Fitch Residential Mortgage-Backed Securities Criteria

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Summary

Fitch IBCA introduces enhanced criteria for analyzing credit risk in securities backed by pools of 'A' quality residential mortgages. This enhancement represents the third generation of residential mortgage-backed securities (RMBS) criteria development since 1989. In each generation, Fitch IBCA has produced RMBS analytics that reflect changes in the mortgage industry and state-of-the-art mortgage pool risk assessment. Fitch IBCA's three major enhancements to the RMBS model are:

- Fitch IBCA's frequency of foreclosure (FOF) methodology fully integrates data on the borrower's credit profile with loan attribute data. For the first time, investors can obtain a detailed understanding of how borrower credit, as measured by credit bureau scores, together with loan variables such as loan-to-value ratio (LTV), can be used to determine mortgage default probabilities.
- Fitch IBCA's loss severity model has been enhanced to include long-term regional home price trends. The home price trend enables Fitch IBCA to proactively identify regions where homes are overvalued relative to long-term trends and adjust market value decline scenarios appropriately. Conversely, regions where property values have declined substantially below long-term trends will not be subject to undue additional stress.
- Credit enhancement at each rating level is determined using historical data on regional default rates to project possible lifetime pool default scenarios. These projections reflect stress assumptions ranging from an expected case economic environment through a severe national depression scenario. In particular, Fitch IBCA has identified the Southern California experience of the 1990s as the best proxy for a national 'AA' scenario given the severity of the

Fair, Isaac & Co., Inc. Credit Bureau Score Summary

Performance Criterion: Relative likelihood of more than 90 day delinquency on any tradeline over the next 24 months

Risk Variables Categories: Previous credit performance, including: presence of major derogatories — foreclosures, judgments, liens, bankruptcies, collections and chargeoffs, and payment history for revolving and installment debt (prevalence, recency and severity of delinquency); current level of indebtedness; type of accounts (e.g. bank or finance company); number of accounts; pursuit of new credit; length of credit history (time)

Data Sources: Entire consumer credit databases at the three national credit repositories (Equifax, Experian, and TransUnion)

Brands: BEACON[SM], Experian/Fair, Isaac, and EMPIRICA®

Scale: 375–900 (approximately) logarithmic; lower scores indicate higher risk

downturn and the extensive supply of relevant nonconforming 'A' quality mortgage performance data.

These enhancements provide Fitch IBCA with a modeling tool that is highly sensitive to variations in risk levels of mortgage pools. This report details the research supporting the model revisions as well as existing elements of the RMBS rating criteria, focusing on collateral credit risk analysis.

Frequency of Foreclosure Model

Fitch IBCA's FOF model has evolved over time as more performance data has become available and mortgage origination practices have further developed. Fitch IBCA's original investment-grade criteria was based on a study of the performance of Federal Housing Agency (FHA) mortgages during the severe Texas recession of the 1980s. In that study, Fitch IBCA determined that the borrower's equity in the home, as evidenced by the LTV, was the most significant indicator of mortgage default risk. Borrowers with more equity were shown to be less likely to default than those with less equity. This result is consistent with the equity theory of mortgage defaults, which holds that a borrower's incentive to avoid foreclosure is related to the perceived equity position in the home.

In 1993, Fitch IBCA introduced speculative-grade criteria that incorporated regional econometric forecasting of foreclosure rates and home prices based on local economic conditions, including employment and income, among other things. The criteria were further enhanced in 1995 by expanding from 43 to 75 regions and incorporating delinquency data from Mortgage Information Corp. and home price data from Case Shiller Weiss, Inc. Fitch IBCA's regional foreclosure stress scenarios extended the ability of the equity-based model to address the effect of realistic economic stresses on borrowers' ability to make monthly mortgage payments.

In early 1997, Fitch IBCA began adjusting equity-based default expectations to reflect borrower credit information as it became regularly available in the form of Fair, Isaac & Co., Inc. (FICO[SM]) credit bureau scores. Credit scores have been widely used for many years in consumer debt underwriting, and research conducted by a number of mortgage market participants over the past few years have identified borrower credit report information as a highly significant factor in predicting mortgage defaults. Credit reports are produced by the three major credit bureaus: Equifax, TransUnion, and Experian. Credit reports provide information on the status of credit accounts of consumers, including pay history, utilization, number, type, and age of accounts. In addition to raw credit data, credit bureaus also generate credit scores, most commonly FICO scores *(see box above left)*, which are similarly available from all three repositories. The evidence of FICO scores' correlation to mortgage credit risk shows that the same credit report attributes that indicate relatively higher consumer credit default risk also indicate higher mortgage default risk, although mortgage defaults will be much lower on an absolute basis due to borrower popula-

Default Definition

Throughout this report, the terms default rate and frequency of foreclosure are used interchangeably. Technically speaking, defaults do not always result in foreclosures, foreclosures do not always result in losses, and losses are not always a result of foreclosures. Fitch IBCA's analysis included measuring alternative definitions of default, including more than 90 days delinquent, foreclosure initiation, real estate owned (REO) status, and other intermediate measures. Fitch IBCA found the more than 90 days delinquent performance measure to be most useful for rating assumptions in terms of predicting the borrower's likelihood of performing. Other definitions, such as foreclosure or REO, are influenced by servicing and loss mitigation practices and other circumstances likely unknown at the time of origination or securitization.

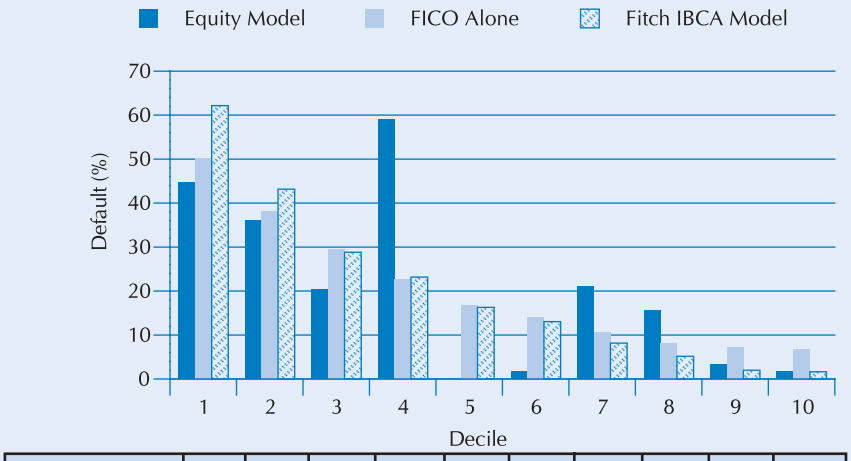
tion and underwriting differences, and borrowers' natural default priorities, including foreclosure disincentive.

The use of credit scores in mortgage underwriting has become widespread over the past few years, largely due to the endorsement of credit scores as an underwriting tool by the Federal Home Loan Mortgage Corp. (Freddie Mac) and Federal National Mortgage Association (Fannie Mae) in 1995. By 1997, most major mortgage originators were obtaining credit score information and incorporating it into lending decisions and processes, particularly through the use of minimum FICO score requirements. This criteria revision formally integrates credit-score and loan-to-value risk drivers into a new multivariate risk assessment framework based on historical performance analysis of nonconforming mortgages.

The most significant challenge in analyzing the application of credit scores to mortgages is the lack of historical data. Since FICO has been widely captured by mortgage lenders only in the past few years, there is not a ready supply of seasoned loan pools with statistically significant default rates and associated origination FICO scores. Fitch IBCA addressed this challenge through the use of retro scoring. Retro scoring is a service offered by the credit bureaus whereby archival data regarding a borrower's credit at some point in the past is retrieved and a credit score is generated based on that data. By obtaining retro scores for seasoned pools of mortgages at or near the time the mortgages were originated, a statistically valid performance sample was created. For details on the default model sample, see Appendix A, page 15.

Fitch IBCA conducted an extensive multivariate regression analysis of the sample data. Also, Fitch IBCA consulted with many industry leaders in the application of credit-scoring technology to mortgage lending. The result of this analysis is an FOF model that sets a new standard for credit rating analysis. The power of the new model

Relative Predictive Power of New Fitch IBCA Model
(Validation Sample Results)



	Decile									
Equity Model	44.6	36.1	20.4	59.1	0.0	1.8	20.9	15.7	3.2	1.8
FICO Alone	50.2	38.2	29.5	22.7	16.7	13.9	10.5	8.1	7.1	6.8
Fitch IBCA Model	62.2	43.2	28.8	23.2	16.3	13.0	8.2	5.2	2.0	1.6

High — Risk — Low

FICO – Fair, Isaac & Co., Inc.

'CCC' Base Frequency of Foreclosure — 30-Year Fixed-Rate Mortgages
(%)

	FICO Score												
LTV	**580**	**600**	**620**	**640**	**660**	**680**	**700**	**720**	**740**	**760**	**780**	**800**	**820**
60	1.6	1.2	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2
65	2.3	1.6	1.2	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2
70	3.3	2.3	1.7	1.2	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.3	0.2
75	4.8	3.4	2.4	1.7	1.2	0.9	0.7	0.6	0.5	0.4	0.3	0.3	0.3
80	6.9	4.9	3.4	2.4	1.7	1.2	0.9	0.7	0.6	0.5	0.4	0.3	0.3
85	9.7	7.0	5.0	3.5	2.5	1.8	1.3	0.9	0.7	0.6	0.5	0.4	0.3
90	13.2	9.9	7.2	5.1	3.6	2.5	1.8	1.3	1.0	0.7	0.6	0.5	0.4
95	17.4	13.4	10.0	7.3	5.2	3.7	2.6	1.8	1.3	1.0	0.7	0.6	0.5
100	22.1	17.7	13.6	10.2	7.4	5.3	3.7	2.6	1.9	1.3	1.0	0.7	0.6

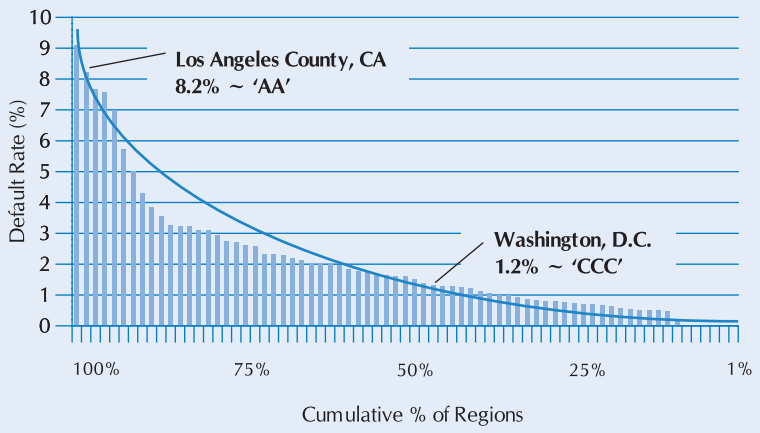
Assumes full documentation, purchase, primary occupancy, single-family detached, and $300,000 initial balance. LTV – Loan-to-value ratio. FICO – Fair, Isaac & Co., Inc.

is illustrated in the chart at the top page 3. This chart depicts the risk ranking of loans by three models as measured by an "ever over 90 days delinquent" performance criterion *(see Default Definition box, page 2)*. Each group of bars represents a decile of the distribution of loan risk as assessed by each model. Each bar in a group indicates the percentage of the defaulted loans in the sample that each model ranked as belonging in that decile. The efficiency of a model can be seen in how well it places defaulted loans in the high-risk deciles. The bars labeled "Equity Model" depict the risk ranking of loans using Fitch IBCA's equity-based investment-grade model without any credit-scoring adjustments. The bars labeled "FICO Alone" show the risk ranking of loans if only the FICO score is considered. The bars labeled "Fitch IBCA Model" indicate the risk ranking using Fitch IBCA's new methodology. The pool used for this chart is a validation sample, not the development sample. That is, the results reflect the application of the model to loans that were not used to develop the model.

The chart at the top of page 3 illustrates that FICO scores are more effective at distinguishing between defaulted and nondefaulted loans than the equity-based model. Moreover, the chart shows that Fitch IBCA's enhanced model is more predictive than either of the component variables. This can be seen in the degree to which those loans indicated as highest risk by the Fitch IBCA model had the highest percentage of defaulted loans. Also, those loans determined to be less risky by Fitch IBCA's model have a lower incidence of default. Most strikingly, the progression of default rates from highest risk bucket to lowest risk is very smooth, strongly suggesting that the major risk factors have been accounted for.

The table at the bottom of page 3 shows Fitch IBCA's base case (equivalent to a

Regional Distribution of Mortgage Default Rates



'CCC' rating level) lifetime FOF expectations for 30-year fixed-rate mortgages. Each entry in the table represents the probability of default assigned to a loan based on the LTV and FICO score (note that the table entries represent points along a continuous distribution of probabilities). Base case probabilities reflect the likelihood of default without the addition of stress factors related to economic downturns. In examining the table, it is important to note the spread in FOF expectations from the lowest to highest risk loans. Loans with very low LTVs and very high FICO scores enjoy FOF expectations as low as 0.2%. Loans with very high LTVs and borrower FICO scores below 600 are assigned FOFs of more than one hundred times greater. Performance data indicate that the FICO score is a more significant factor than LTV, and this is reflected in Fitch IBCA's FOF expectations. The sensitivity of the Fitch IBCA model to changes in each variable makes for a model that will pick up subtle variations in pool quality to an unprecedented degree.

Regional Adjustments to FOF Expectations

Since 1993, Fitch IBCA's mortgage default criteria has incorporated regional

Bond Default Rates and FOF Stress Multiples

Rating	Altman Study 1971–1991 Default (%)*	Altman Study 1971–1995 Default (%)**	Excess Foreclosure Probability (%)	Implied Mortgage Pool Default (%)	Multiple of 'CCC' FOF
'AAA'	0.2	0.1	0.1	15.1	9.9
'AA'	1.9	0.9	0.5	11.6	7.6
'A'	1.5	0.9	1.0	10.0	6.6
'BBB'	4.8	3.8	3.0	7.7	5.0
'BB'	16.3	19.5	15.0	4.1	2.7
'B'	37.9	35.5	37.5	2.1	1.4
'CCC'	38.9	58.3	50.0	1.5	1.0

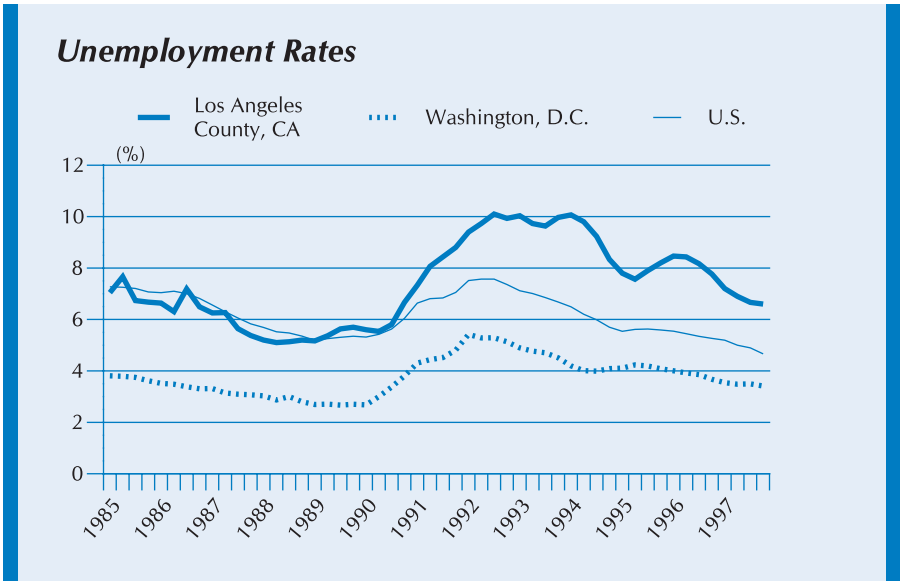
*Edward Altman, "Revisiting the High-Yield Bond Market" (Summer 1992), page 86. **Edward Altman and Vellore Kishore, "Defaults and Returns on High Yield Bonds: Analysis Through 1995" (January 1996) exhibit 10. FOF – Frequency of foreclosure.

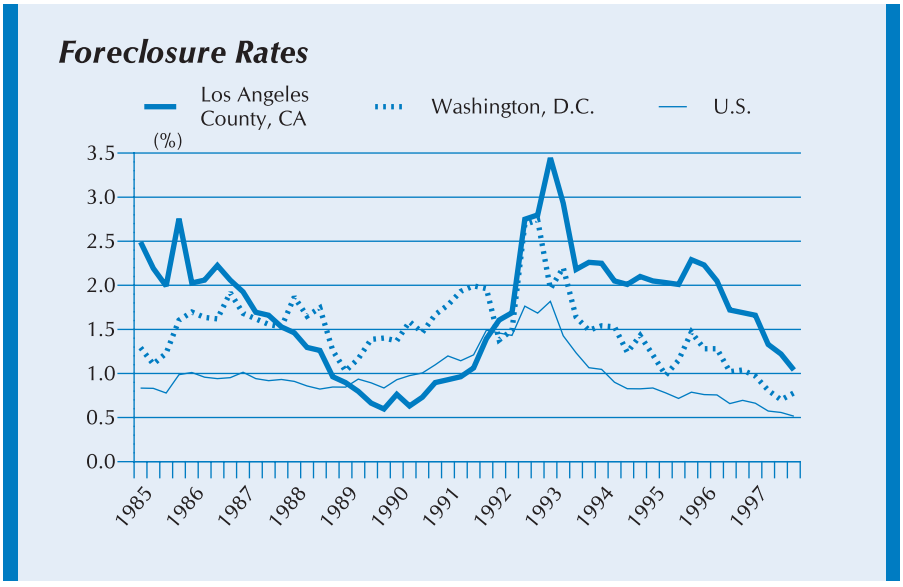
foreclosure forecasts developed by WEFA *(see Appendix B, page 16)*. WEFA's forecast regional foreclosure rate is a function of delinquencies, home prices, housing starts and home sales, employment, population, and demographics. Regional variations in delinquency and foreclosure rates continue to play an important role in the determination of foreclosure frequency. In the enhanced Fitch IBCA model, the base case FOF determined for each loan as a function of LTV and FICO score is adjusted by a multiplier that reflects the difference between WEFA's national average forecast of foreclosure rates and WEFA's forecast for the region in which the loan mortgaged property is located in. Appendix C pages 17 and 18 shows the regional multipliers for the 75 regions Fitch IBCA tracks at each rating level. In the 'CCC' expected case, WEFA's foreclosure rate forecast for the Minneapolis-St. Paul, MN region is approximately one-half that for the nation as a whole. Base case expectations for Baltimore, MD are close to the national average, while those for Los Angeles County, CA are more than twice as high. These multipliers converge on 1.0 at the 'AAA' level. This convergence reflects Fitch IBCA's approach to incorporating regional default expectations across the rating spectrum. At the speculative-grade and low investment-grade rating levels, realistic expectations regarding individual regions are important considerations. Conversely, at the 'AA' and 'AAA' levels, the model simulates a severe national depression. At these levels regional variations become much less significant while the multiples of default expectation associated with the stress scenario become much more significant.

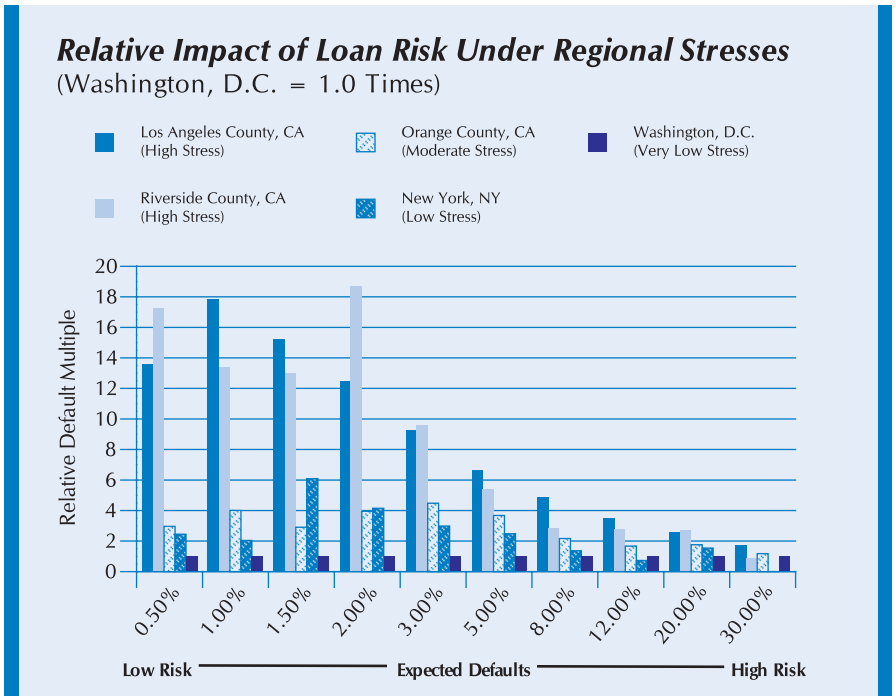
Frequency of Foreclosure Rating Multiples

Regional Stress Analysis

Rating multiples of foreclosure frequencies in Fitch IBCA's enhanced criteria are based on analysis of regional foreclosure rates. The Regional Distribution of Mortgage Default Rates chart at the top of page 4 shows the distribution of regional foreclosure rates across the 75 regions tracked by Fitch IBCA, together with a trend line. Each bar on the chart represents the cumulative foreclosure rate over several years for one region. Rating multiples are determined by selecting points along the distribution curve. To determine the appropriate points on the distribution curve to associate with each rating level, Fitch IBCA looked to data on distributions of bond default rates. The first two columns of the Bond Default Rates and FOF Stress Multiples table at the bottom of page 4 shows the results of two studies by Edward Altman of corporate bond default rates. The Altman studies indicate the percentage of bonds at each rating class that have defaulted and are useful in understanding the relative risk of ratings. Fitch IBCA has used this data to determine the relative multiples of FOF expectations to associate with each rating level. The third column of the table, "Excess Foreclosure Probability," shows Fitch IBCA's expectation of the likeli-





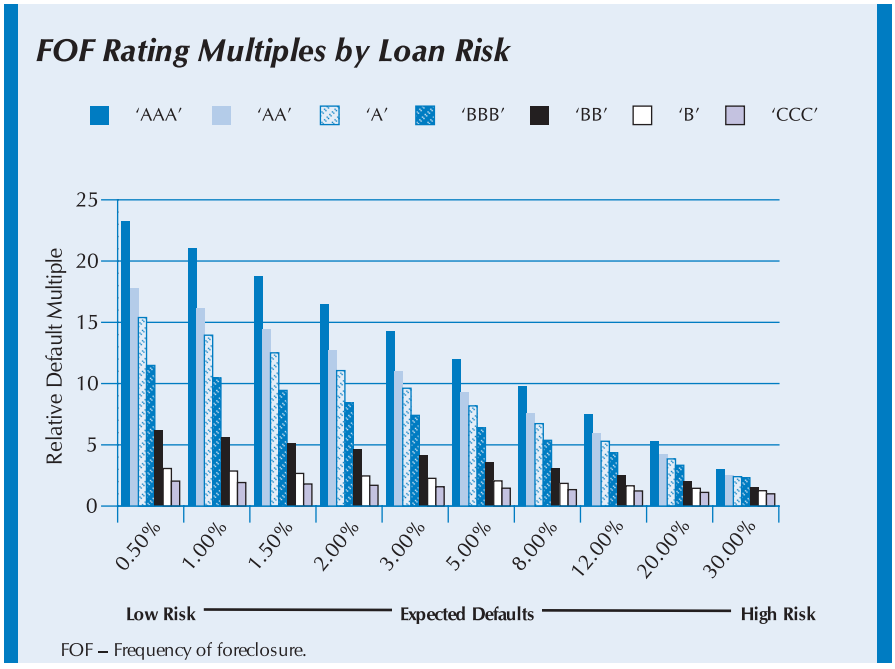


hood of excess foreclosures, that is the likelihood that a pool's lifetime FOF will exceed the FOF level assigned for a given rating. As the table shows, only 0.1% of pools should experience foreclosures exceeding Fitch IBCA's 'AAA' FOF stress, while FOFs can be expected to exceed the 'CCC' level 50% of the time. Column 4, "Implied Mortgage Pool Default Percentage," shows the lifetime expectation for each rating level for the historical sample. These FOFs are determined by selecting the points on the distribution curve of regional results that correspond to the desired probabilities of excess foreclosures. For example, since the CCC probability of excess foreclosures is 50%, the corresponding point on the regional result distribution is the midpoint. Therefore, 50% of the regional FOF outcomes will be less than the 'CCC' FOF expectation, while 50% will be greater. The midpoint of the trend line indicates a projected lifetime FOF of approximately 1.5%, so the expected 'CCC' FOF is set to 1.5%. Note that these default frequencies are based on the regional results after adjusting to a projected lifetime FOF. Actual pool frequencies will vary as a function of the distribution of expected default rates for a given pool. The last column of the table shows the FOF rating multiple relative to 'CCC'.

Using this methodology, the 'AA' foreclosure frequency expectation is roughly equivalent to the historical Los Angeles experience, while the 'CCC' base case corresponds to the Washington, D.C. experience. The "Unemployment Rates" and "Foreclosure Rates" charts on page 5 illustrate the relative economic experiences in these regions. The first chart shows the unemployment rate in these two regions, together with the U.S. rate. While Washington, D.C. and the U.S. as a whole experienced a short, sharp recession in the early 1990s, this chart illustrates that the Los Angeles region experienced a much deeper and more prolonged recession. The second chart depicts the foreclosure rates for these regions during the same time period. Changes in foreclosure rates in these regions closely tracked the changes in unemployment rates, again showing a much more severe problem for Los Angeles. (*For a comparison of the Los Angeles experience to the 1980s Texas recession data used to develop the original default model, see the "Whatever Happened to Texas" box, Appendix E, page 19.)*

Frequency of Foreclosure Multiples Vary by Loan Risk

In reviewing historical foreclosure frequency data, Fitch IBCA observed that



FOF – Frequency of foreclosure.

the relative response to external stress varied among loans as a function of loan risk. Loans with low risk in the base case had a higher default multiple under stress than high-risk loans. This is illustrated in the chart at the top of page 6, which shows the relative default rate for loans with similar risk in different regions. This chart indicates that low-risk loans have much higher relative default rates under stress than high-risk loans. This is not surprising given that low-risk loans have such a low absolute foreclosure frequency expectation that an external stress, such as a sharp rise in unemployment, can have a large relative effect. Conversely, high-risk loans have such a large base case default expectation that stress multiples cannot be very large or foreclosure frequencies in excess of 100% would be implied.

Using the analysis of relative default rates based on loan risk, Fitch IBCA assigns rating multiples as a function of base case foreclosure frequency. The chart at the bottom of page 6 shows the FOF multiples for each rating level for loans in each risk bucket. The table above right shows FOFs and rating multiples for various loan risk examples.

Fitch IBCA's methodology for calculating foreclosure frequency rating multiples provides for a dynamic response to variations in pool risk characteristics within a framework of historical stress analysis. Appendix D on page 18 shows 'AAA' FOFs resulting from this methodology for various FICO/LTV combinations.

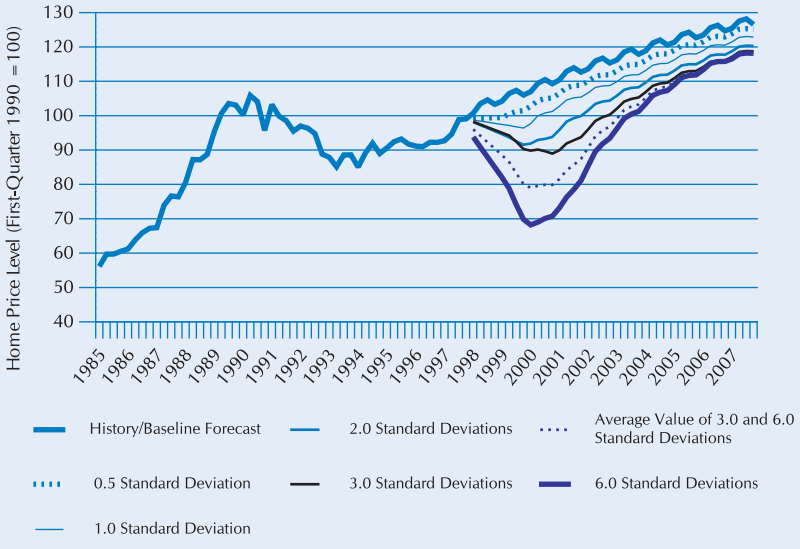
FOF Rating Multiple Examples

Each loan is assumed to be a $300,000, 30-year fixed-rate, full documentation, single-family detached, primary residence purchase financing.

Credit Quality	Low Risk	Moderate Risk	High Risk
FICO Score	780	700	600
LTV (%)	60	80	95
'AAA' FOF (%)	3.34	9.21	73.56
'AA' FOF (%)	2.51	7.05	58.41
'A' FOF (%)	2.14	6.15	53.11
'BBB' FOF (%)	1.53	4.64	44.74
'BB' FOF (%)	0.80	2.54	26.56
'B' FOF (%)	0.37	1.32	17.71
'CCC' FOF (%)	0.24	0.91	13.25
Rating	**Stress Multiple (Relative to 'CCC')**		
'AAA'	13.63	10.15	5.55
'AA'	10.24	7.77	4.41
'A'	8.76	6.77	4.01
'BBB'	6.26	5.11	3.38
'BB'	3.28	2.79	2.00
'B'	1.52	1.46	1.34
'CCC'	1.00	1.00	1.00

FOF – Frequency of foreclosure. *FICO – Fair, Isaac & Co., Inc. LTV – Loan-to-value ratio.

Santa Barbara County – CSW Index History and WEFA Home Price Projections



Source: Historical home price data from Case Shiller Weiss, Inc. (CSW). All rights reserved.

Market Value and Loss Severity Model

Fitch IBCA's Regional Approach to Market Value

Fitch IBCA utilizes a regional approach to developing home price trends and market value stress scenarios. In addition to the mortgage foreclosure rate projections described earlier, Fitch IBCA, working with WEFA, developed a system of econometric models that are used to forecast single-family home prices. Through regression analysis of regional economic conditions (e.g. unemployment and housing starts, among others) combined with historical home price data, WEFA generates home price forecasts together with six stress

Market Value Decline Scenarios

Rating	Economic Driver/Scenario
'CCC'	Baseline Forecast
'B'	0.5 Standard Deviation
'BB'	1.0 Standard Deviation
'BBB'	2.0 Standard Deviations
'A'	3.0 Standard Deviations
'AA'	Average Value of 'AAA' and 'A' Scenarios
'AAA'	6.0 Standard Deviations

scenarios for each of the 75 regions Fitch IBCA tracks *(see Appendix H, pages 22 and 23)*.

The recessionary scenarios reflect increasingly severe assumptions applied to the forecasts for the economic variables affecting home prices. The scenarios are calibrated across regions by calculating the standard deviation from the trend for each economic variable over the past two decades and using these ranges to determine the severity of economic stress assumptions applied to the exogenous variables over the six stress scenario projections. Each scenario represents a cycle of economic shock, recession maintenance, and recovery. The forecast and stress scenario data are updated semiannually. The chart at the bottom of page 7 is an example of a regional home price forecast, together with stress scenarios for the Santa Barbara County, CA region. The table above defines the relationship between standard deviation scenarios and rating categories.

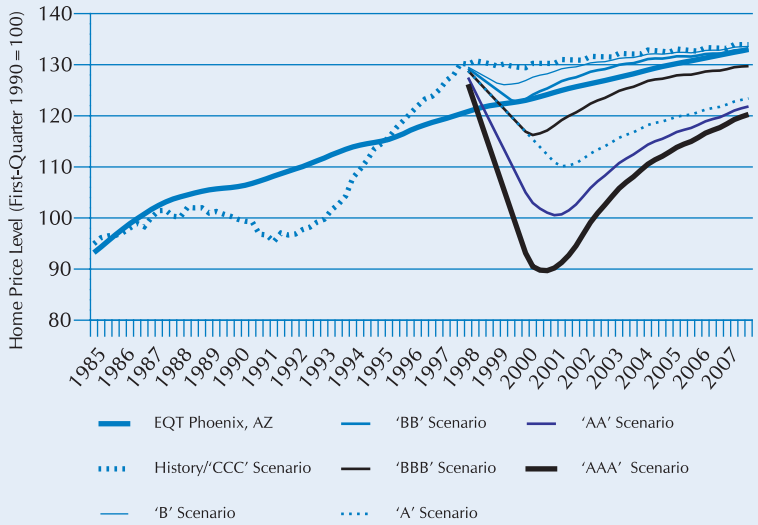
Introduction of Equilibrium Home Price Trend

Fitch IBCA has enhanced the home price model by introducing a long-term home price equilibrium trend into the regional home price forecasts. The dramatic rise of home prices in Southern California in the late 1980s and the ensuing decline through the 1990–1996 period highlighted the need for a home price model that could identify both speculative bubbles and relative depression in regional real estate markets. In enhancing the regional models to identify such market conditions, Fitch IBCA, working with WEFA, started with the theory that, even in an efficient market, prices at any point in time could reflect irrational optimism or pessimism but, over the long run, would tend to approach an equilibrium level or trend. Trial models were built using several different variables, including smoothed national home prices, personal income, employment, and households by age. Many of these variables had similar cycles that coincided with the home price run-up around 1990. As a result, they actually fit the data too well, explaining up to 90% of the local home price variation. These measures would produce a model that tracks the actual local home price but provides no insights into identifying pricing bubbles.

The solution to this problem is a model that estimates housing affordability. Using this model, Fitch IBCA forecasts an equilibrium trend of home price growth for each region. Regions where home prices outrun affordability can be expected to eventually correct to the level indicated by the long-term trend. Conversely, regions where home prices appear low relative to the trend can be expected to recover over time.

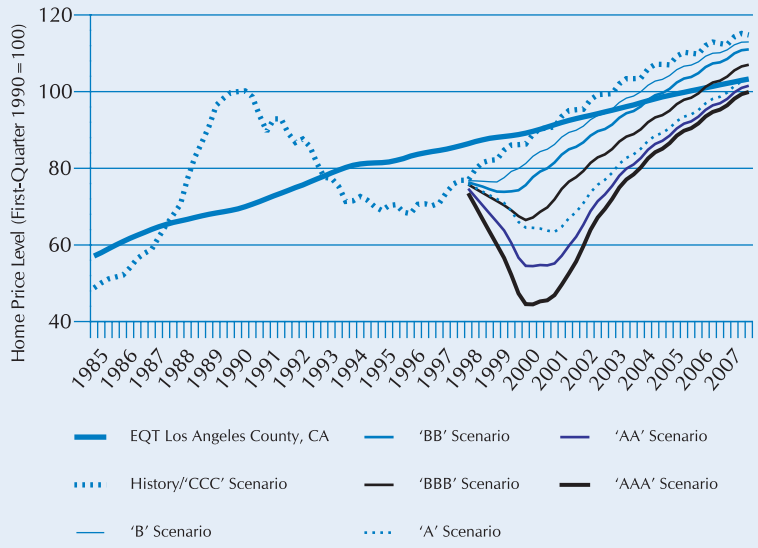
Fitch IBCA constructed a proxy for national affordability by assuming an average income household, with a 28% mortgage-to-income ratio at prevailing mortgage rates and then computing the value of a house that could be purchased at 80% LTV. Applying this calculation indicates that there was a national home price bubble around 1990, since affordability weakens in the late 1980s and recovers only gradually

Phoenix, AZ — CSW Index History, EQT, and Home Price Projections



EQT – Equilibrium trend. Source: Historical home price data from Case Shiller Weiss, Inc. (CSW). All rights reserved.

Los Angeles County, CA – CSW Index History, EQT and Home Price Projections



EQT – Equilibrium trend. Source: Historical home price data from Case Shiller Weiss, Inc. (CSW). All rights reserved.

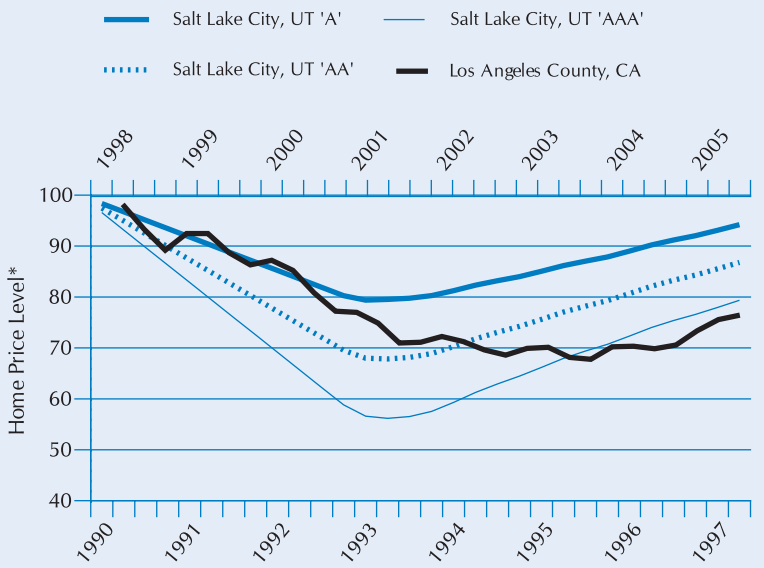
until 1992. This result matches observed home price behavior, particularly for the upper tier markets located on the coasts.

The regional home price equilibrium trends (EQTs) are determined by regressing each region's home prices on national affordability and also taking into account the local share of high-income (more than $100,000 per year) households. Concentrations of high-income households in a region will alter the definition of "affordability" for that region. The home price forecast for a region now draws on local economic conditions (unemployment rates, home sales and housing starts, income, total employment, and demographic composition) as well as the relationship between recent local home prices and the EQT. The influence of the EQT on the forecast increases as the spread between recent prices and the trend price level grows, thus exerting more "pull" on the forecast back toward the long-term trend.

The charts on pages 8 and 9 illustrate the effect of the equilibrium trend. The chart at the bottom of page 8 shows the EQT and home price forecast along with each rating stress scenario for the Phoenix, AZ region. The chart above contains the same information for the Los Angeles region. Phoenix is a region where home prices have recently exceeded the equilibrium trend, whereas Los Angeles is only now emerging from significant home price deflation. The impact of these factors on both the home price forecast for each region as well as the stress scenarios is shown in these charts. In the Phoenix region, the EQT forces the home price forecast to a steady-state that eventually converges on the trend line. Also, the stress scenarios indicate substantial early declines as prices correct significantly. In the Los Angeles region, forecast home prices rise through the trend line, and stress scenario declines are muted by the long-term reversion to the trend.

The development of regional EQTs provides Fitch IBCA with a unique ability to prospectively account for valuation booms and busts. Appendix F on page 20 ranks the spread between current home prices and the EQT for the 75 regions.

Market Value Declines — Los Angeles County, CA 1990–1997, Salt Lake Projections



*Second-quarter 1990 and fourth-quarter 1997 equal 100. Source: Historical home price data from Case Shiller Weiss, Inc. All rights reserved.

Market Value Declines for Salt Lake City, UT

(Weighted Average Over FOF Stress Curve)

	(%)
'AAA'	48.80
'AA'	42.31
'A'	35.83
'BBB'	31.10
'BB'	26.75
'B'	25.22
'CCC'	21.37

FOF – Frequency of foreclosure.

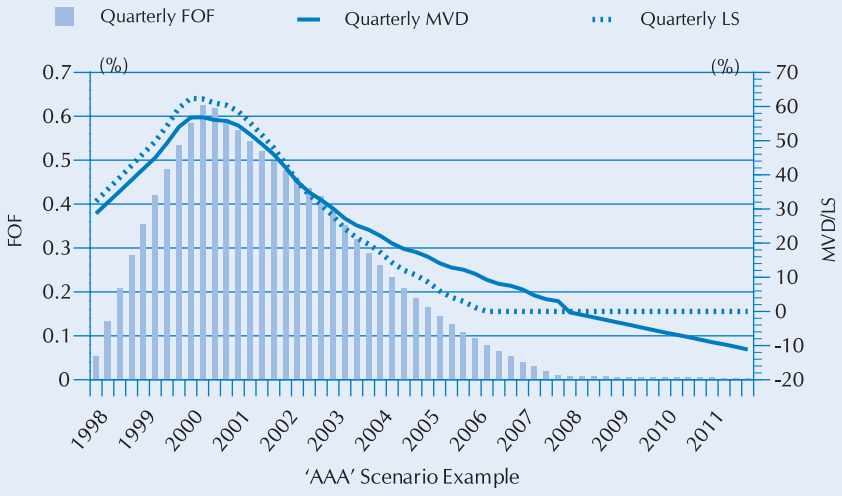
Market Value Decline Rating Multiples

Fitch IBCA's market value decline model is consistent with the foreclosure frequency model in its identification of the Los Angeles experience of the early 1990s as the benchmark for 'AA' expectations. The chart at the bottom of page 9 compares the historical home price decline experienced in Los Angeles together with Fitch IBCA's projections for Salt Lake City, UT. In the run up to the Olympic Games of 2000, Salt Lake City is exhibiting the sort of overheating in the home price market that Los Angeles experienced. The chart shows that the 'AA' expectation for Salt Lake City most closely approximates the Los Angeles experience. The table at left shows the severity of market value decline for each rating level for the Salt Lake City region.

FOF and MVD Projections

The Fitch IBCA RMBS model projects both frequency of foreclosure and market value decline scenarios over timing curves consisting of 56 quarters (14 years) as shown in the chart below. The foreclosure frequency curve is not a loan seasoning curve but rather reflects the impact of the rating stress scenario. Both the FOF curve and the MVD curve assume the immediate onset of the stress scenario with peak stress occurring in the tenth quarter and then slowly ramping back down to base case levels over several years. Fitch IBCA believes that the synchronization of the FOF and MVD curves is a conservative methodology that reflects the historical coincidence and interrelation of sharp home price declines and foreclosure rate spikes. The chart also shows the loss severity resulting from the interaction of the MVD scenarios with the other elements of the loss severity calculation. For a detailed discussion of the loss coverage calculation, see Appendix G on page 21.

FOF and MVD Timing Curves



FOF – Frequency of foreclosure. MVD – Market value decline. LS – Loss severity.

Other Loan Risks

Fitch IBCA adjusts the foreclosure rates and market value expectations on a loan-by-loan basis to account for individual loan characteristics of the collateral. Foreclosure rates are adjusted for reduced-documentation programs, cash-out refinances and non-owner-occupied properties. Market value is adjusted for non-single-family properties and high value properties.

Foreclosure Rate Adjustments

15-Year, ARM, and Other Products:

Performance data results, as well as substantial MBS static pool experience, affirm 15-year, fixed-rate loans' superior performance to the standard 30-year product and reveal attributes that would lead one to expect such performance in terms of higher FICO score distributions and lower original LTV distributions. Fitch IBCA believes that the voluntary undertaking of a substantially increased payment obligation represents a premium borrower selection mechanism, whereas adjustable-rate mortgages (ARMs) and other lower payment alternatives represent potential adverse selection mechanisms, particularly if combined with flexible underwriting standards. Some ARM performance in securitized pools has been poor and reflects such risk layering.

Sourcing and potential adverse pool selection will be a key concern of Fitch IBCA in evaluating ARM and other pool submissions and it, along with the degree of coupon discount (i.e. adverse borrower selection), will change our ARM FOF premiums relative to fixed-rate products.

Reduced Documentation Programs:

Analysis of the model development sample reveals that loans made with reduced documentation are more likely to default than fully documented loans. Loans made with no borrower income verification and no asset verification required are much more likely to default than full documentation loans. Loans

with little or no documentation perform particularly poorly when combined with other high-risk characteristics, such as low credit scores and high LTVs. For loans without income verification, FOFs may be increased as much as 300%, depending on the mix of other risk factors. No-documentation loan FOFs may be increased as much as 500%.

When evaluating limited documentation programs, Fitch IBCA reviews program guidelines and discusses the program's features and historical performance with management. Issuers, particularly those originating 'alternative A' loans, often develop specific underwriting criteria designed to mitigate the risk associated with limited documentation. Fitch IBCA considers these mitigating factors and associated performance data in assigning credit enhancement levels.

Cash-Out Refinancing: Homeowners refinance to take equity or cash out of their homes based on either increased property value or the availability of higher LTV loans. Borrowers today can refinance 100% or more of their property's value. Loan performance data indicate that cash-out refinancings are more likely to default than rate and term refinancings. First, given the borrowers incentive to obtain a desired amount of cash, pressure to reach the corresponding property valuation may result in understated LTVs. Therefore, such loans would be more risky than accurately valued loans with apparently identical LTVs. Review of appraisal processes helps Fitch IBCA to gauge this risk in rated pools. Second, a common purpose for cash-out refinancing is debt consolidation. While debt consolidation may result in a lower aggregate monthly payment for the borrower, the need for debt consolidation can be an indicator of financial stress. Should the borrower "reload" on other credit lines after the consolidation, the debt burden may become intolerable. Fitch IBCA adjusts cash-out loan default frequencies upward by as much as 300%.

Second Home and Investor Properties: Loan performance data supports the assumption that borrowers that have mortgaged their primary residence have a greater disincentive to default than those borrowing against second homes and investment properties. Fitch IBCA increases the foreclosure rate on second homes by as much as 25% and on investment properties by as much as 100%.

Multifamily Homes/Attached Homes: Single-family detached homes exhibit the best foreclosure performance among property types. Fitch IBCA adjusts foreclosure rates for multifamily properties by as much as 150% and adjusts condominium FOFs by as much as 220%.

Loan Balance: Very large loans exhibit higher rates of default in the sample data. Foreclosure frequency adjustments are made as balances increase. Consideration is given to the fact that for certain regions, large balances are much more common.

Mortgage Scoring Systems: Fitch IBCA frequently receives pool data containing mortgage score information. Proprietary mortgage scoring systems developed by mortgage insurers, originators, and others are similar in concept to credit bureau scores but are designed to specifically predict the likelihood of mortgage default. Mortgage scoring systems consider such factors as LTV, loan documentation level, borrower time in the home, borrower time in the field of occupation, and debt-to-income ratios, among other factors not considered in bureau scores. As a result, these systems offer demonstrably higher accuracy in separating good and bad loans than bureau scores alone.

Fitch IBCA has analyzed the effectiveness of mortgage scoring systems from Citicorp Mortgage, GE Capital Mortgage Insurance, Mortgage Guaranty Insurance, Norwest Mortgage, PMI Mortgage Insurance, and United Guaranty Residential Insurance and adjusts foreclosure frequencies to reflect the scoring system's indicated loan risk. These adjustments have generally taken the form of adjustments to the equity-based FOFs, similar to the FICO score adjustments but lesser in degree to mitigate the potential for introducing redundancy to the analysis. In light of the latest research and criteria revisions, Fitch IBCA will be updating its approach to using mortgage scores in its analysis.

Seasoned Loans: Fitch IBCA considers several factors in the analysis of seasoned loans. Most important is information on loan performance. Fitch IBCA will reduce foreclosure frequencies for loans that have demonstrated good performance over long periods and will also raise foreclosure frequencies for loans that have been delinquent. In addition, FOFs for loans seasoned more than two years rely on an updated current LTV that reflects recent home price changes and loan payments. Updated credit score information will also be used when available.

In analyzing seasoned pools, Fitch IBCA reviews the prepayment history of the pool to determine whether adverse selection has occurred. If the remaining borrowers in a pool did not refinance when the prepayment history shows there was a strong incentive to do so, this may be an indicator of a problem that could affect future performance, e.g. substantial decline in property values.

Market Value Decline Adjustments

Fitch IBCA adjusts property value declines in the home price model to be 30% greater for properties other than single-family detached homes. Adjustments are applied as a discount to recovery value based on the market value decline scenario trough point for the re-

gion and rating. Adjustments are also made for high value properties. Loans on properties valued between $600,000–$1 million are assigned property value declines up to 40% higher than the standard projection, and loans on properties valued greater than $1 million are assigned property value declines up to 60% higher. Consideration is given to the market for expensive properties in a given region.

Other Risks

Servicing and Origination

A key factor in evaluating and rating a pool of mortgage loans is the quality of the operations and procedures of the mortgage seller, servicer, and master servicer. A direct correlation exists between the strength of these functions and the performance of a collateral pool. Accordingly, Fitch IBCA has a review process for primary servicing, master servicing, and originations that provides a basis for assessment and comparison of these operations.

Fitch IBCA's due diligence review process takes into consideration qualitative and quantitative factors. The review typically includes evaluating actual loan files, management experience, operating history, origination procedures, loan servicing, and default management practices. In general, the components comprising Fitch IBCA's assessment include:

- On-site inspection of the facility and interviews with key personnel, during which Fitch IBCA evaluates the strength and flexibility of the operations, as well as the background and depth of experience of senior management.
- A review of the company's written procedures and guidelines to determine the level of compliance with industry guidelines and identify any areas for further discussion.
- A sample of loan files is selected and reunderwritten to ensure that the company adheres to the applicable guidelines and that the value of the underlying collateral is not compromised.
- Various delinquency, static pool, product origination, and quality control reports are selected for review and analysis to evaluate historical performance and adherence to procedures.

A detailed discussion of the origination/servicing due diligence process can be found in the Fitch IBCA research "Mortgage and Housing Products Origination and Servicing Guidelines," available on Fitch IBCA's web site at www.fitchibca.com.

Geographic Concentration

Economic Risk: To determine the extent that geographic concentration increases economic risk, the economic diversification in each U.S. region is assessed. In regions with low diversity, there is more risk that a recession will affect a large number of borrowers. A "company town" with a single large employer is one example. If the company goes out of business or moves, many residents would lose their jobs. Suppliers and local businesses would suffer, and the overall economy of the region could be depressed.

To limit the pool's exposure to geographic concentration risk, Fitch IBCA will increase credit enhancement requirements if there are concentrations above 2% per zip code in a region that is not economically diverse or if there are concentrations above 5% in an economically diverse region.

Special Hazard Risk: Special hazard, such as an earthquake, is another risk tied to a property's geography. However, exposure to this risk may not increase directly as geographic concentration increases. As history suggests, natural disasters have erratic patterns that can damage one home while leaving others nearby unaffected. As a result, Fitch IBCA uses the first three digits of the zip code to identify areas with a high concentration of special hazard risk. This should be a more effective measure of the special hazard risk associated with geographic concentration than using the full zip code. If partial zip codes (the first three digits) from high-risk areas constitute 5% or less of a pool, that pool is considered to be adequately diversified and a minimum 0.5% carve out or other form of coverage will suffice. Higher concentrations will require higher loss coverage levels, depending on the level of geographic concentration and the type of risk.

Borrower Bankruptcy Risk

Fitch IBCA believes the risk of losses due to borrower bankruptcy filings is quite small and, therefore, requires minimal loss coverage for pools that contain loans secured by nonprimary residences as well as primary residence loans with multiple collateral sources. The Bankruptcy Reform Act of 1994 eliminated the risk of "cramdowns" and modifications of home mortgages secured solely by the debtor's principal residence and thereby the need for bankruptcy loss coverage on these loans. Fitch IBCA estimates the risk of modification by calculating a monthly cash flow shortfall for all nonprimary residence loans with original LTVs in excess of 80%. This shortfall equals the difference between the monthly mortgage payment at the net weighted average coupon (WAC) and a modified payment at 1.25% per annum less than the net WAC. Required coverage for a pool is equal to the greater of: the product of the single largest shortfall, the weighted average remaining term (months) of nonprimary residence loans, and one plus the percentage of nonprimary residence loans in the pool; or a $50,000 minimum.

Fraud Risk

Fitch IBCA requires protection to cover losses due to fraud, resulting from either a misrepresentation in the home's appraised value or a misrepre-

sentation on the loan application. The risk of fraud is greatest for the first few years after origination.

Fitch IBCA's fraud coverage requirement for mortgage pools seasoned less than three years is equal to 1.0% of the outstanding principal balance of the mortgage pool for each of the first three years following the transaction's cutoff date. For mortgage pools seasoned three years or greater, coverage is required at 0.5% of the outstanding principal balance of the mortgage pool for each of the first three years from the cutoff date.

Loan Level Credit Enhancement

The tables below and on page 14 show three examples of the enhanced Fitch IBCA mortgage credit loss model and demonstrate the response of the model to varying loan attributes in terms of FOF, market value decline, loss severity, and required credit enhancement.

Loan Level Credit Enhancement

Example 1 – High-Risk

Loan Assumptions

Product	30-Year Fixed
Rate (%)	7.875
Loan Amount ($)	253,500
Property Value ($)	290,000
OLTV (%)	88
CLTV (%)	87.35
FICO	622
Purpose	Rate/Term Refinance
Documentation Level	Full
Property Type	Single-Family Detached
Occupancy	Primary
Mortgage Insurance Coverage Down to %	66
Region	Atlanta, GA
State Liquidation Time (Months)	13

Credit Enhancement Statistics

Rating	'AAA'	'AA'	'A'	'BBB'	'BB'	'B'	'CCC'
Regional FOF Multiplier	0.97	0.94	0.92	0.89	0.84	0.79	0.74
FOF (Adjusted)	41.86	32.08	28.09	22.38	12.27	7.22	4.95
MVD	37.07	33.34	29.61	29.04	28.32	27.38	26.62
LS	20.12	16.21	12.30	11.70	10.92	9.92	9.15
CE	8.42	5.20	3.46	2.62	1.34	0.72	0.45

Example 2 – Moderate Risk

Loan Assumptions

Product	30-Year Fixed
Rate (%)	7.75
Loan Amount ($)	308,000
Property Value ($)	385,000
OLTV (%)	80
CLTV (%)	79.94
FICO	727
Purpose	Purchase
Documentation Level	Full
Property Type	Single-Family Detached
Occupancy	Primary
Mortgage Insurance Coverage Down to %	None
Region	Los Angeles County, CA
State Liquidation Time (Months)	14

Credit Enhancement Statistics

Rating	'AAA'	'AA'	'A'	'BBB'	'BB'	'B'	'CCC'
Regional FOF Multiplier	1.04	1.17	1.30	1.43	1.69	1.96	2.22
FOF (Adjusted)	7.38	6.29	6.03	4.92	3.13	1.82	1.40
MVD	40.13	34.34	28.55	24.59	20.49	19.26	8.08
LS	41.97	35.37	28.78	24.41	19.88	18.50	8.03
CE	3.10	2.22	1.74	1.20	0.62	0.34	0.11

OLTV – Original loan-to-value ratio. CLTV – Combined loan-to-value ratio. FICO – Fair, Isaac & Co., Inc. FOF – Frequency of foreclosure. MVD – Market value decline. LS – Loss severity. CE – Credit enhancement.

Loan Level Credit Enhancement (continued)

Example 3 – Low Risk

Loan Assumptions

Product	30-Year Fixed
Rate (%)	7.875
Loan Amount ($)	272,650
Property Value ($)	287,000
OLTV (%)	95
CLTV (%)	94.93
FICO	760
Purpose	Purchase
Documentation Level	Full
Property Type	Single-Family Detached
Occupancy	Primary
Mortgage Insurance Coverage Down to %	66.5
Region	Boston Metro Area, MA
State Liquidation Time (Months)	15

Credit Enhancement Statistics

Rating	'AAA'	'AA'	'A'	'BBB'	'BB'	'B'	'CCC'
Regional FOF Multiplier	0.96	0.92	0.89	0.86	0.79	0.72	0.66
FOF (Adjusted)	8.70	6.43	5.42	3.94	1.99	0.95	0.60
MVD	35.63	31.63	27.63	25.29	22.65	21.52	14.06
LS	20.25	16.43	12.63	10.49	8.01	7.01	2.32
CE	1.76	1.06	0.68	0.41	0.16	0.07	0.01

OLTV – Original loan-to-value ratio. CLTV – Combined loan-to-value ratio. FICO – Fair, Isaac & Co., Inc. FOF – Frequency of foreclosure. MVD – Market value decline. LS – Loss severity. CE – Credit enhancement.

Appendix A — Model Development and Validation Performance Samples

Fitch IBCA obtained large "prime jumbo" performance samples from leading issuers of non-agency mortgage-backed securities. Fitch IBCA believes these loan samples are representative of the overall prime jumbo sector. The samples took the form of both total originations as well as disproportionate performance samples, meaning Fitch IBCA had access to information on all defaulted loans and a representative sample of performing loans. Overall, the samples reflect total origination populations from 1989–1993 totaling over one-quarter of a million loans with a default rate of approximately 4%. The following tables provide additional information on the overall profile of the samples.

Origination Year	(%)
1989	4.0
1990	5.5
1991	10.9
1992	17.7
1993	61.8

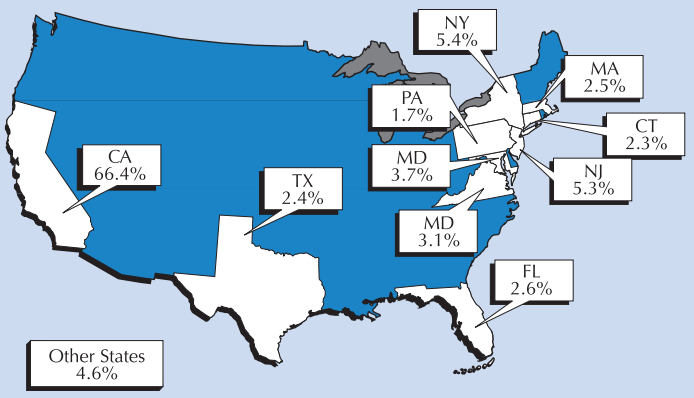
Product/Interest Type/Term	(%)
30-Year Fixed-Rate	58.6
15-Year Fixed-Rate	20.7
Short-Term ARM	13.0
Other	7.8

FICO Score Distribution	(%)
< 620	1.9
620–659	5.6
660–719	26.4
720–759	32.8
≥ 760	33.3

Original Loan-to-Value Ratio (%)	(%)
< 60	18.4
61–80	70.9
> 80	10.6

FICO – Fair, Isaac & Co., Inc.
ARM – Adjustable-rate mortgage.

Geographic Concentration



Appendix B — Modeling and Data Sources

Regional Econometric Forecasting Services

Since 1993, WEFA, a leading economic consulting firm, has provided Fitch IBCA with forecasts of regional foreclosure rates and home price levels. For loss modeling purposes, Fitch IBCA has divided the U.S. into 75 regions based on data availability, geographic proximity, economic intradependence, and the geographic distribution of jumbo mortgage-backed securities pools. This translates into a focus on California and the Northeast, making up 32 and nine of the 66 local regions, respectively. The remaining nine regions are multistate composite regions. Historical data and forecasts for underlying macro- and regional economic variables are provided regularly by WEFA's U.S. Macroeconomic and Regional Services, while historical mortgage delinquency, foreclosure rate, and home price are acquired by Fitch IBCA from the sources detailed below.

Home Prices

The single-family home price data used in the model comes primarily from Case Shiller Weiss, Inc. (CSW). The data include an aggregate price index, as well as indexes for low-, medium-, and high-priced tiers of regional housing markets with the model utilizing the upper tier index to better reflect the vast majority of properties securing 'A' quality, nonconforming mortgages. If the upper tier is unavailable for a region due to the lack of sufficient sales pairs, the aggregate index is used as a substitute.

Generally, the CSW data series begin in the 1970s, although there are some regions with less extensive histories. In this event, single-family home price data from the National Association of Realtors (NAR) is used to complete the series back to at least 1980. For the few regions where CSW data is unavailable, NAR data are used for the entire historical series. Additionally, composite region home price levels are modeled from multi-metropolitan statistical area (MSA) indexes and do not necessarily constitute blanket coverage. Graphical representations of the CSW indexes are reprinted with the express permission of CSW.

Delinquency and Foreclosure Rates

Foreclosure and delinquency data come primarily from Mortgage Information Corp. (MIC) and are complimented with data from the Mortgage Bankers Association (MBA). Data on jumbo mortgage total delinquencies and foreclosure rates for counties, MSAs, and states is obtained from MIC. Since pre-1992 history is unavailable from MIC, growth rates from the MBA data are used to complete the history of the foreclosure series. For the few regions where MIC data is unavailable, MBA data is used for the entire series.

While lengthy time series historical data on foreclosures at this level of geographical detail are not available from any source, county and metropolitan area foreclosure indicators created for the model are developed by examining state and regional level economic relationships. While the approach tends to result in similar equations across counties or MSAs within a state, the inclusion of recent county and MSA data provides the correct levels from which to start the forecast, with changes to this level resulting from expected or assumed changes in the economic and housing conditions endemic to the particular region.

Appendix C — Regional FOF Multipliers

Rank	Region	'CCC'	'B'	'BB'	'BBB'	'A'	'AA'	'AAA'
1	Detroit, MI	0.229	0.379	0.528	0.678	0.752	0.826	0.900
2	Fresno County, CA	0.287	0.426	0.564	0.703	0.771	0.839	0.908
3	Santa Clara County, CA	0.438	0.547	0.656	0.766	0.819	0.873	0.927
4	Cincinnati, OH	0.472	0.575	0.677	0.780	0.831	0.881	0.932
5	East South Central	0.477	0.579	0.680	0.782	0.832	0.882	0.932
6	West North Central	0.478	0.579	0.681	0.782	0.832	0.882	0.932
7	Santa Cruz County,CA	0.501	0.598	0.695	0.792	0.840	0.888	0.935
8	Denver, CO	0.506	0.602	0.698	0.794	0.842	0.889	0.936
9	Seattle, WA	0.516	0.610	0.704	0.798	0.844	0.891	0.937
10	Jacksonville, FL	0.521	0.614	0.707	0.800	0.846	0.892	0.938
11	Indianapolis, IN	0.526	0.618	0.710	0.803	0.848	0.893	0.939
12	San Mateo County, CA	0.528	0.619	0.711	0.803	0.848	0.894	0.939
13	Minneapolis-St. Paul, MN	0.529	0.620	0.712	0.804	0.849	0.894	0.939
14	Marin County, CA	0.563	0.648	0.733	0.818	0.860	0.902	0.943
15	Salt Lake City, UT	0.565	0.650	0.734	0.819	0.860	0.902	0.944
16	Phoenix, AZ	0.585	0.666	0.746	0.827	0.867	0.906	0.946
17	West South Central	0.604	0.681	0.758	0.835	0.873	0.911	0.949
18	Portland, OR	0.614	0.689	0.764	0.839	0.876	0.913	0.950
19	Napa County, CA	0.618	0.692	0.766	0.841	0.877	0.914	0.950
20	Alameda County, CA	0.630	0.702	0.774	0.846	0.881	0.917	0.952
21	San Francisco County, CA	0.644	0.713	0.782	0.852	0.886	0.920	0.954
22	Boston Metro Area, MA	0.667	0.732	0.797	0.861	0.893	0.925	0.957
23	Dallas, TX	0.677	0.740	0.803	0.865	0.896	0.927	0.958
24	Washington D.C. Metro Area	0.704	0.761	0.819	0.876	0.905	0.933	0.962
25	Monterey County, CA	0.705	0.762	0.820	0.877	0.905	0.933	0.962
26	Mountain	0.714	0.769	0.825	0.881	0.908	0.935	0.963
27	Atlanta, GA	0.739	0.790	0.841	0.891	0.916	0.941	0.966
28	Santa Barbara County, CA	0.770	0.815	0.859	0.904	0.926	0.948	0.970
29	East North Central	0.770	0.815	0.860	0.904	0.926	0.948	0.970
30	Yolo County, CA	0.780	0.823	0.866	0.908	0.929	0.950	0.972
31	Houston, TX	0.808	0.846	0.883	0.920	0.938	0.957	0.975
32	Contra Costa County, CA	0.855	0.883	0.912	0.940	0.954	0.967	0.981
33	Chicago, IL	0.857	0.885	0.913	0.940	0.954	0.968	0.981
34	San Diego County, CA	0.869	0.894	0.920	0.945	0.958	0.970	0.983
35	Butte County, CA	0.918	0.934	0.950	0.966	0.974	0.981	0.989
36	South Atlantic	0.930	0.943	0.957	0.971	0.977	0.984	0.991
37	El Dorado County, CA	0.950	0.960	0.969	0.979	0.984	0.989	0.993
38	New England	0.959	0.967	0.975	0.983	0.987	0.991	0.995
39	Columbus, OH	0.966	0.972	0.979	0.986	0.989	0.992	0.996
40	San Luis Obispo County, CA	0.978	0.982	0.986	0.991	0.993	0.995	0.997
41	Sonoma County, CA	0.983	0.986	0.990	0.993	0.994	0.996	0.998
N.A.	U.S.	1.000	1.000	1.000	1.000	1.000	1.000	1.000
42	Baltimore, MD	1.074	1.058	1.042	1.026	1.018	1.010	1.003
43	Stanislaus County, CA	1.108	1.084	1.061	1.038	1.026	1.015	1.004
44	Pittsburgh, PA	1.117	1.091	1.066	1.041	1.029	1.016	1.004
45	Ventura County, CA	1.145	1.114	1.083	1.051	1.036	1.020	1.005
46	Merced County, CA	1.205	1.160	1.116	1.072	1.050	1.029	1.007
47	Orange County, CA	1.215	1.169	1.122	1.076	1.050	1.030	1.007
48	Humboldt County, CA	1.297	1.233	1.169	1.105	1.073	1.042	1.010
49	Pacific	1.329	1.258	1.187	1.116	1.081	1.046	1.011

FOF – Frequency of foreclosure. N.A. – Not applicable.

(continued on page 18)

Appendix C — Regional FOF Multipliers *(continued)*

Rank	Region	'CCC'	'B'	'BB'	'BBB'	'A'	'AA'	'AAA'
50	Kings County, CA	1.350	1.274	1.199	1.123	1.086	1.049	1.012
51	Central New Jersey	1.373	1.293	1.212	1.132	1.092	1.052	1.013
52	Kern County, CA	1.433	1.340	1.246	1.153	1.107	1.061	1.015
53	Northeastern New Jersey	1.493	1.387	1.280	1.174	1.121	1.069	1.017
54	Cleveland, OH	1.531	1.416	1.302	1.187	1.131	1.074	1.018
55	Tampa-St. Petersburg, FL	1.578	1.453	1.329	1.204	1.142	1.081	1.019
56	Fairfield County, CT	1.579	1.454	1.329	1.204	1.143	1.081	1.020
57	Sacramento County, CA	1.624	1.490	1.355	1.220	1.154	1.087	1.021
58	West Palm Beach, FL	1.667	1.523	1.379	1.235	1.164	1.093	1.022
59	Fort Lauderdale, FL	1.731	1.573	1.415	1.258	1.180	1.102	1.025
60	Sarasota, FL	1.793	1.621	1.450	1.279	1.195	1.111	1.027
61	Philadelphia, PA	1.794	1.623	1.451	1.280	1.196	1.111	1.027
62	New Haven, CT	1.807	1.633	1.459	1.285	1.199	1.113	1.027
63	Orlando, FL	1.907	1.712	1.516	1.320	1.223	1.127	1.031
64	Solano County, CA	1.939	1.737	1.534	1.331	1.231	1.131	1.032
65	Northeast	1.955	1.749	1.543	1.337	1.235	1.134	1.032
66	New York, NY	2.065	1.835	1.605	1.375	1.262	1.149	1.036
67	San Joaquin County, CA	2.110	1.871	1.631	1.391	1.273	1.155	1.037
68	Los Angeles County, CA	2.156	1.906	1.657	1.408	1.285	1.162	1.039
69	Miami, FL	2.301	2.021	1.740	1.459	1.320	1.182	1.044
70	Hartford, CT	2.311	2.028	1.745	1.462	1.323	1.184	1.044
71	Riverside County, CA	2.426	2.118	1.810	1.503	1.351	1.200	1.048
72	Long Island, NY	2.444	2.133	1.821	1.509	1.356	1.202	1.049
73	Placer County, CA	2.838	2.441	2.045	1.648	1.453	1.257	1.062
74	San Bernardino County, CA	3.389	2.873	2.358	1.842	1.588	1.334	1.080
75	Tulare County, CA	3.968	3.328	2.687	2.047	1.731	1.416	1.100

FOF – Frequency of foreclosure.

Appendix D — 'AAA' Base Frequency of Foreclosure

30-Year Fixed-Rate Mortgages

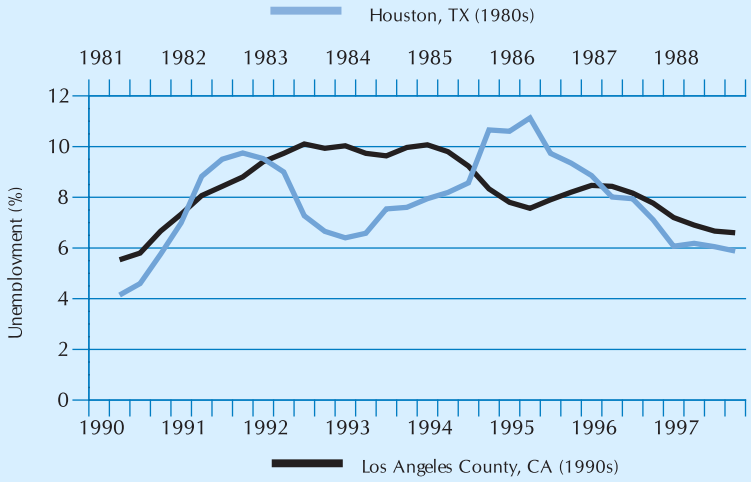
(%)

	FICO Score												
LTV	580	600	620	640	660	680	700	720	740	760	780	800	820
60	14.3	11.1	8.9	7.3	6.1	5.2	4.6	4.1	3.8	3.5	3.3	3.2	3.1
65	18.8	14.5	11.3	9.0	7.3	6.1	5.3	4.6	4.2	3.8	3.6	3.4	3.2
70	25.1	19.1	14.7	11.4	9.1	7.4	6.2	5.3	4.7	4.2	3.8	3.6	3.4
75	33.6	25.5	19.4	14.9	11.6	9.2	7.5	6.3	5.4	4.7	4.2	3.9	3.6
80	44.4	34.1	25.9	19.7	15.1	11.7	9.3	7.6	6.3	5.4	4.7	4.2	3.9
85	57.8	45.1	34.6	26.3	20.0	15.3	11.9	9.4	7.7	6.4	5.4	4.8	4.3
90	73.5	58.6	45.7	35.1	26.7	20.3	15.5	12.1	9.5	7.7	6.4	5.5	4.8
95	90.9	74.4	59.3	46.4	35.6	27.1	20.6	15.8	12.2	9.7	7.8	6.5	5.5
100	100.0	91.9	75.2	60.1	47.0	36.2	27.5	20.9	16.0	12.4	9.8	7.9	6.6

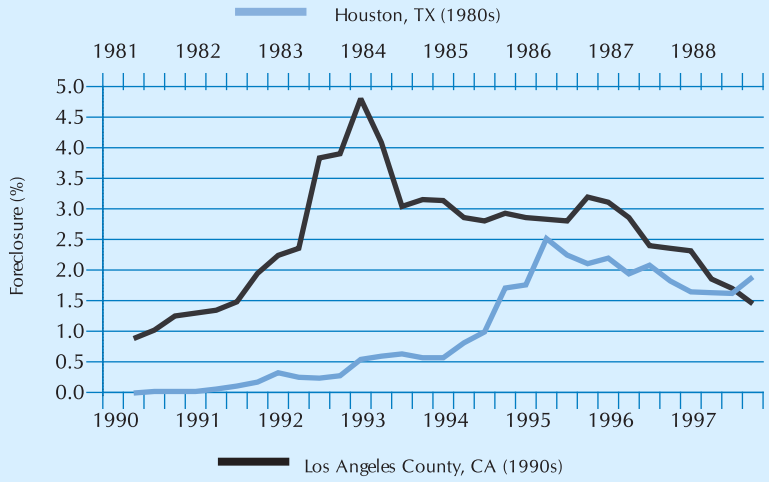
FICO – Fair, Isaac & Co., Inc. LTV – Loan-to-value ratio. Note: Table assumes 30-year fixed-rate, full documentation, purchase, primary occupancy, single-family detached, $300,000 initial balance.

Appendix E — Whatever Happened to Texas?

Unemployment Rates — Los Angeles 1990s and Houston 1980s



Foreclosure Rates — Los Angeles 1990s and Houston 1980s*



*Adjusted for relative foreclosure period. Note: Mortgage Information Corp. jumbo foreclosure rates are introduced into the data series from 1992 forward.

Since 1990, Fitch IBCA's investment-grade mortgage-backed securities criteria have relied on the 1980s oil belt depression experience for stressed foreclosure rate benchmarks. While the experience proved devastating to regional real estate investments generally, and particularly to depository institutions with significant exposure to local real estate values, the following demonstrates the comparable severity of the Los Angeles 1990s experience, particularly for jumbo mortgages.

Los Angeles County 1990s: From a trough point at the second quarter of 1988 of 5.1%, unemployment averaged over 9.5 years was 7.8%, with a peak of 10.1%, a six-year (1991–1996) average of 8.9% and a three year (1991–94) average of 9.3%. Total employment fell 11.6% over four years and remained down 6.1% as of the year-end 1997. Relative to Houston and the national average, Los Angeles County has exhibited generally higher and more volatile foreclosure rates historically.

Houston 1980s: From a trough point at the first quarter of 1981 of 3.4%, unemployment averaged over 9.5 years was 7.3%, with a peak of 11.1%, a 6-year (1982–1988) average of 8.5% and a three year (1985–87) average of 9%. Total employment fell 13% over five years and remained down 1.8% as of year-end 1989. Relative to Los Angeles, it has exhibited generally lower but volatile foreclosure rates historically.

Appendix F — Regional Home Price Levels Relative to Equilibrium Trends

Region	*(x)*		*(x)*		*(x)*
Portland, OR	1.15	West Palm Beach, FL	1.01	Napa County, CA	0.95
Denver, CO	1.14	Fort Lauderdale, FL	1.01	Philadelphia, PA	0.95
Salt Lake City, UT	1.11	Cincinnati, OH	1.00	Butte County, CA	0.95
Houston, TX	1.10	Alameda County, CA	1.00	Orange County, CA	0.94
Mountain	1.09	Contra Costa County, CA	1.00	El Dorado County, CA	0.94
Dallas, TX	1.09	South Atlantic	1.00	Fresno County, CA	0.94
Santa Clara County, CA	1.08	San Francisco County, CA	1.00	Solano County, CA	0.94
Phoenix, AZ	1.08	Boston Metro Area, MA	1.00	San Luis Obispo County, CA	0.94
Detroit, MI	1.08	Fairfield County, CT	0.99	Tulare County, CA	0.94
West South Central	1.07	Kings County, CA	0.99	Stanislaus County, CA	0.93
Sarasota, FL	1.06	Orlando, FL	0.99	New York, NY	0.93
Humboldt County, CA	1.06	New England	0.98	Placer County, CA	0.92
Atlanta, GA	1.06	Monterey County, CA	0.98	Merced County, CA	0.92
Indianapolis, IN	1.05	Sonoma County, CA	0.98	Pittsburgh, PA	0.92
San Mateo County, CA	1.05	East North Central	0.98	Ventura County, CA	0.92
Minneapolis-St. Paul, MN	1.04	Santa Cruz County, CA	0.98	Sacramento County, CA	0.91
Seattle, WA	1.04	Marin County, CA	0.98	Yolo County, CA	0.91
Jacksonville, FL	1.04	Washington D.C. Metro Area	0.98	Hartford, CT	0.91
East South Central	1.03	Santa Barbara County, CA	0.97	Los Angeles County, CA	0.89
Tampa-St. Petersburg, FL	1.03	Baltimore, MD	0.97	San Joaquin County, CA	0.88
West North Central	1.02	Northeastern New Jersey	0.97	Kern County, CA	0.87
Long Island, NY	1.02	San Diego County, CA	0.97	Riverside County, CA	0.85
Miami, FL	1.02	Chicago, IL	0.96	San Bernardino County, CA	0.85
Cleveland, OH	1.01	Pacific	0.96		
Columbus, OH	1.01	Northeast	0.96		
New Haven, CT	1.01	Central New Jersey	0.95		

Appendix G — How Expected Loss Coverage Is Calculated

A. ***Frequency of Foreclosure***

1. A base FOF is determined for each rating level based on the collateral type, FICO and LTV
2. Adjustments to this base FOF are applied depending on purpose, occupancy, documentation level/program, property type
3. An additional adjustment factor is applied as a function of the rating level and regional foreclosure rate projection
4. The adjusted FOF is distributed across a time series analysis as a function of the FOF timing curve

B. ***Market Value Declines, Recoveries, Loss Amount and Severity***

1. A base MVD scenario is determined as a function of rating level and region and quarterly market values are derived from the scenario
2. A regional distressed property discount (generally 10%–25%) is applied to each quarterly market value to determine the recovery value
3. An additional haircut is applied for non-single-family detached properties and high value/ limited market properties
4. Foreclosure and carrying costs, which vary as a function of state and coupon, are netted from the recovery
5. Mortgage insurance or other recoveries are added to the net property recovery to determine the total recovery
6. Total recoveries are subtracted from the loan balance to determine the loss amount (LA), which, as a percentage of initial loan balance determines loss severity (LS)

C. ***The products of each quarterly LA and FOF are summed for the 56 quarter time series to arrive at the expected loss for each rating level.***

D. ***After aggregating loss expectations for an entire pool, additional pool-level adjustments are made based on geographic concentrations and number of loans.***

Quarterly Loss Calculation Example

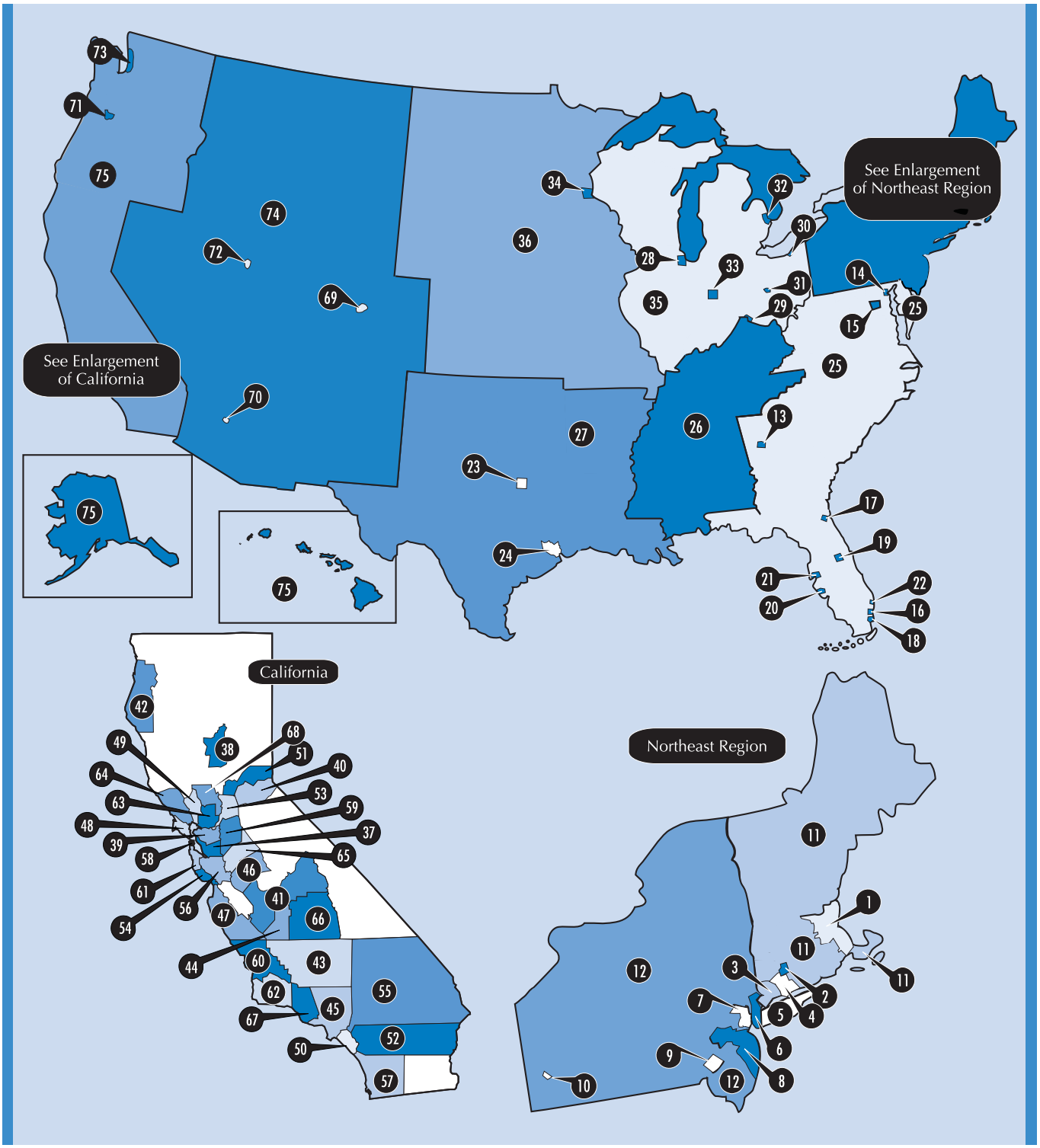
($)

Appraisal/Sale Value	312,500
Less: Adjusted MVD (56.8%)	(177,596)
Resale Value	134,904
Resale Value Less Expenses	
Liquidation Cost	(25,167)
Carrying Cost	(21,341)
Net Recovery	88,396
Original Mortgage Amount (OLTV 80%)	250,000
Unpaid Balance (30 Months Seasoned)	243,899
Less: Net Recovery	88,396
Loss Amount	155,503
Loss Severity (Loss/Original Balance) (%)	62.2

OLTV – Original loan-to-value ratio.
MVD – Market value decline.

Appendix H — Regional Classification Index

1. Boston Metro Area, MA
2. Hartford, CT
3. Fairfield County, CT
4. New Haven, CT
5. Long Island, NY
6. New York, NY
7. Northeastern New Jersey
8. Central New Jersey
9. Philadelphia, PA
10. Pittsburgh, PA
11. New England (CT, ME, MA, NH, RI, VT)
12. Northeast (NJ, NY, PA)
13. Atlanta, GA
14. Baltimore, MD
15. Washington DC Metro Area
16. Fort Lauderdale, FL
17. Jacksonville, FL
18. Miami, FL
19. Orlando, FL
20. Sarasota, FL
21. Tampa-St. Petersburg, FL
22. West Palm Beach, FL
23. Dallas, TX
24. Houston, TX
25. South Atlantic (DC, DE, FL, GA, MD, NC, SC, VA, WV)
26. East South Central (AL, KY, MS, TN)
27. West South Central (AR, TX, LA, OK)
28. Chicago, IL
29. Cincinnati, OH
30. Cleveland, OH
31. Columbus, OH
32. Detroit, MI
33. Indianapolis, IN
34. Minnaepolis-St. Paul, MN
35. East North Central (IL, IN, OH, MI, WI)
36. West North Central (IA, KS, MN, MO, NE, ND, SD)
37. Alameda County, CA
38. Butte County, CA
39. Contra Costa County, CA
40. El Dorado County, CA
41. Fresno, County, CA
42. Humboldt County, CA
43. Kern County, CA
44. Kings County, CA
45. Los Angeles County, CA
46. Merced County, CA
47. Monterey County, CA
48. Marin County, CA
49. Napa County, CA
50. Orange County, CA
51. Placer County, CA
52. Riverside County, CA
53. Sacramento County, CA
54. Santa Cruz County, CA
55. San Bernardino County, CA
56. Santa Clara County, CA
57. San Diego County, CA
58. San Francisco County, CA
59. San Joaquin County, CA
60. San Luis Obispo County, CA
61. San Mateo County, CA
62. Santa Barbara County, CA
63. Solano County, CA
64. Sonoma County, CA
65. Stanislaus County, CA
66. Tulare County, CA
67. Ventura County, CA
68. Yolo County, CA
69. Denver, CO
70. Phoenix, AZ
71. Portland, OR
72. Salt Lake City, UT
73. Seattle, WA
74. Mountain (AZ, CO, ID, MT, NV, NM, UT, WY)
75. Pacific (AK, CA, HI, OR, WA)


See Enlargement of Northeast Region
See Enlargement of California
California
Northeast Region

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