significant impact on credit losses. OFHEO is considering whether or to what extent to take into account in the stress test the effect of interest rates on prepayments and house prices. In doing so, the stress test must incorporate the statutory requirement that the stress test take into account the effect of a correspondingly higher rate of general price inflation, if the 10-year CMT yield is assumed to increase more than 50 percent during the stress period.[29]

The purpose of incorporating the effects of some or all of these factors (and possibly others) is to make the stress test better reflect the risks, under stress test conditions, of loans owned or guaranteed by the Enterprises. OFHEO plans to design the test so that losses on loans with characteristics matching those of the benchmark loans would be projected, under economic circumstances matching those affecting the benchmark loans, to occur at the same rate of default and severity as the benchmark loans. However, as discussed above, projected credit losses will differ from benchmark losses to reflect key differences in risk affecting each Enterprise's stress test loans. The stress test will also take into account, for example, offsetting receipts from mortgage insurance, recourse, and other credit enhancements. OFHEO will present the specific methodology for determining credit losses in the stress test in the second NPR.

Issues, Alternatives Considered, and Comments Received

OFHEO encountered a number of methodological issues in identifying the benchmark loss experience. Many of these issues were mentioned specifically in the ANPR. In this section, OFHEO addresses the issues, discusses alternative methodologies it considered, and responds to related comments received on the ANPR.

OFHEO chose procedures best designed to identify the worst loss experience (meeting statutory time, contiguity, and population requirements) for mortgage loans with characteristics similar to those purchased or guaranteed by both Enterprises. In choosing among alternatives, OFHEO sought approaches that were most appropriate for setting capital standards. Because capital standards should be clear and predictable, OFHEO favored straightforward approaches over those that might require needlessly complex computations or frequent adjustments or changes to the benchmark loss experience. Wherever appropriate for setting capital standards, OFHEO resolved issues in ways that were consistent with analytical practices within or related to the residential mortgage industry. In particular, OFHEO looked to the practices of credit rating agencies and how the rating agencies analyze the credit risk of securitized mortgage pools, as credit rating agency practices often are published and readily available. OFHEO also considered practices of the Enterprises, mortgage insurers, and, as appropriate, the regulators of portfolio lenders. OFHEO also favored approaches that would make best use of the data available for analysis.

1. Data Sources Used to Define the Benchmark Loss Experience

The ANPR requested comment on whether OFHEO should use data from sources other than the Enterprises to identify the benchmark loss experience. After considering the issue, OFHEO is proposing to use only Enterprise data. OFHEO has concluded that the two Enterprise data sets are the most relevant sources currently available for determining a benchmark loss experience for use in a risk-based capital stress test. The choice is consistent with the general practice of banking and thrift industry regulators and the credit rating agencies, which use data on the loss experience of the relevant industry in determining capital adequacy.

Non-Enterprise mortgage default and severity data are necessarily less representative of the experience of loans owned or guaranteed by these large secondary mortgage market companies. FHA data, for example, reflect the very different market focus of that agency. A large portion of FHA loans would not have met Enterprise underwriting guidelines, and would, therefore, be expected to exhibit risk characteristics different from those of the loans that the Enterprises purchased or guaranteed.

OFHEO was in a unique position to obtain and analyze extensive data on the loss experience of individual Enterprise loans. This data included information on a large portion of loans originated and purchased since 1979. Severity data were available for a majority of the defaulted loans, which was sufficient for OFHEO's analysis.

The majority of comment letters supported the exclusive use of Enterprise data. One commenter, America's Community Bankers (ACB), however, suggested that it would be inconsistent with the 1992 Act to rely solely on Enterprise data if, as a result, a relatively recent period of severe losses might be overlooked. The same commenter stated that ''[t]he Federal Housing Administration and credit bureau data that are identified as supplementary sources [in the ANPR] should also be accompanied by private mortgage insurance data.'' For the reasons cited above, OFHEO believes that the exclusive use of Enterprise data to identify the benchmark loss experience is the most reasonable approach. OFHEO agrees that if using only Enterprise data would cause a recent period of severe losses to be overlooked, other data should be included in the analysis. However, the quantity and detail of the Enterprise data are such that those data reflect losses in recent periods as well as or better than data from any other sources.

2. Loan and Property Types Included in the Benchmark Analysis

OFHEO proposes to use single-family FRMs in the benchmark analysis. The analysis excludes other loan types, such as adjustable-rate and balloon mortgages and loans secured by other property

[29] 1992 Act, section 1361(a)(2)(E) (12 U.S.C. 4611(a)(2)(E)).

types such as multi-unit and 2- to 4-unit structures, condominiums, PUDs, or cooperatives.

OFHEO believes it is appropriate to identify the benchmark loss experience on the basis of single-family FRMs because of the homogeneity of these mortgages and their preponderance in the Enterprises' portfolios and mortgage-backed securities, especially in the early 1980s. Data on these mortgages are available from both Enterprises in all regions for loans originated in 1979 and subsequently. Single-family FRMs accounted for over three-quarters of the total dollar volume of Enterprise mortgages purchased between 1981 and 1985 and nearly two-thirds of mortgages purchased between 1986 and 1990.[30]

OFHEO's proposed approach is supported by the legislative history of the 1992 Act. The House and Senate Committee reports both suggested that OFHEO should rely on single-family FRMs in identifying the benchmark loss experience. The House report explained that:

> Conventional, 30-year, fixed-rate, single-family mortgages account for about two-thirds of the mortgages purchased by Fannie Mae and Freddie Mac in each year. The most reliable loan performance data the enterprises possess pertain to such loans.[31]

The House report also stated that:

> The bill would require the Director to measure rates of default in a manner that was reasonably related to prevailing industry practice.
>
> Prevailing industry practice at this time, as reflected by the practices of Fannie Mae, Freddie Mac, mortgage insurers and rating agencies, is to utilize estimated lifetime default rates of a group of mortgages with similar characteristics, e.g. product type and loan-to-value ratio, originated over a specific time period.[32]

The Senate report counseled that:

> The Director is only required to use data from the Benchmark origination years on rates of default and loss severity for the most common type or types of mortgages held or guaranteed during that period. Loss rates on other types of mortgages should be related to loss rates on the ''standard'' mortgage types according to prevailing practice * * *.[33]

The use of data on single-family FRMs from a historically stressful period to establish a standard for evaluating potential future credit losses is also consistent with credit rating agency practice. For example, single-family FRMs constitute the benchmark mortgage product type for the four rating agencies.[34] Lack of data on other mortgage product types is likely a major reason for this practice. As noted above, the volume of Enterprise loans secured by other mortgage product types during the early and middle 1980s was very small relative to the volume of single-family FRMs purchased or guaranteed by the Enterprises. These small sample sizes were an additional factor in OFHEO's decision not to include different mortgage types in its analysis. For purposes of the stress test, OFHEO will estimate the risk characteristics (and, ultimately, project the loss rates) of other Enterprise mortgage product types using all relevant historical data. This part of the stress test analysis will be discussed in detail in the second NPR.

All of the ANPR comments that discussed the issue of which mortgage product type(s) to include in the benchmark analysis were consistent with OFHEO's general approach of analyzing only the most common mortgage product types purchased by the Enterprises. While agreeing with OFHEO's general approach, Fannie Mae suggested a minor variation: to base the single benchmark loss experience on ''fixed rate, 30-year, conventional mortgages on single-family, owner-occupied, primary residences,'' thus implicitly including condominiums, PUDs, and cooperatives. OFHEO considered this option, but concluded that loans secured by condominiums, PUDs, and cooperatives should not be included, because they are significantly different types of properties and involve fees and contractual agreements with third parties that may cause the default and severity experience of the loans to differ from that of single-family mortgages. OFHEO decided not to include multifamily loans in the identification of the benchmark loss experience because, as highlighted in the ANPR and reinforced by many comments, multifamily loans and the properties underlying these loans present significantly different credit, market, and institutional risks to the Enterprises than do single-family mortgages.

3. Determination of a Single Benchmark State/Origination Year Combination or a Separate Area and Period for Each Enterprise

The ANPR also suggested that OFHEO might combine, in some fashion, data from the two Enterprises before determining the state/origination year combination with the worst joint loss experience, or, alternatively, that OFHEO might determine the worst experience for each Enterprise separately. If the latter approach were adopted, the ANPR suggested the possibility of using a simple or weighted average of default rates to derive the single benchmark loss experience to apply to both Enterprises in the stress test.

OFHEO is proposing to identify the benchmark loss experience on the basis of a single benchmark state/origination year combination representing the worst combined loss experience on mortgages owned or guaranteed by the Enterprises. All the comments were consistent with this proposal.

4. Role of Severity Data in Identifying the Benchmark Loss Experience

The ANPR suggested that, as an alternative to identifying a specific area and time period that experienced the highest overall loss rate, OFHEO might need to use severity data from different sources, time periods, or areas than those used to determine the average default rates in the benchmark loss experience. OFHEO was concerned at the time the ANPR was published that the quality or quantity of severity data might be inadequate to derive benchmark loss rates. Subsequently, OFHEO obtained severity data from the Enterprises that were adequate to determine severity experience from all potential benchmark areas and origination years. Severity data were available for 58% of defaulted loans and in higher percentages for later origination years. OFHEO, therefore, proposes to identify the benchmark loss experience on the basis of the worst loss experience of Enterprise loans, rather than only the worst default experience. This approach is consistent with all comments on the issue.

Some commenters apparently concluded that OFHEO was considering identifying separately the states and origination years with the highest default rate and the states and origination years with the highest severity rate, and then combining them

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[30] Congressional Budget Office, *Controlling the Risks Of Government-Sponsored Enterprises*, at 125 (April 1991).

[31] Government-Sponsored Enterprises Financial Safety and Soundness Act of 1991, H.R. Rep. No. 206, 102d Cong., 1st Sess. 66 (1991).

[32] *Id.*

[33] Federal Housing Enterprises Regulatory Reform Act of 1992, S. Rep. No. 282, 102d Cong., 2d Sess. 21 (1992).

[34] Fitch and Moody's note that they reduce the risk of 15-year mortgages in their mortgage default models, implying that single-family FRMs are the standard. *See, e.g.*, Fitch, Fitch Mortgage Default Model, *Fitch Research*, June 28, 1993, at 9; and Moody's, Moody's Approach to Rating Residential Mortgage Pass-Throughs, *Structured Finance Research and Commentary: Special Report* (1995), at 10–14. However, S&P and Duff & Phelps explicitly note that 30-year FRMs are the standard. S&P, Residential Mortgages: Criteria, Statistics, *Credit Week*, Oct. 25, 1993, at 20; and Duff & Phelps, The Rating of Residential Mortgage-Backed Securities, Oct. 1995, at 15.

to establish the overall benchmark loss rates. OFHEO did not intend to suggest such a synthesis of two different historical experiences. In OFHEO's view, such an approach would be inconsistent with the provisions of the 1992 Act and its legislative history; first, because it could result in an overall benchmark loss rate not ''reasonably related'' to any actual historical loss experience and, second, because the House and Senate reports consistently describe ''experience'' in the singular.[35]

5. Definition of ''Default Rate''

a. *In General.* OFHEO defined the default rate of a group of loans as the ratio of the aggregate original principal balance of the defaulted loans in the group to the aggregate original principal balance of all loans in the group. Although default rates are sometimes defined as the number of defaulted loans divided by the number of loans in the group, the dollar values more accurately describe the economic impact if large and small loans default at different rates.

The Enterprise data used in the default analysis did not include balances at the date of last paid installment (LPI). In some circumstances, the best measurement of default rates using dollar values would be based upon principal balances at the LPI date, rather than the original principal balance. However, that is not so in this case, because the ultimate focus of the analysis was loss rates, not default rates, and loss rates are a product of default and severity rates.[36]

b. *Interpretation of ''Years''.* OFHEO considered two approaches to analyzing default rates, one based upon origination years (origination year approach) and one based upon exposure years (exposure year approach). Under an origination year approach, mortgage loans originated during specified years are tracked as a group until maturity or some intermediate term. Default rates for that group of loans over the specified term are expressed as the cumulative defaulted loan balances divided by the sum of the original balances of all the loans in the group. Exposure year default rates, in contrast, are calculated for ''exposure years,'' which are the years in which the loans are subject to default. Exposure year default rates are expressed as the aggregate balances on all loans (from all origination years) that defaulted during a given period of consecutive exposure years divided by the unpaid balances of all loans active at the start of that period.

OFHEO proposes to identify the benchmark loss experience using an origination year approach. OFHEO favors the origination year standard because (1) it is consistent with industry practice; (2) it is the approach that was anticipated in the legislative history; and (3) using an exposure year approach would have required annual information on unpaid balances, which was not included in the Enterprises'' data on individual loans and would have required reliance on estimates.

Industry practice is to measure default and loss rates based on origination year data. Moody's Residential Mortgage-Backed Securities Credit Indices are broken out by origination year, as are S&P's surveillance reviews.[37] The Congressional Committees that considered the 1992 Act understood that prevailing industry practice was to measure rates of loss based on origination years. The House report states: ''Prevailing industry practice at this time, as reflected by the practices of Fannie Mae, Freddie Mac, mortgage insurers and rating agencies, is to utilize estimated lifetime default rates of a group of mortgages with similar characteristics, e.g. product type and loan-to-value ratio, originated over a specific time period.'' [38] Similarly, the Senate report provides: ''Currently, the prevailing practice in the Committee's judgment is to examine losses by origination year, that is, losses on mortgages purchased by the [Enterprises] in a particular year.'' [39] Although loans purchased in a particular year include some loans that were not originated in that year, this recommendation is consistent with OFHEO's general approach.

Most commenters, including the Department of Veterans Affairs, both Enterprises, and two trade associations, the Mortgage Bankers Association of America (MBA) and the National Association of Realtors (NAR), favored the origination year approach. These commenters viewed that approach as the most consistent with industry practice. For instance, MBA noted that, because of its predictive value, the origination year approach is used by Fannie Mae, Freddie Mac, and the lending industry.

Without stating a clear preference, HUD stated that an exposure year approach would be more appropriate for a stress test that assumes no new business. The comment may reflect a view that the loss experience of a mixture of old and new loans would be a more appropriate benchmark experience than the experience of newly-originated loans, because the Enterprises would be purchasing relatively few new loans during the stress period. ACB was the only commenter clearly preferring the exposure year approach. Its suggestion that an exposure year approach dovetails better with what it described as the ''foreclosure/disposition orientation'' of the 1992 Act appears to be based on similar reasoning. OFHEO believes that HUD's and ACB's concern will be dealt with in the stress test, which will take into account seasoning, age, amortization, and other factors that are found to affect losses on loans. Thus, the stress test will not necessarily project the same loss rate for two loans of different ages that are otherwise similar.

c. *Definition of ''Defaulted Loans''.* OFHEO defined ''defaulted loans'' as loans that, within 10 years following their origination, (1) resulted in pre-foreclosure sale, (2) completed foreclosure, (3) resulted in REO, or (4) resulted in a credit loss to an Enterprise. The Enterprises'' data provided little information on loss mitigation techniques such as sales prior to completion of foreclosure, loan restructurings, or interest rate buydowns. Although one Enterprise's data did identify loans that resulted in pre-foreclosure sales, it was not possible to include any other loans that were subject to loss mitigation efforts unless they resulted in a completed foreclosure or in REO. Data sufficient to determine loans on which these techniques were applied and the amounts of loss involved exist only for very recent years.

OFHEO's definition only includes defaults that occurred within 10 years after origination, which facilitated comparisons of data from different origination years. Although OFHEO could have estimated lifetime default rates for all groups of loans, that approach would have required assumptions and extrapolations. It would be unlikely to yield a different benchmark experience because the data indicate that the vast majority of mortgage defaults occur within 10 years of origination. Further, a 10-year rate is

[35] *See* H.R. Rep. No. 206, at 65–6, and S. Rep. No. 282, at 21.

[36] *See* issue 6. ''Definitions of ''Severity Rate'' and ''Losses'.''

[37] *See, e.g.*, S&P, Study Tracks MBS Loss and Default Experience, *Credit Week*, June 19, 1995 (credit rating agency practice); Moody;s, Residential Mortgage-Backed Securities Credit Indices Update: Are Slipping ARM Delinquencies Another Signal of Consumer Debt Problems?, *Structured Finance Credit Index*, Dec. 15, 1995 (same). *See also* Mortgage Information Corp., The Market Pulse, Sept. 1995 (securities industry practice).

[38] H.R. Rep. No. 206, at 66.

[39] S. Rep. No. 282, at 20.

consistent with the 10-year time span of the stress test.

All commenters who addressed the issue supported OFHEO's general approach to defining default. OFHEO agreed with the thrust of all these comments, which were concerned with avoiding counting as ''defaults'' loans that are brought current or rehabilitated without loss to the Enterprises.

ACB would have adjusted OFHEO's definition of default to account for the effects of loss mitigation, because foreclosure is not the only outcome under which the Enterprises may suffer loss. OFHEO agrees with this comment. However, as noted above, comprehensive information on most types of loss mitigation is unavailable in the historical data available to OFHEO.

6. Definitions of ''Severity Rate'' and ''Losses''

For any group of defaulted loans, the ''severity rate'' was defined as the aggregate losses on those loans divided by the aggregate original principal balance of all loans in the group. OFHEO defined ''losses'' on defaulted loans in categories 1, 2, or 3 of the definition of defaulted loans as the difference between: (1) The sum of the principal and interest owed when the borrower lost title to the property securing the mortgage; REO financing costs [40] through the date of property disposition; and cash expenses incurred during the foreclosure process, REO holding period, and property liquidation process; and (2) the sum of the property sales price and any other liquidation proceeds (except those resulting from private mortgage insurance proceeds or other third-party credit enhancements). Losses on defaulted loans not in categories 1, 2, or 3 of the definition were defined as the amount of the financial loss to the Enterprise.

This definition is consistent with industry practice. Duff & Phelps, Moody's, and S&P include all of these items in their respective definitions of severity. Proceeds from mortgage insurance are sometimes included; however, as discussed below, OFHEO did not include mortgage insurance proceeds for purposes of determining the benchmark loss experience.[41] Some accounting definitions of loss do not include lost interest on the loans or REO financing costs because these costs are reflected elsewhere in a company's financial statements. OFHEO determined that its definition better reflects the economic losses on defaulted loans and is, therefore, more appropriate.

Consistent with the calculation of default rate discussed above, OFHEO calculated severity rate as a percentage of the original balance, rather than the balance at the LPI date of the defaulted loans. Loss rates are the product of the default and severity rates. Because the balances of defaulted loans appear in the numerator of default rate calculations and in the denominator of severity rate calculations, errors in measuring those balances will tend to be offsetting when the two rates are multiplied in the calculation of loss rates. If it were possible, it would have been more accurate to use balances of defaulted loans at LPI date for both rates, but using original balances for both should have little effect on loss rates.

Fannie Mae's ANPR comment suggested that OFHEO should define ''losses'' to incorporate the proceeds of mortgage insurance. OFHEO is proposing to exclude the impact of mortgage insurance and other third-party credit enhancements from consideration in identifying the benchmark loss experience because the 1992 Act requires OFHEO to identify the highest credit losses on mortgages, not the highest net credit losses to the Enterprises. Moreover, third-party sources of credit support vary in scope, terms and type of coverage, and can change (and have changed) over time. OFHEO intends to propose in the second NPR how the stress test will take into account the impact of third-party credit enhancements on mortgage losses.

7. Definition of ''Contiguous Areas''

The 1992 Act requires that the benchmark loss experience must have ''occurred in contiguous areas of the United States containing an aggregate of not less than 5 percent of the total population of the United States * * *.'' [42] In determining the appropriate level of geographic aggregation to employ in identifying the benchmark area, OFHEO considered using entire states or using substate areas based on the first two or three digits of ZIP Codes. After considering the various options, OFHEO decided to use states as the lowest level of aggregation. OFHEO will consider using substate areas in the future, taking into account changing geographic patterns of loss as well as any new developments in data aggregation technology, if appropriate.

OFHEO found that states are the most logical, efficient, and reasonable geographic units from which to construct a benchmark area. Although rating agencies conduct studies at various levels of aggregation, analysis at the state level is common practice. For example, Moody's has established diversification criteria for loan pools based on loan distribution by state, and, in stress tests, both Moody's and Duff & Phelps have projected mean times to foreclosure based on state locations.[43]

The level of geographic aggregation has a significant impact on the level of potential benchmark loss rates. In general, the smaller the geographic units used, the higher the loss rates that can be identified. By connecting pockets of severe losses with narrow parcels of land, OFHEO could create an area with extremely high loss rates.

However, such a result is not consistent with the intent of the legislation, which envisioned that the benchmark area would be ''reasonably compact.'' [44] Furthermore, use of areas defined by ZIP Code would have greatly complicated the process of identifying the benchmark area by enormously increasing the number of candidates requiring consideration.

Commenters who addressed this issue unanimously supported the use of states as the smallest geographic unit in the benchmark analysis. MBA suggested that a contiguous area based on smaller units could look ''gerrymandered'' and that ''[f]inding the exact combination [of counties and metropolitan statistical areas] to produce the most severe loss results * * * should not be the goal.'' Freddie Mac observed that ''using finer geographic areas [than states] would present significant computational difficulties in aggregating to five percent of the population.''

8. Procedures for Accounting for Different LTV Ratios

LTV ratios are highly correlated with mortgage losses. Therefore, the different distributions of LTV ratios in candidate state/year combinations have an impact

[40] The financing costs associated with properties acquired through foreclosure from the time of foreclosure through property disposition were calculated using the average from 1982 through 1992 of the 12-month Federal Agency constant maturity yield computed by Bank of America.

[41] *See, e.g.*, Duff & Phelps, The Rating of Residential Mortgage-Backed Securities, Oct. 1995, at 18; Moody's, Moody's Approach to Rating Residential Mortgage Pass-Throughs, *Structured Finance Research and Commentary: Special Report* (1995), at 9, 13; and S&P, Residential Mortgages: Criteria, Statistics, *Credit Week*, Oct. 25, 1993, at 18.

[42] Section 1361(a)(1) (12 U.S.C. 4611 (a)(1)).

[43] Duff & Phelps, The Rating of Residential Mortgage-Backed Securities, Oct. 1995, at 31; and Moody's, Moody's Approach to Rating Residential Mortgage Pass-Throughs, *Structured Finance Research and Commentary: Special Report* (1995), at 19.

[44] S. Rep. No. 282, at 20.

on the relative loss rates of those candidates. In the ANPR, OFHEO suggested it would consider grouping loans by LTV ratio, computing separate default or loss rates for loans in each LTV range, and computing overall default or loss rates by assuming some standard distribution of LTV ratios and weighting the LTV-specific loss rates according to this distribution. After further evaluation, OFHEO has decided to compute loss rates for candidates on a dollar weighted basis, that is, based on loan balances without regard to LTV ratios.

OFHEO selected the simpler approach for three reasons. First, in many candidate state/year combinations there are too few loans in some LTV ranges for meaningful analysis. Second, OFHEO has found no acceptable basis to justify using any specific LTV weights to identify the benchmark loss experience. Finally, weighting loss rates by LTV category would be inconsistent with the intent of the 1992 Act that OFHEO determine the worst actual mortgage loss experience. Although the effects on mortgage losses of different LTV distributions are not controlled for in the identification of the benchmark loss experience, those effects will be accounted for in the stress test.

Fannie Mae commented that in comparing candidates, loss rates ''should be constructed from LTV-specific default and severity rates, weighted by the proportions of loans outstanding in the current book of business.'' The rationale for this approach is that, because distributions of LTV ratios at origination in candidate state/year combinations will differ from the Enterprises' current LTV distribution, loss rates of candidates should be normalized (weighted by the current book of business) to provide the most relevant measure of risk exposure.

For the reasons discussed above, OFHEO believes Fannie Mae's suggested weighting approach is inappropriate in the benchmark analysis. Further, because LTV distributions change constantly and changing LTV weightings will alter loss figures for candidate state/year combinations, Fannie Mae's approach would necessitate the frequent reconsideration of candidates, increasing the unpredictability and regulatory burden of the risk-based capital regulation.

9. Procedures for Combining Data from Different States and Years in Computing Default and Severity Rates

In computing default and severity rates for specific candidate state/year combinations, OFHEO treated loans from different states and different origination years within that combination equally, producing a single aggregate default rate and a single aggregate severity rate for each Enterprise. OFHEO adopted this approach because it is a straightforward and simple way to derive aggregate default and severity rates. Moreover, the Enterprise data sets, especially in the early 1980s, are not sufficiently complete to reflect accurately the distribution by origination year and state of Enterprise purchases of loans. OFHEO's approach more accurately reflects the actual loss experience of loans owned or guaranteed by the Enterprises in candidate state/year combinations than other approaches OFHEO considered.

Fannie Mae recommended that OFHEO calculate state-level loss rates and that ''benchmark loss rates * * * be built by constructing population-weighted averages of state loss rates * * * to meet the five percent or greater standard.'' Freddie Mac also suggested this approach, and stated that ''[t]his method would appropriately weight economic events rather than emphasizing an Enterprise's market share in each state during the relevant time period.'' Freddie Mac recommended extending this approach by calculating separate state loss rates for each origination year and averaging them for each state before population weighting the resulting average state loss rates.

OFHEO disagrees that the appropriate goal in identifying the benchmark loss experience is to reflect the underlying economic circumstances on a population- and time-weighted basis. Rather, OFHEO believes it is appropriate to reflect the actual loss experience of a relevant group of mortgages. The 1992 Act specifies that the benchmark loss experience should be identified based on the highest rates of loss, not the highest rates that would have occurred if loans had been distributed across states according to population and evenly across origination years. Enterprise purchases are not made evenly on a per capita basis, and some years have much higher levels of mortgage lending than others. OFHEO, therefore, has no basis to conclude that population weighting and annual averaging would yield accurate estimates of either Enterprise's default or severity rates for candidate state/year combinations.

Furthermore, population weighting and averaging across origination years would place heavy reliance on very small amounts of data from some states for some years. Freddie Mac suggested that OFHEO should ''[e]stablish a minimum acceptable number of observations or dollar volume for each state/origination-year combination for each Enterprise, to ensure that there are sufficient data from which to make valid inferences * * *.'' Although such an approach would address Freddie Mac's concern, it would do so at the cost of eliminating large portions of the available data set, sharply restricting the range of state/year combinations that could be considered. Instead, OFHEO considered the available data from less populous states, and avoided placing undue emphasis on small loan samples by pooling data from all states and origination years of a candidate before calculating default and severity rates.

10. Procedures for Combining Default and Severity Rates of the Two Enterprises

OFHEO calculated the default and severity rates for each Enterprise separately for candidate state/year combinations, then averaged the results. The proposed methodology takes account of the significant differences in the mortgage loan purchases of the two Enterprises in the early 1980s, which are reflected in their respective data sets. The loans in each data set differ by predominant purpose of purchase (securitization or portfolio holding), mix of lender types (such as thrifts or mortgage banks), geographic distributions, and default rates (Fannie Mae's were consistently higher in that period). These differences reflect historical differences in the business strategies, customers, and markets of the Enterprises.

Since the early 1980s, the Enterprises' business activities, markets, and credit risk profiles have become more similar. For example, during that time, Fannie Mae primarily bought loans and held them in portfolio, while Freddie Mac securitized all but a few loans it purchased. Currently, both Enterprises have extensive portfolio investments in mortgages and also guarantee an even larger volume of securities backed by mortgages.

In OFHEO's judgment, each of the two data sets constitutes an equally relevant historical experience. Merging the data of the two Enterprises without averaging would cause the experience of one or the other Enterprise's loans to dominate the resulting combined loan sample for many candidates. The proposed methodology avoids that result by giving equal weight to the two equally relevant experiences.

Both Freddie Mac and Fannie Mae suggested that OFHEO base the selection of the benchmark loss experience on a simple average of the

two Enterprises' experiences. Fannie Mae stated that ''loss rates should equal the average of Fannie Mae and Freddie Mac experience.'' Freddie Mac agreed, stating that ''[t]aking the simple average of the historical experience of the [Enterprises] would help smooth such institutional differences, thereby emphasizing the macroeconomic aspects of historical experience.''

In its comment, HUD stated that ''[t]he language of Section 1361(a)(1) [of the 1992 Act] seems to constrain OFHEO to using historical weights based on the [Enterprises'] respective market shares in averaging Fannie [Mae] and Freddie [Mac] default rates.'' As discussed above, OFHEO believes an equal weighting of the two Enterprises' default and severity rates experiences is more appropriate at this time. Enterprise historical data from the late 1970s and early 1980s do not provide an accurate estimate of the relative number of single-family FRMs actually purchased or guaranteed by each Enterprise from specific origination years or geographic areas (including the nation as a whole). Therefore, market share weighting using that data would be difficult and imprecise.

The 1992 Act provides broad discretion to the Director to use any reasonable weighting or averaging method in the identification of the benchmark loss experience.[45] The proposed approach, which gives equal weight to the default and severity experience of each Enterprise's loans in identifying the benchmark loss experience, is within the Director's discretion. Loss data for loans originating in more recent years than those in the currently identified benchmark loss experience have been and should continue to be more complete. As OFHEO monitors future data, it will consider whether the new data would provide a basis for a different method of weighting, such as market share weighting. In the event an alternative method of weighting is appropriate, OFHEO would propose an amendment to the regulation to incorporate that different methodology.

11. Number of Origination Years in the Benchmark Loss Experience

The 1992 Act requires the identification of a benchmark loss experience with the highest loss rate on mortgage loans, consistent with the relevant statutory requirements, including the requirement that the period be at least 2 years. The benchmark loss experience should include more than 2 origination years only if the candidate with the highest loss rate covers more than 2 origination years. OFHEO evaluated potential benchmark areas over 2-, 3-, and 4-origination year periods. The candidate state/year combination with the highest mortgage loss rate, the proposed benchmark loss experience, is based on loans originated during a 2-year period.

Fannie Mae suggested that more than 2 origination years should be used, presumably to lower the benchmark loss rate, if the shorter period would ''push prices outside the range that the market would accept * * *.'' Presumably, ''prices'' refers to the guarantee fees the Enterprises charge and the prices they pay for mortgages. OFHEO does not believe Fannie Mae's suggestion is consistent with the requirements of the 1992 Act. Furthermore, the proposed benchmark loss experience is consistent with the establishment of an appropriate risk-based capital standard.

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
1	1983/1984	AR, LA, MS, OK	5.29	60.94	65.58	63.26	11.28	18.54	14.91	9.43
2	1981/1982	IA, ID, ND, NE, OR, SD, UT, WY	5.00	56.86	59.18	58.02	9.71	22.06	15.88	9.22
3	1981/1982	IA, ID, MT, ND, NE, OR, UT, WY	5.05	56.86	59.20	58.03	9.39	22.00	15.69	9.11
4	1983/1984	IA, KS, MT, ND, NE, OK, WY	5.09	63.25	64.52	63.89	8.92	19.53	14.23	9.09
5	1981/1982	IA, ID, MT, ND, NE, OR, SD, UT, WY	5.35	56.86	59.20	58.03	9.33	21.91	15.62	9.07
6	1981/1982	IA, ID, MT, NE, OR, SD, UT, WY	5.06	56.86	59.13	57.99	9.23	21.90	15.56	9.03
7	1983/1984	IA, KS, ND, NE, OK, SD, WY	5.04	63.10	64.55	63.83	8.95	19.33	14.14	9.03
8	1982/1984	AR, LA, MS, OK	5.31	60.23	65.78	63.00	11.34	16.95	14.14	8.91
9	1982/1984	IA, KS, MT, ND, NE, OK, WY	5.20	62.50	65.45	63.97	8.99	18.69	13.84	8.85
10	1982/1984	IA, KS, ND, NE, OK, SD, WY	5.16	62.38	65.47	63.93	9.04	18.58	13.81	8.83
11	1981/1984	AR, LA, MS, OK	5.31	60.52	65.28	62.90	11.16	16.46	13.81	8.69
12	1981/1984	IA, KS, MT, ND, NE, OK, WY	5.20	62.36	65.68	64.02	8.86	18.27	13.56	8.68
13	1981/1984	IA, KS, ND, NE, OK, SD, WY	5.16	62.25	65.71	63.98	8.91	18.20	13.55	8.67
14	1981/1982	IA, KS, ND, NE, OK, SD, UT, WY	5.80	60.43	66.06	63.25	9.96	17.46	13.71	8.67
15	1981/1982	IA, KS, NE, OK, UT, WY	5.21	60.43	66.06	63.25	9.94	17.47	13.70	8.67
16	1981/1982	AR, KS, ND, NE, OK, SD, UT, WY	5.53	60.51	66.23	63.37	10.05	17.29	13.67	8.66
17	1981/1982	IA, KS, NE, OK, SD, UT, WY	5.52	60.43	66.06	63.25	9.90	17.44	13.67	8.65
18	1981/1982	AR, KS, NE, OK, SD, UT, WY	5.24	60.51	66.24	63.37	10.00	17.27	13.64	8.64
19	1982/1983	IA, KS, ND, NE, OK, SD, WY	5.16	58.61	64.84	61.72	9.40	18.59	13.99	8.64
20	1982/1983	IA,KS, MT, ND, NE, OK, WY	5.20	58.55	64.83	61.69	9.29	18.66	13.98	8.62
21	1981/1982	AR, KS, MT, ND, NE, OK, UT, WY	5.57	60.51	66.19	63.35	9.88	17.30	13.59	8.61
22	1981/1982	AR, IA, KS, ND, NE, OK, SD, UT, WY	6.81	60.51	66.20	63.36	9.88	17.28	13.58	8.60
23	1981/1982	AR, IA, KS, NE, OK, UT, WY	6.22	60.51	66.21	63.36	9.86	17.29	13.58	8.60
24	1981/1982	IA, KS, MT, ND, NE, OK, SD, UT, WY	6.15	60.43	66.02	63.22	9.76	17.44	13.60	8.60

[45] Section 1361(a)(1) (12 U.S.C. 4611(a)(1)).

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS—Continued

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
25	1981/1982	IA, KS, MT, NE, OK, UT, WY	5.56	60.43	66.02	63.23	9.74	17.45	13.59	8.59
26	1981/1982	AR, KS, MT, ND, NE, OK, SD, UT, WY	5.87	60.51	66.19	63.35	9.85	17.27	13.56	8.59
27	1982/1983	AR, LA, MS, OK	5.31	57.93	63.59	60.76	11.93	16.34	14.13	8.59
28	1981/1982	AR, KS, MT, NE, OK, UT, WY	5.28	60.51	66.19	63.35	9.83	17.28	13.56	8.59
29	1981/1982	AR, IA, KS, NE, OK, SD, UT, WY	6.52	60.51	66.21	63.36	9.83	17.26	13.55	8.58
30	1981/1982	IA, KS, MT, NE, OK, SD, UT, WY	5.86	60.43	66.02	63.23	9.71	17.42	13.56	8.58
31	1981/1982	AR, KS, MT, NE, OK, SD, UT, WY	5.59	60.51	66.19	63.35	9.80	17.25	13.53	8.57
32	1982/1983	AR, KS, ND, NE, OK, SD, UT, WY	5.53	60.11	63.70	61.91	9.78	17.87	13.83	8.56
33	1981/1982	AR, IA, KS, MT, ND, NE, OK, UT, WY	6.86	60.51	66.16	63.33	9.72	17.29	13.51	8.55
34	1982/1983	AR, KS, MT, ND, NE, OK, UT, WY	5.57	60.05	63.70	61.87	9.68	17.94	13.81	8.54
35	1981/1982	AR, IA, KS, MT, ND, NE, OK, SD, UT, WY	7.16	60.51	66.16	63.33	9.70	17.26	13.48	8.54
36	1982/1983	AR, KS, NE, OK, SD, UT, WY	5.24	60.11	63.69	61.90	9.71	17.86	13.79	8.53
37	1981/1982	AR, IA, KS, MT, NE, OK, UT, WY	6.57	60.51	66.16	63.34	9.67	17.27	13.47	8.53
38	1982/1983	AR, KS, MT, ND, NE, OK, SD, UT, WY	5.87	60.05	63.70	61.87	9.68	17.88	13.78	8.53
39	1982/1983	AR, KS, MT, NE, OK, UT, WY	5.28	60.05	63.68	61.87	9.61	17.92	13.77	8.52
40	1981/1982	AR, IA, KS, MT, NE, OK, SD, UT, WY	6.87	60.51	66.16	63.34	9.65	17.24	13.44	8.51
41	1982/1983	AR, AZ, ND, NM, OK, SD, UT, WY	5.56	60.72	62.56	61.64	9.66	17.94	13.80	8.51
42	1982/1983	AR, KS, MT, NE, OK, SD, UT, WY	5.59	60.05	63.68	61.87	9.62	17.87	13.74	8.50
43	1982/1983	AR, AZ, MT, ND, NM, OK, UT, WY	5.61	60.65	62.56	61.61	9.56	18.00	13.78	8.49
44	1981/1982	IA, ID, KS, NE, OK, UT, WY	5.63	59.45	65.70	62.58	9.84	17.28	13.56	8.49
45	1982/1983	IA, KS, ND, NE, OK, SD, UT, WY	5.80	60.09	63.86	61.98	9.34	18.04	13.69	8.49
46	1980/1982	IA, ID, ND, NE, OR, SD, UT, WY	5.00	55.21	56.97	56.09	10.01	20.24	15.13	8.49
47	1981/1982	AR, ID, KS, NE, OK, UT, WY	5.35	59.54	65.87	62.70	9.93	17.12	13.53	8.48
48	1982/1983	AR, AZ, NM, OK, SD, UT, WY	5.28	60.72	62.55	61.63	9.59	17.93	13.76	8.48
49	1981/1983	IA, KS, ND, NE, OK, SD, WY	5.16	58.69	65.23	61.96	9.20	18.17	13.69	8.48
50	1981/1982	ID, KS, MT, ND, NE, OK, SD, UT, WY	5.28	59.45	65.68	62.57	9.84	17.26	13.55	8.48
51	1982/1983	IA, KS, NE, OK, UT, WY	5.21	60.09	63.85	61.97	9.27	18.08	13.67	8.47
52	1980/1981	IA, ID, ND, NE, OR, SD, UT, WY	5.00	51.85	55.66	53.75	10.79	20.70	15.75	8.46
53	1982/1983	AR, AZ, MT, NM, OK, UT, WY	5.32	60.65	62.54	61.60	9.49	17.99	13.74	8.46
54	1981/1983	IA, KS, MT, ND, NE, OK, WY	5.20	58.64	65.21	61.92	9.10	18.22	13.66	8.46
55	1982/1983	IA, KS, NE, OK, SD, UT, WY	5.52	60.09	63.85	61.97	9.27	18.03	13.65	8.46
56	1982/1983	IA, KS, MT, ND, NE, OK, SD, UT, WY	6.15	60.03	63.85	61.94	9.25	18.06	13.65	8.46
57	1982/1983	AR, AZ, MT, NM, OK, SD, UT, WY	5.62	60.65	62.54	61.60	9.49	17.94	13.72	8.45
58	1982/1983	IA, KS, MT, NE, OK, UT, WY	5.56	60.03	63.84	61.93	9.18	18.09	13.64	8.45
59	1981/1983	AR, KS, ND, NE, OK, SD, UT, WY	5.53	58.90	64.06	61.48	9.74	17.73	13.74	8.44
60	1982/1983	AZ, ND, NE, NM, OK, SD, UT, WY	5.25	60.67	62.70	61.69	9.54	17.83	13.69	8.44
61	1981/1983	AR, LA, MS, OK	5.31	58.55	63.51	61.03	11.67	15.98	13.83	8.44
62	1982/1983	IA, KS, MT, NE, OK, SD, UT, WY	5.86	60.03	63.84	61.93	9.19	18.04	13.61	8.43
63	1982/1983	AZ, IA, ND, NM, OK, SD, UT, WY	5.84	60.70	62.69	61.69	9.23	18.09	13.66	8.43
64	1982/1983	AZ, MT, ND, NE, NM, OK, UT, WY	5.29	60.60	62.70	61.65	9.44	17.89	13.67	8.42
65	1981/1982	ID, KS, ND, NE, OK, OR, SD, UT, WY	6.10	59.44	65.18	62.31	9.69	17.35	13.52	8.42
66	1981/1983	AR, KS, MT, ND, NE, OK, UT, WY	5.57	58.85	64.04	61.45	9.64	17.78	13.71	8.42
67	1981/1982	ID, KS, NE, OK, OR, UT, WY	5.50	59.44	65.18	62.31	9.67	17.36	13.52	8.42
68	1981/1983	AR, KS, NE, OK, SD, UT, WY	5.24	58.90	64.04	61.47	9.68	17.72	13.70	8.42
69	1981/1983	AR, KS, MT, ND, NE, OK, SD, UT, WY	5.87	58.85	64.04	61.45	9.64	17.73	13.68	8.41
70	1981/1982	AR, KS, LA, ND, NE, OK, SD, UT, WY	7.38	58.28	64.99	61.64	10.50	16.78	13.64	8.41
71	1981/1982	ID, KS, NE, OK, OR, SD, UT, WY	5.81	59.44	65.18	62.31	9.65	17.33	13.49	8.40
72	1981/1982	AR, KS, LA, NE, OK, UT, WY	6.79	58.28	64.99	61.63	10.48	16.78	13.63	8.40
73	1982/1983	AZ, IA, NM, OK, SD, UT, WY	5.55	60.70	62.67	61.68	9.16	18.08	13.62	8.40
74	1982/1983	AZ, IA, MT, ND, NM, OK, SD, UT, WY	6.19	60.63	62.68	61.66	9.15	18.10	13.63	8.40
75	1982/1983	AZ, MT, NE, NM, OK, UT, WY	5.00	60.60	62.68	61.64	9.38	17.88	13.63	8.40
76	1981/1983	AR, KS, MT, NE, OK, UT, WY	5.28	58.85	64.03	61.44	9.58	17.76	13.67	8.40
77	1981/1982	AZ, IA, ND, NM, OK, SD, UT, WY	5.84	61.09	63.52	62.30	9.04	17.92	13.48	8.40

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS—Continued

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
78	1981/1982	AR, AZ, ND, NM, OK, SD, UT, WY	5.56	61.16	63.66	62.41	9.12	17.79	13.45	8.39
79	1981/1982	AR, KS, LA, NE, OK, SD, UT, WY	7.09	58.28	64.99	61.63	10.45	16.76	13.61	8.39
80	1982/1983	AZ, MT, NE, NM, OK, SD, UT, WY	5.31	60.60	62.68	61.64	9.38	17.83	13.61	8.39
81	1981/1983	AR, KS, MT, NE, OK, SD, UT, WY	5.59	58.85	64.03	61.44	9.58	17.72	13.65	8.38
82	1981/1982	ID, KS, MT, ND, NE, OK, OR, UT, WY	6.14	59.44	65.15	62.29	9.56	17.35	13.45	8.38
83	1981/1983	IA, KS, ND, NE, OK, SD, UT, WY	5.80	58.89	64.22	61.55	9.33	17.90	13.61	8.38
84	1981/1982	AZ, IA, NM, OK, SD, UT, WY	5.55	61.09	63.51	62.30	8.99	17.91	13.45	8.38
85	1982/1983	AZ, IA, MT, NM, OK, SD, UT, WY	5.90	60.63	62.67	61.65	9.08	18.09	13.59	8.38
86	1981/1982	AR, AZ, NM, OK, SD, UT, WY	5.28	61.16	63.66	62.41	9.07	17.77	13.42	8.37
87	1981/1982	IA, ID, KS, NE, OK, OR, UT, WY	6.79	59.44	65.17	62.31	9.53	17.35	13.44	8.37
88	1981/1982	AR, ID, KS, ND, NE, OK, OR, SD, UT, WY	7.11	59.52	65.34	62.43	9.63	17.19	13.41	8.37
89	1981/1983	IA, KS, NE, OK, UT, WY	5.21	58.89	64.21	61.55	9.27	17.93	13.60	8.37
90	1981/1982	ID, KS, NE, OK, OR, UT, WY	6.51	59.52	65.34	62.43	9.61	17.20	13.40	8.37
91	1981/1982	AR, ID, KS, MT, ND, NE, OK, OR, SD, UT, WY	6.44	59.44	65.15	62.29	9.53	17.33	13.43	8.37
92	1982/1983	AR, IA, KS, ND, NE, OK, SD, UT, WY	6.81	60.15	63.63	61.89	9.22	17.80	13.51	8.36
93	1981/1982	ID, KS, MT, NE, OK, OR, UT, WY	5.85	59.44	65.15	62.29	9.51	17.34	13.42	8.36
94	1981/1982	AR, KS, LA, MT, ND, NE, OK, UT, WY	7.43	58.28	64.97	61.63	10.34	16.78	13.56	8.36
95	1982/1983	ID, KS, MT, ND, NE, OK, SD, UT, WY	5.28	58.40	63.82	61.11	9.72	17.63	13.67	8.36
96	1981/1982	AR, AZ, MT, ND, NM, OK, UT, WY	5.61	61.16	63.64	62.40	8.99	17.79	13.39	8.36
97	1981/1983	IA, KS, NE, OK, SD, UT, WY	5.52	58.89	64.21	61.55	9.27	17.88	13.57	8.35
98	1981/1982	AR, IA, KS, LA, NE, OK, UT, WY	8.08	58.28	64.98	61.63	10.33	16.78	13.56	8.35
99	1982/1983	AR, IA, KS, MT, ND, NE, OK, UT, WY	6.86	60.09	63.62	61.85	9.14	17.86	13.50	8.35
100	1982/1983	AR, IA, KS, NE, OK, UT, WY	6.22	60.15	63.61	61.88	9.15	17.84	13.49	8.35
101	1981/1982	AR, AZ, IA, ND, NM, OK, SD, UT, WY	6.85	61.16	63.68	62.42	8.99	17.77	13.38	8.35
102	1981/1983	IA, KS, MT, ND, NE, OK, SD, UT, WY	6.15	58.84	64.20	61.52	9.24	17.90	13.57	8.35
103	1981/1982	AR, KS, LA, MT, ND, NE, OK, SD, UT, WY	7.73	58.28	64.97	61.63	10.31	16.77	13.54	8.34
104	1981/1982	AZ, IA, MT, ND, NM, OK, SD, UT, WY	6.19	61.09	63.50	62.30	8.89	17.90	13.39	8.34
105	1981/1982	AR, KS, LA, MT, NE, OK, UT, WY	7.14	58.28	64.97	61.62	10.30	16.77	13.54	8.34
106	1981/1982	AR, IA, KS, LA, NE, OK, SD, UT, WY	8.38	58.28	64.98	61.63	10.30	16.77	13.53	8.34
107	1981/1983	IA, KS, MT, NE, OK, UT, WY	5.56	58.84	64.19	61.52	9.18	17.93	13.55	8.34
108	1982/1983	AR, IA, KS, MT, ND, NE, OK, SD, UT, WY	7.16	60.09	63.62	61.85	9.14	17.81	13.48	8.34
109	1981/1982	IA, ID, KS, MT, ND, NE, OK, OR, UT, WY	7.42	59.44	65.14	62.29	9.42	17.34	13.38	8.34
110	1982/1983	AR, IA, KS, NE, OK, SD, UT, WY	6.52	60.15	63.61	61.88	9.16	17.78	13.47	8.34
111	1981/1982	AR, AZ, MT, NM, OK, UT, WY	5.32	61.16	63.64	62.40	8.94	17.77	13.36	8.34
112	1981/1983	AR, AZ, ND, NM, OK, SD, UT, WY	5.56	59.13	62.52	60.83	9.48	17.92	13.70	8.33
113	1981/1982	AR, AZ, IA, NM, OK, SD, UT, WY	6.56	61.16	63.67	62.41	8.94	17.75	13.35	8.33
114	1981/1982	AR, ID, KS, MT, ND, NE, OK, OR, UT, WY	7.15	59.52	65.31	62.42	9.50	17.19	13.35	8.33
115	1981/1982	AR, KS, LA, MT, NE, OK, SD, UT, WY	7.44	58.28	64.97	61.62	10.27	16.75	13.51	8.33
116	1981/1982	IA, KS, ND, NE, OK, SD, WY	5.16	60.54	66.92	63.73	8.72	17.42	13.07	8.33
117	1981/1982	AR, IA, ID, KS, ND, NE, OK, OR, SD, UT, WY	8.39	59.52	65.33	62.43	9.50	17.18	13.34	8.33
118	1982/1983	AZ, ID, MT, ND, NM, OK, UT, WY	5.01	59.02	62.65	60.84	9.59	17.78	13.69	8.33
119	1982/1983	AR, IA, KS, MT, NE, OK, UT, WY	6.57	60.09	63.60	61.85	9.07	17.85	13.46	8.32
120	1981/1982	AZ, IA, MT, NM, OK, SD, UT, WY	5.90	61.09	63.50	62.29	8.84	17.88	13.36	8.32
121	1981/1983	IA, KS, MT, NE, OK, SD, UT, WY	5.86	58.84	64.19	61.52	9.18	17.88	13.53	8.32
122	1982/1983	AR, AZ, IA, ND, NM, OK, SD, UT, WY	6.85	60.75	62.51	61.63	9.12	17.88	13.50	8.32

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS—Continued

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
123	1981/1982	AR, AZ, MT, NM, OK, SD, UT, WY	5.62	61.16	63.64	62.40	8.92	17.75	13.33	8.32
124	1981/1982	IA, ID, KS, MT, ND, NE, OK, OR, SD, UT, WY	7.73	59.44	65.14	62.29	9.40	17.32	13.36	8.32
125	1982/1983	AR, AZ, NE, NM, OK, UT, WY	5.66	60.72	62.51	61.62	9.34	17.66	13.50	8.32
126	1981/1982	IA, ID, KS, MT, NE, OK, OR, UT, WY	7.14	59.44	65.14	62.29	9.38	17.32	13.35	8.32
127	1980/1982	IA, ID, MT, ND, NE, OR, UT, WY	5.05	55.09	57.02	56.06	9.51	20.16	14.83	8.32
128	1981/1982	AR, ID, KS, MT, ND, NE, OK, OR, SD, UT, WY	7.45	59.52	65.31	62.42	9.47	17.17	13.32	8.31
129	1981/1983	AR, AZ, MT, ND, NM, OK, UT, WY	5.61	59.09	62.51	60.80	9.39	17.95	13.67	8.31
130	1982/1983	AZ, ID, MT, ND, NM, OK, SD, UT, WY	5.32	59.02	62.65	60.84	9.60	17.73	13.67	8.31
131	1981/1982	AR, ID, KS, MT, NE, OK, OR, UT, WY	6.86	59.52	65.31	62.41	9.45	17.18	13.31	8.31
132	1982/1983	AR, IA, KS, MT, NE, OK, SD, UT, WY	6.87	60.09	63.60	61.85	9.08	17.80	13.44	8.31
133	1981/1983	AR, AZ, NM, OK, SD, UT, WY	5.28	59.13	62.51	60.82	9.42	17.90	13.66	8.31
134	1981/1982	AZ, ND, NE, NM, OK, SD, UT, WY	5.25	61.15	63.44	62.30	9.01	17.67	13.34	8.31
135	1981/1982	AR, IA, ID, KS, NE, OK, OR, SD, UT, WY	8.10	59.52	65.33	62.43	9.45	17.16	13.31	8.31
136	1982/1983	AZ, MS, ND, NM, OK, SD, UT, WY	5.67	59.83	62.34	61.09	9.47	17.71	13.59	8.30
137	1981/1982	IA, ID, KS, MT, NE, OK, OR, SD, UT, WY	7.44	59.44	65.14	62.29	9.35	17.30	13.33	8.30
138	1981/1982	AR, AZ, IA, MT, ND, NM, OK, SD, UT, WY	7.20	61.16	63.66	62.41	8.84	17.75	13.30	8.30
139	1982/1983	AR, AZ, IA, MT, ND, NM, OK, SD, UT, WY	7.20	60.68	62.51	61.59	9.05	17.89	13.47	8.30
140	1982/1983	AR, AZ, IA, NM, OK, SD, UT, WY	6.56	60.75	62.50	61.62	9.06	17.87	13.46	8.30
141	1981/1983	AR, AZ, MT, NM, OK, UT, WY	5.32	59.09	62.50	60.79	9.33	17.94	13.64	8.29
142	1981/1983	ID, KS, MT, ND, NE, OK, SD, UT, WY	5.28	57.48	64.03	60.76	9.67	17.62	13.64	8.29
143	1982/1983	AZ, ID, MT, NM, OK, SD, UT, WY	5.03	59.02	62.64	60.83	9.53	17.72	13.63	8.29
144	1980/1982	IA, ID, MT, ND, NE, OR, SD, UT, WY	5.35	55.09	57.02	56.06	9.48	20.09	14.78	8.29
145	1982/1983	AZ, MS, MT, ND, NM, OK, UT, WY	5.71	59.78	62.34	61.06	9.38	17.76	13.57	8.29
146	1981/1982	AR, IA, ID, KS, MT, ND, NE, OK, OR, UT, WY	8.43	59.52	65.29	62.41	9.37	17.19	13.28	8.29
147	1981/1982	IA, KS, MT, ND, NE, OK, WY	5.20	60.54	66.87	63.70	8.57	17.42	12.99	8.28
148	1981/1983	AR, AZ, MT, NM, OK, SD, UT, WY	5.62	59.09	62.50	60.79	9.33	17.90	13.62	8.28
149	1981/1982	AR, AZ, IA, MT, NM, OK, SD, UT, WY	6.91	61.16	63.65	62.41	8.80	17.73	13.27	8.28
150	1982/1983	AZ, MS, NM, OK, SD, UT, WY	5.38	59.83	62.33	61.08	9.41	17.69	13.55	8.28
151	1981/1982	AR, IA, ID, KS, MT, ND, NE, OK, OR, SD, UT, WY	8.74	59.52	65.29	62.41	9.35	17.16	13.25	8.27
152	1981/1983	AR, IA, KS, ND, NE, OK, SD, UT, WY	6.81	58.94	64.05	61.50	9.21	17.68	13.45	8.27
153	1980/1981	IA, ID, MT, ND, NE, OR, UT, WY	5.05	51.74	55.73	53.73	10.22	20.57	15.39	8.27
154	1982/1983	AR, AZ, IA, MT, NM, OK, SD, UT, WY	6.91	60.68	62.49	61.59	8.98	17.88	13.43	8.27
155	1981/1982	AZ, MT, ND, NE, NM, OK, UT, WY	5.29	61.15	63.43	62.29	8.88	17.67	13.28	8.27
156	1980/1983	IA, KS, ND, NE, OK, SD, WY	5.16	57.74	64.56	61.15	9.26	17.78	13.52	8.27
157	1981/1983	AZ, IA, ND, NM, OK, SD, UT, WY	5.84	59.12	62.64	60.88	9.11	18.05	13.58	8.27
158	1981/1982	AR, IA, ID, KS, MT, NE, OK, OR, UT, WY	8.15	59.52	65.29	62.41	9.33	17.17	13.25	8.27
159	1981/1982	AZ, IA, ND, NE, NM, OK, SD, UT, WY	6.54	61.15	63.46	62.30	8.88	17.65	13.27	8.27
160	1981/1983	AZ, ND, NE, NM, OK, SD, UT, WY	5.25	59.12	62.56	60.84	9.36	17.80	13.58	8.26
161	1982/1983	AZ, MS, MT, NM, OK, UT, WY	5.42	59.78	62.32	61.05	9.32	17.75	13.53	8.26
162	1982/1983	AZ, IA, ND, NE, NM, OK, SD, UT, WY	6.54	60.70	62.65	61.67	9.02	17.77	13.40	8.26
163	1981/1983	AR, IA, KS, NE, OK, UT, WY	6.22	58.94	64.04	61.49	9.15	17.71	13.43	8.26

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS—Continued

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
164	1981/1982	AZ, IA, NE, NM, OK, UT, WY	5.94	61.15	63.45	62.30	8.86	17.66	13.26	8.26
165	1981/1982	AR, AZ, NE, NM, OK, UT, WY	5.66	61.22	63.60	62.41	8.93	17.53	13.23	8.26
166	1981/1983	AR, IA, KS, MT, ND, NE, OK, UT, WY	6.86	58.90	64.03	61.47	9.13	17.73	13.43	8.26
167	1982/1983	AR, ID, KS, NE, OK, UT, WY	5.35	58.51	63.58	61.05	9.62	17.42	13.52	8.25
168	1981/1982	AZ, ID, MT, ND, NM, OK, UT, WY	5.01	60.10	63.25	61.68	9.00	17.77	13.38	8.25
169	1982/1984	IA, KS, NE, OK, UT, WY	5.21	60.49	64.45	62.47	8.53	17.90	13.21	8.25
170	1981/1982	AZ, MT, NE, NM, OK, UT, WY	5.00	61.15	63.42	62.28	8.83	17.66	13.25	8.25
171	1982/1983	AZ, MS, MT, NM, OK, SD, UT, WY	5.73	59.78	62.32	61.05	9.32	17.70	13.51	8.25
172	1982/1983	AZ, IA, NE, NM, OK, UT, WY	5.94	60.70	62.63	61.67	8.95	17.80	13.38	8.25
173	1982/1984	IA, KS, ND, NE, OK, SD, UT, WY	5.80	60.41	64.47	62.44	8.60	17.82	13.21	8.25
174	1981/1983	AR, IA, KS, NE, OK, SD, UT, WY	6.52	58.94	64.04	61.49	9.15	17.67	13.41	8.25
175	1980/1982	IA, ID, MT, NE, OR, SD, UT, WY	5.06	55.22	9.34	56.09	9.34	20.07	14.70	8.25
176	1981/1982	AZ, LA, ND, NM, OK, SD, UT, WY	6.41	58.76	63.42	61.09	9.70	17.30	13.50	8.25
177	1981/1982	AZ, IA, NE, NM, OK, SD, UT, WY	6.25	61.15	63.45	62.30	8.83	17.64	13.23	8.25
178	1981/1983	AZ, IA, NM, OK, SD, UT, WY	5.55	59.12	62.63	60.87	9.04	18.04	13.54	8.24
179	1982/1984	IA, KS, MT, NE, OK, UT, WY	5.56	60.54	64.44	62.49	8.49	17.90	13.19	8.24
180	1980/1981	IA, ID, MT, ND, NE, OR, SD, UT, WY	5.35	51.74	55.73	53.73	10.18	20.50	15.34	8.24
181	1981/1983	AZ, MT, ND, NE, NM, OK, UT, WY	5.29	59.07	62.55	60.81	9.28	17.84	13.56	8.24
182	1981/1982	AR, AZ, ID, NM, OK, UT, WY	5.39	60.18	63.42	61.80	9.04	17.63	13.34	8.24
183	1981/1983	AR, IA, KS, MT, ND, NE, OK, SD, UT, WY	7.16	58.90	64.03	61.47	9.13	17.68	13.41	8.24
184	1981/1983	AZ, IA, MT, ND, NM, OK, SD, UT, WY	6.19	59.08	62.63	60.85	9.03	18.05	13.54	8.24
185	1981/1982	AZ, ID, MT, ND, NM, OK, SD, UT, WY	5.32	60.10	63.25	61.68	8.97	17.74	13.36	8.24
186	1982/1984	IA, KS, MT, ND, NE, OK, SD, UT, WY	6.15	60.46	64.46	62.46	8.56	17.81	13.19	8.24
187	1983/1984	AR, AZ, LA, NM, OK	6.15	59.53	64.60	62.07	9.23	17.31	13.27	8.24
188	1982/1983	AZ, IA, NE, NM, OK, SD, UT, WY	6.25	60.70	62.63	61.67	8.95	17.76	13.36	8.24
189	1981/1982	AZ, MT, NE, NM, OK, SD, UT, WY	5.31	61.15	63.42	62.28	8.81	17.63	13.22	8.24
190	1982/1984	AR, KS, MT, ND, NE, OK, UT, WY	5.57	60.01	64.36	62.18	8.83	17.65	13.24	8.23
191	1981/1983	AR, IA, KS, MT, NE, OK, UT, WY	6.57	58.90	64.02	61.46	9.07	17.71	13.39	8.23
192	1981/1982	AZ, IA, ID, NM, OK, SD, UT, WY	5.97	60.10	63.28	61.69	8.95	17.73	13.34	8.23
193	1981/1982	AZ, LA, NM, OK, SD, UT, WY	6.12	58.76	63.42	61.09	9.66	17.28	13.47	8.23
194	1981/1982	AR, KS, MS, ND, NE, OK, SD, UT, WY	6.64	59.80	65.04	62.42	9.41	16.94	13.18	8.23
195	1982/1983	AZ, IA, MT, NE, NM, OK, UT, WY	6.29	60.63	62.63	61.63	8.88	17.81	13.34	8.22
196	1982/1983	AR, AZ, ID, NM, OK, UT, WY	5.39	59.13	62.46	60.80	9.50	17.56	13.53	8.22
197	1981/1982	AR, KS, MS, NE, OK, UT, WY	6.05	59.80	65.04	62.42	9.39	16.95	13.17	8.22
198	1982/1983	AR, KS, MS, ND, NE, OK, SD, UT, WY	6.64	59.29	63.22	61.26	9.47	17.37	13.42	8.22
199	1981/1982	AZ, ID, MT, NM, OK, SD, UT, WY	5.03	60.10	63.25	61.67	8.92	17.73	13.33	8.22
200	1981/1983	AZ, MT, NE, NM, OK, UT, WY	5.00	59.07	62.54	60.81	9.21	17.82	13.52	8.22
201	1982/1984	IA, KS, NE, OK, SD, UT, WY	5.52	60.42	64.46	62.44	8.53	17.80	13.16	8.22
202	1980/1983	IA, KS, MT, ND, NE, OK, WY	5.20	57.64	64.54	61.09	9.10	17.81	13.45	8.22
203	1981/1983	AR, IA, KS, MT, NE, OK, SD, UT, WY	6.87	58.90	64.02	61.46	9.07	17.67	13.37	8.22
204	1981/1983	AZ, IA, MT, NM, OK, SD, UT, WY	5.90	59.08	62.62	60.85	8.97	18.04	13.50	8.22
205	1981/1982	AR, AZ, IA, NE, NM, OK, UT, WY	6.95	61.22	63.61	62.42	8.81	17.52	13.16	8.22
206	1980/1981	IA, ID, MT, NE, OR, SD, UT, WY	5.06	51.82	55.73	53.77	10.06	20.49	15.28	8.21
207	1982/1983	AZ, IA, MT, NE, NM, OK, SD, UT, WY	6.59	60.63	62.63	61.63	8.88	17.77	13.32	8.21
208	1981/1982	AR, AZ, LA, ND, NM, OK, SD, UT, WY	7.42	58.84	63.53	61.18	9.64	17.20	13.42	8.21
209	1982/1984	AR, KS, ND, NE, OK, SD, UT, WY	5.53	59.88	64.38	62.13	8.87	17.56	13.21	8.21
210	1982/1984	IA, KS, MT, NE, OK, SD, UT, WY	5.86	60.47	64.45	62.46	8.49	17.80	13.14	8.21
211	1981/1982	AZ, ID, ND, NM, OK, OR, SD, UT, WY	6.13	60.07	62.92	61.50	8.90	17.80	13.35	8.21
212	1981/1982	AZ, IA, MT, NE, NM, OK, UT, WY	6.29	61.15	63.44	62.29	8.72	17.64	13.18	8.21
213	1982/1983	AR, KS, MS, NE, OK, UT, WY	6.05	59.29	63.20	61.25	9.40	17.41	13.40	8.21
214	1982/1983	AR, KS, MS, MT, ND, NE, OK, UT, WY	6.68	59.24	63.21	61.22	9.38	17.44	13.41	8.21
215	1981/1983	AZ, MT, NE, NM, OK, SD, UT, WY	5.31	59.07	62.54	60.81	9.21	17.78	13.50	8.21

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS—Continued

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
216	1981/1982	AZ, LA, MT, ND, NM, OK, UT, WY	6.45	58.76	63.41	61.09	9.57	17.30	13.44	8.21
217	1981/1982	AR, AZ, LA, NM, OK, UT, WY	6.83	58.84	63.52	61.18	9.63	17.20	13.41	8.21
218	1981/1982	AZ, ID, NM, OK, OR, UT, WY	5.54	60.07	62.91	61.49	8.88	17.81	13.34	8.21
219	1981/1983	AR, ID, KS, NE, OK, UT, WY	5.35	57.57	63.87	60.72	9.58	17.44	13.51	8.20
220	1982/1984	AR, KS, MT, NE, OK, UT, WY	5.28	60.01	64.35	62.18	8.75	17.64	13.19	8.20
221	1981/1982	AR, KS, MS, NE, OK, SD,UT WY	6.35	59.80	65.04	62.42	9.36	16.92	13.14	8.20
222	1981/1983	AZ ID, MT, ND, NM, OK, UT, WY	5.01	57.75	62.49	60.12	9.43	17.86	13.64	8.20
223	1982/1984	AR, KS, MT, ND, NE, OK, SD, UT, WY	5.87	59.94	64.37	62.16	8.82	17.56	13.19	8.20
224	1982/1983	AZ, LA, ND, NM, OK, SD, UT, WY	6.41	59.21	62.16	60.68	10.02	17.00	13.51	8.20
225	1981/1984	IA, KS, NE, OK, UT, WY	5.21	59.73	64.67	62.20	8.56	17.81	13.18	8.20
226	1981/1984	IA, KS, ND, NE, OK, SD, UT, WY	5.80	59.67	64.69	62.18	8.62	17.74	13.18	8.20
227	1981/1982	AR, AZ, LA, NM, OK, SD, UT, WY	7.13	58.84	63.52	61.18	9.60	17.19	13.40	8.20
228	1981/1982	AZ, IA, MT, NE, NM, OK, SD, UT, WY	6.59	61.15	63.44	62.29	8.69	17.62	13.16	8.19
229	1982/1983	AR, KS, MS, MT, ND, NE, OK, SD, UT, WY	6.99	59.24	63.21	61.22	9.38	17.39	13.38	8.19
230	1982/1983	AR, KS, MS, NE, OK, SD, UT, WY	6.35	59.29	63.20	61.25	9.40	17.36	13.38	8.19
231	1981/1982	AZ, ID, NM, OK, OR, SD, UT, WY	5.85	60.07	62.91	61.49	8.86	17.79	13.32	8.19
232	1981/1982	AZ, LA, MT, NM, OK, UT, WY	6.17	58.76	63.41	61.09	9.53	17.29	13.41	8.19
233	1981/1982	AZ, IA, LA, NM, OK, SD, UT, WY	7.41	58.76	63.43	61.10	9.53	17.28	13.40	8.19
234	1981/1983	AZ, ID, MT, ND, NM, OK, SD, UT, WY	5.32	57.75	62.49	60.12	9.42	17.82	13.62	8.19
235	1982/1983	AR, AZ, MS, NM, OK, UT, WY	6.08	59.89	62.16	61.02	9.29	17.54	13.41	8.19
236	1981/1984	IA, KS, MT, NE, OK, UT, WY	5.56	59.78	64.65	62.22	8.52	17.80	13.16	8.19
237	1981/1984	IA, KS, MT, ND, NE, OK, SD, UT, WY	6.15	59.72	64.67	62.20	8.58	17.73	13.16	8.18
238	1981/1982	AR, KS, MS, MT, ND, NE, OK, UT, WY	6.68	59.80	65.01	62.41	9.28	16.95	13.11	8.18
239	1982/1983	AZ, LA, MT, ND, NM, OK, UT, WY	6.45	59.16	62.15	60.66	9.94	17.04	13.49	8.18
240	1982/1983	IA, ID, KS, NE, OK, UT, WY	5.63	58.50	63.74	61.12	9.19	17.58	13.39	8.18
241	1982/1983	AR, KS, MS, MT, NE, OK, UT, WY	6.39	59.24	63.20	61.22	9.31	17.42	13.37	8.18
242	1982/1984	AR, KS, NE, OK, SD, UT, WY	5.24	59.89	64.37	62.13	8.79	17.55	13.17	8.18
243	1982/1983	AZ, LA, NM, OK, SD, UT, WY	6.12	59.21	62.14	60.68	9.97	16.99	13.48	8.18
244	1981/1984	AR, KS, MT, ND, NE, OK, UT, WY	5.57	59.28	64.55	61.91	8.84	17.58	13.21	8.18
245	1981/1983	AR, AZ, IA, ND, NM, OK, SD, UT, WY	6.85	59.18	62.53	60.85	9.00	17.87	13.44	8.18
246	1981/1982	AR, IA, KS, MS, NE, OK, UT, WY	7.33	59.80	65.03	62.42	9.25	16.95	13.10	8.18
247	1981/1982	AZ, ID, MT, ND, NM, OK, OR, UT, WY	6.18	60.07	62.91	61.49	8.79	17.80	13.30	8.18
248	1982/1983	AZ, ID, ND, NE, NM, OK, SD, UT, WY	5.67	59.07	62.62	60.84	9.45	17.42	13.44	8.18
249	1981/1982	AR, AZ, LA, MT, ND, NM, OK, UT, WY	7.46	58.84	63.52	61.18	9.52	17.20	13.36	8.17
250	1981/1982	AR, AZ, IA, LA, ND, NM, OK, SD, UT, WY	8.71	58.84	63.54	61.19	9.52	17.19	13.36	8.17
251	1982/1984	AR, KS, MT, NE, OK, SD, UT, WY	5.59	59.94	64.36	62.15	8.75	17.55	13.15	8.17
252	1981/1984	IA, KS, NE ,OK, SD, UT, WY	5.52	59.67	64.68	62.17	8.55	17.73	13.14	8.17
253	1981/1982	AR, AZ, ID, ND, NM, OK, OR, SD, UT, WY	7.14	60.15	63.08	61.62	8.86	17.66	13.26	8.17
254	1981/1982	AR, KS, MS, MT, ND, NE, OK, SD, UT, WY	6.99	59.80	65.01	62.41	9.25	16.92	13.09	8.17
255	1981/1983	AZ, ID, MT, NM, OK, SD, UT, WY	5.03	57.75	62.48	60.12	9.36	17.81	13.58	8.17
256	1981/1982	AR, AZ, ID, NM, OK, OR, UT, WY	6.55	60.15	63.08	61.61	8.84	17.67	13.25	8.17
257	1981/1984	AR, KS, ND, NE, OK, SD, UT, WY	5.53	59.16	64.58	61.87	8.88	17.51	13.20	8.16
258	1981/1983	ID, KS, ND, NE, OK, OR, SD, UT, WY	6.10	57.08	63.70	60.39	9.57	17.47	13.52	8.16
259	1981/1982	AZ, ID, ND, NE, NM, OK, SD, UT, WY	5.67	60.16	63.21	61.69	8.96	17.51	13.23	8.16
260	1981/1982	AR, AZ, LA, MT, ND, NM, OK, SD, UT, WY	7.77	58.84	63.52	61.18	9.50	17.19	13.34	8.16
261	1982/1983	AZ, LA, MT, NM, OK, UT, WY	6.17	59.16	62.14	60.65	9.89	17.03	13.46	8.16
262	1981/1982	AR, KS, MS, MT, NE, OK, UT, WY	6.39	59.80	65.01	62.40	9.23	16.93	13.08	8.16
263	1982/1983	AZ, ID, NE, NM, OK, UT, WY	5.07	59.07	62.60	60.84	9.38	17.45	13.42	8.16
264	1981/1983	AR, AZ, NE, NM, OK, UT, WY	5.66	59.17	62.44	60.81	9.19	17.65	13.42	8.16
265	1981/1982	AR, AZ, LA, MT, NM, OK, UT, WY	7.18	58.84	63.51	61.18	9.48	17.19	13.34	8.16
266	1981/1982	AZ, ID, NE, NM, OK, UT, WY	5.07	60.16	63.20	61.68	8.94	17.51	13.23	8.16

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS—Continued

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
267	1981/1982	AR, AZ, IA, LA, NM, OK, SD, UT, WY	8.42	58.84	63.53	61.19	9.48	17.18	13.33	8.16
268	1981/1984	IA, KS, MT, NE, OK, SD, UT, WY	5.86	59.72	64.66	62.19	8.51	17.72	13.12	8.16
269	1983/1984	IA, KS, MT, NE, OK, UT, WY	5.50	59.42	63.35	61.38	8.26	18.31	13.29	8.15
270	1981/1983	ID, KS, NE, OK, OR, UT, WY	5.50	57.08	63.69	60.38	9.51	17.50	13.50	8.15
271	1981/1983	AR, AZ, IA, NM, OK, SD, UT, WY	6.56	59.18	62.52	60.85	8.94	17.86	13.40	8.15
272	1981/1983	AR, AZ, IA, MT, ND, NM, OK, SD, UT, WY	7.20	59.13	62.52	60.83	8.93	17.87	13.40	8.15
273	1981/1984	AR, KS, MT, NE, OK, UT, WY	5.28	59.27	64.54	61.91	8.76	17.57	13.17	8.15
274	1981/1984	AR, KS, MT, ND, NE, OK, SD, UT, WY	5.87	59.22	64.56	61.89	8.83	17.51	13.17	8.15
275	1982/1983	AZ, ID, NE, NM, OK, SD, UT, WY	5.38	59.07	62.60	60.84	9.39	17.41	13.40	8.15
276	1982/1983	ID, KS, ND, NE, OK, OR, SD, UT, WY	6.10	58.08	63.58	60.83	9.60	17.19	13.40	8.15
277	1982/1983	AZ, ID, MT, ND, NE, NM, OK, SD, UT, WY	6.01	59.02	62.61	60.82	9.37	17.43	13.40	8.15
278	1983/1984	IA, KS, NE, OK, UT, WY	5.15	59.33	63.35	61.34	8.27	18.30	13.28	8.15
279	1981/1983	ID, KS, MT, ND, NE, OK, OR, UT, WY	6.14	57.05	63.69	60.37	9.48	17.51	13.50	8.15
280	1982/1983	AR, AZ, IA, NE, NM, OK, UT, WY	6.95	60.75	62.46	61.60	8.85	17.60	13.23	8.15
281	1981/1983	AZ, MS, ND, NM, OK, SD, UT, WY	5.67	58.59	62.05	60.32	9.31	17.69	13.50	8.15
282	1981/1982	AZ, ID, NE, NM, OK, SD, UT, WY	5.38	60.16	63.20	61.68	8.91	17.49	13.20	8.14
283	1981/1982	IA, ID, MT, ND, NV, OR, SD, UT, WY	5.01	53.95	54.79	54.37	8.45	21.51	14.98	8.14
284	1981/1983	IA, ID, KS, NE, OK, UT, WY	5.63	57.57	64.03	60.80	9.19	17.60	13.39	8.14
285	1981/1983	ID, KS, NE, OK, OR, SD, UT, WY	5.81	57.08	63.69	60.38	9.51	17.45	13.48	8.14
286	1981/1982	AZ, LA, NE, NM, OK, UT, WY	6.51	58.82	63.38	61.10	9.53	17.12	13.32	8.14
287	1982/1983	AZ, IA, ID, NM, OK, SD, UT, WY	5.97	59.12	62.59	60.85	9.10	17.65	13.37	8.14
288	1981/1982	AR, AZ, ID, MT, ND, NM, OK, OR, UT, WY	7.19	60.15	63.07	61.61	8.75	17.66	13.21	8.14
289	1982/1983	ID, KS, NE, OK, OR, UT, WY	5.50	58.08	63.57	60.82	9.54	17.22	13.38	8.14
290	1982/1983	ID, KS, MT, ND, NE, OK, OR, UT, WY	6.14	58.04	63.57	60.81	9.51	17.25	13.38	8.14
291	1981/1984	AR, KS, NE, OK, SD, UT, WY	5.24	59.15	64.57	61.86	8.81	17.50	13.15	8.14
292	1982/1983	AZ, ID, MT, NE, NM, OK, UT, WY	5.42	59.02	62.60	60.81	9.30	17.46	13.38	8.14
293	1981/1983	AZ, LA, ND, NM, OK, SD, UT, WY	6.41	58.07	62.15	60.11	9.84	17.22	13.53	8.13
294	1981/1983	ID, KS, MT, ND, NE, OK, OR, SD, UT, WY	6.44	57.05	63.69	60.37	9.48	17.47	13.48	8.13
295	1981/1982	AR, AZ, IA, ID, ND, NM, OK, OR, SD, UT, WY	8.43	60.15	63.10	61.63	8.75	17.65	13.20	8.13
296	1983/1984	IA, KS, MT, ND, NE, OK, SD, UT, WY	6.07	59.33	63.39	61.36	8.34	18.17	13.25	8.13
297	1982/1983	AZ, ID, ND, NM, OK, OR, SD, UT, WY	6.13	58.69	62.47	60.58	9.49	17.35	13.42	8.13
298	1981/1982	AZ, LA, NE, NM, OK, SD, UT, WY	6.82	58.82	63.38	61.10	9.50	17.10	13.30	8.13
299	1981/1982	AZ, ID, LA, NM, OK, UT, WY	6.24	57.99	63.27	60.63	9.62	17.20	13.41	8.13
300	1981/1983	AZ, MS, MT, ND, NM, OK, UT, WY	5.71	58.55	62.04	60.30	9.23	17.73	13.48	8.13
301	1982/1983	AR, AZ, NM, NV, OK, UT, WY	5.32	59.63	61.70	60.67	9.10	17.70	13.40	8.13
302	1981/1983	AR, AZ, IA, MT, NM, OK, SD, UT, WY	6.91	59.13	62.51	60.82	8.87	17.86	13.36	8.13
303	1981/1982	AR, AZ, IA, LA, MT, ND, NM, OK, SD, UT, WY	9.06	58.84	63.53	61.18	9.38	17.18	13.28	8.13
304	1982/1983	AZ, MS, NE, NM, OK, UT, WY	5.77	59.83	62.29	61.06	9.18	17.43	13.31	8.13
305	1983/1984	IA, KS, ND, NE, OK, SD, UT, WY	5.73	59.24	63.39	61.32	8.35	18.15	13.25	8.13
306	1981/1982	AR, AZ, ID, MT, ND, NM, OK, OR, SD, UT, WY	7.49	60.15	63.07	61.61	8.73	17.64	13.19	8.12
307	1981/1983	ID, KS, MT, NE, OK, OR, UT, WY	5.85	57.05	63.68	60.36	9.42	17.50	13.46	8.12
308	1981/1983	AR, KS, MS, ND, NE, OK, SD, UT, WY	6.64	58.40	63.31	60.86	9.43	17.27	13.35	8.12
309	1982/1983	ID, KS, NE, OK, OR, SD, UT, WY	5.81	58.08	63.57	60.82	9.54	17.17	13.36	8.12
310	1982/1983	ID, KS, MT, ND, NE, OK, OR, SD, UT, WY	6.44	58.04	63.57	60.81	9.52	17.20	13.36	8.12
311	1982/1983	AR, AZ, LA, ND, NM, OK, SD, UT, WY	7.42	59.26	62.04	60.65	9.91	16.87	13.39	8.12
312	1981/1984	AR, KS, MT, NE, OK, SD, UT, WY	5.59	59.21	64.56	61.88	8.76	17.49	13.13	8.12
313	1981/1983	AZ, MS, NM, OK, SD, UT, WY	5.38	58.59	62.04	60.31	9.26	17.68	13.47	8.12
314	1982/1983	AR, CO, ND, OK, SD, UT, WY	5.07	59.32	62.38	60.85	9.44	17.26	13.35	8.12

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS—Continued

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
315	1981/1982	AR, AZ, ID, MT, NM, OK, OR, UT, WY	6.90	60.15	63.06	61.61	8.71	17.65	13.18	8.12
316	1981/1982	AZ, IA, ID, NE, NM, OK, UT, WY	6.36	60.16	63.22	61.69	8.82	17.50	13.16	8.12
317	1981/1983	AR, AZ, ID, NM, OK, UT, WY	5.39	57.85	62.38	60.11	9.34	17.67	13.51	8.12
318	1982/1983	AZ, ID, NM, OK, OR, UT, WY	5.54	58.69	62.45	60.57	9.43	17.38	13.40	8.12
319	1982/1983	AZ, ID, MT, ND, NM, OK, OR, UT, WY	6.18	58.65	62.46	60.55	9.41	17.40	13.41	8.12
320	1981/1983	AZ, LA, MT, ND, NM, OK, UT, WY	6.45	58.04	62.15	60.09	9.76	17.25	13.51	8.12
321	1981/1983	AZ, LA, NM, OK, SD, UT, WY	6.12	58.07	62.15	60.11	9.80	17.21	13.50	8.12
322	1983/1984	AR, KS, LA, MT, ND, NE, OK, UT, WY	7.42	59.14	63.99	61.57	8.92	17.44	13.18	8.11
323	1982/1983	AZ, MS, NE, NM, OK, SD, UT, WY	6.07	59.83	62.29	61.06	9.19	17.39	13.29	8.11
324	1982/1983	AR, KS, LA, ND, NE, OK, SD, UT, WY	7.38	58.73	62.73	60.73	10.02	16.70	13.36	8.11
325	1981/1982	AZ, ID, MT, ND, NE, NM, OK, SD, UT, WY	6.01	60.16	63.19	61.68	8.82	17.49	13.16	8.11
326	1981/1983	AR, KS, MS, NE, OK, UT, WY	6.05	58.40	63.30	60.85	9.37	17.30	13.33	8.11
327	1980/1983	AR, KS, ND, NE, OK, SD, UT, WY	5.53	57.40	63.11	60.26	9.68	17.24	13.46	8.11
328	1982/1983	AR, AZ, LA, NM, OK, UT, WY	6.83	59.26	62.03	60.64	9.86	16.89	13.38	8.11
329	1982/1983	ID, KS, MT, NE, OK, OR, UT, WY	5.85	58.04	63.56	60.80	9.45	17.23	13.34	8.11
330	1981/1983	AZ, IA, ND, NE, NM, OK, SD, UT, WY	6.54	59.16	62.57	60.86	8.90	17.76	13.33	8.11
331	1981/1982	AZ, ID, MT, NE, NM, OK, UT, WY	5.42	60.16	63.19	61.67	8.80	17.50	13.15	8.11
332	1981/1983	AR, KS, MS, MT, ND, NE, OK, UT, WY	6.68	58.36	63.30	60.83	9.34	17.32	13.33	8.11
333	1982/1983	AR, AZ, LA, MT, ND, NM, OK, UT, WY	7.46	59.21	62.04	60.63	9.83	16.91	13.37	8.11
334	1982/1983	AZ, ID, NM, OK, OR, SD, UT, WY	5.85	58.69	62.45	60.57	9.43	17.34	13.38	8.11
335	1981/1983	AR, KS, LA, ND, NE, OK, SD, UT, WY	7.38	57.89	62.99	60.44	9.95	16.87	13.41	8.11
336	1981/1983	AZ, MS, MT, NM, OK, UT, WY	5.42	58.55	62.03	60.29	9.17	17.72	13.44	8.11
337	1983/1984	IA, KS, MT, NE, OK, SD, UT, WY	5.79	59.33	63.37	61.35	8.26	18.16	13.21	8.10
338	1982/1983	AR, AZ, MT, NM, NV, OK, UT, WY	5.67	59.58	61.70	60.64	9.02	17.71	13.36	8.10
339	1982/1983	AR, AZ, LA, NM, OK, SD, UT, WY	7.13	59.26	62.03	60.64	9.86	16.86	13.36	8.10
340	1981/1982	AZ, IA, LA, NE, NM, OK, UT, WY	7.80	58.82	63.39	61.11	9.41	17.12	13.26	8.10
341	1982/1983	AR, KS, LA, NE, OK, UT, WY	6.79	58.73	62.72	60.72	9.97	16.72	13.34	8.10
342	1982/1983	AZ, MS, MT, NE, NM, OK, UT, WY	6.12	59.78	62.29	61.03	9.11	17.45	13.28	8.10
343	1982/1984	AR, KS, LA, MT, ND, NE, OK, UT, WY	7.43	59.36	64.65	62.00	9.17	16.96	13.06	8.10
344	1981/1983	AR, KS, MS, NE, OK, SD, UT, WY	6.35	58.40	63.30	60.85	9.37	17.26	13.31	8.10
345	1981/1983	AZ, IA, NE, NM, OK, UT, WY	5.94	59.16	62.55	60.86	8.83	17.78	13.31	8.10
346	1982/1983	AR, AZ, LA, MT, ND, NM, OK, SD, UT, WY	7.77	59.21	62.04	60.63	9.83	16.88	13.36	8.10
347	1981/1983	AZ, LA, MT, NM, OK, UT, WY	6.17	58.04	62.14	60.09	9.72	17.24	13.48	8.10
348	1982/1983	AR, KS, LA, MT, ND, NE, OK, UT, WY	7.43	58.68	62.72	60.70	9.94	16.75	13.34	8.10
349	1983/1984	IA, KS, NE, OK, SD, UT, WY	5.44	59.24	63.37	61.31	8.27	18.14	13.21	8.10
350	1982/1984	AR, IA, KS, MT, ND, NE, OK, UT, WY	6.86	60.35	64.26	62.31	8.40	17.60	13.00	8.10
351	1981/1983	AR, KS, LA, NE, OK, UT, WY	6.79	57.89	62.98	60.44	9.91	16.89	13.40	8.10
352	1981/1983	AR, KS, MS, MT, ND, NE, OK, SD, UT, WY	6.99	58.36	63.30	60.83	9.34	17.27	13.31	8.10
353	1981/1983	AZ, MS, MT, NM, OK, SD, UT, WY	5.73	58.55	62.03	60.29	9.17	17.68	13.43	8.09
354	1982/1983	AR, KS, LA, NE, OK, SD, UT, WY	7.09	58.73	62.72	60.72	9.97	16.69	13.33	8.09
355	1983/1984	AR, KS, LA, MT, NE, OK, UT, WY	7.14	59.14	63.99	61.56	8.86	17.43	13.15	8.09
356	1981/1982	AZ, LA, MT, NE, NM, OK, UT, WY	6.86	58.82	63.37	61.09	9.39	17.11	13.25	8.09
357	1983/1984	AR, KS, LA, NE, OK, UT, WY	6.79	59.06	63.99	61.52	8.88	17.42	13.15	8.09
358	1982/1983	AR, KS, LA, MT, ND, NE, OK, SD, UT, WY	7.73	58.68	62.72	60.70	9.94	16.71	13.33	8.09
359	1982/1984	AR, KS, LA, NE, OK, UT, WY	6.79	59.31	64.65	61.98	9.15	16.95	13.05	8.09
360	1982/1984	AR, KS, LA, ND, NE, OK, SD, UT, WY	7.38	59.26	64.66	61.96	9.21	16.90	13.05	8.09
361	1981/1983	AR, KS, LA, MT, ND, NE, OK, UT, WY	7.43	57.85	62.99	60.42	9.87	16.90	13.39	8.09
362	1980/1983	AR, KS, NE, OK, SD, UT, WY	5.24	57.48	63.09	60.29	9.60	17.23	13.41	8.09

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS—Continued

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
363	1981/1983	AZ, IA, NE, NM, OK, SD, UT, WY	6.25	59.16	62.55	60.86	8.83	17.74	13.29	8.09
364	1982/1983	AR, AZ, LA, MT, NM, OK, UT, WY	7.18	59.21	62.02	60.62	9.78	16.90	13.34	8.09
365	1981/1982	AZ, MS, ND, NM, OK, SD, UT, WY	5.67	60.35	62.69	61.52	8.67	17.62	13.15	8.09
366	1981/1983	AR, KS, LA, NE, OK, SD, UT, WY	7.09	57.89	62.98	60.44	9.90	16.86	13.38	8.09
367	1981/1982	AZ, ID, NE, NM, OK, OR, UT, WY	6.23	60.14	62.86	61.50	8.74	17.56	13.15	8.09
368	1981/1983	AR, KS, MS, MT, NE, OK, UT, WY	6.39	58.36	63.29	60.82	9.28	17.30	13.29	8.08
369	1981/1983	AZ, ID, ND, NM, OK, OR, SD, UT, WY	6.13	57.36	62.24	59.80	9.34	17.69	13.52	8.08
370	1983/1984	AR, KS, LA, MT, ND, NE, OK, SD, UT, WY	7.72	59.07	64.01	61.54	8.92	17.35	13.13	8.08
371	1983/1984	AR, KS, MT, ND, NE, OK, UT, WY	5.57	58.54	62.99	60.77	8.60	17.99	13.30	8.08
372	1982/1984	AR, KS, LA, MT, NE, OK, UT, WY	7.14	59.36	64.64	62.00	9.11	16.95	13.03	8.08
373	1982/1984	AR, KS, LA, MT, ND, NE, OK, SD, UT, WY	7.73	59.31	64.66	61.98	9.17	16.90	13.03	8.08
374	1983/1984	AR, KS, LA, ND, NE, OK, SD, UT, WY	7.37	59.00	64.01	61.50	8.94	17.34	13.14	8.08
375	1980/1982	IA, KS, ND, NE, OK, SD, UT, WY	5.80	58.14	64.10	61.12	9.75	16.68	13.22	8.08
376	1981/1983	AR, KS, LA, MT, ND, NE, OK, SD, UT, WY	7.73	57.85	62.99	60.42	9.87	16.87	13.37	8.08
377	1982/1983	AR, KS, LA, MT, NE, OK, UT, WY	7.14	58.68	62.71	60.70	9.88	16.73	13.31	8.08
378	1981/1984	AR, KS, LA, MT, ND, NE, OK, UT, WY	7.43	58.84	64.49	61.66	9.15	17.05	13.10	8.08
379	1982/1984	AR, IA, KS, NE, OK, UT, WY	6.22	60.31	64.25	62.28	8.35	17.58	12.97	8.08
380	1981/1983	AZ, IA, MT, NE, NM, OK, UT, WY	6.29	59.12	62.55	60.83	8.76	17.78	13.27	8.07
381	1982/1984	AR, IA, KS, ND, NE, OK, SD, UT, WY	6.81	60.24	64.28	62.26	8.43	17.50	12.97	8.07
382	1981/1983	AZ, ID, NM, OK, OR, UT, WY	5.54	57.36	62.23	59.80	9.29	17.71	13.50	8.07
383	1981/1984	AR, KS, LA, ND, NE, OK, SD, UT, WY	7.38	58.75	64.50	61.62	9.19	17.00	13.10	8.07
384	1982/1983	CO, IA, ND, OK, SD, UT, WY	5.34	59.30	62.51	60.91	9.10 17.40	13.25	8.07	
385	1982/1984	AR, IA, KS, MT, NE, OK, UT, WY	6.57	60.36	64.25	62.30	8.32	17.58	12.95	8.07
386	1982/1983	AZ, NE, NM, NV, OK, UT, WY	5.01	59.57	61.82	60.70	8.99	17.60	13.29	8.07
387	1982/1983	AR, KS, LA, MT, NE, OK, SD, UT, WY	7.44	58.68	62.71	60.70	9.89	16.70	13.29	8.07
388	1981/1983	AR, KS, LA, MT, NE, OK, UT, WY	7.14	57.85	62.98	60.42	9.82	16.89	13.36	8.07
389	1981/1983	AR, AZ, LA, ND, NM, OK, SD, UT, WY	7.42	58.12	62.09	60.11	9.74	17.11	13.42	8.07
390	1981/1984	AR, KS, LA, NE, OK, UT, WY	6.79	58.78	64.49	61.64	9.14	17.04	13.09	8.07
391	1981/1982	AZ, MS, NM, OK, SD, UT, WY	5.38	60.35	62.68	61.52	8.62	17.61	13.11	8.07
392	1981/1983	AR, ID, KS, ND, NE, OK, OR, SD, UT, WY	7.11	57.14	63.55	60.34	9.45	17.29	13.37	8.07
393	1980/1982	AR, KS, ND, NE, OK, SD, UT, WY	5.53	57.87	64.28	61.08	9.79	16.63	13.21	8.07
394	1981/1983	AZ, ID, MT, ND, NM, OK, OR, UT, WY	6.18	57.33	62.24	59.78	9.26	17.72	13.49	8.07
395	1982/1984	AR, KS, LA, NE, OK, SD, UT, WY	7.09	59.25	64.66	61.96	9.15	16.89	13.02	8.07
396	1980/1982	IA, KS, NE, OK, UT, WY	5.21	58.26	64.09	61.18	9.68	16.70	13.19	8.07
397	1982/1984	AR, IA, KS, MT, ND, NE, OK, SD, UT, WY	7.16	60.29	64.27	62.28	8.40	17.50	12.95	8.07
398	1980/1983	AR, KS, MT, ND, NE, OK, UT, WY	5.57	57.32	63.10	60.21	9.52	17.27	13.39	8.06
399	1981/1983	AZ, IA, MT, NE, NM, OK, SD, UT, WY	6.59	59.12	62.55	60.83	8.76	17.74	13.25	8.06
400	1981/1983	AZ, ID, ND, NE, NM, OK, SD, UT, WY	5.67	57.83	62.43	60.13	9.28	17.53	13.41	8.06
401	1982/1983	AZ, LA, NE, NM, OK, UT, WY	6.51	59.21	62.12	60.66	9.76	16.81	13.29	8.06
402	1982/1984	ID, KS, MT, ND, NE, OK, SD, UT, WY	5.28	58.62	64.35	61.49	8.90	17.32	13.11	8.06
403	1981/1983	AZ, ID, NM, OK, OR, SD, UT, WY	5.85	57.36	62.23	59.80	9.29	17.68	13.48	8.06
404	1983/1984	AR, KS, LA, MT, NE, OK, SD, UT, WY	7.43	59.06	64.00	61.53	8.86	17.34	13.10	8.06
405	1981/1983	AR, KS, LA, MT, NE, OK, SD, UT, WY	7.44	57.85	62.98	60.42	9.82	16.86	13.34	8.06
406	1981/1984	AR, KS, LA, MT, ND, NE, OK, SD, UT, WY	7.73	58.80	64.49	61.65	9.15	17.00	13.07	8.06
407	1981/1984	AR, IA, KS, MT, ND, NE, OK, UT, WY	6.86	59.63	64.52	62.07	8.42	17.54	12.98	8.06
408	1981/1983	AR, AZ, LA, NM, OK, UT, WY	6.83	58.12	62.08	60.10	9.69	17.12	13.41	8.06

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS—Continued

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
409	1982/1984	AR, KS, LA, MT, NE, OK, SD, UT, WY	7.44	59.30	64.65	61.98	9.11	16.89	13.00	8.06
410	1982/1983	AZ, NE, NM, NV, OK, SD, UT, WY	5.31	59.57	61.82	60.70	9.00	17.56	13.28	8.06
411	1980/1983	IA, KS, ND, NE, OK, SD, UT, WY	5.80	57.66	63.24	60.45	9.33	17.33	13.33	8.06
412	1983/1984	AR, KS, LA, NE, OK, SD, UT, WY	7.09	58.99	64.00	61.50	8.88	17.33	13.10	8.06
413	1981/1983	AR, ID, KS, NE, OK, OR, UT, WY	6.51	57.14	63.54	60.34	9.40	17.31	13.35	8.06
414	1981/1984	AR, KS, LA, MT, NE, OK, UT, WY	7.14	58.84	64.48	61.66	9.10	17.03	13.07	8.06
415	1983/1984	AR, CO, LA, MT, OK, WY	6.11	57.89	63.92	60.90	9.04	17.41	13.23	8.06
416	1981/1982	AZ, ID, LA, NM, OK, OR, UT, WY	7.40	58.01	63.04	60.53	9.38	17.24	13.31	8.06
417	1981/1982	AZ, MS, MT, ND, NM, OK, UT, WY	5.71	60.35	62.67	61.51	8.56	17.63	13.09	8.05
418	1980/1982	IA, KS, ND, NE, OK, SD, WY	5.16	58.40	65.54	61.97	9.08	16.91	13.00	8.05
419	1982/1983	AZ, LA, NE, NM, OK, SD, UT, WY	6.82	59.21	62.12	60.66	9.77	16.78	13.27	8.05
420	1981/1984	ID, KS, MT, ND, NE, OK, SD, UT, WY	5.28	58.04	64.45	61.24	8.90	17.39	13.15	8.05
421	1981/1983	AR, ID, KS, MT, ND, NE, OK, OR, UT, WY	7.15	57.11	63.54	60.32	9.37	17.33	13.35	8.05
422	1983/1984	AR, KS, MT, NE, OK, UT, WY	5.29	58.53	62.98	60.75	8.53	17.98	13.25	8.05
423	1980/1982	IA, KS, NE, OK, SD, UT, WY	5.52	58.26	64.09	61.18	9.66	16.67	13.16	8.05
424	1981/1983	AR, AZ, LA, MT, ND, NM, OK, UT, WY	7.46	58.09	62.09	60.09	9.66	17.14	13.40	8.05
425	1982/1983	AZ, IA, NM, NV, OK, SD, UT, WY	5.91	59.62	61.81	60.71	8.73	17.79	13.26	8.05
426	1980/1983	AR, KS, MT, ND, NE, OK, SD, UT, WY	5.87	57.32	63.10	60.21	9.51	17.23	13.37	8.05
427	1981/1983	AR, AZ, LA, NM, OK, SD, UT, WY	7.13	58.12	62.08	60.10	9.69	17.10	13.39	8.05
428	1981/1983	AZ, ID, NE, NM, OK, UT, WY	5.07	57.83	62.41	60.12	9.22	17.56	13.39	8.05
429	1981/1984	AR, KS, LA, NE, OK, SD, UT, WY	7.09	58.74	64.50	61.62	9.14	16.99	13.06	8.05
430	1981/1983	AR, AZ, MS, NM, OK, UT, WY	6.08	58.64	61.94	60.29	9.15	17.55	13.35	8.05
431	1980/1983	IA, KS, NE, OK, UT, WY	5.21	57.74	63.22	60.48	9.26	17.36	13.31	8.05
432	1981/1983	AZ, IA, ID, NM, OK, SD, UT, WY	5.97	57.84	62.50	60.17	8.98	17.77	13.37	8.05
433	1982/1983	AZ, MT, NE, NM, NV, OK, UT, WY	5.36	59.52	61.82	60.67	8.92	17.61	13.26	8.05
434	1982/1984	AR, IA, KS, NE, OK, SD, UT, WY	6.52	60.25	64.27	62.26	8.35	17.49	12.92	8.04
435	1981/1983	AR, AZ, LA, MT, ND, NM, OK, SD, UT, WY	7.77	58.09	62.09	60.09	9.66	17.11	13.39	8.04
436	1981/1984	AR, IA, KS, ND, NE, OK, SD, UT, WY	6.81	59.52	64.54	62.03	8.45	17.48	12.97	8.04
437	1981/1984	AR, IA, KS, NE, OK, UT, WY	6.22	59.57	64.52	62.05	8.39	17.54	12.96	8.04
438	1982/1983	AR, ID, KS, ND, NE, OK, OR, SD, UT, WY	7.11	58.15	63.36	60.75	9.49	16.99	13.24	8.04
439	1981/1982	AR, AZ, MS, NM, OK, UT, WY	6.08	60.43	62.85	61.64	8.60	17.49	13.05	8.04
440	1981/1983	AR, ID, KS, MT, ND, NE, OK, OR, SD, UT, WY	7.45	57.11	63.54	60.32	9.37	17.29	13.33	8.04
441	1980/1983	AR, KS, MT, NE, OK, UT, WY	5.28	57.39	63.08	60.24	9.44	17.26	13.35	8.04
442	1981/1983	AZ, ID, NE, NM, OK, SD, UT, WY	5.38	57.83	62.41	60.12	9.22	17.52	13.37	8.04
443	1981/1984	AR, KS, LA, MT, NE, OK, SD, UT, WY	7.44	58.79	64.49	61.64	9.10	16.99	13.04	8.04
444	1982/1984	AR, IA, KS, MT, NE, OK, SD, UT, WY	6.87	60.30	64.26	62.28	8.32	17.49	12.91	8.04
445	1982/1983	AZ, LA, MT, NE, NM, OK, UT, WY	6.86	59.16	62.12	60.64	9.69	16.82	13.25	8.04
446	1980/1982	AR, KS, NE, OK, SD, UT, WY	5.24	57.99	64.27	61.13	9.68	16.61	13.15	8.04
447	1982/1983	AZ, ID, MS, NM, OK, UT, WY	5.49	58.35	62.24	60.30	9.33	17.33	13.33	8.04
448	1980/1982	AR, IA, KS, ND, NE, OK, SD, UT, WY	6.81	58.12	64.26	61.19	9.72	16.55	13.13	8.04
449	1982/1983	AR, AZ, ID, ND, NM, OK, OR, SD, UT, WY	7.14	58.75	62.30	60.53	9.38	17.17	13.28	8.04
450	1982/1983	AR, IA, KS, MS, NE, OK, UT, WY	7.33	59.34	63.13	61.24	8.90	17.34	13.12	8.04
451	1981/1982	AZ, MS, MT, NM, OK, UT, WY	5.42	60.35	62.67	61.51	8.52	17.61	13.06	8.04
452	1981/1982	AR, LA, MS, OK	5.31	59.66	64.99	62.32	10.64	15.15	12.89	8.03
453	1981/1983	AZ, ID, MT, ND, NE, NM, OK, SD, UT, WY	6.01	57.79	62.42	60.11	9.20	17.53	13.37	8.03
454	1980/1983	IA, KS, NE, OK, SD, UT, WY	5.52	57.74	63.22	60.48	9.26	17.31	13.28	8.03
455	1981/1982	AZ, ID, LA, NE, NM, OK, UT, WY	6.93	58.05	63.23	60.64	9.47	17.02	13.25	8.03
456	1981/1983	AR, AZ, LA, MT, NM, OK, UT, WY	7.18	58.09	62.08	60.08	9.62	17.12	13.37	8.03
457	1983/1984	AR, KS, MT, ND, NE, OK, SD, UT, WY	5.86	58.45	63.02	60.74	8.60	17.85	13.22	8.03
458	1981/1984	AR, IA, KS, MT, NE, OK, UT, WY	6.57	59.63	64.51	62.07	8.35	17.53	12.94	8.03
459	1981/1984	AR, IA, KS, MT, ND, NE, OK, SD, UT, WY	7.16	59.57	64.53	62.05	8.42	17.47	12.94	8.03

HIGHEST LOSS RATES AMONG CANDIDATE STATE/YEAR COMBINATIONS—Continued

Rank	Time period	Region	Percent of U.S. population	Freddie Mac severity	Fannie Mae severity	Average severity	Freddie Mac default	Fannie Mae default	Average default	Loss rate
460	1982/1983	AR, ID, KS, MT, ND, NE, OK, OR, UT, WY	7.15	58.10	63.35	60.73	9.40	17.05	13.22	8.03
461	1982/1983	AZ, NM, NV, OK, OR, UT, WY	5.48	59.17	61.68	60.43	9.05	17.53	13.29	8.03
462	1982/1983	AR, ID, KS, NE, OK, OR, UT, WY	6.51	58.15	63.34	60.75	9.42	17.02	13.22	8.03
463	1982/1983	AZ, IA, LA, NM, OK, SD, UT, WY	7.41	59.25	62.11	60.68	9.51	16.95	13.23	8.03
464	1981/1983	AR, ID, KS, MT, NE, OK, OR, UT, WY	6.86	57.11	63.52	60.32	9.31	17.31	13.31	8.03
465	1982/1983	AZ, ID, MS, NM, OK, SD, UT, WY	5.80	58.35	62.24	60.30	9.33	17.29	13.31	8.03
466	1983/1984	AR, KS, ND, NE, OK, SD, UT, WY	5.52	58.34	63.02	60.68	8.62	17.83	13.23	8.03
467	1980/1983	AR, KS, MT, NE, OK, SD, UT, WY	5.59	57.39	63.08	60.24	9.44	17.21	13.32	8.03
468	1980/1982	AR, IA, KS, NE, OK, UT, WY	6.22	58.24	64.26	61.25	9.64	16.56	13.10	8.02
469	1982/1983	AR, AZ, ID, MT, ND, NM, OK, OR, UT, WY	7.19	58.71	62.29	60.50	9.30	17.23	13.26	8.02
470	1982/1983	AR, AZ, ID, NM, OK, OR, UT, WY	6.55	58.75	62.28	60.52	9.32	17.20	13.26	8.02
471	1981/1982	AZ, MS, MT, NM, OK, SD, UT, WY	5.73	60.35	62.67	61.51	8.50	17.59	13.04	8.02
472	1981/1983	AZ, ID, MT, NE, NM, OK, UT, WY	5.42	57.79	62.41	60.10	9.14	17.56	13.35	8.02
473	1981/1982	AR, AZ, NM, NV, OK, UT, WY	5.32	59.85	62.05	60.95	8.52	17.79	13.16	8.02
474	1980/1983	AR, LA, MS, OK	5.31	57.99	62.81	60.40	11.31	15.24	13.28	8.02
475	1982/1983	AZ, NM, NV, OK, OR, SD, UT, WY	5.78	59.17	61.68	60.43	9.05	17.49	13.27	8.02
476	1980/1982	ID, KS, ND, NE, OK, OR, SD, UT, WY	6.10	57.27	63.32	60.30	9.78	16.81	13.30	8.02
477	1982/1983	AR, ID, KS, MT, ND, NE, OK, OR, SD, UT, WY	7.45	58.10	63.35	60.73	9.40	17.00	13.20	8.02
478	1981/1984	AR, IA, KS, NE, OK, SD, UT, WY	6.52	59.52	64.54	62.03	8.38	17.46	12.92	8.02
479	1981/1983	AR, AZ, IA, NE, NM, OK, UT, WY	6.95	59.21	62.45	60.83	8.74	17.61	13.18	8.01
480	1982/1983	AZ, ID, MS, MT, NM, OK, UT, WY	5.84	58.30	62.24	60.27	9.25	17.34	13.30	8.01
481	1982/1983	AR, AZ, ID, MT, ND, NM, OK, OR, SD, UT, WY	7.49	58.71	62.29	60.50	9.30	17.19	13.24	8.01
482	1980/1982	AR, IA, KS, NE, OK, SD, UT, WY	6.52	58.24	64.26	61.25	9.62	16.53	13.08	8.01
483	1982/1984	AR, AZ, LA, NM, OK	5.98	59.25	64.72	61.99	9.39	16.45	12.92	8.01
484	1981/1982	AZ, IA, NM, NV, OK, SD, UT, WY	5.91	59.77	61.91	60.84	8.44	17.89	13.16	8.01
485	1982/1983	AZ, MT, NM, NV, OK, OR, UT, WY	5.83	59.12	61.68	60.40	8.98	17.54	13.26	8.01
486	1980/1982	ID, KS, NE, OK, OR, UT, WY	5.50	57.37	63.32	60.34	9.72	16.82	13.27	8.01
487	1982/1983	AR, ID, KS, MT, NE, OK, OR, UT, WY	6.86	58.10	63.34	60.72	9.34	17.03	13.18	8.01
488	1981/1983	IA, ID, KS, NE, OK, OR, UT, WY	6.79	57.14	63.69	60.41	9.04	17.46	13.25	8.00
489	1981/1984	AR, IA, KS, MT, NE, OK, SD, UT, WY	6.87	59.57	64.52	62.05	8.35	17.45	12.90	8.00
490	1981/1983	IA, ID, KS, MT, ND, NE, OK, OR, UT, WY	7.42	57.11	63.69	60.40	9.03	17.47	13.25	8.00
491	1981/1983	AZ, LA, NE, NM, OK, UT, WY	6.51	58.11	62.10	60.10	9.59	17.04	13.31	8.00
492	1983/1984	AR, KS, MT, NE, OK, SD, UT, WY	5.58	58.43	63.00	60.72	8.53	17.83	13.18	8.00
493	1980/1983	IA, KS, MT, ND, NE, OK, SD, UT, WY	6.15	57.57	63.23	60.40	9.19	17.31	13.25	8.00
494	1981/1983	AR, AZ, ID, ND, NM, OK, OR, SD, UT, WY	7.14	57.42	62.15	59.79	9.24	17.53	13.38	8.00
495	1982/1983	AR, AZ, ID, MT, NM, OK, OR, UT, WY	6.90	58.71	62.28	60.49	9.24	17.21	13.22	8.00
496	1982/1984	AZ, LA, MT, ND, NM, OK, UT, WY	6.45	58.20	63.79	60.99	9.17	17.06	13.11	8.00
497	1981/1983	AR, AZ, NM, NV, OK, UT, WY	5.32	57.78	61.49	59.63	8.99	17.84	13.41	8.00
498	1983/1984	AR, KS, NE, OK, SD, UT, WY	5.23	58.32	63.00	60.66	8.54	17.82	13.18	8.00
499	1981/1982	AZ, NM, NV, OK, OR, UT, WY	5.48	59.75	61.57	60.66	8.41	17.96	13.18	8.00
500	1981/1983	AZ, LA, NE, NM, OK, SD, UT, WY	6.82	58.11	62.10	60.10	9.59	17.01	13.30	7.99

House Price Indexes

Introduction

In implementing the risk-based capital stress test, the 1992 Act requires OFHEO to take seasoning of mortgages into account, in accordance with the CQHPI or any index of similar quality, authority, and public availability that is regularly used by the Federal Government.[46] The 1992 Act defines ''seasoning'' as the change in the LTV ratio of a mortgage over time.[47] Such changes result from changes in the principal balance of the mortgage and changes in the value of the property. Changes in the value of the underlying property usually will have a much greater impact than scheduled amortization or curtailments on the seasoning of mortgages, particularly during the early years of the loan. OFHEO proposes to use its house price

[46] Section 1361(d)(1) (12 U.S.C. 4611(d)(1)).

[47] *See* note 20 above.

index, HPI,[48] which is a weighted repeat transactions index based on Enterprise data, rather than the CQHPI.

Using an Index to Adjust for Seasoning

The 1992 Act does not specify how an index should be used to account for the seasoning of Enterprise mortgages in the stress test. OFHEO proposes to account for the impact of changes in individual property values on the seasoning of single-family mortgages in the stress test based upon changes in the index used for the particular geographical area in which the property is located. In accounting for the changes in the distribution of current LTV ratios, OFHEO will also make adjustments for the scheduled amortization of the principal of the loan.

In general, a house price index provides estimates of changes in the general level of values over time based on observations of the values of specific properties in a particular geographic area. The accuracy of an adjustment to the value of an individual property based on an index will depend significantly on the accuracy of the index for the particular market area in which the property is located. It also will depend upon the degree of similarity between the value-determining characteristics of that property and the properties from which the index is estimated.

No matter how accurate an index, however, individual house values will appreciate at greater or lesser rates than the index over time. The longer the time period, the greater is the dispersion in changes of individual house values. That is one major reason why house prices can appreciate on the average, but mortgages on individual properties still default. OFHEO is studying alternative means to account for the increasing dispersion of rates of house price change that occur within a group of loans over time. OFHEO will address this issue in the second NPR.

Description of the HPI

OFHEO began publishing the HPI in March 1996 using data provided by the Enterprises. The HPI is released approximately 2 months after the end of each quarter. This index is reported for the nation, and subindexes are reported for 9 U.S. Census Divisions, 50 states, and the District of Columbia.

OFHEO calculates the HPI for each specified geographic area using repeated observations of housing values for individual single-family properties on which mortgages were originated and purchased by either Enterprise since 1975.[49] There are now more than 6.9 million repeat transaction pairs in the national sample. The use of house price differentials computed from repeat transactions on the same properties controls for differences in the quality of the houses over time. For this reason, the HPI is described as a ''constant quality'' house price index. The HPI is updated each quarter as additional mortgages are purchased by the Enterprises through the identification of additional repeat transactions for the most recent quarter and all earlier quarters.

The HPI provides broad geographic coverage by virtue of the national operations of the two Enterprises. There are, however, some limitations on the coverage of the HPI because it is produced using data on single-family, detached properties financed by conforming conventional mortgages purchased by the Enterprises. Thus, the HPI is not based upon any mortgage transactions on properties financed by government-insured loans, properties financed by mortgages exceeding the conforming loan limits determining eligibility for purchase by Freddie Mac or Fannie Mae, or multifamily properties.

Quarterly HPI reports include a summary of recent developments, frequently asked questions and answers, and statistical reports for each geographic area. The most recent HPI report is included as Exhibit 1 to this NPR.

Issues, Alternatives Considered, and Comments Received

1. Use of the HPI Versus the CQHPI and Other Alternatives

OFHEO has concluded that the HPI is superior to the CQHPI for purposes of determining current values of single-family properties securing Enterprise loans. This conclusion is consistent with Congressional intent. During consideration of the 1992 Act, Congress recognized that the CQHPI might not be the most suitable index and provided OFHEO discretion to use another index.[50] The legislative history also indicates Congress expected OFHEO to develop its own index for the stress test.[51] The Senate report stated: ''As no existing data series is fully satisfactory for this purpose, the Director is encouraged to conduct research necessary to produce and publish a suitable index.'' [52]

The CQHPI is based on data from the Housing Sales Survey conducted by the Bureau of the Census. Information on the physical characteristics and sales prices of new one-family houses are obtained through interviews with a national sample of the houses' builders and owners. The sample includes about 13,000 houses per year. The Commerce Department divides the data for detached houses into four regional samples. For each region, a statistical model is used to estimate how much the current average prices of new houses would have changed from the preceding period if the physical characteristics of new houses in both periods remained the same as they were in 1987. These regional estimates are published annually. The Commerce Department also publishes quarterly a national index that is a weighted average of the four regional indexes and a national index for attached houses.

In the ANPR, OFHEO expressed the view that a weighted repeat transactions index based on Enterprise data was more appropriate for purposes of the risk-based capital test than the CQHPI.[53] The HPI is such an index. By relying entirely upon Enterprise data, the HPI provides a more appropriate measure of average house price changes for the mix of properties securing the Enterprises' mortgages than does the CQHPI, which is based on a different mix of houses. A particularly important difference is that the HPI measures changes in values of existing houses, while the CQHPI measures price changes of new houses.

The CQHPI's small sample size results in other limitations that are undesirable for OFHEO's purposes. Because of limited data, the CQHPI provides national estimates by quarter, but only annual estimates for the four Census regions. Using either the quarterly, national estimates or the annual, regional estimates would present difficulties in accurately modeling the seasoning of Enterprise mortgages because house prices vary widely within Census regions and OFHEO must assess the Enterprises' capital on a quarterly basis. Such difficulties are avoided through the use of the HPI. With an existing database of more than

[48] ''House Price Index'' is a collective term that refers to all the subindexes described below.

[49] A technical description of the HPI and the methodology used to create it has been published by OFHEO and is available from the agency upon request. Charles A. Calhoun, *OFHEO House Price Indexes: HPI Technical Description* (March 1996) (HPI Technical Description).

[50] Section 1361(d)(1) (12 U.S.C. 4611(d)(1)).

[51] Congress indicated that use by OFHEO would satisfy the requirement at section 1361(d)(1) of the 1992 Act (12 U.S.C. 4611(d)(1)) that an appropriate index would ''be regularly used by the Federal Government.'' *See* 138 Cong. Rec. S 17920 (Chairman Riegle explaining that the index ''should be * * * used consistently by the Director or other Federal agencies * * *.'').

[52] S. Rep. No. 282, at 20.

[53] 60 FR 7475 (Feb. 8, 1995).

6.9 million transaction pairs, the weighted repeat sales approach provides sufficient data to estimate quarterly house price changes by states and by Census divisions.

The implications of these and other statistical issues of house price index construction are reviewed in more detail in the HPI Technical Description.

The Enterprises currently publish jointly the Conforming Mortgage House Price Index (CMHPI), a weighted repeat transactions index, using the same data as the HPI and a very similar methodology. OFHEO decided to produce its own index, rather than rely on the Enterprises' index, because of the important role of the house price index in determining capital requirements. By producing the HPI, OFHEO ensures that the index will meet the statutory requirements of quality, authority, and public availability. Additionally, OFHEO believes its index uses a statistical methodology that is more appropriate for its purposes (see issue 4. ''Statistical Methodology'' below).

OFHEO also considered other existing house price indexes. NAR has published indexes for existing single-family houses for metropolitan areas since 1968, using data on transactions reported by member boards. The NAR indexes represent the change in the median transaction price with no adjustment for variations in the composition of the properties that make up the sample in each period. The National Association of Home Builders reports mean and median prices for both existing and new houses derived from county records. FHA issues a median value index for single-family houses financed under the Section 203(b) program.[54] This index is available as a time series back to 1936 and is based on appraisal values.

For OFHEO's purposes, these mean and median house price indexes are subject to a number of statistical shortcomings. In particular, changes in the composition of the sample of properties with a given set of attributes, such as square footage, number of rooms, lot size, fixtures, etc., contributing to these indexes causes them to be less reliable than the HPI as indicators of changes in the actual mean or median property value over time. A constant quality index, such as the HPI, which controls for this particular source of bias by comparing the same or similar properties, is a better source of information concerning the rate of house price inflation than these other indexes.

[54] 12 U.S.C. 1709(b).

All of the commenters who addressed this issue favored using a weighted repeat transactions index, such as the HPI, rather than the CQHPI. ACB, for example, stated that ''[t]he weighted repeat sales approach currently used by the [Enterprises] as a house price index is clearly preferable to other approaches since its purpose is . . . targeted to the population of properties where the [Enterprises] can assume risk.''

2. Geographic Aggregation

OFHEO sought comment in the ANPR concerning the appropriate level of geographic aggregation for the index that will be used to adjust house prices in the risk-based capital stress test. The HPI is published for 9 Census divisions, 50 states, and the District of Columbia. A second NPR will address the level or levels of geographic aggregation that will be used in the stress test.

3. Bias and Volatility in the HPI

OFHEO sought comment in the ANPR about whether to adjust for sample selection bias, appraisal bias, or other possible sources of bias in a weighted repeat transactions index of house prices. After considering comments on the matter, the Director decided not to adjust the HPI for such possible biases. Likewise, OFHEO requested comments about whether revision volatility in house price indexes should be reflected in the risk-based capital test.[55] The Director also determined not to adjust the indexes for revision volatility. However, OFHEO is studying both the appropriateness and the practicality of adjusting for biases and revision volatility in the stress test, and will address these issues in a second NPR.

4. Statistical Methodology

The HPI is based upon a geometric repeat transactions estimator derived from a stochastic model of individual housing values. A geometric repeat transaction estimator estimates the average rate of change in housing values, with each house weighted equally regardless of dollar value. The Enterprises use an adjustment to the geometric estimator to approximate an arithmetic repeat sales procedure in calculating the CMHPI.[56] Arithmetic repeat transactions indexes have been shown to be more accurate for computing the change in the sum of the values of a fixed portfolio of properties. Because OFHEO plans to apply the index to loan-level data to update the distribution of current LTV ratios, OFHEO believes a geometric estimator is more suitable for use in the stress test. The publication of the HPI includes both the geometric index estimates and the adjustment factors needed to approximate an arithmetic index. Thus, the HPI publication provides the information needed to relate changes in the index to changes in the values of individual properties or portfolios of properties.[57]

[55] Revision volatility is the change in past index values that occurs as a result of current transactions. Current transactions can change index values for prior quarters, because every repeat sale of a property provides additional information about house price changes during the time since the prior transaction on that property.

[56] *See* HPI Technical Description, at 10–11 (discussion of ideal indexes, geometric versus arithmetic repeat sales estimators, and the Enterprises' approach in the CMHPI).

Section by Section Analysis

As noted in the preamble, at a later date OFHEO will issue a second NPR to propose all the remaining aspects of the stress test and to describe how the stress test will be used to determine the Enterprises' risk-based capital requirements.

Proposed Section 1750.5 Notice of Capital Classification

This section will be amended to add to the notice of capital classification, which OFHEO issues at least quarterly for each Enterprise, the risk-based capital level and the summary computation of that level.

Proposed Section 1750.10 General

This section identifies a ''Subpart B'' to the capital regulation, which establishes risk-based capital requirements for each Enterprise. This section also requires the board of directors of an Enterprise to ensure that the Enterprise maintains total capital at a level that is sufficient to ensure the continued financial viability of the Enterprise and is equal to or greater than the risk-based capital level specified in the regulation.

Proposed Section 1750.11 Definitions

This section defines various terms used in Subpart B and provides that, except where a term is explicitly defined differently in Subpart B, all terms defined at § 1750.2 of Subpart A (the minimum capital regulation) shall have the same meanings for purposes of Subpart B.

[57] Also, the adjustment used to produce the CMHPI depends on the base period of the index and the time elapsed since that period. Reporting the adjustment factors separately preserves the ability to adjust between any two dates covered by the index.

Proposed Section 1750.12 Procedures and Timing

This section will specify the timing and procedures for filing and the content of risk-based capital reports by each Enterprise. These reports will provide OFHEO with the information necessary to determine the risk-based capital level of each Enterprise. The section also requires that whenever an Enterprise makes an adjustment to the data contained in the risk-based capital report that may cause an adjustment to the risk-based capital determination, the Enterprise shall file with the Director an amended risk-based capital report not later than 3 business days after the date of such adjustment. Finally, the section requires that each risk-based capital report or amended risk-based capital report contain a declaration by an officer, authorized by the board of directors to do so, that the report is true and correct to the best of such officer's knowledge and belief.

Proposed Section 1750.13 Risk-Based Capital Level Computation

This section implements by regulation the provisions of the 1992 Act that describe risk-based capital. Together with Appendix A to Subpart B of the regulation, proposed section 1750.13 describes how OFHEO calculates the risk-based capital requirement for an Enterprise.

This section of the regulation implements the requirements of the 1992 Act that requires OFHEO to create a stress test that relates losses of each Enterprise during the stress period to the historical benchmark loss experience in which losses on mortgages were the highest.[58] The methodology that OFHEO uses to determine the benchmark area and period are referred to in proposed section 1750.13, and explained in greater detail in proposed Appendix A to Subpart B.

The 1992 Act also describes aspects of the interest rate environment that OFHEO must apply during the stress period and makes frequent use of the term ''the preceding [period].'' Proposed section 1750.13 implements that requirement and provides that when referring to a ''preceding'' period, the reference is to the period immediately preceding the beginning of the stress period.

In constructing the stress test, OFHEO initially must assume that new business of the Enterprises will be limited to fulfilling contractual commitments of each Enterprise to purchase mortgages or issue securities.[59] Proposed section 1750.13(a)(3) implements this requirement of the 1992 Act. The 1992 Act limits new business as described above until completion of two studies, one by the Director of the Congressional Budget Office and the other by the Comptroller General of the United States, on the advisability and appropriate form of any new business assumptions. The 1992 Act requires these studies to be completed within 1 year after issuance of the final risk-based capital regulation. The 1992 Act further provides that any new business assumptions incorporated by OFHEO into the stress test shall not become effective until 4 years after issuance of the final risk-based capital regulation.

The 1992 Act also requires that the stress test incorporate losses or gains on activities, other than those specifically identified in the statute, in an amount and manner to be determined by the Director to be consistent with the stress period.[60]

The risk-based capital test must take into account other considerations, including distinctions among the types of mortgage products, differences in seasoning, and any other factors the Director considers appropriate.[61] Proposed paragraph 1750.13(a)(1) implements this provision of the 1992 Act and specifies that the detailed description of these factors and the methodology by which they shall be taken into account are included in Appendix A to Subpart B of the regulation.

Proposed paragraph 1750.13(a)(5) also implements the requirement of the 1992 Act that characteristics of the stress period, other than those specifically set forth in that Act, will be determined by the Director to be most consistent with the stress period.[62] The subsection also indicates that the details of these characteristics are provided in Appendix A to Subpart B of the regulation.

Proposed subsection 1750.13(b) implements the 1992 Act's requirement that the total risk-based capital requirement include an additional amount equal to 30 percent of the capital determined by applying the risk-based capital test.[63]

Proposed Appendix A: Risk-Based Capital Test Methodology and Assumptions

Appendix A to Subpart B of the capital regulation will provide a detailed description of the stress test. In this NPR, OFHEO proposes the part of Appendix A that defines the methodology OFHEO uses to identify the benchmark loss experience. The other aspects of the stress test by which OFHEO will relate Enterprise losses in the stress period to the benchmark loss experience will be the subject of a second NPR.

Appendix A also includes a proposal to use the House Price Index (HPI), published by OFHEO, to calculate the change over time in the value of houses that secure mortgages purchased by the Enterprises. The 1992 Act requires OFHEO to calculate this change in value in accordance with the CQHPI, published by the Secretary of Commerce, or any index of similar quality, authority, and public availability that is regularly used by the Federal Government.[64] Under proposed Appendix A, OFHEO uses the HPI, which is a weighted repeat transactions index based on Enterprise data, rather than the CQHPI, as the basic measure of changes in the value of house prices.

Regulatory Impact

Executive Order 12606, The Family

This proposed regulation does not have potential for significant impact on family formulation, maintenance, and general well-being, and thus is not subject to review under Executive Order 12606.

Executive Order 12612, Federalism

This proposed regulation has no federalism implications that warrant the preparation of a Federalism Assessment in accordance with Executive Order 12612.

Executive Order 12866, Regulatory Planning and Review

This proposed regulation has been reviewed by the Office of Management and Budget pursuant to Executive Order 12866.

Executive Order 12988, Civil Justice Reform

This proposed regulation meets the applicable standards of sections 3(a) and (b) of Executive Order 12988.

Unfunded Mandates Reform Act of 1995

This proposed regulation does not include a federal mandate that may

[58] Section 1361(a) (12 U.S.C. 4611(a)).

[59] 1992 Act, section 1361(a)(3) (12 U.S.C. 4611(a)(3)).

[60] Section 1361(a)(4) (12 U.S.C. 4611(a)(4)).

[61] 1992 Act, section 1361(b)(1) (12 U.S.C. 4611(b)(1)).

[62] Section 1361(b)(2) (12 U.S.C. 4611(b)(2)).

[63] Id.

[64] Sections 1361(b)(1), 1361(d)(1) (12 U.S.C. 4611(b)(1), 4611(d)(1)).

result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100,000,000 or more (adjusted annually for inflation) in any one year.

Consequently, the proposed regulation does not warrant the preparation of an assessment statement in accordance with the Unfunded Mandates Reform Act of 1995.

Regulatory Flexibility Act

This proposed regulation is applicable only to the Enterprises, which are not small entities for purposes of the Regulatory Flexibility Act, and does not have a significant effect on a substantial number of small entities. Therefore, the General Counsel of OFHEO has certified that the proposed regulation would not have significant economic impact on a substantial number of small entities.

Paperwork Reduction Act

This proposed regulation contains no information collection requirements that require the approval of the Office of Management and Budget pursuant to the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq.

List of Subjects in 12 CFR Part 1750

Risk-based capital, capital classifications.

Accordingly, for the reasons set forth in the preamble, OFHEO proposes to amend Part 1750 of Chapter XVII of Title 12 of the Code of Federal Regulations, as proposed at 60 FR 30201 (June 8, 1995), as follows:

PART 1750—[AMENDED]

1. The Authority section for Part 1750 is revised to read as follows:

Authority: 12 U.S.C. 4513, 4514, 4611, 4612, 4614, 4618.

2. Section 1750.5 of Subpart A is amended by deleting the ''and'' at the end of paragraph (b)(1)(ii) and by deleting the period at the end of paragraph (b)(1)(iii) and inserting a semicolon in lieu of the period. The section is further amended by adding the following paragraphs after paragraph (b)(1)(iii):

§ 1750.5 Notice of Capital Classification

* * * * *

(b)(1) * * *

(iv) the proposed risk-based capital level; and

(v) the summary computation of the proposed risk-based capital level.

* * * * *

3. Subpart B is added to read as follows:

Subpart B—Risk-Based Capital

Sec.

Subpart B—Risk-Based Capital

§ 1750.10 General.

The regulation contained in this Subpart B establishes the risk-based capital requirement for each Enterprise. The board of directors of an Enterprise is responsible for ensuring that the Enterprise maintains total capital at a level that is sufficient to ensure the continued financial viability of the Enterprise and is equal to or exceeds the risk-based capital level contained in this Subpart B.

§ 1750.11 Definitions.

Except where a term is explicitly defined differently in Subpart B, all terms defined at § 1750.2 of Subpart A shall have the same meanings for purposes of Subpart B. For purposes of Subpart B, the following definitions shall apply:

Benchmark loss experience means the default and severity behavior of mortgage loans that:

(1) Were originated during a period of 2 or more consecutive calendar years in contiguous areas that together contain at least 5 percent of the population of the United States, and

(2) Experienced the highest loss rate for any period of such duration in comparison with the loans originated in any other contiguous areas that together contain at least 5 percent of the population of the United States.

Constant maturity Treasury yield means the constant maturity Treasury yield, published by the Board of Governors of the Federal Reserve System.

Contiguous areas means all the areas within a state or a group of two or more states sharing common borders. ''Sharing common borders'' does not mean meeting at a single point. Colorado, for example, is contiguous with New Mexico, but not with Arizona.

Credit risk means the risk of financial loss to an Enterprise from nonperformance by borrowers or other obligors on instruments in which an Enterprise has a financial interest, or as to which the Enterprise has a financial obligation.

The default rate of a given group of loans means the ratio of the aggregate original principal balance of the defaulted loans in the group to the aggregate original principal balance of all loans in the group.

Defaulted loan means a loan that, within 10 years following its origination:

(1) Resulted in pre-foreclosure sale,

(2) Completed foreclosure,

(3) Resulted in REO, or

(4) Resulted in a credit loss to an Enterprise.

Financing costs of property acquired through foreclosure means the product of:

(1) The number of years (including fractions) of the period from the completion of foreclosure through disposition of the property,

(2) The average of the Enterprises' short-term funding costs, and

(3) The unpaid principal balance at the time of foreclosure.

Interest rate risk means the risk of financial loss due to the sensitivity of earnings and net worth of an Enterprise to changes in interest rates.

Loss on any defaulted loan in category 1, 2, or 3 of the definition of defaulted loan means the difference between:

(1) The sum of the principal and interest owed when the borrower lost title to the property securing the mortgage; REO financing costs [1] through the date of property disposition; and cash expenses incurred during the foreclosure process, REO holding period, and property liquidation process; and

(2) The sum of the property sales price and any other liquidation proceeds (except those resulting from private mortgage insurance proceeds or other third-party credit enhancements).

Losses on defaulted loans not in categories 1, 2, or 3 of the definition were defined as the amount of the financial loss to the Enterprise.

Mortgage means any loan secured by such classes of liens as are commonly given or are legally effective to secure advances on, or the unpaid purchase price of, real estate under the laws of the State in which the real estate is located, or a manufactured house that is personal property under the laws of the State in which the manufactured house is located, together with the credit instruments, if any, secured thereby, and includes interests in mortgages.

Seasoning means the change over time in the ratio of the unpaid principal balance of a mortgage to the value of the

[1] The financing costs associated with properties acquired through foreclosure from the time of foreclosure through property disposition were calculated using the average from 1982 through 1992 of the 12-month Federal Agency constant maturity yield computed by Bank of America.

property by which such mortgage loan is secured.

Severity rate for any group of defaulted loans means the aggregate losses on all loans in that group divided by the aggregate original principal balances of those loans.

Stress period means a hypothetical 10-year period immediately following the day for which capital is being measured, which is a period marked by severely adverse economic circumstances.

Total capital means, with respect to an Enterprise, the sum of the following:

(1) The core capital of the Enterprise;

(2) A general allowance for foreclosure losses, which—

(i) shall include an allowance for portfolio mortgage losses, an allowance for non-reimbursable foreclosure costs on government claims, and an allowance for liabilities reflected on the balance sheet for the Enterprise for estimated foreclosure losses on mortgage-backed securities; and

(ii) shall not include any reserves of the Enterprise made or held against specific assets.

(3) Any other amounts from sources of funds available to absorb losses incurred by the Enterprise, that the Director by regulation determines are appropriate to include in determining total capital.

Type of mortgage product means a classification of one or more mortgage products, as established by the Director, that have similar characteristics from each set of characteristics under the following paragraphs:

(1) The property securing the mortgage is—

(i) a residential property consisting of 1 to 4 dwelling units; or

(ii) a residential property consisting of more than 4 dwelling units.

(2) The interest rate on the mortgage is—

(i) fixed; or

(ii) adjustable.

(3) The priority of the lien securing the mortgage is—

(i) first; or

(ii) second or other.

(4) The term of the mortgage is—

(i) 1 to 15 years;

(ii) 16–30 years; or

(iii) more than 30 years.

(5) The owner of the property is—

(i) an owner-occupant; or

(ii) an investor.

(6) The unpaid principal balance of the mortgage—

(i) will amortize completely over the term of the mortgage, and will not increase significantly at any time during the term of the mortgage;

(ii) will not amortize completely over the term of the mortgage, and will not increase significantly at any time during the term of the mortgage; or

(iii) may increase significantly at some time during the term of the mortgage.

(7) Any other characteristics of the mortgage, as specified in Appendix A.

§ 1750.12 Procedures and Timing.

(a) Each Enterprise shall file with the Director a risk-based capital report each quarter, or at such other times as the Director requires. The report shall contain information identified by OFHEO in written instructions to each Enterprise, including, but not limited to:

(1) all data required to implement the risk-based capital test, as specified more fully at Appendix A to Subpart B of Part 1750; and

(2) such other information as may be required by the Director.

(b) The quarterly risk-based capital report for the last day of the preceding quarter shall be submitted not later than April 30, July 30, October 30, and January 30 of each year.

(c) Each risk-based capital report shall be submitted in such format or media as may be required by the Director.

(d) If an Enterprise makes an adjustment to the data contained in the risk-based capital report for a quarter or a date for which the report was previously supplied that may cause an adjustment to the risk-based capital determination, the Enterprise shall file with the Director an amended risk-based capital report not later than 3 business days after the date of such adjustment.

(e) Each risk-based capital report or any amended risk-based capital report shall contain a declaration by the president, vice-president, treasurer, or any other officer designated by the board of directors of the Enterprise to make such a declaration that the report is true and correct to the best of such officer's knowledge and belief.

§ 1750.13 Risk-Based Capital Level Computation.

(a) Risk-Based Capital Test—OFHEO shall compute a risk-based capital level for each Enterprise at least quarterly by applying a risk-based capital test to determine the amount of total capital required for each Enterprise to maintain positive capital during the stress period. In making this determination, the Director shall take into account any appropriate distinctions among types of mortgage products, differences in seasoning of mortgages, and other factors determined appropriate by the Director in accordance with the methodology specified in Appendix A to this subpart. The stress period has the following characteristics:

(1) Credit risk—With respect to mortgages owned or guaranteed by the Enterprise and other obligations of the Enterprise, losses occur throughout the United States at a rate of default and severity reasonably related, in accordance with Appendix A to this subpart, to the rate and severity of losses in the benchmark loss experience.

(2) Interest rate risk—

(i) In general—Interest rates decrease as described in paragraph (a)(2)(ii) of this section or increase as described in paragraph (a)(2)(iii) of this section, whichever would require more capital in the stress test for the Enterprise. Appendix A contains a description of the methodology applied to implement the interest rate scenarios described in those subparagraphs.

(ii) Decreases—The 10-year constant maturity Treasury yield decreases during the first year of the stress period and remains at the new level for the remainder of the stress period. The yield decreases to the lesser of—

(A) 600 basis points below the average yield during the 9 months immediately preceding the stress period, or

(B) 60 percent of the average yield during the 3 years immediately preceding the stress period,

but in no case to a yield less than 50 percent of the average yield during the 9 months immediately preceding the stress period.

(iii) Increases—The 10-year constant maturity Treasury yield increases during the first year of the stress period and will remain at the new level for the remainder of the stress period. The yield increases to the greater of—

(A) 600 basis points above the average yield during the 9 months immediately preceding the stress period, or

(B) 160 percent of the average yield during the 3 years immediately preceding the stress period,

but in no case to a yield greater than 175 percent of the average yield during the 9 months immediately preceding the stress period.

(iv) Different terms to maturity—Yields of Treasury instruments with terms to maturity other than 10 years will change relative to the 10-year constant maturity Treasury yield in patterns and for durations that are reasonably related to historical experience and are judged reasonable by the Director. The methodology used by the Director to adjust the yields of those other instruments is specified in Appendix A to this subpart.

(v) Large increases in yields—If the 10-year constant maturity Treasury yield is assumed to increase by more than 50 percent over the average yield

during the 9 months immediately preceding the stress period, the Director shall adjust the losses resulting from the conditions specified in paragraphs (a)(2)(i) and (ii) of this section to reflect a correspondingly higher rate of general price inflation. The method of such adjustment by the Director is specified in Appendix A to this subpart.

(3) New business—Any contractual commitments of the Enterprise to purchase mortgages or issue securities will be fulfilled. The characteristics of resulting mortgages purchased, securities issued, and other financing will be consistent with the contractual terms of such commitments, recent experience, and the economic characteristics of the stress period, as more fully specified in Appendix A to this subpart. No other purchases of mortgages shall be assumed.

(4) Other activities—Losses or gains on other activities, including interest rate and foreign exchange hedging activities, shall be determined by the Director, in accordance with Appendix A to this subpart and on the basis of available information, to be consistent with the stress period.

(5) Consistency—Characteristics of the stress period other than those specifically set forth in this paragraph (a), such as prepayment experience and dividend policies, will be determined by the Director, in accordance with Appendix A, on the basis of available information, to be most consistent with the stress period.

(b) Risk-Based Capital Level—The risk-based capital level of an Enterprise, to be used in determining the appropriate capital classification of each Enterprise, as required by section 1364 of the Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (12 U.S.C. 4614), shall be equal to the sum of the following amounts:

(1) Credit and Interest Rate Risk—The amount of total capital determined by applying the risk-based capital test under paragrpah (a) of this section to the Enterprise.

(2) Management and Operations Risk—To provide for management and operations risk, 30 percent of the amount of total capital determined by applying the risk-based capital test under paragraph (a) of this section to the Enterprise.

Appendix A to Subpart B of Part 1750—Risk-Based Capital Test Methodology and Assumptions

1. Identifying the Benchmark Loss Experience.—OFHEO will use the definitions, data, and methodology described below to identify the benchmark loss experience.

A. Definitions.—In addition to the terms defined at section 1750.11, the following definition shall apply for this Appendix A:

Origination year means the year in which a loan is originated.

B. Data.

OFHEO identifies the benchmark loss experience using historical loan-level data required to be submitted by each of the two Enterprises. OFHEO's analysis is based entirely on the most current data available on conventional, 30-year, fixed-rate loans secured by first liens on single-unit, owner-occupied, detached properties. Detached properties are defined as single-family properties excluding condominiums, planned urban developments, and cooperatives. The data includes only loans that were purchased by an Enterprise within 12 months after loan origination and loans for which the Enterprise has no recourse to the lender.

OFHEO organizes the data from each Enterprise to create two substantially consistent data sets. OFHEO separately analyzes default and severity data from each Enterprise. Default rates are calculated from loan records meeting the criteria specified above. Severity rates are calculated from the subset of defaulted loans for which loss data are available.

C. Procedures.

i. Cumulative 10-year default rates for each combination of states and origination years (state/year combination) that OFHEO examines are calculated for each Enterprise by grouping all of the Enterprise's loans originated in that combination of states and years. For origination years with less than 10 years of loss experience, cumulative-to-date default rates are used. The two Enterprise default rates are averaged, yielding an ''average default rate'' for that state/year combination.

ii. An ''average severity rate'' for each state/year combination is determined in the same manner as the average default rate. For each Enterprise, the aggregate severity rate is calculated for all loans in the relevant state/year combination and the two Enterprise severity rates are averaged.

iii. The ''loss rate'' for any state/year combination examined is calculated by multiplying the average default rate for that state/year combination by the average severity rate for that combination.

iv. The default and severity behavior of loans in the state/year combination containing at least 2 consecutive origination years and contiguous areas with a total population equal to or greater than 5% of the population of the United States with the highest loss rate constitutes the benchmark loss experience.

2. Identification of a New Benchmark Loss Experience.—OFHEO will periodically monitor available data and reevaluate the benchmark loss experience using the methodology set forth in this Appendix A. Using this methodology, OFHEO may identify a new benchmark loss experience that has a higher rate of loss than the benchmark experience identified at the time of the issuance of this regulation. In the event such a benchmark is identified, OFHEO may incorporate the resulting higher loss rates in the stress test.

3. Contents of the Risk-Based Capital Report.—(This space deliberately left blank.)

4. Computation of Risk-Based Capital Level.—(This space deliberately left blank.)

A. Seasoning Methodology.—OFHEO will determine the rate of change over time in the values of single-family properties securing mortgages using the House Price Index published by OFHEO or any successor index. (The remainder of this paragraph deliberately left blank.)

Aida Alvarez,

Director, Office of Federal Housing Enterprise Oversight.

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