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AN ANALYSIS OF THE MORTGAGE EXPERIENCE OF THE FEDERAL HOUSING ADMINISTRATION, 1935-1939; REPORT OF THE JOINT COMMITTEE OF THE UNDERWRITING DIVISION AND THE DIVISION OF ECONOMICS AND STATISTICS

Federal Housing Administration
Division of Economics and Statistics
March 14, 1940

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AN ANALYSIS OF THE MORTGAGE EXPERIENCE OF THE FEDERAL HOUSING ADMINISTRATION, 1936-1939: REPORT OF THE JOINT COMMITTEE OF THE UNDERWRITING DIVISION AND THE DIVISION OF ECONOMICS AND STATISTICS

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Federal Housing Administration
Division of Economics and Statistics
March 14, 1940

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Introduction

This report, prepared by Mr. Kaplan with the assistance of members of the Division of Economics and Statistics and the Underwriting Division, should serve as a bench-mark for further studies of mortgage experience. While the data presented here are too limited for reliable generalizations, it is felt that the technique of analysis employed is refined to a point where it should make an adequate blue print. Every step in this investigation has been carefully weighed and considered; procedure has been subjected to searching criticism both from within and from outside the Administration.

The data from insuring operations furnish information unique in the field of mortgage finance. Their compilation and analysis will be of inestimable value not only to the Federal Housing Administration in the administrative control of its own operations but also to the entire field of mortgage lending.

Analyses such as this should be done at regularly recurring intervals with a constant attempt at removing the limitations recognized in the present investigation and presented in the text. Only if such studies are done on a uniform basis over a long period of time can real and lasting benefits be derived out of past experience.

Lawrence N. Bloomberg

March 14, 1940

AN ANALYSIS OF THE MORTGAGE EXPERIENCE OF THE FEDERAL HOUSING ADMINISTRATION, 1935-1939; REPORT OF THE JOINT COMMITTEE OF THE UNDERWRITING DIVISION AND THE DIVISION OF ECONOMICS AND STATISTICS TO STUDY DEFAULTED AND FORECLOSED CASES

History of the Report

Representatives of the Underwriting Division and the Division of Economics and Statistics of the Federal Housing Administration were selected on July 27, 1939 to constitute a committee known as the Joint Committee of the Underwriting Division and the Division of Economics and Statistics to Study Defaulted and Foreclosed Cases. At its first meeting held on July 30, 1939, the Joint Committee recommended "an analysis of all foreclosed cases through June 30, 1939 in order to determine some of the characteristics of the defaulted and foreclosed cases." On November 1, 1939, a study known as the Preliminary Report of the Joint Committee was submitted by the Secretary to the Joint Committee. This report, to which was later added a supplement, provided the basis for a series of meetings of the Joint Committee. The present report is largely a revision of the original study, employing a technique of analysis which was developed in the Division of Economics and Statistics from experimentation with a number of methods; the technique employed now is but a slight modification of the one presented in the Supplement to the Preliminary Report.

Purpose of the Report

The objective of the study is an analysis of the characteristics of mortgage risk as evidenced in the group of mortgages insured by the Federal Housing Administration. Mortgage risk for purposes of this study is defined as risk of foreclosure. While it is true that foreclosure does not always result in losses to the mortgagee, foreclosure is a necessary but not a sufficient condition of loss. This distinction between risk of loss and risk of foreclosure is an important one with regard to the Mutual Mortgage Insurance Fund. The foreclosure rate on a given type of property may be relatively high; however, these properties may, on the one hand, be retained by the approved mortgagee in which case no loss is sustained by the Mutual Mortgage Insurance Fund; or may, on the other hand, be transferred to the Federal Housing Administration and sold at a price which may even include a refund to original mortgagor. Risk of loss is the subject of a separate study and an analysis of this problem is already under way.

Variations in mortgage risk by mortgage characteristics have, up to the present time, with but few exceptions, never been made the basis of a comprehensive inductive study. What concepts on residential mortgage risk have been used by mortgage lenders as a basis for policy in mortgage lending have been developed as a result of *a priori* reasoning confirmed, modified,

or rejected by mortgage lending experience. The Federal Housing Administration has in the past, however, attempted to reduce the experience of institutions with mortgages to a uniform base for purposes of analytical study. Although a great deal of time has been spent on the project, thus far but three institutions have cooperated by furnishing data from their files. The results of these studies are to be found in the files along with all data pertaining to them. So far as FHA insuring policy is concerned, these studies were not very productive since they were predicated upon past lending policies, most of which have been drastically changed or modified by the FHA risk rating system as well as by the introduction of the amortized mortgage.

The purpose of the present analysis is thus not only to determine the characteristics of mortgage risk, within the limitations of the data, but also to test some of the prevailing concepts of mortgage risk.

It should be made clear at the outset that the purpose of the report is not to test the efficiency of the Underwriting System in selecting insurable risks. In only one instance, that of the rating of mortgage pattern, is any examination, and this is only partial, made of the selection of insurable risk by the Underwriting System. This analysis presented below, along with the analyses of the characteristics of mortgages, measures the

relative experience with mortgages of different ratings of mortgage pattern. Since the relative mortgage experience treated here is confined to risk of foreclosure and the risk rating system endeavors also to compensate for probable loss through foreclosure, the analysis of ultimate loss according to the rating of mortgage pattern is not complete. Moreover, the measures of mortgage risk developed in the Preliminary Report and utilized consistently in the present report are designed to reveal variations in mortgage risk associated with given mortgage characteristics rather than to reveal such variations in mortgage risk which the Underwriting System may not have taken into account. The latter objective, that of testing the efficiency of the Underwriting System, is a necessary complement to the present objective of examining the variations in mortgage risk by various mortgage characteristics. The Joint Committee recognizes the importance of such a study and has proposed that such an analysis be undertaken as soon as the necessary data will have been made available. The statistical technique for such a study has already been developed in the Division of Economics and Statistics, and is presented and explained in the section below, entitled Techniques of Analysis.

The Basic Data

The period selected for analysis is from January 1, 1935 to December 31, 1938 for insured mortgages and from January 1, 1935

to June 30, 1939 for foreclosures. The reason for selecting different intervals for insuring operations and foreclosures was so that the mortgages insured in the last year of the study, namely 1938, should have, on the average, a whole year of experience or exposure to risk. There were 311,983 mortgages insured on 1- to 4-family homes during this four-year period and 1,492 foreclosures excluding the 71 Harmon and Swantown foreclosures through June 30, 1939. Because of the small amount of insurance on small homes written during the year 1935, the data for that year were combined with those of the year 1936; for the years 1937 and 1938 the data were tabulated separately. In this report only the combined experience for the entire period is considered; if data are desired according to the particular years in which the mortgages were insured, they may be had by referring to the work sheets for this study. The data on insured mortgages by year endorsed may be found in the Appendix. Wherever available, the data are presented for mortgages insured on 1- to 4-family homes. Where this is not possible, information on single-family or single-family owner-occupied homes has been compiled. In all cases the data are broken down into new homes, i.e., homes under construction or to be constructed, or the construction of which was completed within the calendar year, or within the last 12 months but not within the calendar year; and existing homes, i.e., refinanced homes over one year old at time of insurance.

Comparable figures on foreclosures on June 30, 1939, by date of endorsement of the insured mortgage were tabulated. Foreclosures in this study are defined as mortgages on properties on which foreclosure sale has taken place regardless of whether or not title to properties was transferred to the Federal Housing Administration; the term, foreclosures, also includes transfers of deeds in lieu of foreclosure under the same conditions. The figures on foreclosures are broken down into new and existing homes and tabulations, by type of structure, comparable to those for insured mortgages were made.

The characteristics of insured and foreclosed loans which are examined in this study are as follows:

1. Type of dwelling.
2. Rating of mortgage pattern.
3. Property valuation.
4. Amount of mortgage principal.
5. Amount of monthly mortgage payment.
6. Ratio of loan to value.
7. Borrower's gross annual income.
8. Ratio of property value to borrower's gross annual income.
9. Ratio of annual payment to borrower's gross annual income.
10. Term of mortgage.
11. Mortgages, by city-size group.

12. Mortgages, by city-size group inside metropolitan areas.

13. Mortgages, by city-size group outside metropolitan areas.

14. Type of mortgages.

The absolute distributions for each class interval of each mortgage characteristic are derived by applying percentage distributions from annual report runs of premium-paying or commitment cards to premium-paying annual totals for each mortgage characteristic. The comparable distributions for the foreclosed mortgages were compiled from the Delinquency Record and Termination of Insured Mortgage cards (FHA Form No. 2269?).

Two other factors of mortgage risk are briefly treated at the end of this report, namely, variations in experience according to the ratio of debt service to income by income groups and according to occupational groups.

Techniques of Analysis

In the Preliminary Report the techniques of analysis of variations in mortgage risk by given mortgage characteristics are a comparison of the percentage distributions of insured and foreclosed mortgages in the same class interval of a given mortgage characteristic and the ratio of the absolute number of foreclosures to the absolute number of insured mortgages in the same class interval of a given mortgage characteristic. As was pointed out in the Supplement to the Preliminary Report, both of these

measures when applied to the absolute totals of insured and foreclosed mortgages are inadequate. No account is taken of the variation of the time in force of the insured mortgage. Since at any given time in any portfolio of mortgages made at different periods, the mortgages made in the earlier periods will have a greater foreclosure rate than those made in the later periods, the technique employed in this study adjusts for this variation in foreclosure rates over the four-year period, 1935-1938, to which this analysis is limited. For example, of all the loans insured under Title II between 1935 and the end of 1938, 35 percent were insured in the years 1935 and 1936; 32 percent were insured in 1937; and 33 percent in 1938. Of all the foreclosures which FHA experienced from the inception of Title II operations through June 30, 1939, 52 percent were on mortgages insured in the years 1935 and 1936; 38 percent were on mortgages insured in the year 1937; and 10 percent were on mortgages insured in 1938.

It is evident that those mortgages endorsed in the years 1935 and 1936 have had a greater chance of being foreclosed than those endorsed in the years 1937 and 1938 since they were in force on June 30, 1939 an estimated average period of 38.4 months, while those insured in the following two years had been in existence at this date an estimated average period of 24 months and 12 months, respectively. A mortgage made in 1935 may have been foreclosed in

1935, 1936, 1937, 1938, or up to the middle of 1939. One made in 1936 may have been foreclosed in 1936, 1937, 1938, or up to the middle of 1939. And so on. In other words, the mortgages endorsed in 1935 and 1936 have been exposed to risk of foreclosure on the average for 3.2 times as long a period as those endorsed in 1938. The mortgages insured in 1937 have been exposed on the average for 2 times as long a period as those endorsed in 1938.

To make the exposure to risk comparable for mortgages insured in the different years during this period, the factors of 3.2 years, 2 years, and 1 year have been used to adjust the insured mortgages made in the years 1935 and 1936, 1937, and 1938, respectively, for this variation in exposure to risk. In making this correction it is assumed that foreclosure is a function of the time in force for any given group of mortgages and that the exposure to risk is the same in all classifications of characteristics for mortgages endorsed in the same year.

The standards used to measure mortgage risk in this study are average annual rates for this four-year period, calculated by dividing the total foreclosures during the period by the total number of insured mortgages adjusted for years in force. Such average annual rates are computed for total, for new, and for existing homes. Rates are also calculated for each subdivision of the fourteen characteristics of mortgages listed for study. With the annual average rates for total, new, and existing

homes each equal to 100, relatives were computed for all intervals used in consideration of the various characteristics. These relatives express fluctuations above and below the average for the group and in effect represent degrees of risk.

The method employed may be illustrated by an example from the data on the valuation of single-family homes. In 1935-1936, 93,886 mortgages were insured; in 1937, 96,054 mortgages; and in 1938, 104,799. To adjust these insured mortgages for the estimated average number of years in force, the total number insured in 1935-1936 is multiplied by the factor 3.2 years to give 300,435.2 mortgage years of exposure. The 1937 mortgages multiplied by the factor 2 years gives 192,108 mortgage years, and the 1938 mortgages multiplied by the factor 1 year gives 104,799 mortgage years. The total number of years of exposure for all mortgages insured during the period is 597,342.2. Up to June 30, 1939 there were 1,419 foreclosures. Dividing 1,419 by 597,342.2 mortgage years the over-all average annual rate of foreclosure, .002376 per year for the four-year period, is derived. In the valuation group of $4,000 to $5,000, there were 17,651, 20,075, and 23,999 mortgages insured in 1935-1936, 1937, and 1938, respectively. Multiplying these figures by the corresponding factors of 3.2 years, 2 years, 1 year, the total adjusted mortgages is 120,632.2 years. Foreclosures in this valuation group amounted to 243. Thus, the average annual rate of

foreclosure for this valuation group is .002014. Since the average annual rate for total homes in all valuation groups is .002376, the relative of 84.76 for the $4,000-$4,999 value group, computed by dividing the rate for the group by the total rate, indicates that the FHA foreclosure experience on $4,000 to $5,000 homes has been but 85 percent of that on all homes.

Thus, when the relative ratios for separate class intervals are below 100, i.e., below the average for the whole group, they are interpreted as indicating favorable mortgage experience, and when relative ratios are above 100 they are interpreted as unfavorable mortgage experience. An example of the procedure in the application of the technique of the adjustment for exposure to risk may be found in the Appendix.

In applying this adjustment of years in force to the insured mortgages on new homes as well as existing homes in addition to total homes, a double purpose is served. Not only is the variation of time in force adjusted for, but also the difference in time in force as between mortgages on new and on existing homes is corrected simultaneously. This difference in years experience as between new and existing homes is significant and is explained by the fact that the bulk of insurance written by the Federal Housing Administration in the earlier years of its operation was on existing homes. For example, of the total mortgages insured in the four-year period, 1935 through 1938, 21 percent were on

existing homes endorsed in the years 1935 and 1936 as compared with 11 percent of the total on new homes endorsed in the same period. The fact that the mortgages on new homes have on the average been in force for a shorter period, has exposed these mortgages to the risk of foreclosure for a shorter period than existing homes and hence they have an apparently more favorable mortgage experience.

The effect of adjusting the insured mortgages for the estimated average period in force may be demonstrated by an analysis of the data on insured and foreclosed mortgages on new and existing single-family homes during the period under examination. From 1935 through 1938 there were 294,739 mortgages insured on single-family homes. Of these 49.33 percent were mortgages insured on new homes and 50.67 percent were on existing homes. If the mortgages on new and existing homes insured in the separate years are adjusted for the estimated average number of years in force, that is, if the mortgages endorsed in the years 1935 and 1936 are adjusted by 3.2 years, those endorsed in 1937 by 2 years, and the 1938 mortgages by 1 year, the percentage of new homes to total homes changes to 44.53 percent and of existing homes changes to 55.47 percent.

As of June 30, 1939, 39.04 percent of the 1,419 foreclosures on mortgages insured during the four-year period were on new homes, and 60.96 percent were on existing homes. If the unadjusted ratio of foreclosed to insured mortgages for new homes

is computed, the value of the relative unadjusted ratio is 79.14. On the other hand, if the adjusted ratio of foreclosed to insured mortgages on new homes is computed, the value of the relative adjusted ratio is 87.67.

If the same procedure is followed in the case of existing homes the values for the relative ratios, unadjusted and adjusted, are 119.57 and 109.85, respectively.

For the relative unadjusted ratios for new and existing homes, the values are 79.14 and 119.57, respectively. The difference of 40.43 percent between these two ratios represents the advantage in mortgage risk of new homes over existing homes based on FHA experience for the period under examination. When the relative ratios of foreclosed to insured mortgages for new and existing homes are adjusted for exposure to risk, the values become 87.67 and 109.85, respectively. The difference of 22.18 percent between these two ratios represents the advantage of mortgage risk of new homes over existing homes computed on the basis of the adjusted insured mortgage data.

By adjusting for the average length of the period which the insured mortgages have been in force, the apparent advantage in mortgage risk of new homes over existing homes is reduced from 40.43 to 22.18 or by approximately 45 percent.

It has already been stated that the purpose of the study is to analyze the variations in mortgage risk associated with the

various mortgage characteristics and not to determine whether or not the Underwriting System has compensated for such variations in risk. In the present study it is assumed that in each class interval of any of the 13 mortgage characteristics there is the same distribution of mortgage risk as measured by the rating of mortgage pattern. In order to test the Underwriting System itself, the technique suggested for the proposed study involves the same procedure as outlined above in measuring variations in mortgage risk, with the exception that in this case the risk of the insured mortgages would be held constant by the selection of insured mortgages with same rating of mortgage pattern.

Perfect underwriting, that is, adequate compensation for all possible variations in mortgage risk, under these conditions should give a relative ratio equal to 100 in each class interval of a given mortgage characteristic. Deviations above or below 100 for specific class intervals would indicate a lack of or too much compensation of risk. At the present time cross tabulations of the various mortgage characteristics by rating of mortgage pattern are not available. As soon as they will have become available such a study will be undertaken.

Limitations of the Data

Many of the limitations of the data are self-evident. In the first place, the mortgage experience is confined to a period of short duration and of comparatively favorable economic

conditions. Secondly, the number of foreclosures is relatively negligible. Thirdly, the mortgages have been "selected" according to specific criteria of risk which have been refined or modified several times throughout the period under examination. These changes in underwriting procedure have some effect on the homogeneity of the sample. Fourthly, because amendments to the original mortgage instrument which release the original mortgagor are not always reflected in the case binder, the mortgage experience of the second or third purchaser of the property is attributed to the person who originally made the mortgage. The characteristics of the original borrower must of necessity be accepted which may not be representative of the characteristics of the subsequent purchasers of his property. It is impossible to estimate the magnitude of such amendments. Fifthly, the assumption that in each class interval for any given characteristic is found the same distribution of risk as measured by the rating of mortgage pattern is subject to criticism. In fact, this may not be the case at all. There may well be a bias in the data because, for example, in low valuations the proportion of low ratings of mortgage pattern may be higher than in higher valuations. Such a bias can significantly affect the variations in mortgage risk since it is reasonable to expect a higher proportion of foreclosures from mortgages receiving low ratings of mortgage pattern than from those receiving higher ratings. However, since at the present time no data are available on the distribution of the

several characteristics of mortgages by rating of mortgage pattern, it is assumed, for purposes of analysis, that no such bias exists and that the distribution of risk is the same in each class interval.

Another bias which would affect the magnitude of the annual foreclosure rate is the presence of terminations in the insured mortgage data. The assumption made regarding the insured mortgages is that all mortgages made were still in force at the end of the period under examination. The data on insured mortgages include terminations of all kinds which may have taken place sometime after endorsement. These terminations include prepayments, supersessions, cancellations, matured mortgages, and foreclosures. They amounted to 20,684 cases on June 30, 1939 or 6.62 percent of all mortgages insured between 1935 and 1938. The elimination of these cases would have a negligible effect on the annual foreclosure rate for 1935-1938. However, as time goes on and as terminations increase at the rate now discernible, future analyses of this kind will have to exclude all such terminations to give unbiased annual foreclosure rates for the periods examined.

With respect to the analysis, itself, it should be pointed out that the technique employed attempts to measure the variations in mortgage risk associated with each of the 13 mortgage characteristics. This association does not necessarily imply a causal relationship. The factors responsible for relatively high

or low mortgage risk in a given mortgage characteristic may be found in other mortgage characteristics. For example, the relatively high mortgage risk in evidence in the case of homes with high valuations is probably due to the character of the incomes of the owners of such properties rather than any qualities inherent in the properties, themselves. The degree of relationship between risk in any one mortgage characteristic can be measured by simple correlation.

However, it is clear that several mortgage characteristics have a combined effect in producing foreclosures. Where the mortgage risk may be attributed on a priori grounds to more than one mortgage characteristic, in order to determine the highest degree of correlation between this risk and a given mortgage characteristic in the presence of other mortgage characteristics which affect risk, the statistical technique of partial correlation may be employed. This technique permits the determination of the highest relationship between a dependent variable, which in this case is mortgage risk, and an independent variable, which may be income or valuation or any other mortgage characteristic when all other factors or mortgage characteristics are held constant. Such a technique involves a cross tabulation of the number of insured and foreclosed cases by the various mortgage characteristics under examination. An over-all relative risk ratio is computed and correlated with one mortgage characteristic as an independent variable while the other mortgage characteristics

are held constant in order to determine the net correlation. By experimenting with various mortgage characteristics as the independent variable, that mortgage characteristic with the highest net correlation can be determined. At the present time no such cross tabulations of the necessary data are available, but at such time as they will be available, the statistical technique suggested here will be applied to determine net correlations.

1. Type of Dwelling (1- to 4-family: 1935-1939)

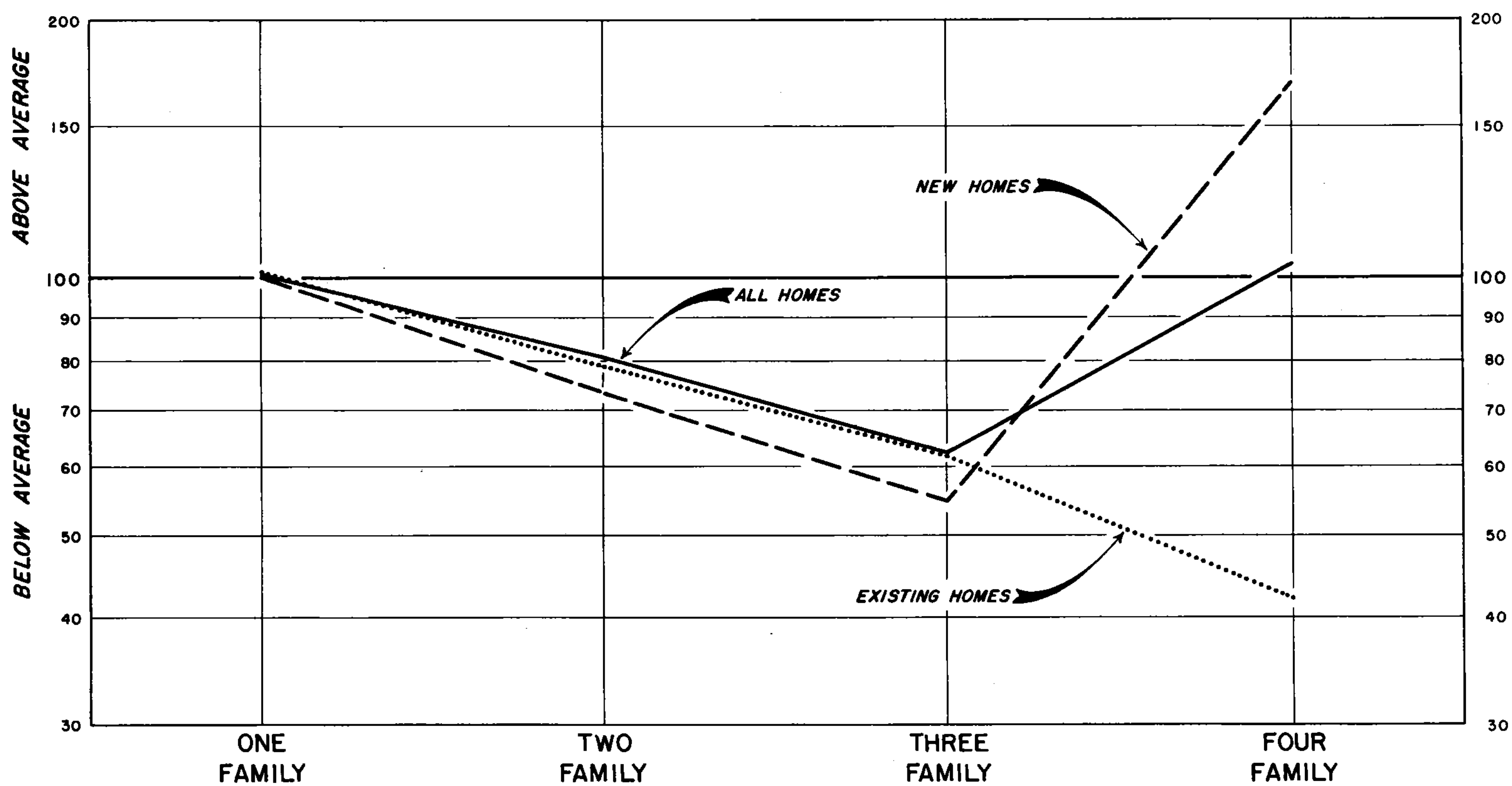
While Section 203 of the National Housing Act, as amended, permits insurance to be written on 1-, 2-, 3-, and 4-family homes, the bulk of the insurance is on single-family homes. For the period under examination, 94.5 percent of all homes insured are single-family homes while only 4.4 percent, 0.5 percent, and 0.6 percent are 2-, 3-, and 4-family homes, respectively. The most favorable mortgage experience for all homes as measured by the relative ratios is exhibited by 3-family homes for which the relative ratio is 62.82 as presented in Table 1. The comparable value for single-family homes is 101.19, or slightly above the average for all homes. Two-family homes also present a below-average foreclosure experience which is somewhat less favorable than that for 3-family homes. Four-family homes show the highest foreclosure risk.

As between new and existing homes, no significant difference is exhibited in the case of single-family homes. For 2- and 3-family homes the mortgage experience with new homes is relatively more favorable than for existing homes. In the case of 4-family structures, existing homes reveal a strikingly more favorable risk than new homes.

In summary, the over-all mortgage experience with single-family homes which account for the bulk of Title II insuring operations reveals a slightly worse-than-average foreclosure risk. No significant difference is discernible between new homes and existing homes of this type.

FIGURE 1

TYPE OF DWELLING:
RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING 1 TO 4 FAMILY HOMES INSURED
1935 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.

FEDERAL HOUSING ADMINISTRATION
DIVISION OF ECONOMICS AND STATISTICS

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Table 1

TYPE OF DWELLING: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES INSURED
1935-1938

Type of Dwelling	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
1-family	294,739	94.5	597,342.2	1,419	95.1	.002376	101.19
2-family	13,837	4.4	30,587.6	58	3.9	.001896	80.75
3-family	1,551	.5	3,389.8	5	.3	.001475	62.82
4-family	1,856	.6	4,121.0	10	.7	.002427	103.36
Total	311,983	100.0	635,440.6	1,492	100.0	.002348	100.00
New Homes							
1-family	145,407	96.5	265,987.2	554	96.3	.002083	100.34
2-family	3,854	2.5	7,842.2	12	2.1	.001530	73.70
3-family	421	.3	875.4	1	.2	.001142	55.01
4-family	1,064	.7	2,276.6	8	1.4	.003514	169.27
Total	150,746	100.0	276,981.4	575	100.0	.002076	100.00
Existing Homes							
1-family	149,332	92.6	331,355.0	865	94.3	.002610	102.03
2-family	9,983	6.2	22,745.4	46	5.0	.002022	79.05
3-family	1,130	.7	2,514.4	4	.5	.001591	62.20
4-family	792	.5	1,844.4	2	.2	.001084	42.38
Total	161,237	100.0	358,459.2	917	100.0	.002558	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 71 Harmon and Swantown foreclosures.
(2) Ratios represent annual average foreclosure rates, 1935-1938.

2. Rating of Mortgage Pattern (1- to 4-family: 1937-1939)

As was pointed out earlier in this report, from the organization of the data, it is possible only in the case of the data on rating of mortgage pattern to examine the Underwriting Division's selection of insurable risks. If any significance can be attached to the rating of mortgage pattern as a measure of risk of loss to the Mutual Mortgage Insurance Fund, to which risk of foreclosure is a necessary condition, it can be asserted with some validity that risk of foreclosure should vary with the size of the rating of the mortgage pattern. In other words a greater proportion of foreclosures should occur in mortgages with the lower ratings. Precisely how many mortgages with low ratings should be accepted for insurance is a problem in administrative policy. The upper limit for the proportion of these which may be fore-closed without affecting the solvency of the Mutual Mortgage Insurance Fund is a problem for the actuarial section.

The interesting aspect of the mortgage pattern rating curve of the relative ratios for all homes presented in Figure 2 is that it bears out the contention based on _a priori_ reasoning in the above paragraph. The curve declines in unbroken succession from a relative ratio of 134.35 for the mortgages in the lowest permissible rating group, 50 to 54, to 35.46 for the group with the highest possible ratings in which there have been foreclosures, namely, 85 to 89. The better-than-average foreclosure experience

for all homes is confined to mortgages receiving ratings of 65 and higher. The insured mortgages receiving such ratings account for only 36.7 percent of all insured mortgages. The mortgages receiving ratings of 50 to 54 reveal a worse-than-average fore-closure experience. Mortgages with these ratings account for 63 percent of all insured mortgages.

The experience with the existing homes conforms more closely to what is expected of variations in mortgage risk associa-ted with ratings of mortgage pattern than does the experience with new homes. In the lower ratings of mortgage pattern, particularly 50 to 64, the experience with new homes is relatively more favorable than with existing homes though for both the foreclosure experience is above-average. The experience with new homes receiving ratings of 70 to 84 reflects some instability in the data. The relatively more favorable experience for mortgages on new homes receiving ratings of 85 to 89 than for those in the 80 to 84 group may pos-sibly be explained by the size of the sample for the mortgages receiving these higher ratings. However, the above-average fore-closure experience for mortgages on new homes in the rating group of 70 to 74 in which 10.5 percent of all such mortgages fall is more difficult to explain. It must be recalled that the data represent only two years experience since the comparable data for the years 1935 and 1936 were not available.

The better-than-average foreclosure experience with new homes falls in the rating of mortgage pattern groups of 65 to 69

and 75 to 89 in which 35.9 percent of the insured mortgages are represented. The better-than-average foreclosure experience with existing homes falls in the rating of mortgage pattern groups in which 37 percent of the insured mortgages are represented.

In summary, the data on the rating of mortgage pattern confirm reasonable expectations of a system of mortgage risk rating. On the whole mortgages with higher ratings are less subject to risk of foreclosure than mortgages with lower ratings. The range of favorable mortgage experience for all homes is for mortgages with ratings of 65 and higher. Only 34.7 percent of all mortgages insured are represented in these below-average rating of mortgage pattern groups. The worst above-average foreclosure experience is exhibited by the mortgages with ratings of mortgage pattern of 50 to 54. In this mortgage pattern rating group are included approximately 20 percent of all insured mortgages. The mortgage pattern rating groups for existing homes in the better-than-average foreclosure experience range are 65 and higher; for new houses they are 65 to 69 and 75 and higher.

The erratic fluctuations in experience for the new homes in the higher mortgage pattern rating groups are probably functions of the size of the sample and the length of experience.

Table 2

RATING OF MORTGAGE PATTERN: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES INSURED

1937-1938

Rating of Mortgage Pattern	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
50 to 54	42,070	19.9	59,334	170	23.5	.002865	124.35
55 to 59	42,886	20.3	60,549	150	20.8	.002477	107.51
60 to 64	48,187	22.8	70,691	169	23.4	.002391	103.78
65 to 69	36,786	17.4	56,480	124	17.2	.002195	95.27
70 to 74	22,931	10.8	36,247	75	10.5	.002097	91.02
75 to 79	11,927	5.7	19,528	25	3.5	.001280	55.56
80 to 84	4,366	2.1	7,072	6	.8	.000848	36.81
85 to 89	1,530	0.7	2,449	2	.3	.000817	35.46
90 to 94	460	0.2	767				
95 to 100	212	0.1	314				
Total	211,355	100.0	317,431	722	100.0	.002304	100.00
New Homes	21,297						
50 to 54	21,297	18.3	27,961	64	18.1	.002289	108.23
55 to 59	23,968	20.6	32,056	70	19.8	.002184	103.26
60 to 64	28,484	24.4	40,239	86	24.3	.002137	101.04
65 to 69	21,152	18.2	31,936	66	18.6	.002067	97.73
70 to 74	12,261	10.5	19,535	51	14.4	.002611	123.45
75 to 79	6,292	5.4	10,616	15	4.2	.001413	66.81
80 to 84	1,979	1.7	3,302	1	.3	.000303	14.33
85 to 89	720	0.6	1,178	1	.3	.000849	40.14
90 to 94	219	0.2	372	(3)			
95 to 100	117	0.1	[illegible]	(3)			
Total	116,489	100.0	167,[illegible]59	354	100.0	.002115	100.00
Existing Homes							
50 to 54	23,773	21.9	31,374	106	28.8	.003379	134.14
55 to 59	18,918	19.9	28,493	80	21.7	.002808	111.47
60 to 64	19,703	20.8	30,456	83	22.5	.002725	108.18
65 to 69	15,634	16.5	24,544	58	15.8	.002363	93.81
70 to 74	10,670	11.2	16,712	25	6.8	.001496	59.39
75 to 79	5,635	5.9	8,912	10	2.7	.001122	44.54
80 to 84	2,387	2.5	3,770	5	1.4	.001326	52.64
85 to 89	810	0.9	1,271	1	.3	.000787	31.24
90 to 94	241	0.3	395	(3)			
95 to 100	95	0.1	146	(3)			
Total	94,866	100.0	146,072	368	100.0	.002519	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 30 Hermon foreclosures. The 41 S[illegible]town mortgages were insured in 1936.
(2) Ratios represent annual average foreclosure rates, 1937-1938.
(3) No foreclosures

3. <u>Property Valuation (single-family: 1935-1938)</u>

Data on a sample of mortgages on properties which have been valued according to a reasonably uniform system of valuation based on the most advanced valuation principles are indeed unique in the field of mortgage lending. An analysis of mortgage experience based on such a sample should be interesting and valuable if only because of the confusion of prevailing concepts regarding the risks associated with valuation.

At the outset the limitations of these data on valuation must be succinctly stated. A fundamental premise in this analysis, and this applies with equal force to the analysis of every mortgage characteristic subjected to examination in this report, is that in every class interval there is the same distribution of risk as measured by the ratings of mortgage pattern. In other words, in every class interval, notwithstanding the number of cases, the same percent distribution of ratings of mortgage pattern is assumed to be present. It is only on this assumption that variations in mortgage experience or risk of foreclosure associated with the various mortgage characteristics can be studied.

For all homes, that is both new and existing combined, the property valuation range of below-average foreclosure experience is from $2,000 to $7,000. Within these favorable limits, the most favorable mortgage experience occurs in the valuation groups

$3,000 to $6,000. The relative risk ratios as presented in Table 3 for the three valuation groups included in this narrower range are 84.43, 84.76, and 86.20.

As the valuations increase over $7,000, the curve of the relative ratios, as presented in Figure 3, rises sharply to a peak value of 222.94 for the relative ratio in the value group $12,000 to $14,999. The reason for the lower relative ratio of 186.87 for the highest valuation group of $15,000 or more may be the small sample. The higher foreclosure risk found in the higher valuations is due in all probability to the character of the incomes of the owners of such properties. It is contended with some validity that the higher incomes necessary to maintain such properties and a comparable expected standard of living are frequently the most unstable incomes.

An equally important factor responsible for the foreclosure rate on properties with high valuations is the thin market for such homes. Foreclosure in many instances is inevitable since the owners of properties with high valuations find it difficult to sell these properties without suffering severe losses. The shrinkages in the value of such properties is in great part due to lack of marketability.

The important feature of the range of favorable mortgage risk for all homes is that in the valuation groups of $2,000 to $7,000 are included 78.6 percent of the insured mortgages for the period under examination. It is true, of course, that mortgage

experience in each of the five valuation groups included is not equally favorable, as was already pointed out; however, the range of the ratios of relative risk for all five valuation groups is from 84.43 to 94.70.

The breakdown of the data into new and existing homes by valuation experience reveals interesting differences in the ranges of favorable mortgage experience. The limits for below-average foreclosure experience for new homes are from $3,000 to $7,000 valuations. Within these limits the most favorable mortgage experience occurs in the valuation groups of $6,000 to $7,000. The relative risk ratios for the mortgages in the two valuation groups included are 78.80 and 75.71. The mortgages in these two valuation groups represent 36.2 percent of all mortgages insured on new homes. The mortgages falling in the valuation groups of $3,000 to $7,000, which represents the complete below-average foreclosure range, account for 72 percent of all mortgages insured on new homes.

Above $7,000, as the valuations increase, the increase in the relative risk ratios is sharp to a peak ratio of 223.57 for the new homes with valuations of $10,000 to $11,999. The curve drops precipitiously to a value of 142.39 for the mortgages in the highest valuation group of $15,000 or more.

It should be noted that the relative risk ratio for the mortgages in the valuation group of $7,000 to $8,000 is 104.61.

It is interesting to speculate, from the shape of the curve for new homes, whether this valuation group with such a "borderline" ratio would, as the FHA experience is enlarged and prolonged, be excluded from or included in the limits of favorable mortgage experience.

At the other end in the valuation scale, the mortgage experience for the lowest valuation group of less than $2,000 is extremely unfavorable as reflected by a ratio value of 244.12. The sample here is unquestionably thin. In the next valuation group of $2,000 to $3,000, the value of the relative ratio is 109.17.

The mortgage experience of new homes in this valuation group should be watched carefully for two reasons. The first reason is the increasing nation-wide interest in low-cost housing. For example, almost 10 percent of all new homes insured by the Federal Housing Administration under Title II in 1939 are valued at from $2,000 to $3,000. In 1938, the insured mortgages in this valuation group represented only 3.7 percent of all new homes. In 1937, 4.8 percent of all new homes were valued at from $2,000 to $3,000. The second reason is the increasing volume of insurance on Class 3, Title I homes, the valuations on which are approximately in the same range as in these Title II homes. For the last nine months of the year 1938, 5,845 homes were insured. For a comparable period in the year 1939, 9,229 homes were insured.

The limits of favorable mortgage experience for existing homes are from valuations of less than $2,000 up to $6,000. Within these valuation limits are included 74 percent of all

insured mortgages on existing homes. It should be observed that the relative ratio for the valuation group of $5,000 to $6,000 is 99.08. The valuation group exhibiting the most favorable mortgage experience is $3,000 to $4,000. In this group are included 22.2 percent of all insured mortgages. Above $6,000, the valuation experience becomes increasingly worse as the valuations increase.

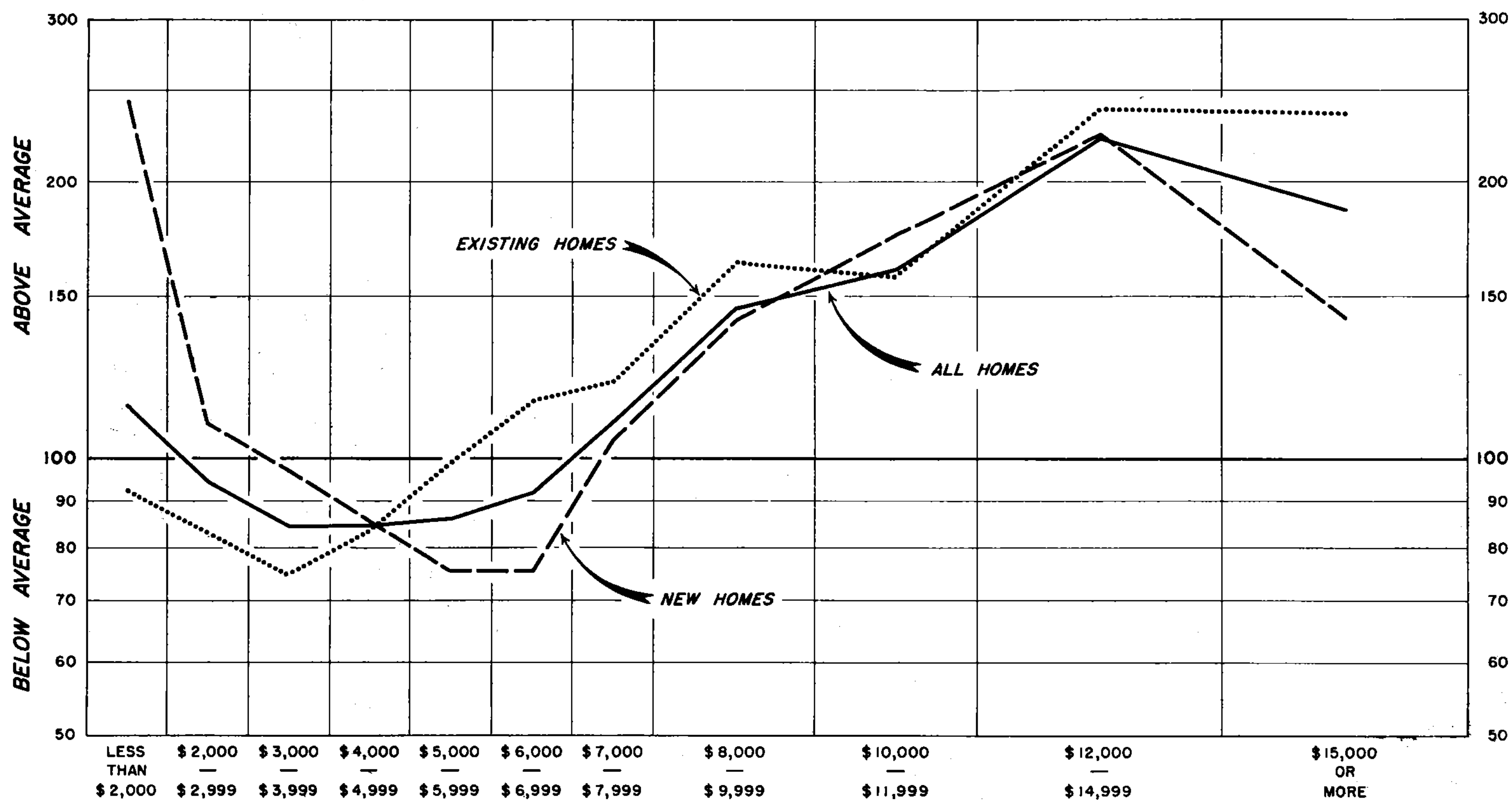
In summary, mortgages on all homes with valuations of $2,000 to $7,000 exhibit a below-average foreclosure risk. Approximately 79 percent of all mortgages insured on single-family homes are included within these valuation limits. Above $7,000, the apparent relationship between foreclosure risk and valuation is that risk increases as valuations increase.

For new homes the valuation range for favorable mortgage experience is from $3,000 to $7,000. In the valuation groups within these limits, 73 percent of all mortgages on new single-family homes are included. For existing homes the valuation range for below-average mortgage experience is from less than $2,000 to $6,000. Within these valuation limits are included 74 percent of all insured mortgages on existing homes.

Thus, the upper valuation limit for favorable mortgage experience on new homes is $7,000 in contrast to an upper limit of $6,000 for existing homes. While there is no apparent lower valuation limit of favorable mortgage experience for existing homes, the lower limit for new homes is $3,000.

FIGURE 3

PROPERTY VALUATION: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING SINGLE-FAMILY HOMES INSURED 1935 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.

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Table 3

PROPERTY VALUATION: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING SINGLE-FAMILY HOMES INSURED

1935-1938

Property Valuation	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
Less than $2,000	4,514	1.5	11,449.8	31	2.2	.002707	113.93
$2,000 to $2,999	25,375	8.6	56,875.8	128	9.0	.002250	94.70
3,000 to 3,999	53,754	18.2	110,666.4	222	15.6	.002006	84.43
4,000 to 4,999	61,725	21.0	120,632.2	243	17.1	.002014	84.76
5,000 to 5,999	53,139	18.0	102,032.0	209	14.7	.002048	86.20
6,000 to 6,999	37,810	12.8	71,423.4	156	11.0	.002184	91.92
7,000 to 7,999	21,302	7.2	43,267.2	113	8.0	.002612	109.93
8,000 to 9,999	19,636	6.7	41,739.4	144	10.2	.003450	145.20
10,000 to 11,999	7,980	2.7	17,581.6	67	4.7	.003811	160.40
12,000 to 14,999	5,148	1.8	11,516.0	61	4.3	.005297	222.94
15,000 or more	4,356	1.5	10,135.4	45	3.2	.004440	186.87
Total	294,739	100.0	597,342.2	1,419	100.0	.002376	100.00
New Homes							
Less than $2,000	406	.3	983.2	5	.9	.005085	244.12
$2,000 to $2,999	6,766	4.7	13,632.8	31	5.6	.002274	109.17
3,000 to 3,999	21,305	14.7	38,522.2	78	14.1	.002025	97.22
4,000 to 4,999	30,700	21.1	53,212.8	95	17.1	.001785	85.69
5,000 to 5,999	30,042	20.7	52,502.0	83	15.0	.001581	75.90
6,000 to 6,999	22,560	15.5	38,675.6	61	11.0	.001577	75.71
7,000 to 7,999	12,548	8.6	23,861.8	52	9.4	.002179	104.61
8,000 to 9,999	11,448	7.9	23,401.8	69	12.5	.002948	141.53
10,000 to 11,999	4,442	3.0	9,574.2	35	6.3	.003656	175.52
12,000 to 14,999	2,806	1.9	6,227.2	29	5.2	.004657	223.57
15,000 or more	2,384	1.6	5,393.6	16	2.9	.002966	142.39
Total	145,407	100.0	265,987.2	554	100.0	.002083	100.00
Existing Homes							
Less than $2,000	4,239	2.8	10,728.6	26	3.0	.002423	92.84
$2,000 to $2,999	19,272	12.9	44,572.0	97	11.2	.002176	83.37
3,000 to 3,999	33,153	22.2	73,572.2	144	16.6	.001957	74.98
4,000 to 4,999	31,161	20.9	67,691.4	148	17.1	.002186	83.75
5,000 to 5,999	22,692	15.2	48,720.0	126	14.6	.002586	99.08
6,000 to 6,999	14,707	9.8	31,661.8	95	11.0	.003000	114.94
7,000 to 7,999	8,688	5.8	19,273.4	61	7.0	.003165	121.26
8,000 to 9,999	7,833	5.3	17,627.6	75	8.7	.004255	163.03
10,000 to 11,999	3,405	2.3	7,741.4	32	3.7	.004134	158.39
12,000 to 14,999	2,253	1.5	5,110.8	32	3.7	.006261	239.89
15,000 or more	1,929	1.3	4,655.8	29	3.4	.006229	238.66
Total	149,332	100.0	331,355.0	865	100.0	.002610	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 71 Harmon and Swantown foreclosures.
(2) Ratios represent annual average foreclosure rates, 1935-1938.

4. Amount of Mortgage Principal (1- to 4-family: 1935-1938)

Theoretically, a mortgage experience analysis of mortgage principal should reveal no pattern of risk to which any significance can be attached because of varying loan-value ratios. However, because of the preponderance of 70 to 80 percent loans, the mortgage risk reflected by the experience with various mortgage principal amounts should prove valuable.

For all homes, mortgages with principal amounts up to $5,000 exhibit a below-average mortgage experience. It will be recalled that the limits for favorable mortgage experience in property valuation are from $2,000 to $7,000. The mortgage principal group with the most favorable mortgage risk is $2,000 to $5,000. Within the limits of mortgage principal representing below-average foreclosure experience, 72.3 percent of all mortgages insured are included.

The data on new homes display, as evidenced by the shape of the curve presented in Figure 4, an instability which may be explained by the nature of the data, themselves, namely, varying loan-value ratios. In addition to having 60.2 percent of all new homes fall in the 70 to 80 loan-value ratio group, the data on new homes include "81 to 90 percent" loans which represent an additional 26.2 percent. In the new and existing homes data combined, these loans represent only 14.8 percent of the total because loans with such loan-value ratios on existing homes are prohibited by statute.

The range of the mortgage principal amounts having below-average experience is from $2,000 to $6,000 in the case of new homes. The comparable range for property valuation is $3,000 to $7,000. The mortgage principal groups included in the below-average foreclosure experience represent 78.7 percent of all mortgages insured on new homes.

The lowest relative ratio of 73.38 measures the mortgage experience for the mortgage principal group of $4,000 to $4,999 in which approximately 25 percent of the new homes insurance is written.

Above $6,000, the curve of relative ratios rises slowly with the higher mortgage principal amounts becoming very erratic for the principal amounts of $8,000 to $16,000.

The experience with existing homes shows less instability in the lower principal amounts than is found in the case of the new homes. The zone of favorable mortgage experience is for loans of less than $3,000 to $4,000. Approximately 64 percent of all loans made on existing homes are represented within these limits. The class interval exhibiting lowest risk is the mortgage principal group of less than $2,000. However, here, only 12.8 percent of loans made on existing homes are included.

The instability which characterizes the higher mortgage principal amounts on new homes is common to existing homes also. In the case of the latter, however, the curve of the relative ratios

becomes erratic earlier in the scale of mortgage principal amounts by one class interval.

In summary, because of the preponderance of 70 to 80 percent loans in the data, some significance can be attributed to the variations in foreclosure risk associated with various mortgage principal amounts. As in the case of the experience with property valuations, above a certain mortgage principal amount, mortgage risk varies directly with the amount of mortgage principal.

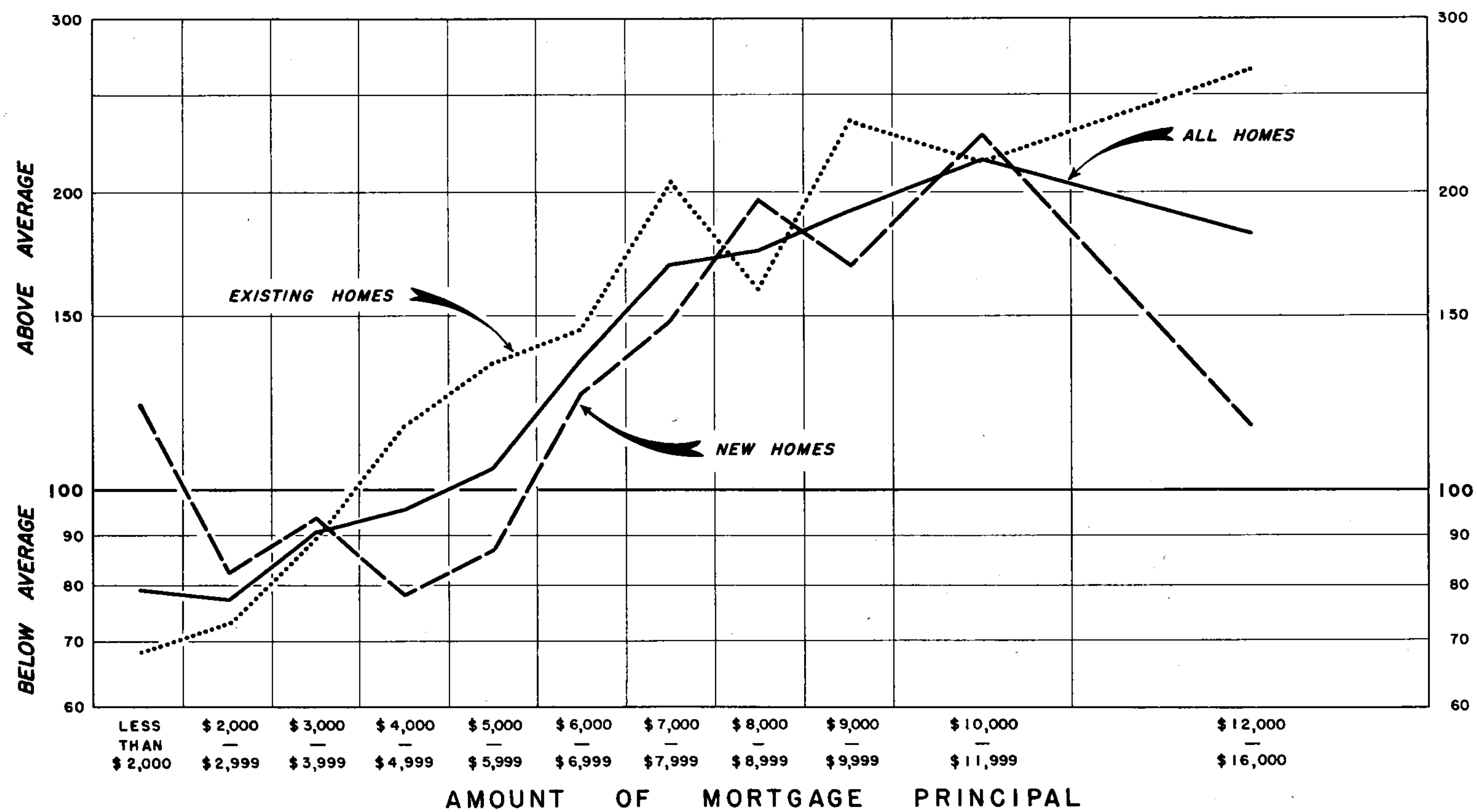
The range of favorable mortgage experience for all homes is on mortgage principal amounts up to $5,000. Mortgages with such principal amounts represent approximately 73 percent of all mortgages insured on 1- to 4-family homes.

The limits of mortgage principal amounts for below-average foreclosure experience in the case of new homes are from $2,000 to $6,000. Included within these limits are approximately 79 percent of all mortgages insured on new 1- to 4-family homes.

The limits of mortgage principal amounts with below-average foreclosure experience for existing homes are narrower, less than $2,000 to $4,000. Approximately 64 percent of all mortgages on existing homes are represented in the mortgage principal groups within these limits.

FIGURE 4

AMOUNT OF MORTGAGE PRINCIPAL: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING 1 TO 4 FAMILY HOMES INSURED 1935 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.

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Table 4

AMOUNT OF MORTGAGE PRINCIPAL: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES INSURED
1935-1938

Mortgage Principal	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
Less than $2,000	26,047	8.3	62,840.0	117	7.9	.001862	79.30
$2,000 to $2,999	63,371	20.3	137,853.6	252	16.9	.001828	77.85
3,000 to 3,999	74,561	23.9	148,651.2	317	21.2	.002133	90.84
4,000 to 4,999	61,804	19.8	117,282.4	264	17.7	.002251	95.87
5,000 to 5,999	39,268	12.6	71,443.0	175	11.7	.002450	104.34
6,000 to 6,999	20,197	6.5	40,437.6	124	8.3	.003066	130.58
7,000 to 7,999	9,662	3.1	19,910.0	79	5.3	.003968	168.99
8,000 to 8,999	6,326	2.0	13,220.6	54	3.6	.004085	173.98
9,000 to 9,999	2,994	1.0	6,672.6	30	2.0	.004496	191.48
10,000 to 11,999	3,931	1.3	8,459.8	43	2.9	.005083	216.48
12,000 to 16,000	3,921	1.2	8,669.8	37	2.5	.004268	181.77
Total	311,983	100.0	635,440.6	1,492	100.0	.002348	100.00
New Homes							
Less than $2,000	3,823	2.5	8,691.6	22	3.8	.002531	121.92
$2,000 to $2,999	20,576	13.6	40,773.2	70	12.2	.001717	82.71
3,000 to 3,999	36,647	24.3	66,369.0	129	22.4	.001944	93.64
4,000 to 4,999	36,144	24.0	62,759.6	102	17.7	.001625	78.28
5,000 to 5,999	25,30[illegible]	16.8	42,115.4	76	13.2	.001805	86.95
6,000 to 6,999	12,195	8.1	23,152.0	60	10.4	.002592	124.86
7,000 to 7,999	5,945	4.0	11,673.8	36	6.3	.003084	148.55
8,000 to 8,999	3,784	2.5	7,595.4	31	5.4	.004081	196.58
9,000 to 9,999	1,791	1.2	4,010.0	14	2.5	.003491	168.16
10,000 to 11,999	2,276	1.5	4,824.8	23	4.0	.004767	229.62
12,000 to 16,000	2,265	1.5	5,016.6	12	2.1	.002392	115.22
Total	150,746	100.0	276,981.4	575	100.0	.002076	100.00
Existing Homes							
Less than $2,000	22,224	13.8	54,148.4	95	10.4	.001754	68.57
$2,000 to $2,999	42,795	26.5	97,080.4	182	19.8	.001875	73.30
3,000 to 3,999	37,814	23.5	82,282.2	188	20.5	.002285	89.33
4,000 to 4,999	25,660	15.9	54,522.8	162	17.7	.002971	116.15
5,000 to 5,999	13,969	8.7	29,327.6	99	10.8	.003[illegible]76	131.98
6,000 to 6,999	8,002	5.0	17,285.6	64	7.0	.003703	144.76
7,000 to 7,999	3,717	2.3	8,236.2	43	4.7	.005221	204.10
8,000 to 8,999	2,542	1.6	5,625.2	23	2.5	.004089	159.85
9,000 to 9,999	1,203	.7	2,662.6	16	1.7	.006009	234.91
10,000 to 11,999	1,655	1.0	3,635.0	20	2.2	.005502	215.09
12,000 to 16,000	1,656	1.0	3,653.2	25	2.7	.006843	267.51
Total	161,237	100.0	358,459.2	917	100.0	.002558	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 71 Harmon and Swantown foreclosures.
(2) Ratios represent annual average foreclosure rates, 1935-1938.

5. Monthly Mortgage Payment (single-family owner-occupied: 1935-1938)

Since the monthly mortgage payment is a function not only of the amount of the mortgage principal which itself is a function of valuation, but also of the term of the mortgage, from a theoretical point of view, this measure of mortgage risk appears to be less adequate as a measure of over-all risk than the ratio of annual payment to income which is considered below. However, because of the popularization of the long term amortized mortgage, payments on which are "like rent," it is contended that this factor is a relatively more important consideration to potential home purchasers than either the valuation of the property or the size of the mortgage. If the monthly mortgage payment compares favorable with the rent which potential home buyers are accustomed to pay, this amount rather than the size of the obligation determines whether or not the renter becomes a buyer. Moreover, while the proportion spent for rent or housing decreases as incomes increase, there is a very rough but certain relationship between incomes and the monthly mortgage payments because the absolute monthly payments increase as incomes increase.

According to Figure 5, the limits of favorable mortgage experience for all home owners are monthly mortgage payments of from less than $10 to $35. In the 6 monthly mortgage payment groups included in this range are represented 70.6 percent of

all insured mortgages on single-family owner-occupied homes. It is of interest to note that within the monthly mortgage payment limits of favorable mortgage experience, the mortgages in the $25 to $30 group represent the most favorable foreclosure experience. The mortgages insured in this group account for approximately 19 percent of all mortgages insured on single-family owner-occupied homes.

Above $35 per month the foreclosure experience becomes increasingly worse-than-average as the monthly payments increase. Since there is a rough relationship between income and the monthly mortgage payments, the worse-than-average foreclosure experience unquestionably reflects the less stable incomes of the higher income groups.

The range of favorable mortgage experience for new home owners is from less than $10 to $40 per month. The 7 monthly mortgage payment groups include 77.3 percent of all new owner-occupied insured homes. The most favorable mortgage experience with these below-average foreclosure limits is found in the two monthly mortgage payment groups of from $20 to $30. Slightly more than one-third of all new single-family owner-occupied homes are represented in these two groups.

Over $40 per month, the worse-than-average foreclosure experience which characterizes all homes, applies to new homes with the higher monthly mortgage payments. The more precipitous rise in the curve of relative ratios for the monthly mortgage

payment groups over $40 for new homes than for existing homes may possibly reflect "over-spending" in new homes for new furniture and other appurtenances by home owners with unstable incomes.

The range of below-average foreclosure experience for existing home owners is from less than $10 per month to $35 per month. The owner-occupied mortgages included in these six monthly payment groups represent 73.4 percent of all the existing owner-occupied homes. The monthly payment group exhibiting the most favorable mortgage experience is $15 to $20. Over $35 per month, the increase in curve of the relative ratios as the monthly payments increase has already been explained.

In summary, notwithstanding the varying maturities of the mortgages, the pattern of mortgage risk reflected by the experience with the data on mortgage principal amounts is in striking evidence in the data on monthly mortgage payments. Mortgage risk apparently varies directly with the size of the monthly mortgage payment assuming the loan-value ratios as constant.

The monthly payment limits of below-average foreclosure experience for all single-family owner-occupied homes are from less than $10 to $35. The mortgages insured in the monthly mortgage payment groups within these limits represent approximately 71 percent of all single-family owner-occupied mortgages.

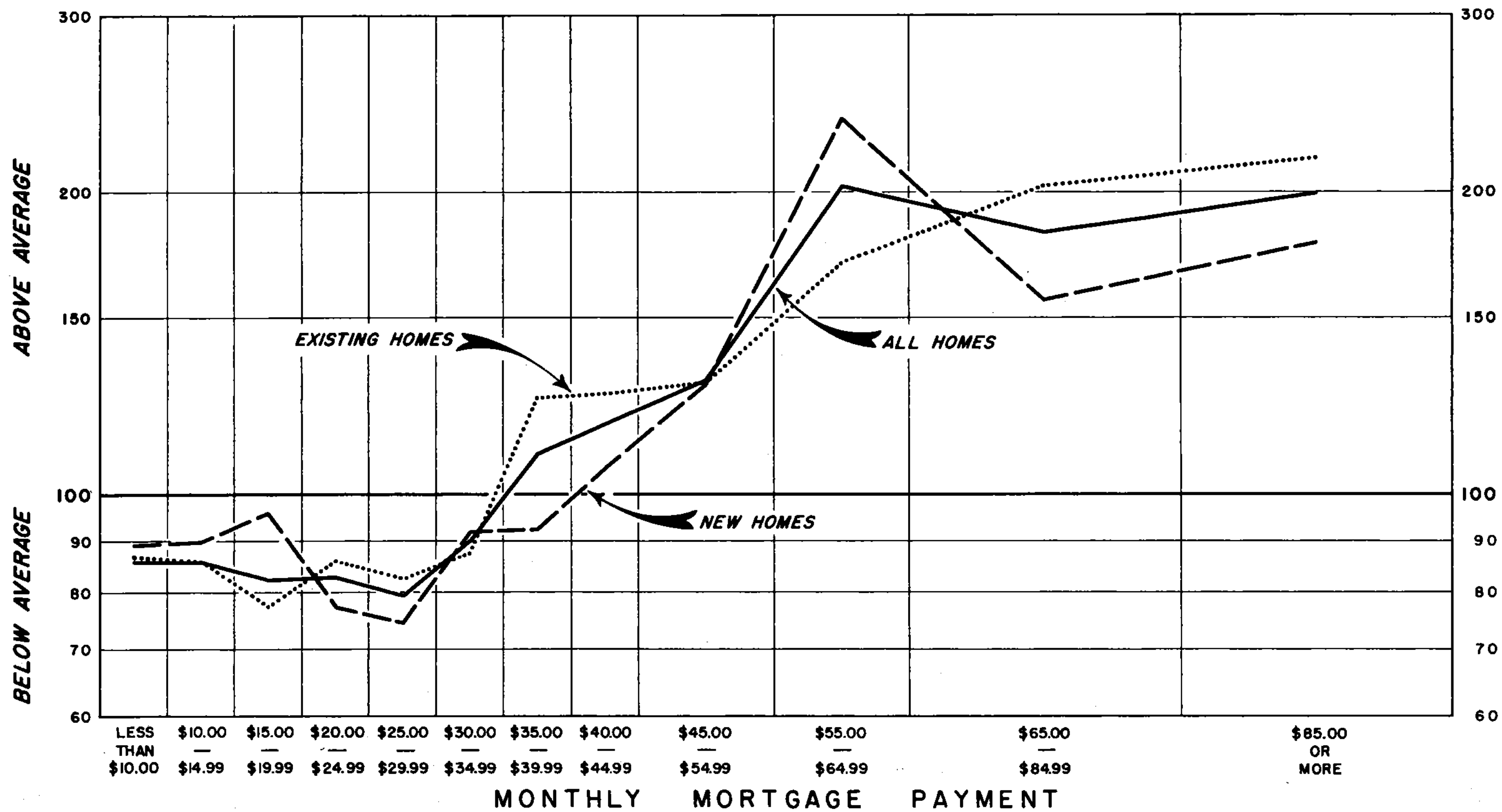
The range of below-average foreclosure experience for new homes is from less than $10 to $40 per month. The insured

mortgages with such monthly payments account for approximately 78 percent of all mortgages on existing single-family owner-occupied homes.

The limits of favorable mortgage risk for home owners of existing homes are from less than $10 to $35 per month. The insured mortgages on existing single-family owner-occupied homes with such monthly payments represent approximately 74 percent of all insured mortgages on existing homes.

FIGURE 5

AMOUNT OF MONTHLY MORTGAGE PAYMENT: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES INSURED 1935 – 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.

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Table 5

AMOUNT OF MONTHLY MORTGAGE PAYMENT: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES INSURED

1935-1938

Monthly Mortgage Payment	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures (1) Number	Foreclosures (1) Percent	Ratio of Foreclosed to Adjusted Insured (2)	Relatives: Average Ratio = 100
All Homes							
Less than $10	1,548	0.7	3,896.0	10	0.7	.002567	85.97
$10 to $14.99	12,396	5.2	26,507.6	68	4.8	.002565	85.90
15 to 19.99	30,095	12.5	58,524.8	144	10.1	.002460	82.38
20 to 24.99	44,534	18.5	86,152.2	213	15.0	.002472	82.79
25 to 29.99	44,428	18.4	84,844.0	201	14.2	.002369	79.34
30 to 34.99	36,827	15.3	70,808.6	190	13.4	.002683	89.85
35 to 39.99	22,248	9.2	43,245.6	142	10.0	.003284	109.98
40 to 44.99	15,225	6.3	30,876.0	108	7.6	.003498	117.15
45 to 54.99	16,673	6.9	34,056.6	132	9.3	.003876	129.81
55 to 64.99	7,264	3.0	15,244.0	92	6.5	.006035	202.11
65 to 84.99	5,869	2.4	12,536.4	68	4.8	.005424	181.65
85 or more	3,965	1.6	8,547.2	51	3.6	.005967	199.83
Total	241,072	100.0	475,239.0	1,419	100.0	.002986	100.00
New Homes							
Less than $10	216	0.2	364.8	1	0.2	.002741	89.17
$10 to $14.99	2,805	2.6	4,712.4	13	2.3	.002759	89.75
15 to 19.99	10,247	9.5	16,311.8	48	8.7	.002943	95.74
20 to 24.99	19,092	17.7	30,652.8	73	13.2	.002382	77.49
25 to 29.99	21,250	19.7	33,989.0	78	14.1	.002296	74.66
30 to 34.99	18,445	17.1	30,043.0	85	15.4	.002829	92.03
35 to 39.99	11,326	10.5	19,333.6	55	9.9	.002845	92.55
40 to 44.99	7,766	7.2	13,503.2	44	7.9	.003258	105.99
45 to 54.99	8,414	7.8	15,142.0	60	10.8	.003962	128.89
55 to 64.99	3,667	3.4	7,037.4	51	9.2	.007247	235.75
65 to 84.99	2,805	2.6	5,470.4	26	4.7	.004753	154.62
85 or more	1,834	1.7	3,655.4	20	3.6	.005471	177.98
Total	107,867	100.0	180,215.8	554	100.0	.003074	100.00
Existing Homes							
Less than $10	1,332	1.0	3,531.2	9	1.0	.002549	86.94
$10 to $14.99	9,591	7.2	21,795.2	55	6.4	.002523	86.05
15 to 19.99	19,848	14.9	42,213.0	96	11.1	.002274	77.56
20 to 24.99	25,442	19.1	55,499.4	140	16.2	.002523	86.05
25 to 29.99	23,178	17.4	50,850.0	123	14.2	.002419	82.50
30 to 34.99	18,382	13.8	40,765.6	105	12.1	.002576	87.86
35 to 39.99	10,922	8.2	23,912.0	87	10.1	.003638	124.08
40 to 44.99	7,459	5.6	17,372.8	64	7.4	.003684	125.65
45 to 54.99	8,259	6.2	18,914.6	72	8.3	.003807	129.84
55 to 64.99	3,597	2.7	8,206.6	41	4.7	.004996	170.40
65 to 84.99	3,064	2.3	7,066.0	42	4.9	.005944	202.73
85 or more	2,131	1.6	4,891.8	31	3.6	.006337	216.13
Total	133,205	100.0	295,023.2	865	100.0	.002932	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 71 Harmon and Swantown foreclosures.
(2) Ratios represent annual average foreclosure rates, 1935-1938.

6. Ratio of Loan to Value (1- to 4-family: 1935-1938)

This measure of risk has been used in traditional mortgage lending practice as most important, and, in some instances, as the sole test for determining investment quality and risk. It is contended that risk of foreclosure and risk of loss decreases as the ratio of loan to value decreases. In practice, this policy has been and is frequently rendered abortive because of secondary financing. The absence of secondary financing in insured mortgages makes the FHA mortgage experience valuable in testing the validity of this concept of mortgage lending.

If the reasoning is sound, the curves of the relative ratios of foreclosed to adjusted insured mortgages should decline in the direction of the low loan-value ratios. The curves for total, new, and existing homes, presented in Figure 6, based on FHA experience for a four-year period reveal just such a relationship except for the mortgages with loan-value ratios of 81 to 90 percent. The Federal Housing Administration has been insuring mortgages on new homes with such loan-value ratios since only February 3, 1938, and they represent 14.8 percent of all insured mortgages. Too much importance cannot be attributed to the extremely favorable mortgage experience for this group of mortgages because they have been exposed to risk for such a short period and when the adjustment factor is applied, mortgages in this group have an average annual foreclosure rate extending over only one

year against the four-year period for all other groups.

The limits of favorable mortgage experience, that is, where the relative risk ratios are below-average, for total, new, and existing homes are from loan-value ratios of 50 or less to 75. For mortgages with these loan-value ratios, the mortgage risk unmistakably improves as the loan-value ratios decline with but insignificant exceptions. However, it should be pointed out that as the loan-value ratios decline, the percent of insurance written by the Federal Housing Administration on homes with the lower loan-value ratios also declines. In the loan-value ratio interval of 71 to 75 the percent of all insurance written is 14.7. This value declines to 3.5 percent for mortgages with loan-value ratios of 50 or less. Excluding the "90 percent" loans permitted under the February 3, 1938 amendments to the National Housing Act, the favorable mortgage experience is in the loan-value ratio groups where 38.5 percent of the insurance is written.

The breakdown of new and existing homes for mortgages with loan-value ratios of 50 or less to 75 presents a more favorable risk picture for new homes than for existing homes. This is particularly true for the new homes with loan-value ratios of 50 or less to 70. It is within these loan-value ratio limits that the sample of insured mortgages thins out. However, for the homes in the loan-value ratio group of 71 to 75 where 14.7 percent of all mortgages insured occur, the advantage in experience of new

over existing homes is actually reversed; mortgages on new homes in this loan-value ratio group have a somewhat less favorable mortgage experience than do existing homes.

The most significant feature of these data on loan-value ratios is found in the experience with mortgages having loan-value ratios of 76 to 80. The mortgages in this group represent 46.7 percent of all insurance made and reveal a significant below-average foreclosure experience. The relative risk ratio for all mortgages in this group is 134.54 percent as compared with 90.59 percent for mortgages in the loan-value ratio group of 71 to 75. Moreover, there appears to be little difference in the mortgage experience between new homes and existing homes. The relative risk ratio for the former is 140.17 and 130.34 for the latter.

In summary, the traditional concept of the ratio of loan to value as a measure of over-all risk appears to be confirmed by the data on loan-value ratios in part at least with regard to risk of foreclosure. Foreclosure risk appears to vary directly with the ratio of loan to value. The most serious violation of this concept is in evidence in the case of the "90 percent" loans which have been exposed to risk an estimated average period of only 14 months on June 30, 1939.

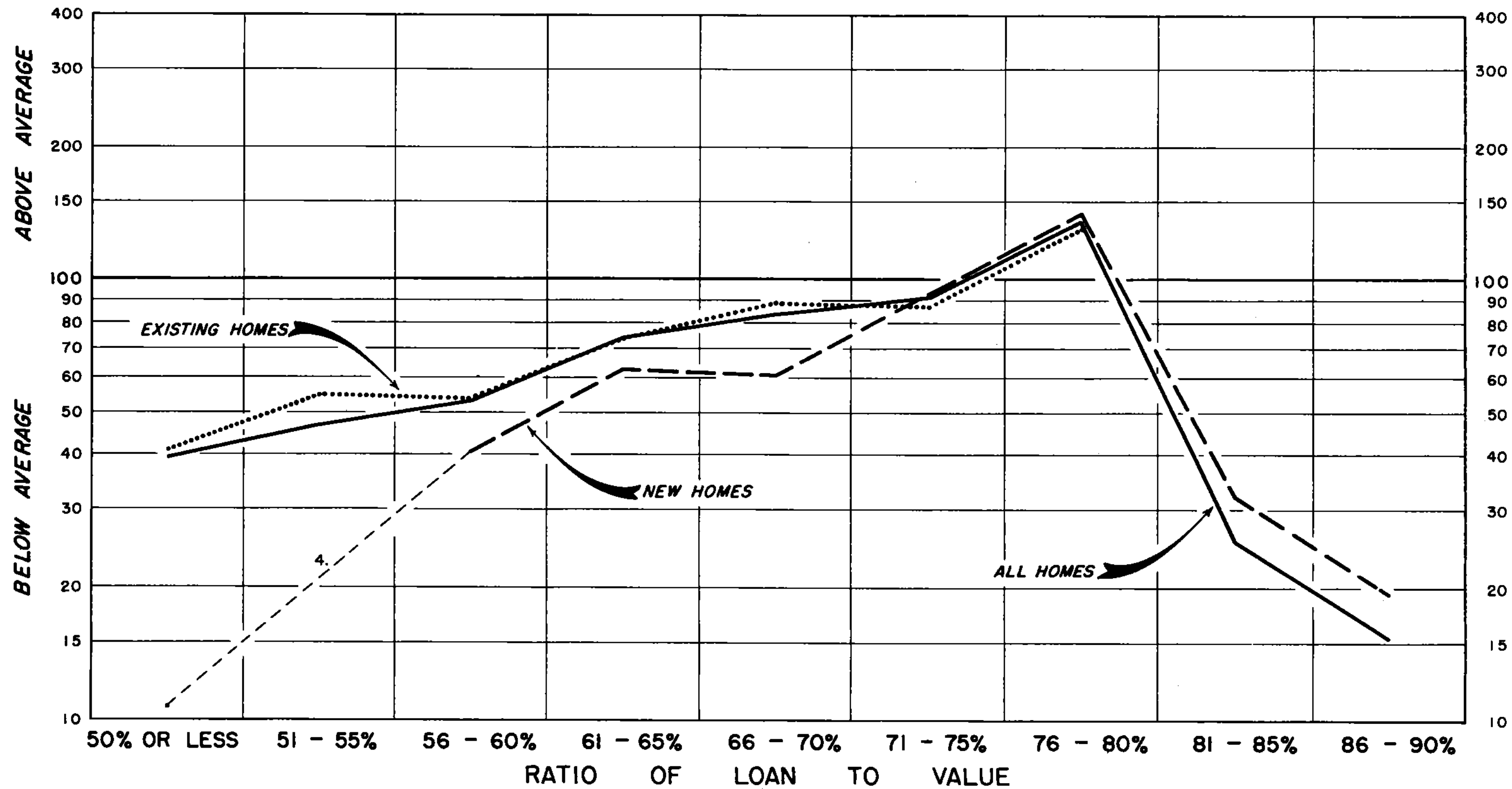
The loan-value ratio limits of favorable mortgage experience for all homes are from 50 or less to 75. The above-average experience is found in the loan-value ratios of 76 to 80. In this

group approximately 47 percent of all mortgages insured on 1- to 4-family homes are included.

In the case of new homes, the loan-value ratio limits of favorable and unfavorable mortgage experience are the same as in the case of all homes. In the loan-value ratio group of 76 to 80 in which the experience with new homes is slightly less favorable than with existing homes, 47 percent of mortgages insured on new 1- to 4-family homes are included, and approximately 50 percent of all existing homes are included.

FIGURE 6

RATIO OF LOAN TO VALUE: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING 1 TO 4 FAMILY HOMES INSURED 1935-1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.
4. NO FORECLOSURES.
5. EXISTING HOMES ARE INELIGABLE FOR 81 TO 90 PERCENT LOANS.

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Table 6

RATIO OF LOAN TO VALUE: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES INSURED
1935-1938

Ratio of Loan to Value	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
86% to 90%	36,062	11.6	36,062.0	13	.9	.000360	15.33
81 to 85	10,054	3.2	10,054.0	6	.4	.000597	25.43
76 to 80	145,846	46.7	310,530.0	981	65.8	.003159	134.54
71 to 75	45,977	14.7	102,498.2	218	14.6	.002127	90.59
66 to 70	28,847	9.2	65,497.0	128	8.6	.001954	83.22
61 to 65	16,435	5.3	39,010.8	68	4.6	.001743	74.23
56 to 60	11,806	3.8	28,320.2	35	2.3	.001236	52.64
51 to 55	6,139	2.0	15,408.2	17	1.1	.001104	47.02
50 or less	10,820	3.5	28,068.2	26	1.7	.000926	39.44
Total	311,983	100.0	635,440.6	1,492	100.0	.002348	100.00
New Homes							
86% to 90%	32,154	20.5	32,154.0	13	2.3	.000404	19.46
81 to 85	8,990	5.7	8,990.0	6	1.0	.000667	32.13
76 to 80	70,109	47.0	147,754.4	430	74.8	.002910	140.17
71 to 75	18,071	12.2	39,497.4	76	13.2	.001924	92.68
66 to 70	9,989	6.6	22,087.4	28	4.9	.001268	61.08
61 to 65	4,926	3.4	11,385.4	15	2.6	.001318	63.49
56 to 60	3,145	2.1	7,155.6	6	1.0	.000839	40.41
51 to 55	1,456	1.0	3,472.0	(3)			
50 or less	1,896	1.3	4,491.2	1	.2	.000223	10.74
Total	150,746	100.0	276,981.4	575	100.0	.002076	100.00
Existing Homes							
86% to 90%(4)							
81 to 85(4)							
76 to 80	78,236	49.8	165,272.6	551	60.1	.003334	130.34
71 to 75	28,787	17.8	63,891.8	142	15.5	.002223	86.90
66 to 70	19,363	11.8	43,933.6	100	10.9	.002276	88.98
61 to 65	11,835	7.1	27,953.4	53	5.8	.001896	74.12
56 to 60	8,899	5.4	21,402.6	29	3.2	.001355	52.97
51 to 55	4,879	2.9	12,124.2	17	1.8	.001402	54.81
50 or less	9,128	5.2	23,881.0	25	2.7	.001047	40.93
Total	161,237	100.0	358,459.2	917	100.0	.002558	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 71 Hermon and Swantown foreclosures.
(2) Ratios represent annual average foreclosure rates, 1935-1938.
(3) No foreclosures.
(4) Existing homes are ineligible for 81 to 90 percent loans.

7. <u>Borrower's Gross Annual Income (single-family owner-occupied: 1935-1936)</u>

All home owners with incomes from less than $1,000 to $3,000 and from $3,500 to $4,000 per year exhibit favorable mortgage experience. Notwithstanding the erratic nature of the curve of the relative risk ratios, presented in Figure 7, which explains the broken limits of favorable mortgage experience, a trend line fitted by inspection reveals an increasingly unfavorable mortgage experience with increases in incomes. This relationship of increased mortgage risk with higher income groups is often explained in terms of higher but less stable incomes.

It is difficult to explain erratic movement of the curve of the relative risk ratios by reasons other than the limitations of the data themselves. In the first place, while it is recognized the figures represent <u>gross</u> incomes of families, the implicit assumption is that the gross character of the incomes is distributed equally throughout all income groups. In other words, the incomes of all insured mortgagors are gross incomes. This, in fact, may not be the case. An argument can be made for the predominance of only single, net incomes in the lowest income groups, and dual, or triple gross incomes in the middle income groups, and single net incomes again in the highest income groups. Mortgage debt for the middle income group based on dual or triple gross incomes, the separate net incomes of which are relatively small, and the sudden decline in any one of which may mean insolvency, may explain in

part the erratic mortgage experience.

In the second place, the mortgage experience is based on the income characteristics of the original mortgagor who is not necessarily the same as the mortgagor who subsequently went into default. Because many state statutes permit the titles to real property to change hands without affecting the original insured mortgage instrument, the foreclosure experience which is attributed to the original mortgagor may not be his responsibility at all. This error, and its magnitude cannot be determined, is common to all FHA data on the characteristics of the borrower.

In the third place, the data on foreclosures on owner-occupied homes represent an even smaller sample than foreclosures on all 1- to 4-family homes. There are 978 foreclosures in this tabulation as compared with 1,492 for all 1- to 4-family foreclosures. The smallness of the sample may thus account for part of the unstable character of the data on incomes.

Any one or all three of the factors of limitation of the data may be responsible for the nature of the mortgage experience.

Since it is assumed in spite of these evident limitations that, for purposes of analysis these limitations may be explained away, it is of interest to examine the differences in the mortgage experience between new and existing homes. The mortgage experience with new homes is less favorable than for existing homes for home owners with annual incomes up to $2,500. Above $2,500, the owners

of existing homes exhibit a less favorable experience. Except for the lowest and the highest income groups, the curves of the relative risk ratios for new and existing homes follow one another fairly closely. At these extremes, the movement for new and existing homes is inverse. The explanation may be found in the sizes of the samples. In the lowest income groups of less than $1,000, the mortgages insured on new and existing homes represent only 0.6 percent of all mortgages insured. In the highest income group, $10,000 or more, only 1.5 percent of all mortgages insured occur.

Significant disparities in mortgage experience between new and existing homes occur in the income groups $1,500 to $2,000, $3,000 to $3,500, and $5,000 to $7,000. In all these groups the amount of business written on all homes is not insignificant. In the first income group, the mortgages insured represent 18.6 percent of all mortgages; here existing homes exhibit a significantly more favorable mortgage experience than do new homes. In the second, where 14.4 percent of all mortgages are insured, this order is reversed. In the third income group, the experience with existing homes is significantly less favorable than the experience with new homes.

For new homes the income groups exhibiting below-average foreclosure experience are $1,000 to $1,500, $2,500 to $3,000 and $3,500 to $4,000 per year. The mortgages insured in these income groups account for 28.3 percent of all mortgages insured on single-family owner-occupied new homes.

In the case of existing homes, 73 percent of all mortgages insured on existing homes are represented in income groups of less than $1,000 to $3,000, and from $3,500 to $4,000 per year; these income groups have below-average foreclosure experience. In the case of new homes, only 28.3 percent of all mortgages insured on new homes are contained in the several income groups which show a favorable mortgage experience. However, the experience with mortgages on new homes in the income group of $2,000 to $2,500 might well be included with the favorable mortgage experience, since the relative ratio is 101.46. If this income group in which are represented 24.3 percent of all new homes is included within the limits of favorable mortgage experience the mortgages included in these groups represent 52.6 percent of all borrowers on new homes.

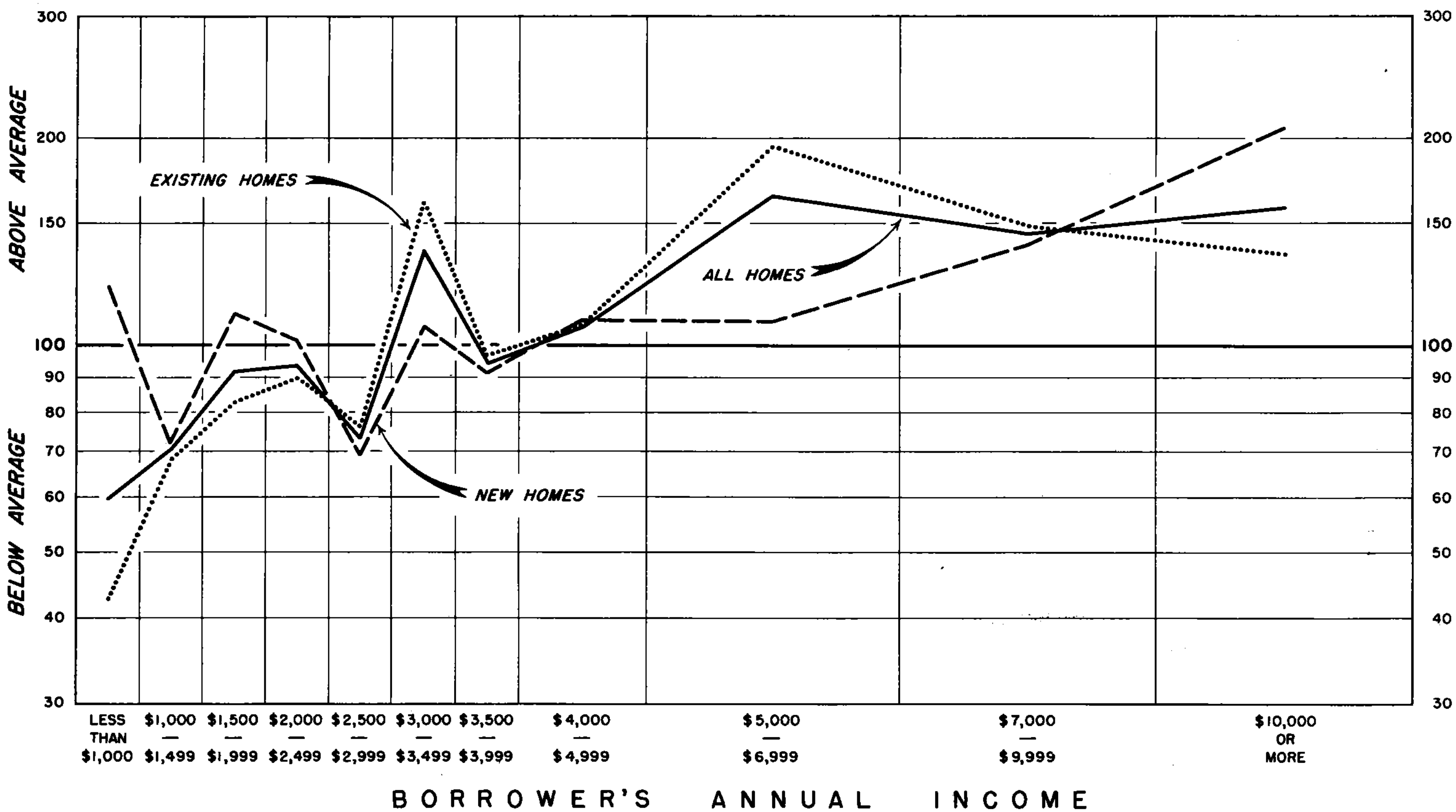
In summary, notwithstanding the erratic nature of the data on incomes, mortgage risk appears to vary directly with incomes. The below-average foreclosure experience for all single-family owner-occupied homes is for home owners with gross incomes of less than $1,000 to $3,000 and $3,500 to $4,000 per year. Within these income groups are represented 72 percent of all mortgages insured on single-family owner-occupied homes.

For new homes income groups exhibiting below-average foreclosure experience are $1,000 to $1,500, $2,000 to $3,000, and $3,500 to $4,000 in which approximately 53 percent of all mortgages on new single-family owner-occupied homes are represented. The income

groups for home owners of existing homes with below-average foreclosure experience are less than $1,000 to $3,000 and $3,500 to $4,000 per year. The mortgages insured in these groups account for 73 percent of all mortgages made on existing homes.

FIGURE 7

BORROWER'S GROSS ANNUAL INCOME: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES INSURED 1935 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.

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Table 7

BORROWER'S GROSS ANNUAL INCOME: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF MORTGAGES AT RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES INSURED

1935-1938

Borrower's Annual Income	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
Less than $1,000	1,500	.6	4,076.4	5	.5	.001227	59.62
$1,000 to $1,499	14,400	6.0	34,281.2	50	5.1	.001459	70.89
1,500 to 1,999	44,110	18.3	88,771.8	168	17.2	.001892	91.93
2,000 to 2,499	58,103	24.1	110,924.2	214	21.9	.001929	93.73
2,500 to 2,999	35,218	14.6	69,550.8	105	10.7	.001510	73.37
3,000 to 3,499	26,465	11.0	45,553.4	128	13.1	.002810	136.54
3,500 to 3,999	19,246	8.0	38,122.0	74	7.6	.001941	94.31
4,000 to 4,999	18,324	7.6	36,201.8	79	8.1	.002182	106.03
5,000 to 6,999	13,882	5.8	27,336.4	92	9.4	.003365	163.51
7,000 to 9,999	6,185	2.5	13,054.4	39	4.0	.002987	145.14
10,000 or more	3,639	1.5	7,366.6	24	2.4	.003258	158.31
Total	241,072	100.0	475,239.0	978	100.0	.002058	100.00
New Homes							
Less than $1,000	393	.4	927.2	2	.6	.002157	121.11
$1,000 to $1,499	4,413	4.1	8,571.4	11	3.4	.001283	72.04
1,500 to 1,999	18,123	16.8	29,913.0	59	18.4	.001972	110.72
2,000 to 2,499	26,236	24.3	42,061.0	76	23.7	.001807	101.46
2,500 to 2,999	17,017	15.8	28,327.2	35	10.9	.001236	69.40
3,000 to 3,499	13,346	12.8	21,142.2	40	12.5	.001892	106.23
3,500 to 3,999	9,050	8.4	15,388.2	25	7.8	.001625	91.24
4,000 to 4,999	8,617	8.0	15,041.0	29	9.0	.001928	108.25
5,000 to 6,999	6,116	5.7	10,903.6	21	6.5	.001926	108.14
7,000 to 9,999	2,536	2.4	5,220.6	13	4.1	.002490	139.81
10,000 or more	1,420	1.3	2,720.4	10	3.1	.003676	206.40
Total	107,857	100.0	180,215.8	321	100.0	.001781	100.00
Existing Homes							
Less than $1,000	1,107	.8	3,149.2	3	.5	.000953	42.79
$1,000 to $1,499	9,987	7.5	25,709.8	39	5.9	.001517	68.12
1,500 to 1,999	25,987	19.5	58,858.8	109	16.6	.001852	83.16
2,000 to 2,499	31,867	23.9	68,863.2	138	21.0	.002004	89.99
2,500 to 2,999	18,201	13.7	41,223.6	70	10.6	.001698	76.25
3,000 to 3,499	12,619	9.5	24,411.2	88	13.4	.003605	161.88
3,500 to 3,999	10,196	7.6	22,733.8	49	7.5	.002155	96.77
4,000 to 4,999	9,707	7.3	21,160.8	50	7.6	.002363	106.11
5,000 to 6,999	7,766	5.8	16,432.8	71	10.8	.004321	194.03
7,000 to 9,999	3,549	2.7	7,833.8	26	4.0	.003319	149.03
10,000 or more	2,219	1.7	4,646.2	14	2.1	.003013	135.29
Total	133,205	100.0	295,023.2	657	100.0	.002227	100.00

(1) Includes foreclosures through June 30, 1939. Excludes 14 Swantown foreclosures. The remaining 27 Swantown foreclosures and the 30 Herman foreclosures were on properties submitted for insurance by corporate borrowers.
(2) Ratios represent annual average foreclosure rates, 1935-1938.

8. <u>Ratio of Property Value to Borrower's Gross Annual Income (single-family owner-occupied, 1935-1938)</u>

At first glance, the ratio of property value to borrower's gross annual income would be expected to give a fairly reliable measure of risk. The logic of this measure rests on the assumed direct relationship between mortgage risk and the ratio of property value to borrower's gross annual income. For its validity, the concept is based on the assumption that the annual cost of a house to the borrower varies directly with the value of the house. From this it would follow that the curve of the relative ratios should rise as the ratio of property value to income rises. Such a relationship did in the past exist and to some extent does exist on uninsured loans because mortgages, first and second and sometimes third, covered 100 percent or more of the value of the property and were unamortized. Housing cost, which was principally interest, in addition to taxes and hazard insurance, under these conditions of mortgage lending bore a direct relationship to property value. A ratio based on property value and income under these conditions did have some significance as a measure of over-all risk.

The reason for the shape of the curve of the relative ratios for all homes in Figure 8 probably is that the loan-value ratio and the duration of the amortized mortgage vary and these two factors destroy the assumed direct relationship in the case of FHA insured mortgages. The property value-income ratio may be relatively high and the annual payment relatively low in the case

of a long-term amortized mortgage with a high loan-value ratio, all of which would make for a relatively favorable mortgage risk. This is precisely the opposite from what would be expected from a high property-value income ratio.

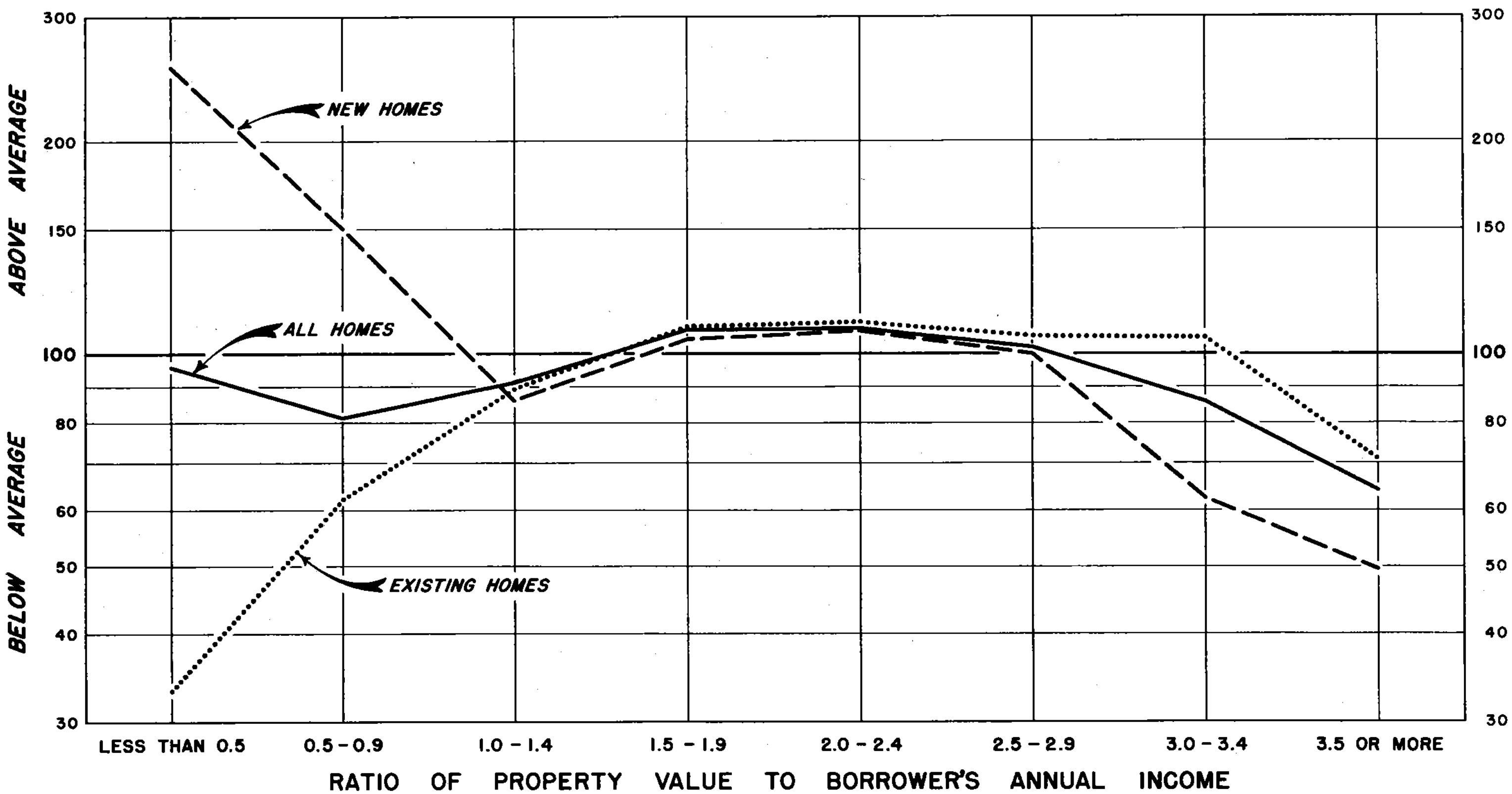
The curve reveals the experience of the middle property value-income ratio groups of 1.5 to 3.0 as unfavorable and the groups at both extremes as favorable. An explanation of the shape of the curve is thus difficult without a further analysis of the relationship between the ratio of property value to income, loan to value ratio, term of mortgage and annual payment to income.

It is interesting to point out that in the case of new homes the data reveal that home owners whose homes are valued at one times their annual incomes are above-average mortgage risks. In spite of the fact that nothing is known of the loan-value ratios, and the terms of the mortgages in this class interval, this aberration appears unreasonable. A case binder analysis in such a case as this is desirable in revealing possible errors in classification or transcription.

In summary, the data on the ratio of property value to borrower's gross annual income, by themselves, reveal little information for measuring mortgage risk. Favorable mortgage risk is found in the ratio groups of 1.0 and less, and 3.0 and more. Home owners in these ratio groups are probably the lowest and highest income groups in which the mortgage experience was above-average.

FIGURE 8

RATIO OF PROPERTY VALUE TO BORROWER'S GROSS ANNUAL INCOME: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES INSURED 1935 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.

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Table 8

RATIO OF PROPERTY VALUE TO BORROWER'S GROSS ANNUAL INCOME: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES INSURED

1935-1938

Ratio of Property Value to Borrower's Gross Annual Income	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
Less than 0.5	921	.3	2,021.0	4	.4	.001979	96.16
0.5 to 0.9	11,939	5.0	25,077.2	42	4.3	.001675	81.39
1.0 to 1.4	46,212	19.2	92,522.0	173	17.7	.001870	90.86
1.5 to 1.9	71,391	29.6	138,710.8	306	31.3	.002206	107.19
2.0 to 2.4	61,118	25.4	116,566.0	258	26.4	.002213	107.53
2.5 to 2.9	34,630	14.4	68,050.4	142	14.5	.002087	101.41
3.0 to 3.4	10,951	4.5	23,207.6	41	4.2	.001767	85.86
3.5 or more	3,910	1.6	9,084.0	12	1.2	.001321	64.19
Total	241,072	100.0	475,239.0	978	100.0	.002058	100.00
New Homes							
Less than 0.5	333	.3	665.6	3	.9	.004507	253.06
0.5 to 0.9	3,176	2.9	5,605.2	15	4.7	.002676	150.25
1.0 to 1.4	15,163	14.1	25,458.0	39	12.2	.001532	86.02
1.5 to 1.9	30,825	28.6	50,418.0	93	29.0	.001845	103.59
2.0 to 2.4	31,981	29.6	51,928.4	99	30.8	.001906	107.02
2.5 to 2.9	18,853	17.5	32,010.2	57	17.8	.001781	100.00
3.0 to 3.4	5,821	5.4	10,738.4	12	3.7	.001117	62.72
3.5 or more	1,715	1.6	3,392.0	3	.9	.000884	49.64
Total	107,867	100.0	180,215.8	321	100.0	.001781	100.00
Existing Homes							
Less than 0.5	588	.4	1,355.4	1	.2	.000738	33.14
0.5 to 0.9	8,763	6.6	19,472.0	27	4.1	.001387	62.28
1.0 to 1.4	31,049	23.3	67,064.0	134	20.4	.001998	89.72
1.5 to 1.9	40,566	30.5	88,292.8	213	32.4	.002412	108.31
2.0 to 2.4	29,137	21.9	64,637.6	159	24.2	.002460	110.46
2.5 to 2.9	15,777	11.8	35,040.2	85	12.9	.002358	105.88
3.0 to 3.4	5,130	3.9	12,469.2	29	4.4	.002326	104.45
3.5 or more	2,195	1.6	5,692.0	9	1.4	.001581	70.99
Total	133,205	100.0	295,023.2	657	100.0	.002227	100.00

(1) Includes foreclosures through June 30, 1939. Excludes 14 Swantown foreclosures. The remaining 27 Swantown foreclosures and the 30 Harmon foreclosures were on properties submitted for insurance by corporate borrowers.

(2) Ratios represent annual average foreclosure rates, 1935-1938.

9. Ratio of Annual Payment to Borrower's Gross Annual Income (single-family owner-occupied; 1935-1938)

It is reasonable to expect that mortgage risk increases as the proportion of the incomes which home owners spend on housing increases. The curve of the relative risk ratios presented in Figure 9 for all homes reveals in a striking manner the variations in mortgage experience under varying conditions of relative housing cost. The gradual increase in mortgage risk with increases in the ratio of annual payment to income confirms reasonable expectation. The values of the risk ratio rise successively with but one slight interruption from a below-average low of 57.87 for home owners who spend only 5 percent of their incomes for debt service to a high of 273.13 for home owners spending 30 percent or more.

The point at which home owners begin to "overspend" for housing is of interest not only to mortgage lenders but to social scientists as well. On the basis of FHA experience for this four-year period, that point, at least with regard to all homes, is at 15 percent of the annual income or over. It must be borne in mind that this ratio is based on expenditures for interest and principal alone. A more accurate measure of overspending would have to include such necessary expenditures as taxes, hazard insurance, water rent, maintenance, and sometimes special assessments. These expenditures combined may not necessarily represent the same proportion of incomes for all income groups.

Above 15 percent of income for debt service in which 33.6 percent are insured mortgages is included, the risk ratios rise in value very slowly until the 25 to 30 percent ratio group is reached after which the increase in risk is very sharp.

The debt service ratio groups for which favorable mortgage risk is experienced include 66.4 percent of all insured mortgages on single-family owner-occupied homes.

The curves of the relative risk ratios for new and existing homes approximate one another very closely in all but two debt-service ratio groups. In the group which spends less than 5 percent of the annual income for debt service, the experience with home owners of new homes is significantly unfavorable. The relative risk ratio for this group for new home owners is 155.25 in contrast with the experience of existing home owners in this group for which the ratio of relative risk is 27.44. This kind of mortgage experience with home owners, particularly of new homes, who spend less than 5 percent for debt service is counter to expectation and a thin sample may explain this abberation.

In the second debt service ratio group of 20 to 25 percent there is a significant disparity of risk between new and existing homes. The previous mentioned order of mortgage experience is reversed with new homes revealing a relatively more favorable mortgage experience than existing homes. It is difficult to

explain this break in the continuity of the curve of the relative ratios of new homes without resorting to a case binder analysis. Short of this, any one of the limitations of the data indicated in the examinations of the mortgage experience associated with the borrower's gross annual income may be responsible for this variation. These are, namely, the gross character of the incomes, unrecorded releases of original mortgagors, and the size of the sample.

Conclusions based on experience by debt service to income are limited by the fact that the limits of favorable and unfavorable experience vary not only in accordance with this ratio but also with the incomes of borrowers. This point is considered in a later section of this report.

Within these limitations it is interesting to point out that for existing homes, the above-average mortgage experience occurs in those debt service ratio groups in which 68.4 percent of all insured mortgages on existing homes occurs. The comparable figure for new homes is 67.2 percent.

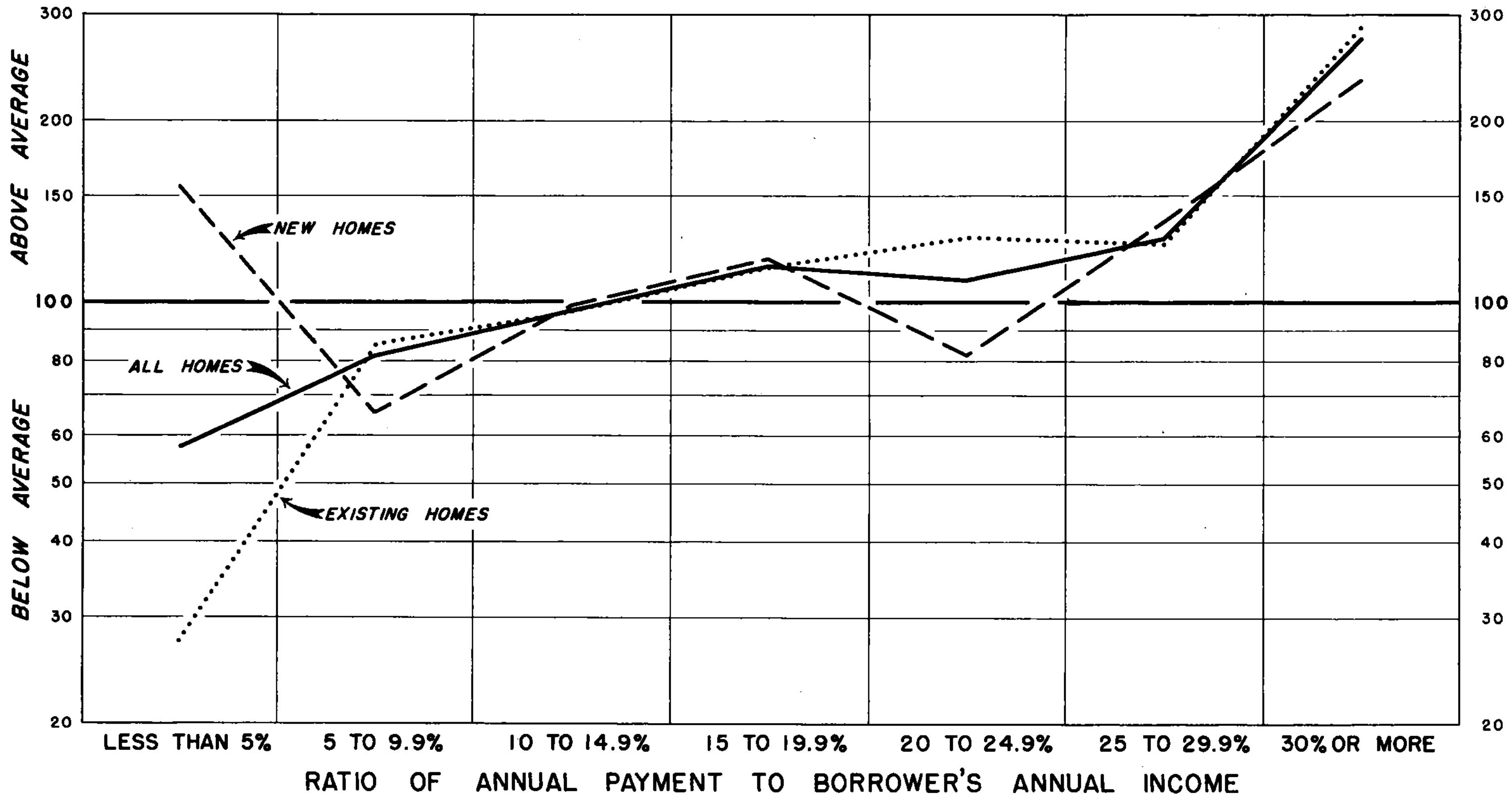
In summary, the data on the ratio of annual payment appear to validate the reasoning that mortgage risk is greater as the proportion of income spent for debt service increases. For all homes, mortgage risk is below average for home owners who spend less than 15 percent of their annual gross incomes for debt service. The mortgages insured on these debt service ratio groups

represent approximately 87 percent of all insured mortgages on single-family owner-occupied homes.

In the case of new homes, the mortgage risk is below-average for home owners who spend 5 percent to 15 percent and 20 to 25 percent of their annual incomes. Home owners in these groups represent approximately 87 percent of all owners of new single-family owner-occupied insured homes. For existing homes home owners spending less than 15 percent of their incomes have a below-average foreclosure experience; they account for approximately 69 percent of all owners of existing single-family owner-occupied homes.

FIGURE 9

RATIO OF ANNUAL PAYMENT TO BORROWER'S GROSS ANNUAL INCOME: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES INSURED 1935 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.

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Table 9

RATIO OF ANNUAL PAYMENT TO BORROWER'S GROSS ANNUAL INCOME: RATIO OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD IN FORCE, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES INSURED
1935-1938

Ratio of Annual Payment to Borrower's Annual Income	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured (2)	Relatives: Average Ratio = 100
All Homes							
Less than 5%	3,284	1.3	6,718.0	8	.8	.001191	57.87
5% to 9.9%	47,917	19.9	91,543.2	154	15.8	.001682	81.73
10 to 14.9	106,722	44.3	202,886.2	407	41.6	.002006	97.47
15 to 19.9	66,961	27.8	136,174.6	320	32.7	.002348	114.09
20 to 24.9	14,371	6.0	33,303.5	75	7.7	.002252	109.43
25 to 29.9	1,502	.6	3,801.8	10	1.0	.002630	127.79
30 or more	315	.1	711.6	4	.4	.005621	273.13
Total	241,072	100.0	475,239.0	978	100.0	.002058	100.00
New Homes							
Less than 5%	999	.9	1,808.0	5	1.6	.002765	155.25
5% to 9.9%	17,488	16.2	27,263.8	32	10.0	.001174	65.92
10 to 14.9	48,339	44.8	75,105.4	132	41.1	.001758	98.71
15 to 19.9	33,562	31.1	59,829.2	126	39.3	.002106	118.25
20 to 24.9	6,666	6.2	14,317.8	21	6.5	.001467	82.37
25 to 29.9	676	.7	1,654.8	4	1.2	.002417	135.71
30 or more	127	.1	241.8	1	.3	.004136	232.23
Total	107,857	100.0	180,215.8	321	100.0	.001781	100.00
Existing Homes							
Less than 5%	2,285	1.7	4,910.0	3	.5	.000611	27.44
5% to 9.9%	30,429	22.9	64,279.4	122	18.6	.001898	85.23
10 to 14.9	58,383	43.8	127,780.8	275	41.9	.002152	96.63
15 to 19.9	33,399	25.1	76,445.4	194	29.5	.002538	113.96
20 to 24.9	7,705	5.8	18,990.5	54	8.2	.002843	127.66
25 to 29.9	816	.6	2,147.0	6	.9	.002795	125.51
30 or more	188	.1	469.8	3	.4	.006386	286.75
Total	133,205	100.0	295,023.2	657	100.0	.002227	100.00

(1) Includes foreclosures through June 30, 1939. Excludes 14 Swantown foreclosures. The remaining 27 Swantown foreclosures and the 30 Harmon foreclosures were on properties submitted for insurance by corporate borrowers.

(2) Ratios represent annual average foreclosure rates, 1935-1938.

10. Term of Mortgage (1- to 4-family: 1935-1939)

Because of the predominance of the short-term straight mortgage in mortgage lending practice prior to the passage of the National Housing Act, few notions regarding the relationship between the duration of the mortgage and mortgage risk were developed. Because of the popularization of the long-term amortized mortgage by the Federal Housing Administration, the mortgage experience measured by the data on the duration of the mortgage is of particular interest.

Mortgages on all homes with maturities of less than 5 years to 16 years, and 21 to 25 years, exhibit a below-average foreclosure experience. Excluded from this zone of experience are the mortgages with maturities of 17 to 20 years which account for 54.1 percent of all mortgages insured.

If the mortgages with the longest and the shortest maturities are excluded, the mortgage risk appears to vary directly with the maturity of the mortgage. The greater the maturity the greater is the apparent risk. An explanation of this relationship may be that equities are built up more rapidly on mortgages which have shorter maturities. Home owners will thus make an effort to retain ownership because of danger of jeopardizing equities of significant amounts. On the other hand, the argument advanced for the longer-term amortized mortgage is that the monthly mortgage payments are relatively smaller, thus imposing a smaller

burden on incomes. The data on the term of the mortgage based on the four-year period do not resolve these contradictory arguments. The fact is that it is difficult to come to any conclusion about the relationship between mortgage risk and maturity without first knowing more about the characteristics of the mortgages in addition to their maturities, and second by having the mortgages exposed to risk for a longer period to test the validity of each argument.

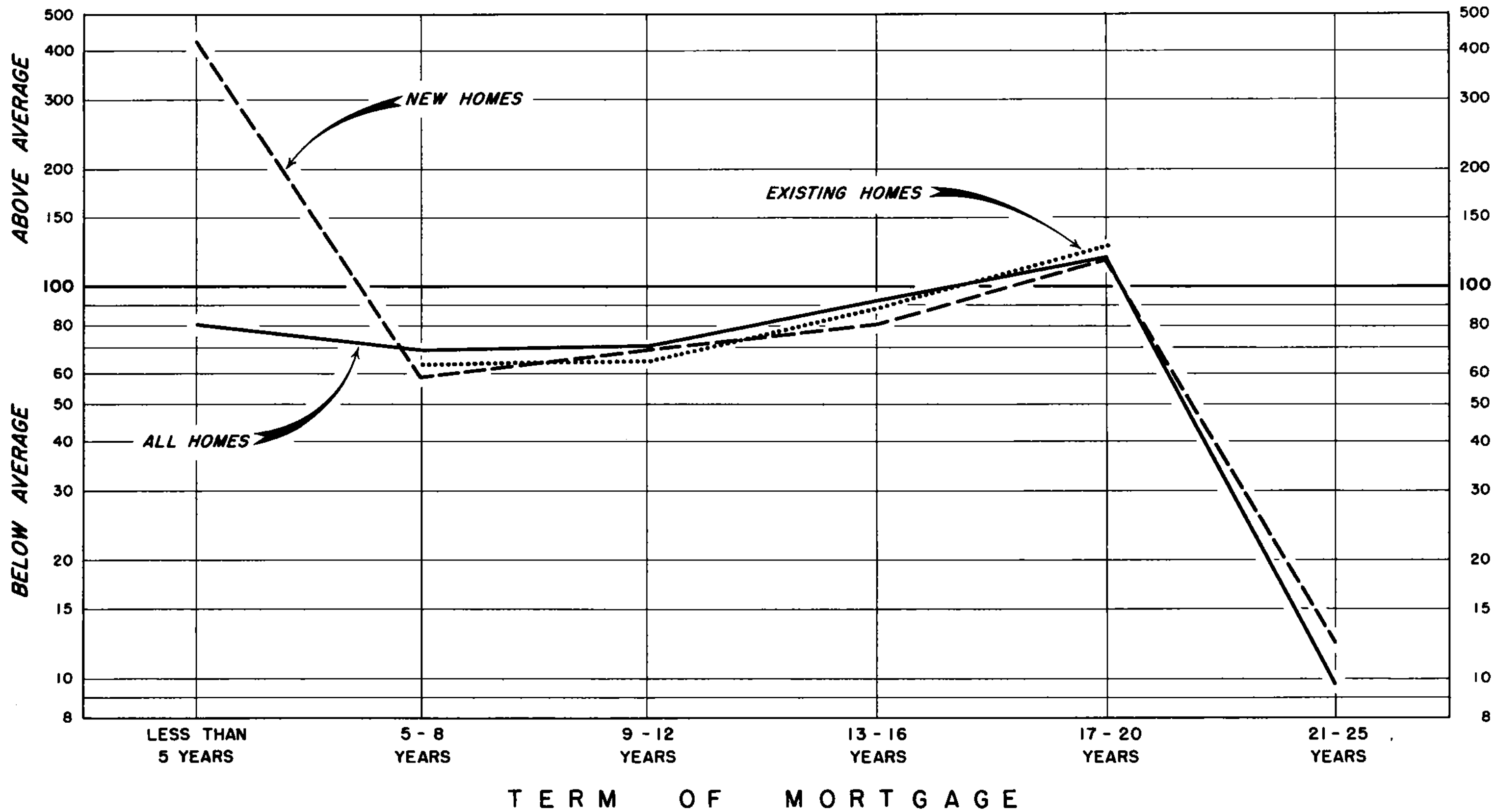
The maturity groups exhibiting favorable mortgage experience in the case of new homes are 5 to 16 years, and 21 to 25 years. The maturity group of 17 to 20 years exhibiting above-average foreclosure experience includes 66.3 percent of all mortgages insured on new homes. Less than one-half of one percent of the mortgages on new homes have maturities of less than 5 years.

In the case of existing homes the maturity group with favorable mortgage experience is 5 to 16 years. The maturity group revealing above-average mortgage experience is 17 to 20 years in which 41.8 percent of the insured mortgages are included.

In summary, little or no significance can be attached to the apparent relationship between maturity and mortgage risk exhibited by the data on term of mortgage in view of the cogent argument for an opposite relationship. An explanation for the apparent contradiction between the facts and the reasoning may be found possible in the fact that the period for which the mortgages of all maturities have been exposed to risk is not sufficiently long enough to justify generalizations on this point.

FIGURE 10

TERM OF MORTGAGE: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING 1 TO 4 FAMILY HOMES INSURED 1935 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.
4. EXISTING HOMES ARE INELIGIBLE FOR MORTGAGES OF MORE THAN TWENTY YEARS DURATION.

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Table 10

TERM OF MORTGAGE: RATIO OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW AND EXISTING 1- TO 4-FAMILY HOMES INSURED

1935-1938

Term of Mortgage	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
21 to 25 years	30,379	9.7	30,379.0	7	.5	.000230	9.80
17 to 20 years	168,727	54.1	348,257.8	969	64.9	.002782	118.48
13 to 16 years	76,722	24.6	171,070.4	375	25.1	.002192	93.36
9 to 12 years	32,781	10.5	77,250.0	127	8.5	.001644	70.02
5 to 8 years	3,169	1.0	7,954.2	13	.9	.001634	69.59
Less than 5 years	205	.1	529.2	1	.1	.001890	80.49
Total	311,983	100.0	635,440.6	1,492	100.0	.002348	100.00
New Homes							
21 to 25 years	27,035	17.9	27,035.0	7	1.2	.000259	12.48
17 to 20 years	99,890	66.3	195,740.2	480	83.5	.002452	118.11
13 to 16 years	18,405	12.2	41,505.8	69	12.0	.001662	80.06
9 to 12 years	5,042	3.3	11,772.4	17	2.9	.001444	69.56
5 to 8 years	338	.2	815.2	1	.2	.001227	59.10
Less than 5 years	35	(3)	112.8	1	.2	.008865	427.02
Total	150,746	100.0	276,981.4	575	100.0	.002076	100.00
Existing Homes							
21 to 25 years	(4)	--	--	--	--	--	--
17 to 20 years	67,465	41.8	151,145.6	489	53.3	.003235	126.47
13 to 16 years	61,840	38.4	133,087.6	306	33.4	.002299	89.87
9 to 12 years	28,736	17.8	66,474.6	110	12.0	.001655	64.79
5 to 8 years	3,027	1.9	7,335.0	12	1.3	.001636	63.96
Less than 5 years	169	.1	416.4	(5)	--	--	--
Total	161,237	100.0	358,459.2	917	100.0	.002558	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 71 Harmon and Swantown foreclosures.
(2) Ratios represent annual average foreclosure rates, 1935-1938.
(3) Less than 0.05 percent.
(4) Existing homes are ineligible for mortgages of more than 20 years' duration.
(5) No foreclosures.

11. Mortgages, by City-size Groups (1- to 4-family: 1937-1938)

The argument can be advanced that mortgage risk should be larger in smaller communities than in larger communities. This argument rests on the premise that properties going into default have a greater marketability, hence forestalling foreclosure, in the larger communities than in the smaller communities. In the larger communities the more numerous families with a greater variety of needs and tastes in housing facilities in the various income groups is responsible for this greater ease in marketing homes. Moreover, this greater marketability, because of the mere size of the community, is enhanced by the fact that the larger communities expand at the expense of the smaller communities. The expanding community provides a wider market for real property than the contracting community. Allowance for this factor has been made in rating mortgages only since 1938 in the economic background rating for the "scope of the market."

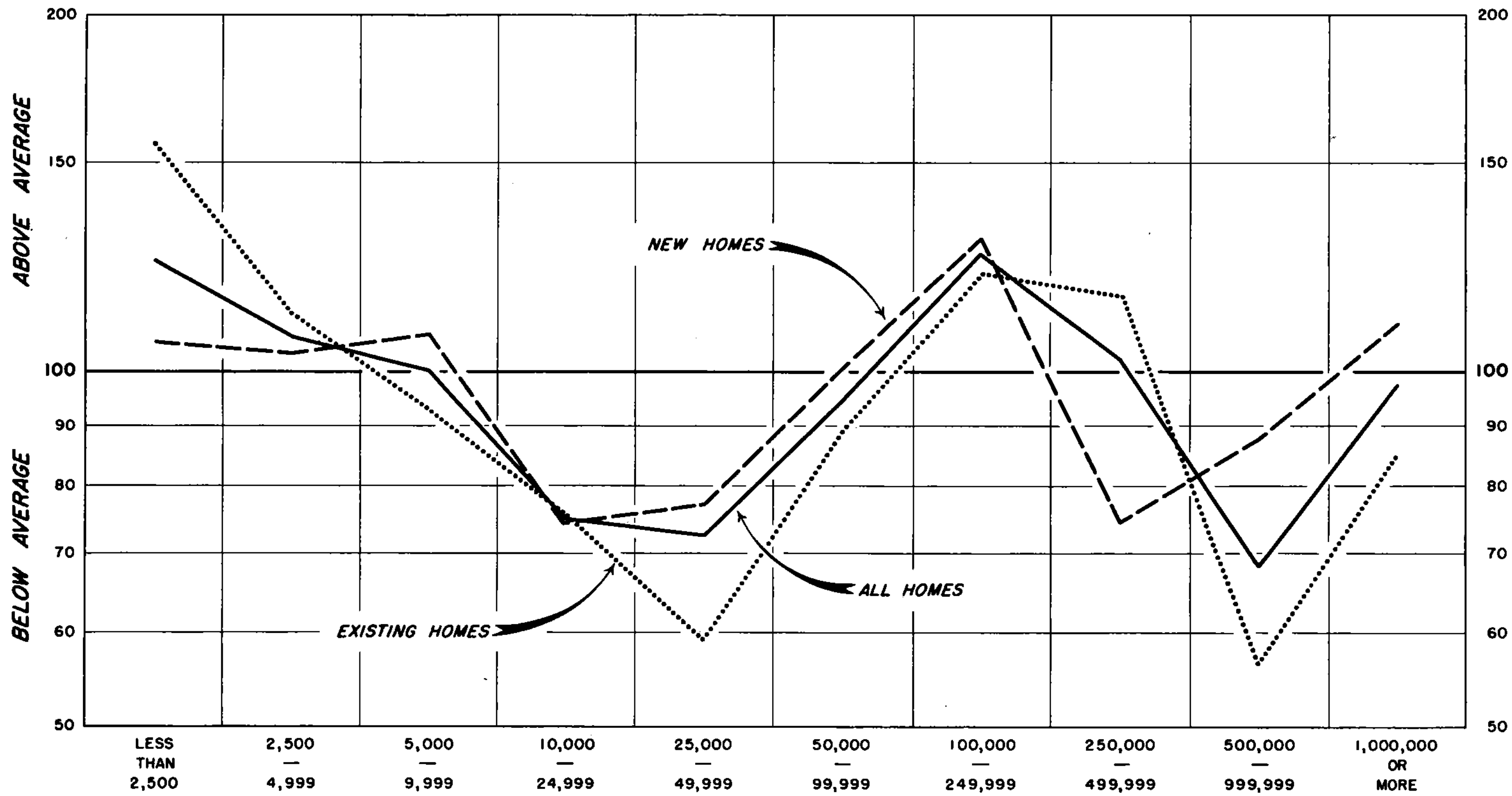
On the basis of the above reasoning the curve of the relative ratios presented in Figure 11 would be expected to rise in the direction of the smaller communities. In fact, the movement of the curve is very erratic: below-average foreclosure experience is found in cities of 500,000 population and over, and 10,000 to 100,000 population in the case of all homes. The insured mortgages in these city-size groups include 47.8 percent

of the mortgages insured in the years 1937 and 1938. The smaller-sized communities exhibit no worse experience than the cities with populations of 100,000 to 500,000. Part of the explanation may be found in the fact that the sample which covers only the last two years of the period under examination, and is itself relatively small, is spread thin over too many city-size groups. Another possible explanation for failing to find the expected relationship is the large number of small cities located within metropolitan areas. A third possible explanation is the fact that the data are available for only two years. The mortgages insured in cities within metropolitan areas represent approximately 71 percent of the total mortgages insured in the years 1937 and 1938. The expected relationship between mortgage risk and city-size groups inside metropolitan areas is just the opposite of what is contended for all city-size groups. This relationship is examined below in Section 12.

In summary, reliable generalizations cannot be drawn from the data on the relationship between mortgage risk and the size of the city in which the mortgaged property is located. This may be explained by the fact that the data cover only a two-year period of insuring operations, that the class intervals are too numerous, and that the data are heavily weighted by cities located in metropolitan areas. It is concluded that mortgage risk analyses according to city-size groups should always be done with reference to whether or not the cities are located inside or outside metropolitan areas.

FIGURE 11

CITY - SIZE GROUPS: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING 1 TO 4 FAMILY HOMES INSURED 1937 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.

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Table 11

CITY-SIZE GROUPS: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES INSURED

1937-1938

City-Size Groups	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
1,000,000 or more	32,050	15.2	46,287	104	14.4	.002247	97.53
500,000 to 999,999	9,319	4.4	14,538	23	3.2	.001585	68.79
250,000 to 499,999	24,048	11.3	36,649	87	12.0	.002374	103.04
100,000 to 249,999	21,117	10.0	31,573	91	12.6	.002882	125.09
Total 100,000 or more	86,534	40.9	129,022	305	42.2	.002364	102.60
50,000 to 99,999	17,231	8.2	25,598	56	7.7	.002188	94.97
25,000 to 49,999	16,253	7.7	24,473	41	5.7	.001675	72.70
10,000 to 24,999	26,209	12.4	38,501	67	9.3	.001740	75.52
5,000 to 9,999	16,992	8.0	25,094	58	8.0	.002311	100.30
2,500 to 4,999	11,819	5.6	17,320	43	6.0	.002483	107.77
Less than 2,500	36,317	17.2	53,423	152	21.1	.002845	123.48
Total less than 100,000	124,821	59.1	184,409	417	57.8	.002261	98.13
Total	211,355	100.0	313,431	722	100.0	.002304	100.00
New Homes							
1,000,000 or more	20,233	17.4	28,563	66	18.6	.002311	109.27
500,000 to 999,999	3,723	3.2	5,382	10	2.8	.001858	87.85
250,000 to 499,999	10,472	9.0	15,185	24	6.8	.001581	74.75
100,000 to 249,999	11,454	9.8	16,764	46	13.0	.002744	129.74
Total 100,000 or more	45,882	39.4	65,894	146	41.2	.002216	104.78
50,000 to 99,999	8,529	7.3	12,242	26	7.3	.002124	100.43
25,000 to 49,999	8,521	7.3	12,432	23	6.5	.001850	87.47
10,000 to 24,999	13,800	11.8	19,634	31	8.8	.001579	74.66
5,000 to 9,999	9,431	8.1	13,606	31	8.8	.002278	107.71
2,500 to 4,999	6,701	5.8	9,542	21	5.9	.002201	104.07
Less than 2,500	23,625	20.3	34,009	76	21.5	.002235	105.67
Total less than 100,000	70,607	60.6	101,465	208	58.8	.002050	96.93
Total	116,489	100.0	167,359	354	100.0	.002115	100.00
Existing Homes							
1,000,000 or more	11,817	12.5	17,724	38	10.3	.002144	85.11
500,000 to 999,999	5,596	5.9	9,126	13	3.6	.001425	56.57
250,000 to 499,999	13,576	14.3	21,464	63	17.1	.002935	116.51
100,000 to 249,999	9,663	10.2	14,814	45	12.2	.003038	120.60
Total 100,000 or more	40,652	42.9	63,128	159	43.2	.002519	100.00
50,000 to 99,999	8,702	9.1	13,356	30	8.1	.002246	89.16
25,000 to 49,999	7,732	8.1	12,041	18	4.9	.001495	59.35
10,000 to 24,999	12,409	13.1	18,867	36	9.8	.001908	75.74
5,000 to 9,999	7,561	8.0	11,488	27	7.3	.002350	93.29
2,500 to 4,999	5,118	5.4	7,778	22	6.0	.002828	112.27
Less than 2,500	12,692	13.4	19,414	76	20.7	.003915	155.42
Total less than 100,000	54,214	57.1	82,944	209	56.8	.002520	100.04
Total	94,866	100.0	146,072	368	100.0	.002519	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 30 Harmon foreclosures. The 41 [illegible]town mortgages were insured in 1936.

(2) Ratios represent annual average foreclosure rates, 1937-1938.

12. Mortgages by City-size Groups Inside Metropolitan Areas (1- to 4-family: 1937-1938)

It would seem reasonable to expect smaller communities located on the periphery of principal cities inside metropolitan areas to exhibit lower relative mortgage risks than the principal cities because of suburban migration. Fast growing suburban communities located within metropolitan areas enhance the marketability of real properties and should forestall foreclosure particularly of new homes and hence reduce the mortgage risk examined in this study.

In the case of all homes, such a relationship, even of a rough nature, is difficult to discern from the curves in Figure 12. The favorable mortgage experience is found in the cities with populations of 5,000 to 100,000 and also in the case of cities with populations of 250,000 and over. Excluded from this below-average foreclosure experience are cities with populations of 100,000 to 250,000 and cities with less than 5,000 population. Together, these two groups of cities include 29.8 percent of all mortgages insured in the years 1937 and 1938.

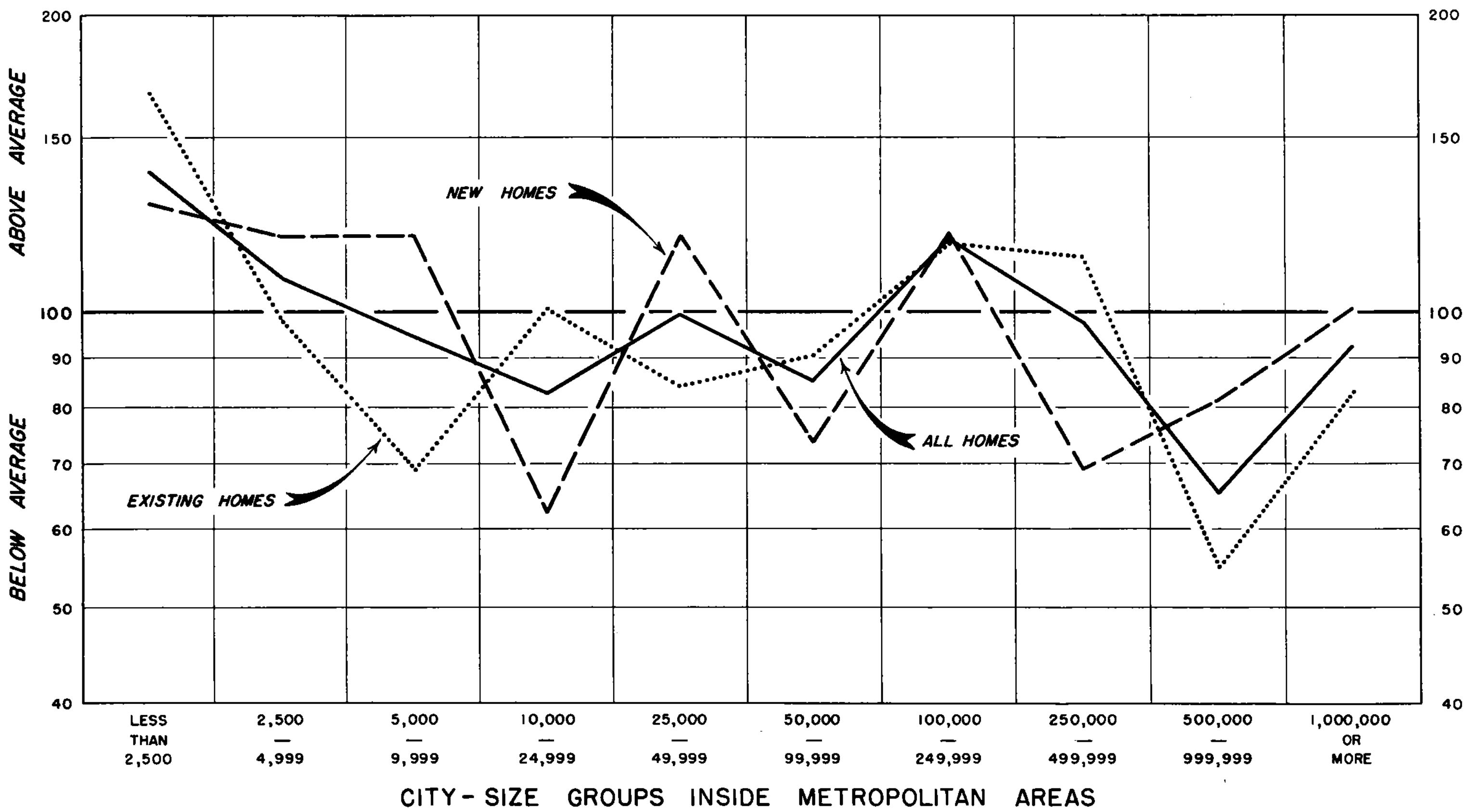
The curves of the relative ratios for new and existing homes betray an even greater instability in the data than in the case of all mortgages by city-size groups. Moreover, there are such significant disparities in the experience between new and existing homes that the movement of the curves may be aptly characterised as inverse to one another. In addition, in the case of

new homes located in the smaller-size communities inside metropolitan areas, favorable mortgage experience is visible only in the case of cities having populations of 10,000 to 25,000. The mortgages included in the city-size groups for which favorable mortgage experience is exhibited represents 23.3 percent of the new homes insured and 43.8 percent of existing homes.

In summary, the data on mortgages by city-size groups inside metropolitan areas fail to present any marked relationship between mortgage risk and the size of a city in a metropolitan area. The striking differences in the experience between new and existing homes located in metropolitan areas tend further to obscure whatever relationship might be expected to exist because of the instability which characterizes the experience of both new and existing homes.

FIGURE 12

CITY-SIZE GROUPS INSIDE METROPOLITAN AREAS: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING 1 TO 4 FAMILY HOMES INSURED 1937 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.

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Table 12

CITY-SIZE GROUPS INSIDE METROPOLITAN AREAS: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES INSURED

1937-1938

City-Size Groups Inside Metropolitan Areas	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
1,000,000 or more	32,050	21.5	46,287	104	19.7	.002247	92.70
500,000 to 999,999	9,319	6.3	14,508	23	4.3	.001585	65.39
250,000 to 499,999	24,048	16.1	36,649	87	16.5	.002374	97.94
100,000 to 249,999	21,117	14.2	31,578	91	17.2	.002882	118.89
100,000 or more	86,534	58.1	129,022	305	57.7	.002364	97.53
50,000 to 99,999	10,825	7.3	15,959	33	6.2	.002068	85.31
25,000 to 49,999	5,649	3.8	8,299	20	3.8	.002410	99.42
10,000 to 24,999	14,150	9.5	20,451	41	7.7	.002005	82.71
5,000 to 9,999	8,919	6.0	13,132	30	5.7	.002284	94.22
2,500 to 4,999	4,955	3.3	7,197	19	3.6	.002640	108.91
Less than 2,500	17,950	12.0	24,130	81	15.3	.003357	138.49
Less than 100,000	62,448	41.9	89,168	224	42.3	.002512	103.63
Total	148,982	100.0	218,190	529	100.0	.002424	100.00
New Homes							
1,000,000 or more	20,233	24.9	28,563	66	25.3	.002311	101.27
500,000 to 999,999	3,723	4.6	5,382	10	3.8	.001858	81.42
250,000 to 499,999	10,472	12.9	15,185	24	9.2	.001581	69.28
100,000 to 249,999	11,454	14.1	16,764	46	17.6	.002744	120.25
100,000 or more	45,882	56.5	65,894	146	55.9	.002216	97.11
50,000 to 99,999	4,628	5.7	6,520	11	4.2	.001687	73.93
25,000 to 49,999	2,661	3.3	3,690	10	3.8	.002710	118.76
10,000 to 24,999	7,499	9.2	10,486	15	5.8	.001430	62.66
5,000 to 9,999	4,860	6.0	6,984	19	7.3	.002721	119.24
2,500 to 4,999	2,889	3.6	4,050	11	4.2	.002716	119.02
Less than 2,500	12,766	15.7	16,749	49	18.8	.002926	128.22
Less than 100,000	35,303	43.5	48,479	115	44.1	.002372	103.94
Total	81,185	100.0	114,373	261	100.0	.002282	100.00
Existing Homes							
1,000,000 or more	11,817	17.4	17,724	38	14.2	.002144	83.07
500,000 to 999,999	5,596	8.3	9,126	13	4.8	.001425	55.21
250,000 to 499,999	13,576	20.0	21,464	63	23.5	.002935	113.72
100,000 to 249,999	9,663	14.3	14,814	45	16.8	.003038	117.71
100,000 or more	40,652	60.0	63,128	159	59.3	.002519	97.60
50,000 to 99,999	6,197	9.2	9,439	22	8.2	.002331	90.31
25,000 to 49,999	2,988	4.4	4,609	10	3.7	.002170	84.08
10,000 to 24,999	6,651	9.8	9,965	26	9.7	.002609	101.08
5,000 to 9,999	4,059	6.0	6,148	11	4.1	.001789	69.31
2,500 to 4,999	2,066	3.0	3,147	8	3.0	.002542	98.49
Less than 2,500	5,184	7.6	7,381	32	12.0	.004335	167.96
Less than 100,000	27,145	40.0	40,689	109	40.7	.002679	103.80
Total	67,797	100.0	103,817	268	100.0	.002581	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 30 Harmon foreclosures. The 41 Swantown mortgages were insured in 1936

(2) Ratios represent annual average foreclosure rates, 1937-1938.

13. Mortgages, by City-size Groups Outside Metropolitan Areas (1- to 4-family: 1937-1938)

From these data it is reasonable to expect a less favorable mortgage experience on properties located in smaller communities than in larger communities outside metropolitan areas because of the marketability factor. With the exception of the experience of the city-size group of 50,000 to 100,000 population, such an expected relationship is in evidence in the case of all homes apparently in spite of the size of the sample. The mortgages insured in cities outside metropolitan areas represent approximately 29 percent of all mortgages insured in 1937 and 1938. For city-size groups of less than 2,500 population to 50,000 population, the relative ratio declines continuously from a high of 119.64 to a low of 64.07. Below-average foreclosure experience is exhibited for properties located in cities having a population of 10,000 to 50,000 in which 36.3 percent of the insured homes outside metropolitan areas are located.

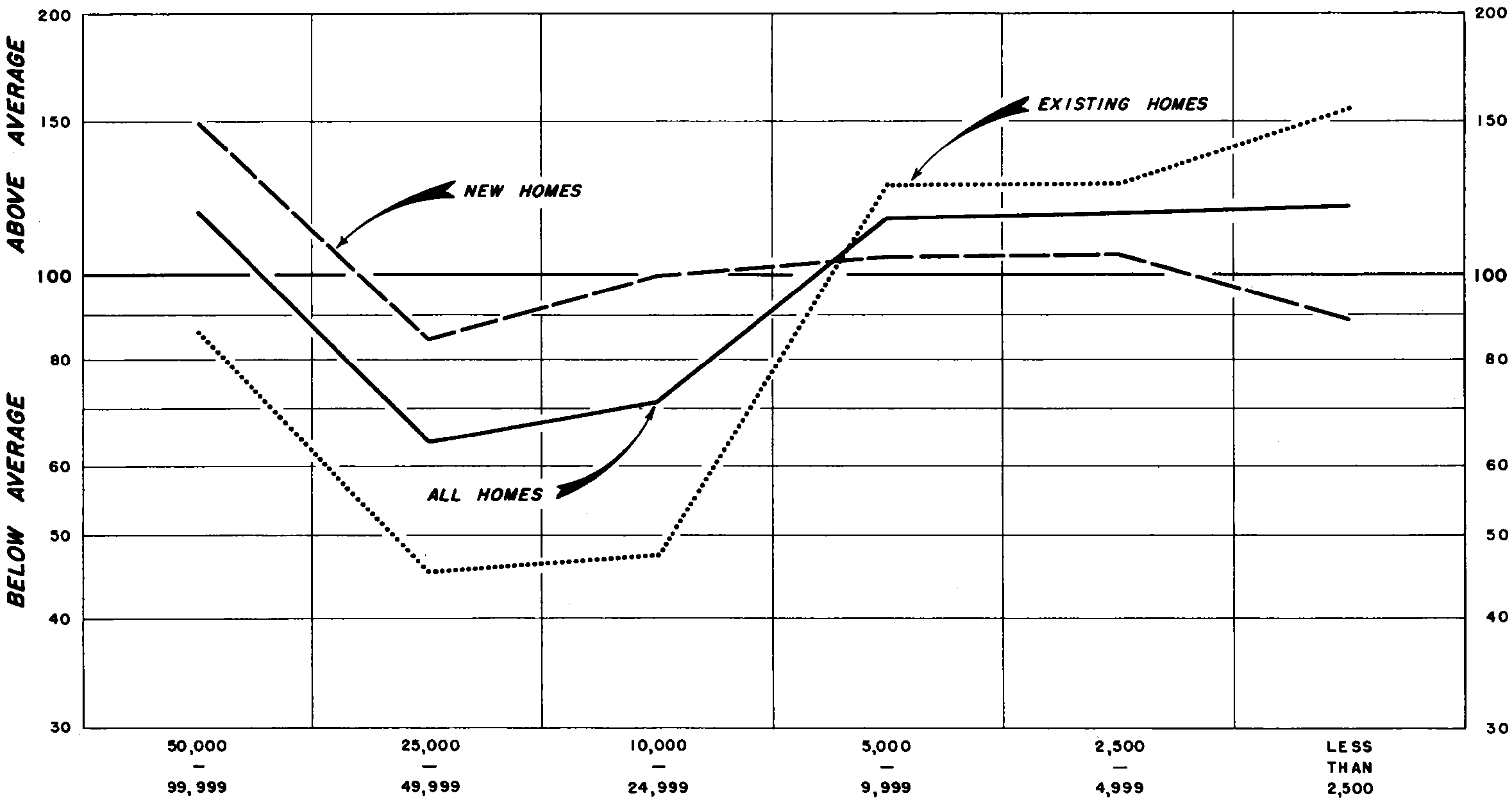
Interesting differences between new and existing homes are observable for properties located outside metropolitan areas. For city-size groups of 10,000 population and over, existing homes display a relatively more favorable experience than new homes. For city-size groups of less than 10,000, the reverse is true. In the case of new homes it is significant to point out that below-average foreclosure experience is found in cities

having a population of less than 2,500. Approximately 31 percent of all homes insured in 1937 and 1938 are located in cities of this size outside metropolitan areas. The inclusion of this group brings up the percent of new mortgages insured represented in the cities with below-average foreclosure experience to 65 percent. The comparable figure for existing homes is 48 percent.

In summary, as the size of cities with populations of less than 25,000 population declines, mortgage risk appears to increase. However, too much significance cannot be attributed to this apparent relationship because the sample of mortgages insured in cities located outside metropolitan areas during 1937 and 1938 alone is relatively small.

FIGURE 13

CITY - SIZE GROUPS OUTSIDE METROPOLITAN AREAS: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING 1 TO 4 FAMILY HOMES INSURED 1937 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.

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Table 13

CITY-SIZE GROUPS OUTSIDE METROPOLITAN AREAS: RATIOS OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES INSURED

1937-1938

City-Size Groups Outside Metropolitan Areas	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
50,000 to 99,999	6,406	10.3	9,639	23	11.9	.002386	117.77
25,000 to 49,999	10,604	17.0	16,174	21	10.9	.001298	64.07
10,000 to 24,999	12,059	19.3	18,050	26	13.5	.001440	71.08
5,000 to 9,999	8,073	12.9	11,962	28	14.5	.002341	115.55
2,500 to 4,999	6,864	11.0	10,123	24	12.4	.002371	117.03
Less than 2,500	18,367	29.5	29,293	71	36.8	.002424	119.64
Total	62,373	100.0	95,241	193	100.0	.002026	100.00
New Homes							
50,000 to 99,999	3,901	11.0	5,722	15	16.1	.002621	149.34
25,000 to 49,999	5,860	16.6	8,742	13	14.0	.001487	84.73
10,000 to 24,999	6,301	17.9	9,148	16	17.2	.001749	99.66
5,000 to 9,999	4,571	12.9	6,622	12	12.9	.001812	103.25
2,500 to 4,999	3,812	10.8	5,492	10	10.8	.001821	103.76
Less than 2,500	10,859	30.8	17,260	27	29.0	.001564	89.12
Total	35,304	100.0	52,986	93	100.0	.001755	100.00
Existing Homes							
50,000 to 99,999	2,505	9.3	3,917	8	8.0	.002042	86.27
25,000 to 49,999	4,744	17.5	7,432	8	8.0	.001076	45.46
10,000 to 24,999	5,758	21.3	8,902	10	10.0	.001123	47.44
5,000 to 9,999	3,502	12.9	5,340	16	16.0	.002996	126.57
2,500 to 4,999	3,052	11.3	4,631	14	14.0	.003023	127.71
Less than 2,500	7,508	27.7	12,033	44	44.0	.003657	154.50
Total	27,069	100.0	42,255	100	100.0	.002367	100.00

(1) Includes foreclosures through June 30, 1939. The Harmon and Swantown mortgages were on properties located inside metropolitan areas.

(2) Ratios represent annual average foreclosure rates, 1937-1938.

14. Type of Mortgages (1- to 4-family: 1935-1938)

An analysis of mortgage experience based on the type of institution originating mortgages is of especial interest since the Federal Housing Administration does not deal directly with the applicant for mortgage insurance. Under these conditions the process of the original selection of the mortgagor-applicant is a function of the lending institution. The type of approved mortgagee may not by itself be necessarily a measure of mortgage risk but will indicate the type of mortgage risk which is offered for insurance by the various types of institutions.

Below-average foreclosure experience for all homes is limited to national banks, state banks and trust companies, and savings banks. Combined, these institutions originated 67 percent of all insured mortgages on 1- to 4-family homes. Of these lending institutions, national banks exhibited the most favorable experience, originating 31.2 percent of all mortgages insured.

The worse-than-average foreclosure experience is found in the case of mortgage companies, building and loan associations, insurance companies, and the group designated as "all others" which includes investment companies, industrial banks, finance companies, and others. Of these, mortgage companies and building and loan associations originated the bulk of these mortgages with approximately 13 percent each. Building and loan associations exhibited the highest above-average foreclosure experience with mortgage companies a close second.

The mortgage experience with new homes is relatively more favorable than for existing homes only in the case of national banks.

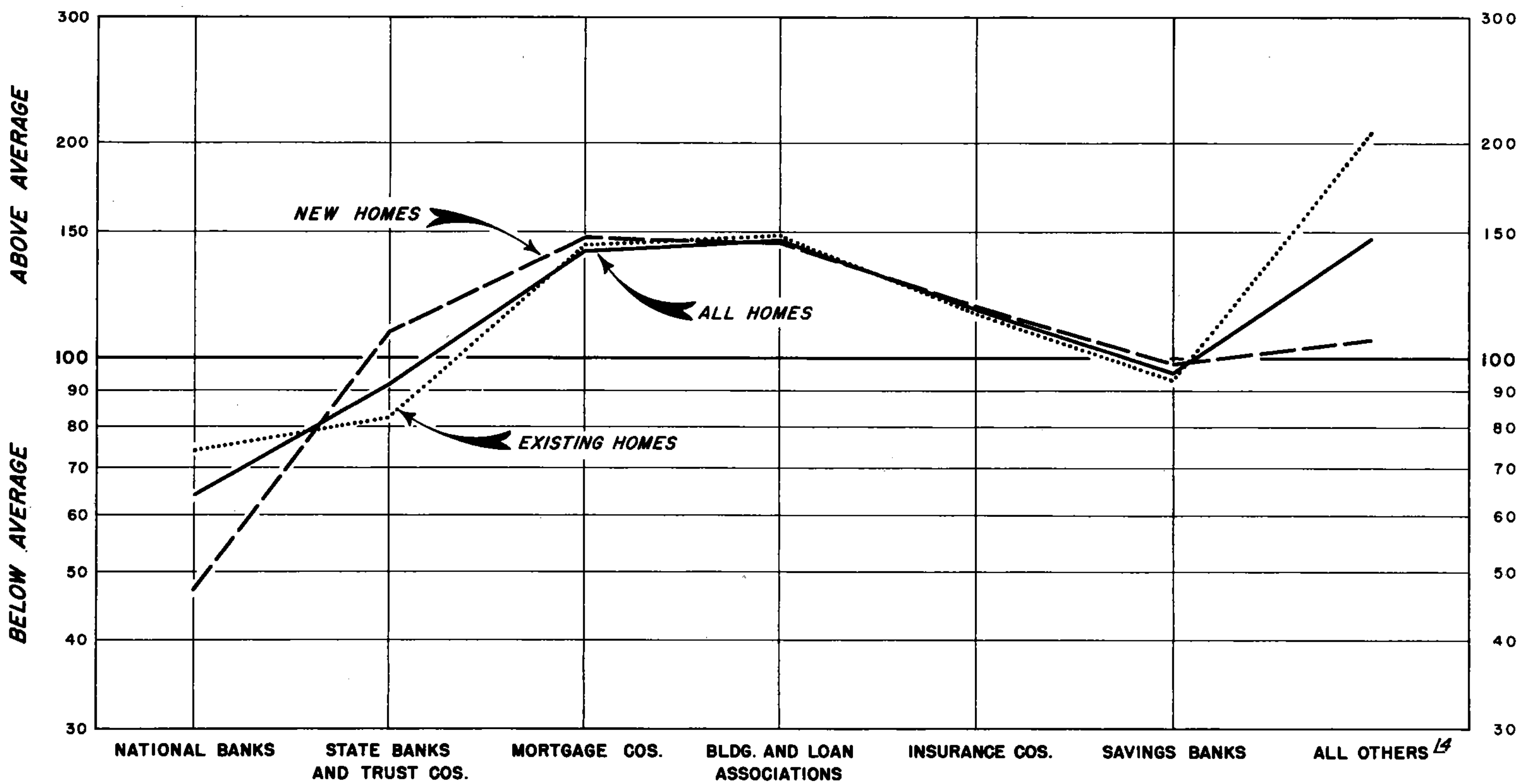
These lending institutions display the lowest below-average foreclosure experience in the case of new homes while mortgage companies exhibit the highest above-average experience. In the case of existing homes, the highest above-average foreclosure experience is exhibited by building and loan associations with mortgage and insurance companies showing a somewhat better but higher-than-average foreclosure experience.

In summary, commercial banks and savings banks originated mortgages which exhibit below-average experience. These institutions originated 67 percent of all mortgages insured on 1- to 4-family homes. Mortgages originated by mortgage companies, building and loan associations, and insurance companies exhibit the above-average foreclosure experience with building and loan associations displaying the highest above-average experience. Mortgage companies and building and loan associations each originated approximately 13 percent of all mortgages endorsed between 1935 and 1938.

As between the different types of approved mortgagees, there is no significant difference between new homes and existing homes except in the case of state banks and trust companies which exhibit above-average foreclosure experience with new homes and below-average experience in the case of existing homes. The highest above-average foreclosure experience for existing homes is found in the case of building and loan associations which originated approximately 14 percent of all mortgages insured on existing homes. The mortgages on new homes originated by them show an above-average foreclosure experience not significantly better than that for mortgage companies which originated approximately 16 percent of all mortgages insured on new homes.

FIGURE 14

TYPE OF MORTGAGEE: RELATIVE FORECLOSURE EXPERIENCE WITH MORTGAGES ON TOTAL, NEW, AND EXISTING 1 TO 4 FAMILY HOMES INSURED 1935 - 1938



1. RELATIVES BASED ON AVERAGE RATIO = 100.
2. FORECLOSURES THROUGH JUNE 30, 1939.
3. INSURED MORTGAGES ADJUSTED FOR ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK.
4. INCLUDES INVESTMENT COMPANIES, INDUSTRIAL BANKS, FINANCE COMPANIES, AND OTHERS.

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Table 14

TYPE OF MORTGAGEE: RATIO OF FORECLOSED MORTGAGES TO INSURED MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK, AND RELATIVES BASED ON AVERAGE RATIOS FOR TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES INSURED

1935-1938

Type of Mortgagee	Insured Mortgages Number	Insured Mortgages Percent	Insured Mortgages Adjusted for Estimated Average Period in Force	Foreclosures(1) Number	Foreclosures(1) Percent	Ratio of Foreclosed to Adjusted Insured(2)	Relatives: Average Ratio = 100
All Homes							
National banks	97,450	31.2	202,746.8	306	20.5	.001509	64.27
State banks & trust co's.	82,960	26.6	175,557.4	379	25.4	.002159	91.95
Total commercial banks	180,410	57.8	378,304.2	685	45.9	.001811	77.13
Mortgage companies	38,602	12.4	57,831.2	191	12.8	.003303	140.67
Building & loan assn's.	43,012	13.8	92,927.4	318	21.3	.003422	145.74
Insurance companies	28,648	9.2	61,998.2	169	11.3	.002726	116.10
Savings banks	8,671	2.8	19,635.8	44	3.0	.002241	95.44
All other(3)	12,640	4.0	24,743.8	85	5.7	.003435	146.29
Total	311,983	100.0	635,440.6	1,492	100.0	.002348	100.00
New Homes							
National banks	45,517	30.2	85,587.4	84	14.6	.000981	47.25
State banks & trust co's.	35,905	23.8	66,304.6	149	25.9	.002247	108.24
Total commercial banks	81,422	54.0	151,892.0	233	40.5	.001534	73.89
Mortgage companies	23,664	15.7	34,108.6	104	18.1	.003049	146.87
Building & loan assn's.	20,815	13.8	42,083.6	126	21.9	.002994	144.22
Insurance companies	13,085	8.7	25,916.8	63	11.0	.002431	117.10
Savings banks	3,925	2.6	8,313.0	17	2.9	.002045	98.51
All other(3)	7,835	5.2	14,657.4	32	5.6	.002184	105.11
Total	150,746	100.0	276,981.4	575	100.0	.002076	100.00
Existing Homes							
National banks	51,533	32.2	117,159.4	222	24.2	.001895	74.08
State banks & trust co's.	47,055	29.2	109,252.8	230	25.1	.002105	82.29
Total commercial banks	98,588	61.4	226,412.2	452	49.3	.001996	78.03
Mortgage companies	14,938	9.3	23,722.6	87	9.5	.003667	143.35
Building & loan assn's.	22,197	13.8	50,843.8	192	20.9	.003776	147.62
Insurance companies	15,563	9.6	36,081.4	106	11.6	.002938	114.86
Savings banks	4,746	2.9	11,322.8	27	2.9	.002385	93.24
All other(3)	4,805	3.0	10,076.4	53	5.8	.005260	205.63
Total	161,237	100.0	358,459.2	917	100.0	.002558	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 71 Harmon and Swantown foreclosures.
(2) Ratios represent annual average foreclosure rates, 1935-1938.
(3) Includes investment companies, industrial banks, finance companies, and others.

Borrower's Annual Income by Ratio of Annual Payment to Borrower's Annual Income: Ratio of Percent Foreclosed to Percent Insured

In all preceding sections of this report only one characteristic of mortgages which all insured and foreclosed loans had in common was examined. Variations in mortgage risk were measured in terms of the one characteristic of mortgages and limits of favorable mortgage experience were approximated in terms of the single mortgage characteristic. For example, it was found that the limits of favorable mortgage experience in terms of borrower's gross annual income are between $1,000 and $3,000, and $3,500 and $4,000; or in terms of the percent of annual income spent for debt service, the range of favorable mortgage experience is from less than 5 percent to 15 percent.

The data on annual income and the ratio of debt service to income, by themselves, give no indication of the limits of favorable mortgage experience in terms of both income and the ratio of annual payment to income. A cross tabulation of annual income by ratio of annual payment to income of insured and foreclosed mortgages would provide more valuable information in measuring mortgage risk since the limits of favorable mortgage experience may be approximated not only in terms of annual income but also in terms of the percent of income spent for debt service. Such a cross tabulation was prepared and provides the basis for the following two charts and table. A cross tabulation of income by ratio of annual payment to income was available for only 50,161

mortgages on single-family homes insured in 1938. In the case of foreclosures, a cross tabulation of 1,469 cases on mortgages insured on 1- to 4-family homes from 1935 through 1938 was compiled. The limitations of the data in these two samples of insured and foreclosed mortgages are patent. However, for purposes of analysis, in each case it was assumed that the samples were sufficiently representative. Because the data on insured mortgages represent a sample of only one year's operation, namely, that of 1938, no adjustment for exposure to risk could be applied to the insured mortgage data as was the case with the 14 mortgage characteristics previously analysed.

Percent distributions of the insured mortgages and the foreclosed mortgages were computed to determine the percent insured and the percent foreclosed, respectively, for each cell of income by ratio of annual payment to income. The data were then cumulated into four frequency intervals for the ratio of annual payment to income: (1) less than 10 percent; (2) less than 15 percent; (3) less than 20 percent; and (4) 20 percent and more. The ratios of percent foreclosed to percent insured were then computed on the basis of all insured mortgages and all foreclosures in the sample as 100 percent, respectively. These data appear in the accompanying table. If the percent of mortgages insured in any one cell is equal to the percent of foreclosed mortgages in that cell, the value of the ratio is equal to 1, or stated in terms of percents, it is equal to 100 percent. If the percent insured in any one

cell is greater than the percent foreclosed in that cell, the value of the ratio is less than 1 or less than 100 percent. If percent insured is smaller, the value of the ratio is greater than 1 or greater than 100 percent. Values of less than 100 percent for this ratio are interpreted as favorable mortgage experience for the given cell. Values of greater than 100 percent for this ratio are interpreted as unfavorable mortgage experience for the given cell. The experience is favorable or unfavorable in relation to the average experience for all mortgages insured and foreclosed used in the sample. This method differs only slightly from the fundamental method employed in the Report. There the absolute figures for insured mortgages and foreclosures instead of percents were used to compute the ratios. Relatives were then computed on the basis of the average ratio as 100 percent. The values of the relatives above and below the average were interpreted as unfavorable and favorable mortgage experience, respectively.

These ratios of percent foreclosed to percent insured for each of the four frequency groups mentioned above were plotted on a logarithmic scale and appear in the first accompanying chart. This reveals that on the average foreclosure experience was unfavorable for home owners who spent 20 percent or more of their annual income for debt service regardless of their incomes. For those who spent less than 20 percent for debt service the range of favorable mortgage experience is limited to home owners whose annual income is up to $3,600. Beyond this point the curve of

the ratio of percent foreclosed to percent insured is above the 100 percent line along which percent foreclosed and percent insured are equal. For home owners who spent less than 15 percent and less than 10 percent for interest and mortgage principal, the upper income limits of favorable risk are difficult to determine because the curves of their respective ratios of percent foreclosed to percent insured cross the 100 percent line twice.

To these two curves, as well as the third for which there was some favorable mortgage experience, trend lines were fitted by inspection in order to approximate more closely upper income limits of favorable risk.

For home owners who spent less than 20 percent the fitted trend line crossed the 100 percent line at $3,600; for those who spent less than 15 percent, the point is at $4,600; and for those who spent less than 10 percent, the point is at $9,200. These three income-ratio values, all upper limits of favorable mortgage experience for home owners who spent less than 20 percent, less than 15 percent, and less than 10 percent for debt service, were used to determine the generalized curve plotted on Figure 15-B. Along this curve the average percent foreclosed equals average percent insured. The area below the curve delineates the zone of favorable mortgage experience and the area above, unfavorable.

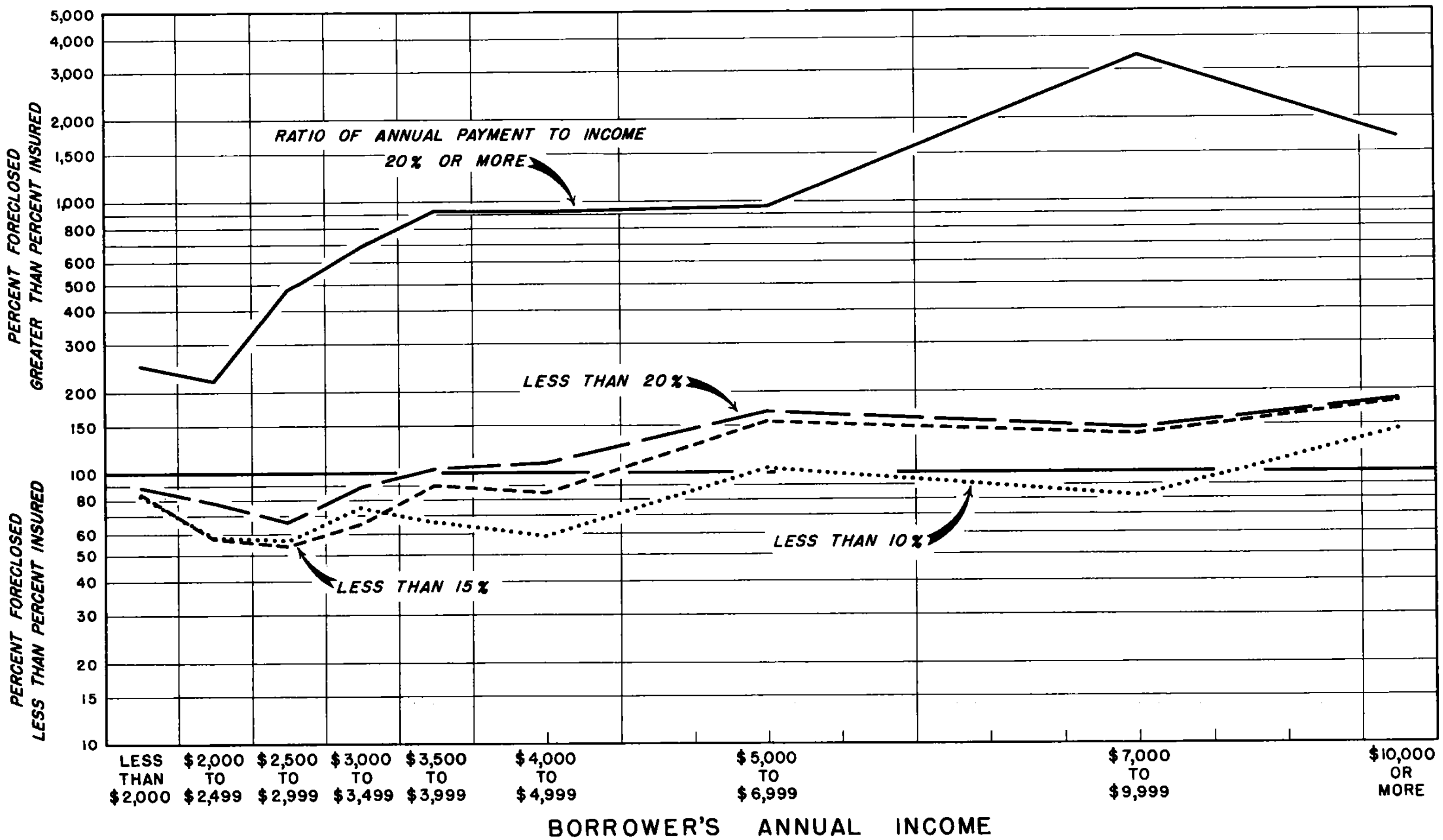
The failure of the generalized curve to approach "y" axis gradually, that is the curve is plotted as discontinuous

with the curve becoming horizontal in shape at the ratio of annual payment to income of 20 percent, is explained by the grouping of the data on incomes and ratios of annual payment to income. If the class intervals in the cross tabulation were smaller, it is expected that there would be values for incomes of less than $3,600 and ratios of annual payment to income greater than 20 percent which would make the curve continuous.

It is apparent from the shape of the curve that to assure favorable mortgage risk as the borrowers' annual incomes increase above $3,600 the ratio of their annual payment to income should decline to 10 percent for those borrowers whose incomes are in excess of approximately $9,000. In other words, the higher the annual income the lower the ratio of annual payment to income and the lower the income the higher the permissible ratio of annual payment to income. Since there was no favorable mortgage experience for home owners of any income who spent more than 20 percent for debt service, the upper limit of favorable average experience appears to be a ratio of annual payment to income of 20 percent.

FIGURE 15-A

BORROWER'S ANNUAL INCOME BY RATIO OF ANNUAL PAYMENT TO BORROWER'S ANNUAL INCOME: RATIO OF PERCENT OF MORTGAGES FORECLOSED[1] TO PERCENT INSURED[2] IN EACH GROUP



1. PERCENT FORECLOSED IS BASED ON PERCENT DISTRIBUTION OF 1,469 FORECLOSURES ON MORTGAGES INSURED ON 1 TO 4 FAMILY HOMES, 1935 THROUGH 1938.
2. PERCENT INSURED IS BASED ON PERCENT DISTRIBUTION OF 50,161 MORTGAGES INSURED ON SINGLE-FAMILY HOMES IN 1938.

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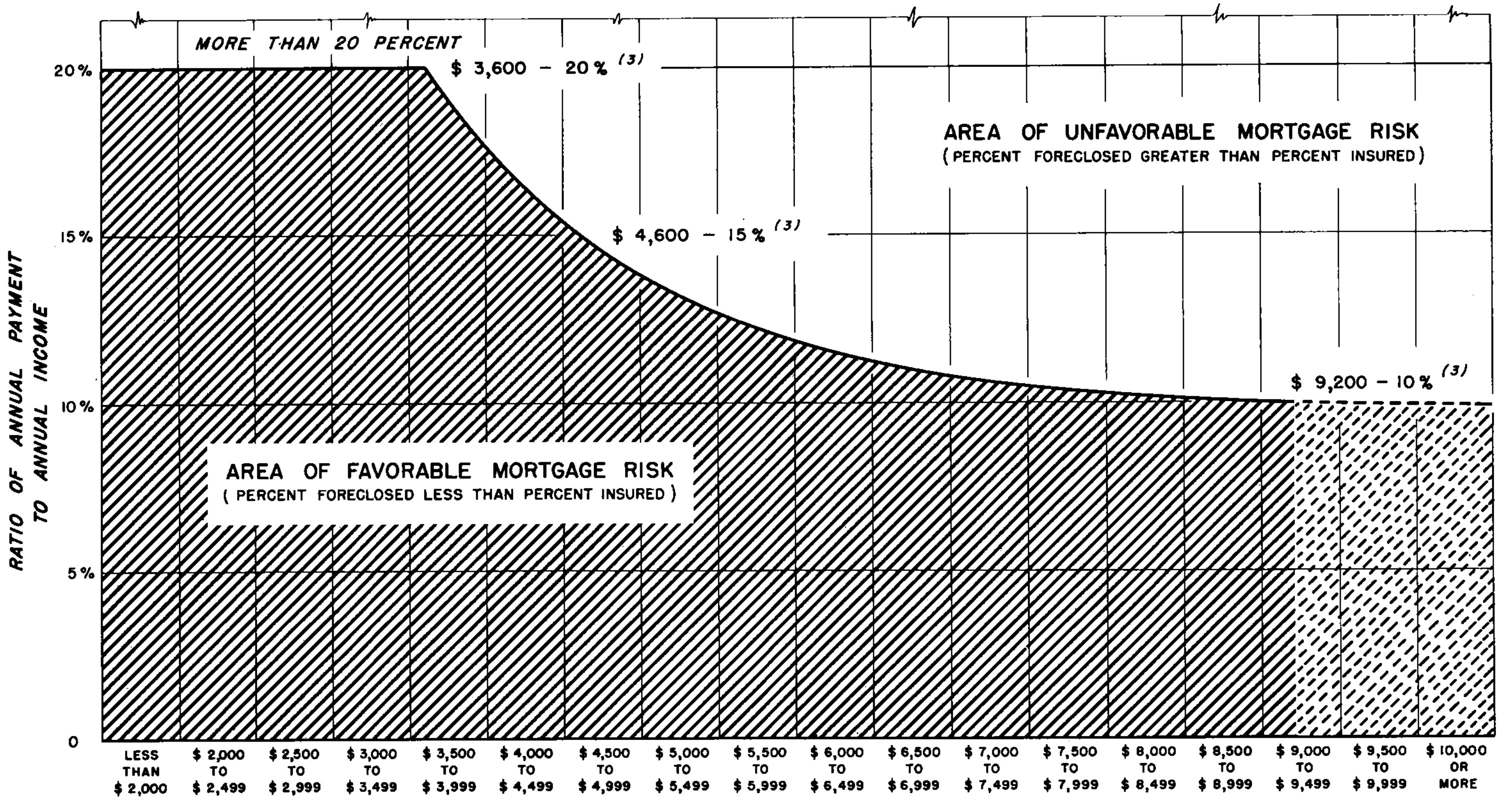
FIGURE 15-B

BORROWER'S ANNUAL INCOME BY RATIO OF ANNUAL PAYMENT TO BORROWER'S ANNUAL INCOME: MORTGAGE RISK AS MEASURED BY COMPARISON OF PERCENT OF MORTGAGES FORECLOSED[1] WITH PERCENT INSURED[2] IN EACH GROUP



1. PERCENT FORECLOSED IS BASED ON PERCENT DISTRIBUTION OF 1,469 FORECLOSURES ON MORTGAGES INSURED ON 1 TO 4 FAMILY HOMES, 1935 THROUGH 1938.

2. PERCENT INSURED IS BASED ON PERCENT DISTRIBUTION OF 50,161 MORTGAGES INSURED ON SINGLE-FAMILY HOMES IN 1938.

3. THESE POINTS ARE USED TO DETERMINE THE CURVE ALONG WHICH PERCENT FORECLOSED EQUALS PERCENT INSURED.

FEDERAL HOUSING ADMINISTRATION
DIVISION OF ECONOMICS AND STATISTICS

31062 4/5/40

Table 15

[illegible] ANNUAL INCOME BY RATIO OF ANNUAL PAYMENT TO BORROWER'S ANNUAL INCOME:

RATIO OF PERCENT OF MORTGAGES FORECLOSED(1) TO PERCENT INSURED(2)

Borrower's Annual Income	Ratio of Annual Payment to Annual Income: Less than 10% — Percent Foreclosed	Less than 10% — Percent Insured	Less than 10% — Ratio of Percent Foreclosed to Percent Insured	Less than 15% — Percent Foreclosed	Less than 15% — Percent Insured	Less than 15% — Ratio of Percent Foreclosed to Percent Insured	Less than 20% — Percent Foreclosed	Less than 20% — Percent Insured	Less than 20% — Ratio of Percent Foreclosed to Percent Insured	20% or More — Percent Foreclosed	20% or More — Percent Insured	20% or More — Ratio of Percent Foreclosed to Percent Insured	Total — Percent Foreclosed	Total — Percent Insured
Less than $2,000	1.429	1.742	82.0	9.530	11.278	84.5	17.699	19.870	89.1	4.152	1.659	250.3	21.851	21.529
$2,000 to $2,499	2.042	3.505	58.3	9.666	16.683	57.9	19.060	24.609	77.5	1.907	.865	220.5	20.967	25.474
2,500 to 2,999	1.702	3.006	56.6	6.331	11.698	54.1	9.667	14.661	65.9	1.235	.255	484.3	10.892	14.916
3,000 to 3,499	2.655	3.565	74.5	7.148	10.937	65.4	11.709	13.190	88.8	1.089	.159	634.9	12.798	13.349
3,500 to 3,999	1.906	2.895	65.8	6.194	6.868	90.2	8.032	7.741	103.8	.613	.066	928.8	8.645	7.809
4,000 to 4,999	2.042	3.491	58.5	5.715	6.756	84.6	8.032	7.398	108.7	.681	.074	920.3	8.713	7.472
5,000 to 6,999	3.609	3.445	104.8	8.238	5.380	153.1	9.599	5.713	168.0	.476	.050	952.0	10.075	5.763
7,000 to 9,999	1.293	1.587	81.5	2.987	2.131	137.3	3.200	2.231	143.4	.068	.002	3400.0	3.268	2.233
10,000 or more	1.838	1.301	141.3	2.987	1.455	[illegible]	2.655	1.447	[illegible]	.136	.008	1700.0	2.791	1.455
All Groups	18.516	24.537		58.339	73.166		89.653	96.863		10.347	3.140		100.000	100.000

(1) Percent foreclosed is based on percent distribution of 1,469 foreclosures on mortgages insured on 1- to 4-family homes, 1935 through 1938.

(2) Percent insured is based on percent distribution of 50,161 mortgages insured on single-family homes in 1938.

<u>A Comparison of the Percent Distributions of Occupations of Borrowers on Insured Properties with the Occupations of Borrowers Whose Properties Have Been Foreclosed</u>

The most important complement to information on incomes of borrowers on insured properties is the source of this income or the occupation of the borrower, since the occupations themselves, if properly described and classified, often reveal such instability of incomes which may be associated with these occupations. It is obvious that fluctuations in income are the single most important factor in foreclosure. At the present time the only available information on the occupations of the borrowers on insured mortgages is a sample study of 6,459 mortgages insured prior to April 1936 in New Jersey, Kansas, Michigan, and the Southern California insuring offices.

Aside from the questionable nature of the classifications themselves, the limitations of such a small sample of insured mortgages are patent. At the present time a sample study of some 7,000 insured cases is underway in which a new standard occupation classification is being experimented with to determine its feasibility. Should it prove satisfactory, it is hoped that this new occupation classification will be the basis upon which the occupations of all insured borrowers will be tabulated and available for analysis.

In spite of these limitations, a comparison of the distributions of the occupations of the borrowers on insured properties with those of borrowers whose properties have been foreclosed was

made using the same classification employed in the "Analysis of Insured Mortgages in Four States" referred to above.

Through June 30, 1939 there were 1,563 foreclosures, 1,469 of which were formerly owned by non-corporate borrowers. These borrowers were grouped according to the eleven classifications used in the "Four State Analysis." Percent distributions were then computed for the occupations of the owners of the 6,459 insured properties and of the 1,469 properties which were subsequently foreclosed. A comparison of these percent distributions by occupation groups is presented in the accompanying table, Table 16.

It is reasonable to assume that the distributions of the occupations of the insured mortgagors and of the occupations of the owners of properties which were subsequently foreclosed should be approximately the same if the distribution of mortgage risks were constant for all occupation groups; i.e., the larger the proportion of insured mortgages in any one occupation group, the larger the proportion of foreclosures can be expected from that group. In other words, for any one occupation there should not be a larger proportion of foreclosures than there are insured mortgages in the group. If the percent foreclosed in any one occupation group is greater than the percent insured, this disparity in percents is interpreted as indicating relatively unfavorable mortgage experience. If the opposite is the case the disparity in percents is interpreted as relatively favorable mortgage experience.

The single most important occupational group in the sample of insured mortgages are officials, owners, managers, and proprietors of corporations and business establishments. These mortgagors represented 24.3 percent of the mortgagors whose occupations were classified. In this same group the occupations of the mortgagors whose properties were subsequently foreclosed accounted for 30.2 percent of all the owners of properties foreclosed. It appears that the mortgage experience with this group is on the average relatively unfavorable.

The next most important group in terms of percent insured, namely, the operatives in industry, represented 15 percent of all insured mortgagors. The percent foreclosed in this group amounted to 17.1. This disparity likewise indicates relatively unfavorable foreclosure risk.

The third most important group is that of the professional employees which represented 12.9 percent of all insured mortgagors. The foreclosure experience is on the average relatively favorable since only 8.8 percent of all mortgagors in this group had their properties foreclosed. While the incomes from the occupations included in this group are high, they fluctuate less violently than do, for example, the incomes of the salesmen group. This may explain the relatively favorable mortgage experience for the professional group.

In the group of occupations designated as semi-professional the insured mortgagors represent 11.9 percent and the

foreclosed mortgagors only 4.6 percent. The explanation for this favorable disparity can probably be found in the component occupations of this group. This occupation group consists principally of federal, state, and local employees who account for 6.4 percent of the total number of mortgagors, and teachers who account for 4 percent. Since the incomes from these occupations are relatively more stable than in most occupations, it is expected that the foreclosure rate for mortgagors with these occupations should be relatively low.

The disparity in percent distributions as between foreclosed and insured mortgagors for the salesmen, representatives, and agents group is significant and interesting. It is frequently contended that the high incomes from the occupations represented in this group are relatively less stable than from most occupations. It is interesting to obsérve that while these occupations represent 11.8 percent of all insured mortgagors, the percent foreclosed in this occupation group is 16.7, indicating an apparently unfavorable mortgage experience for the group.

Relatively favorable mortgage experience is exhibited by the less numerous occupation groups of clerical workers, technicians, and service workers, while in the labor group which includes heavy labor, light labor, and unclassified labor, the experience is relatively unfavorable. However, the latter represents such a small sample that little or no importance can be attributed to the experience with mortgagors in this occupation group.

Table 16

BORROWER'S OCCUPATION: PERCENT DISTRIBUTIONS OF SAMPLE OF INSURED MORTGAGES AND ALL FORECLOSED MORTGAGES ON 1- TO 4-FAMILY HOMES

Occupation	Insured[1] Percent Distribution of Sample	Foreclosed[2] Percent Distribution
Officials, owners, managers, and proprietors of corporations and business establishments	24.3	30.2
Professional group	12.9	8.8
Semi-professional group	11.9	4.6
Technician group	4.5	3.7
Salesmen, representatives, and agents group	11.8	16.7
Crafts group	6.6	10.0
Operatives in industry group	15.0	17.1
Clerical workers group	7.8	5.1
Service workers group	3.1	.9
Labor group	.5	1.1
Miscellaneous group	1.6	1.8
Total	100.0	100.0

(1) Includes 6,459 mortgages insured prior to April 1936 in New Jersey, Kansas, Michigan, and Southern California insuring offices.

(2) Includes all foreclosures (1,469) through June 30, 1939 on properties held by non-corporate borrowers.

A P P E N D I X

FEDERAL HOUSING ADMINISTRATION

MEMORANDUM

Date March 13, 1940

To: Mr. Lawrence N. Bloomberg

From: Mortimer Kaplan

Subject: Example of the application of the proposed technique for analysis of mortgage risk by mortgage characteristics as illustrated by the data on property valuation.

Since at any given time in any portfolio of mortgages made at different periods the mortgages made in the earlier periods will have a greater foreclosure rate than those made in the later periods, the technique of analysis proposed for the study of mortgage risk by mortgage characteristics endeavors to adjust for this variation in foreclosure rates over the 4-year period, 1935 to 1938, to which the analysis is limited. For example, of all the loans insured under Title II between 1935 and the end of 1938, 35 percent were insured in the years 1935-1936; 32 percent were insured in 1937; and 33 percent in 1938. Of all foreclosures which FHA experienced from the inception of Title II operations through June 30, 1939, 50 percent were on mortgages insured in 1935-1936; 38 percent were on mortgages insured in the year 1937; and 10 percent were on mortgages insured in 1938.

It is evident that those mortgages endorsed in the years 1935-1936 have had a greater chance of being foreclosed than those endorsed in the years 1937-1938, since they were in force on June 30, 1939 an estimated average period of 38.4 months while those insured the following 2 years had been in existence at this time an estimated average period of 24 months and 12 months, respectively. A mortgage made in 1935 may have been foreclosed in 1935, 1936, 1937, 1938, or up to the middle of 1939. One made in 1936 may have been foreclosed in 1936, 1937, 1938, or up to the middle of 1939, and so on. In other words, the mortgages endorsed in 1935 and 1936 have been exposed to risk of foreclosure on the average for 3.2 times as long a period as those endorsed in 1938. The mortgages insured in 1937 have been exposed on the average for 2 times as long a period as those endorsed in 1938.

In order to make the exposure to risk of foreclosure comparable for mortgages insured in the different years during this period, the factors of 3.2 years, 2 years, and 1 year have been

used to adjust the insured mortgages made in the years 1935, 1936, 1937, and 1938, respectively, for this variation in exposure to risk. The rationale of the methodology rests on the assumption that foreclosure is a function of the time in force for any given group of mortgages and that the exposure to risk is the same in all classifications of characteristics for mortgages endorsed in the same year.

The standards proposed to measure mortgage risk are average annual rates for this 4-year period, calculated by dividing the total foreclosures during the period by the total number of insured mortgages adjusted for years in force. Such average annual rates are computed for total, for new, and for existing homes. Rates are also calculated for each class interval of the mortgage characteristic. With the average annual rates for total, new, and existing homes each equal to 100, relatives are computed for all intervals of a mortgage characteristic. These relatives express fluctuations above and below the average for the group and in effect represent the degrees of risk of foreclosure.

The method employed may be illustrated by an example from the data on the valuation of single-family homes presented in the accompanying table. In 1935-1936, 93,886 mortgages were insured (column 1); in 1937, 96,054 mortgages (column 4); and in 1938, 104,799 (column 7). To adjust these insured mortgages by the estimated average number of years in force, the total number insured in 1935-1936 is multiplied by the factor 3.2 years (column 2) to give 300,435.2 mortgage years of exposure (column 3). The 1937 mortgages multiplied by the factor 2 years (column 5) gives 192,108 mortgage years (column 6), and the 1938 mortgages multiplied by the factor 1 year gives 104,799 mortgage years (column 7). The total number of mortgage years of exposure for all mortgages insured during the period is 597,342.2 (column 8). Up to June 30, 1939 there were 1,419 foreclosures (column 9). Dividing 1,419 by 597,342.2 mortgage years, the over-all average annual rate of foreclosure, .002376 per year for the 4-year period, is derived (column 10). In the valuation group of $4,000 to $4,999, there were 17,681, 20,075, and 23,999 mortgages insured in 1935-1936, 1937, and 1938, respectively. Multiplying these figures by the corresponding factors of 3.2 years, 2 years, 1 year, the total adjusted mortgages is 120,632.2 years. Foreclosures in this valuation group amounted to 243. Thus, the average annual rate of foreclosure for this valuation group is .002014. Since the average annual rate for total homes in all valuation groups is .002376, the relative of 84.76 for the $4,000-$4,999 value group, computed by dividing the rate for the group by the total rate, indicates that the FHA foreclosure experience on $4,000 to $5,000 homes has been but 85 percent of that on all homes.

Thus, when the relative ratios for separate class intervals are below 100, i.e., below the average for the whole group, they are to be interpreted as indicating favorable mortgage experience, and when relative ratios are above 100 they are to be interpreted as unfavorable mortgage experience.

M. K.

PROPERTY VALUATION: RATIO OF FORECLOSURES TO MORTGAGES INSURED, MORTGAGES ADJUSTED FOR THE ESTIMATED AVERAGE PERIOD OF EXPOSURE TO RISK AND RELATIVES BASED ON AVERAGE RATIO FOR TOTAL, NEW, AND EXISTING SINGLE-FAMILY HOMES INSURED

1935-1938

Property Valuation	1935-36 Actual Mortgages Insured (1)	Estimated Av. No. of Years In Force (2)	1935-36 Adjusted Mortgages (Mortgage-Yrs.) (3)	1937 Actual Mortgages Insured (4)	Estimated Av. No. of Years in Force (5)	1937 Adjusted Mortgages (Mortgage-Yrs.) (6)	1938 Actual Mortgages Insured (7)	Total Adjusted Mortgages (Mortgage-Yrs.) (8)	Total[1] Fore-closures 1935-38 (9)	Ratios[2] of Fore-closed to Adjusted Insured (10)	Relatives Average Ratio = 100 (11)
All Homes											
Less than $2,000	2,629	3.2	8,412.8	1,152	2	2,304	733	11,449.8	31	.002707	113.93
$2,000 to $2,999	10,609	"	33,948.8	8,164	"	16,328	6,602	56,878.8	128	.002250	94.70
3,000 to 3,999	17,932	"	57,382.4	17,482	"	34,964	18,340	110,686.4	222	.002006	84.43
4,000 to 4,999	17,651	"	56,483.2	20,075	"	40,150	23,999	120,632.2	243	.002014	84.76
5,000 to 5,999	14,365	"	45,968.0	17,290	"	34,580	21,484	102,032.0	209	.002048	86.20
6,000 to 6,999	9,952	"	31,846.4	11,719	"	23,438	16,139	71,423.4	156	.002184	91.92
7,000 to 7,999	6,666	"	21,331.2	7,300	"	14,600	7,336	43,267.2	113	.002612	109.93
8,000 to 9,999	6,947	"	22,230.4	6,820	"	13,640	5,869	41,739.4	144	.003450	145.20
10,000 to 11,999	3,098	"	9,913.6	2,786	"	5,572	2,096	17,581.6	67	.003811	160.40
12,000 to 14,999	2,065	"	6,608.0	1,825	"	3,650	1,258	11,516.0	61	.005210	219.28
15,000 or more	1,972	"	6,310.4	1,441	"	2,882	943	10,135.4	45	.004440	186.87
Total	93,886		300,435.2	96,054		192,108	104,799	597,342.2	1,419	.002376	100.00
New Homes											
Less than $2,000	196	3.2	627.2	146	2	292	64	983.2	5	.005085	214.12
$2,000 to $2,999	2,059	"	6,588.8	2,337	"	4,674	2,370	13,632.8	31	.002274	109.17
3,000 to 3,999	4,706	"	15,059.2	6,864	"	13,728	9,735	38,522.2	78	.002025	97.21
4,000 to 4,999	5,719	"	18,300.8	9,931	"	19,862	15,050	53,212.8	95	.001785	85.69
5,000 to 5,999	5,850	"	18,720.0	9,590	"	19,180	14,602	52,502.0	83	.001581	75.90
6,000 to 6,999	4,183	"	13,385.6	6,913	"	13,826	11,464	38,675.6	61	.001577	75.71
7,000 to 7,999	2,974	"	9,516.8	4,771	"	9,542	4,803	23,861.8	52	.002179	104.61
8,000 to 9,999	3,464	"	11,084.8	4,333	"	8,666	3,651	23,401.8	69	.002948	141.53
10,000 to 11,999	1,536	"	4,915.2	1,753	"	3,506	1,153	9,574.2	35	.003656	175.52
12,000 to 14,995	1,046	"	3,347.2	1,120	"	2,240	640	6,227.2	29	.004657	223.57
15,000 or more	948	"	3,033.6	924	"	1,848	512	5,393.6	16	.002966	142.39
Total	32,681		104,579.2	48,682		97,364	64,044	265,987.2	554	.002083	100.00
Existing Homes											
Less than $2,000	2,433	3.2	7,785.6	1,137	2	2,274	669	10,728.6	26	.002423	92.84
$2,000 to $2,999	8,550	"	27,360.0	6,490	"	12,980	4,232	44,572.0	97	.002176	83.37
3,000 to 3,999	13,226	"	42,323.2	11,322	"	22,644	8,605	73,572.2	144	.001957	74.98
4,000 to 4,999	11,932	"	38,182.4	10,280	"	20,560	8,949	67,691.4	148	.002186	83.75
5,000 to 5,999	8,515	"	27,248.0	7,295	"	14,590	6,882	48,720.0	126	.002586	99.08
6,000 to 6,999	5,769	"	18,460.0	4,263	"	8,526	4,675	31,661.8	95	.003000	114.94
7,000 to 7,999	3,692	"	11,814.4	2,463	"	4,926	2,533	19,273.4	61	.003165	121.26
8,000 to 9,999	3,483	"	11,145.6	2,132	"	4,264	2,218	17,627.6	75	.004255	163.03
10,000 to 11,999	1,562	"	4,998.4	900	"	1,800	943	7,741.4	32	.004134	158.39
12,000 to 14,999	1,019	"	3,260.8	616	"	1,232	618	55110.8	32	.006261	239.89
15,000 or more	1,024	"	3,276.8	474	"	948	431	4,655.8	29	.006229	238.66
Total	61,205		195,856.0	47,372		94,744	40,755	331,355.0	865	.002610	100.00

(1) Includes foreclosures through June 30, 1939. Excludes the 71 Harmon and Westown foreclosures.
(2) Ratios represent annual average foreclosure rates.

Table 1a

TYPE OF DWELLING: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES BY YEAR ENDORSED 1935-1938

Type of Dwelling	1935-1936	1937	1938	Total
All Homes				
1-Family	93,886	96,054	104,799	294,739
2-Family	5,433	4,798	3,606	13,837
3-Family	604	510	437	1,551
4-Family	705	714	437	1,856
Total	100,628	102,076	109,279	311,983
New Homes				
1-Family	32,681	48,662	64,044	145,407
2-Family	1,096	1,577	1,181	3,854
3-Family	137	153	131	421
4-Family	343	458	263	1,064
Total	34,257	50,870	65,619	150,746
Existing Homes				
1-Family	61,205	47,372	40,755	149,332
2-Family	4,337	3,221	2,425	9,983
3-Family	467	357	306	1,130
4-Family	362	256	174	792
Total	66,371	51,206	43,660	161,237

Table 2a

RATING OF MORTGAGE PATTERN: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW AND EXISTING 1- TO 4-FAMILY HOMES BY YEAR ENDORSED 1937-1938

Rating of Mortgage Pattern	1935-1936[1]	1937	1938	Total
All Homes				
50 to 54		17,264	24,806	42,070
55 to 59		17,663	25,223	42,886
60 to 64		22,504	25,683	48,187
65 to 69		19,694	17,092	36,786
70 to 74		13,316	9,615	22,931
75 to 79		7,601	4,326	11,927
80 to 84		2,706	1,660	4,366
85 to 89		919	611	1,530
90 to 94		307	153	460
95 to 100		102	110	212
Total		102,076	109,279	211,355
New Homes				
50 to 54		6,664	14,633	21,297
55 to 59		8,088	15,880	23,968
60 to 64		11,751	16,733	28,484
65 to 69		10,784	10,368	21,152
70 to 74		7,274	4,987	12,261
75 to 79		4,324	1,968	6,292
80 to 84		1,323	656	1,979
85 to 89		458	262	720
90 to 94		153	66	219
95 to 100		51	66	117
Total		50,870	65,619	116,489
Existing Homes				
50 to 54		10,600	10,173	20,773
55 to 59		9,575	9,343	18,918
60 to 64		10,753	8,950	19,703
65 to 69		8,910	6,724	15,634
70 to 74		6,042	4,628	10,670
75 to 79		3,277	2,358	5,635
80 to 84		1,383	1,004	2,387
85 to 89		461	349	810
90 to 94		154	87	241
95 to 100		51	44	95
Total		51,206	43,660	94,866

(1) Data are not available.

Table 3a

PROPERTY VALUATION: NUMBER OF MORTGAGES INSURED
ON TOTAL, NEW, AND EXISTING SINGLE-FAMILY HOMES BY YEAR ENDORSED
1935-1938

Property Valuation	1935-1936	1937	1938	Total
All Homes				
Less than $2,000	2,629	1,152	733	4,514
$2,000 to $2,999	10,609	8,164	6,602	25,375
3,000 to 3,999	17,932	17,482	18,340	53,754
4,000 to 4,999	17,651	20,075	23,999	61,725
5,000 to 5,999	14,365	17,290	21,484	53,139
6,000 to 6,999	9,952	11,719	16,139	37,810
7,000 to 7,999	6,666	7,300	7,336	21,302
8,000 to 9,999	6,947	6,820	5,869	19,636
10,000 to 11,999	3,098	2,786	2,096	7,980
12,000 to 14,999	2,065	1,825	1,258	5,148
15,000 or more	1,972	1,441	943	4,356
Total	93,886	96,054	104,799	294,739
New Homes				
Less than $2,000	196	116	64	406
$2,000 to $2,999	2,059	2,337	2,370	6,766
3,000 to 3,999	4,706	6,864	9,735	21,305
4,000 to 4,999	5,719	9,931	15,050	30,700
5,000 to 5,999	5,850	9,590	14,602	30,042
6,000 to 6,999	4,183	6,913	11,464	22,560
7,000 to 7,999	2,974	4,771	4,803	12,548
8,000 to 9,999	3,464	4,333	3,651	11,448
10,000 to 11,999	1,536	1,753	1,153	4,442
12,000 to 14,999	1,046	1,120	640	2,806
15,000 or more	948	924	512	2,384
Total	32,681	48,682	64,044	145,407
Existing Homes				
Less than $2,000	2,433	1,137	669	4,239
$2,000 to $2,999	8,550	6,490	4,232	19,272
3,000 to 3,999	13,226	11,322	8,605	33,153
4,000 to 4,999	11,932	10,280	8,949	31,161
5,000 to 5,999	8,515	7,295	6,882	22,692
6,000 to 6,999	5,769	4,263	4,675	14,707
7,000 to 7,999	3,692	2,463	2,533	8,688
8,000 to 9,999	3,485	2,132	2,216	7,833
10,000 to 11,999	1,562	900	943	3,405
12,000 to 14,999	1,019	616	618	2,253
15,000 or more	1,024	474	431	1,929
Total	61,205	47,372	40,755	149,332

Table 4a

AMOUNT OF MORTGAGE PRINCIPAL: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES BY YEAR ENDORSED 1935-1938

Mortgage Principal	1935-1936	1937	1938	Total
All Homes				
Less than $2,000	12,780	8,677	4,590	26,047
$2,000 to $2,999	23,648	22,457	17,266	63,371
3,000 to 3,999	22,541	24,600	27,320	74,461
4,000 to 4,999	16,402	19,394	26,008	61,804
5,000 to 5,999	9,660	10,922	18,687	39,269
6,000 to 6,999	6,138	6,737	7,322	20,197
7,000 to 7,999	3,220	3,164	3,278	9,662
8,000 to 8,999	2,113	2,246	1,967	6,326
9,000 to 9,999	1,208	1,021	765	2,994
10,000 to 11,999	1,409	1,429	1,093	3,931
12,000 to 16,000	1,509	1,429	983	3,921
Total	100,628	102,076	109,279	311,983
New Homes				
Less than $2,000	1,473	1,628	722	3,823
$2,000 to $2,999	5,481	8,139	6,956	20,576
3,000 to 3,999	7,845	12,463	16,339	36,647
4,000 to 4,999	6,988	11,242	17,914	36,144
5,000 to 5,999	4,522	6,867	13,911	25,300
6,000 to 6,999	3,015	4,324	4,856	12,195
7,000 to 7,999	1,679	2,035	2,231	5,945
8,000 to 8,999	1,062	1,475	1,247	3,784
9,000 to 9,999	685	712	394	1,791
10,000 to 11,999	719	967	590	2,276
12,000 to 16,000	788	1,018	459	2,265
Total	34,257	50,870	65,619	150,746
Existing Homes				
Less than $2,000	11,307	7,049	3,868	22,224
$2,000 to $2,999	18,167	14,318	10,310	42,795
3,000 to 3,999	14,696	12,137	10,981	37,814
4,000 to 4,999	9,414	8,152	8,094	25,660
5,000 to 5,999	5,138	4,055	4,776	13,969
6,000 to 6,999	3,123	2,413	2,466	8,002
7,000 to 7,999	1,541	1,129	1,047	3,717
8,000 to 8,999	1,051	771	720	2,542
9,000 to 9,999	523	309	371	1,203
10,000 to 11,999	690	462	503	1,655
12,000 to 16,000	721	411	524	1,656
Total	66,371	51,206	43,660	161,237

Table 5a

AMOUNT OF MONTHLY MORTGAGE PAYMENT: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES BY YEAR INSURED 1935-1938

Monthly Payment	1935-1936	1937	1938	Total
All Homes				
Less than $10	875	324	448	1,546
$10 to $14.99	5,143	2,910	4,250	12,303
15 to 19.99	9,404	7,497	13,436	30,095
20 to 24.99	12,796	12,093	19,419	44,534
25 to 29.99	12,430	11,930	21,208	44,428
30 to 34.99	9,893	12,220	14,711	36,827
35 to 39.99	6,308	7,428	8,204	22,248
40 to 44.99	5,025	4,731	5,334	15,225
45 to 54.99	5,448	5,996	4,631	16,673
55 to 64.99	2,660	2,431	1,870	7,264
65 to 84.99	2,357	1,760	1,538	5,869
85 or more	1,701	1,203	696	3,965
Total	74,020	71,323	95,729	241,072
New Homes				
Less than $10	59	29	118	216
$10 to $14.99	627	467	1,772	2,805
15 to 19.99	1,969	2,191	6,087	10,247
20 to 24.99	2,784	4,849	12,046	19,092
25 to 29.99	3,235	4,644	14,349	21,250
30 to 34.99	2,765	5,608	9,979	18,445
35 to 39.99	2,118	3,600	5,196	11,328
40 to 44.99	1,706	2,162	3,720	7,764
45 to 54.99	2,020	2,922	2,834	8,414
55 to 64.99	1,137	1,168	1,063	3,667
65 to 84.99	922	876	760	2,805
85 or more	667	613	295	1,834
Total	19,609	29,209	59,049	107,867
Existing Homes				
Less than $10	816	295	350	1,352
$10 to $14.99	4,516	2,443	2,458	9,591
15 to 19.99	7,835	5,306	6,529	19,848
20 to 24.99	10,012	8,044	7,373	25,442
25 to 29.99	9,195	7,286	6,859	23,178
30 to 34.99	7,126	6,512	4,732	16,382
35 to 39.99	4,190	3,748	3,098	10,922
40 to 44.99	3,319	2,569	1,614	7,459
45 to 54.99	3,428	3,074	1,757	8,259
55 to 64.99	1,525	1,263	807	3,597
65 to 84.99	1,415	864	779	3,064
85 or more	1,034	590	403	2,131
Total	54,411	42,114	36,680	133,205

Table 6a

RATIO OF LOAN TO VALUE: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES BY YEAR ENDORSED 1935-1938

Ratio of Loan to Value	1935-1936	1937	1938	Total
All Homes				
86% to 90%	(a)	(a)	36,062	36,062
81 to 85	(a)	(a)	10,054	10,054
76 to 80	47,895	60,633	37,920	145,848
71 to 75	17,711	17,557	10,709	45,977
66 to 70	11,975	10,310	6,557	28,842
61 to 65	7,849	5,308	3,278	16,435
56 to 60	5,836	3,675	2,295	11,806
51 to 55	3,421	1,735	983	6,139
50 or less	6,541	2,858	1,421	10,820
Total	100,628	102,076	109,279	311,983
New Homes				
86% to 90%	(a)	(a)	32,154(a)	32,154(a)
81 to 85	(a)	(a)	8,990	8,990
76 to 80	19,732	34,235	16,142	70,109
71 to 75	6,132	7,936	4,003	18,071
66 to 70	3,597	4,171	2,231	9,999
61 to 65	1,987	2,086	853	4,926
56 to 60	1,268	1,221	656	3,145
51 to 55	685	509	262	1,456
50 or less	856	712	328	1,896
Total	34,257	50,870	65,619	150,746
Existing Homes				
86% to 90%	(a)	(a)	(a)	(a)
81 to 85	(a)	(a)	(a)	(a)
76 to 80	27,563	26,398	24,275	78,236
71 to 75	11,579	9,621	7,597	28,797
66 to 70	8,378	6,139	4,846	19,363
61 to 65	5,862	3,222	2,751	11,835
56 to 60	4,568	2,454	1,677	8,699
51 to 55	2,736	1,226	917	4,879
50 or less	5,685	2,146	1,397	9,228
Total	66,371	51,206	43,660	161,237

(a) Mortgages representing in excess of 80 percent of the appraised value of the underlying property became eligible for insurance under certain conditions by the Act of February 3, 1938, with reference to new homes only.

Table 7a

BORROWER'S GROSS ANNUAL INCOME; NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES BY YEAR ENDORSED

1935-1938

Borrower's Annual Income	1935-1936	1937	1938	Total
All Homes				
Less than $1,000	1,087	185	228	1,500
$1,000 to $1,499	7,506	3,368	3,526	14,400
1,500 to 1,999	14,444	12,885	16,781	44,110
2,000 to 2,499	15,936	17,762	24,405	58,103
2,500 to 2,999	11,269	9,541	14,408	35,218
3,000 to 3,499	4,532	9,118	12,815	26,465
3,500 to 3,999	5,970	5,742	7,534	19,246
4,000 to 4,999	5,574	5,615	7,135	18,324
5,000 to 6,999	4,182	4,254	5,446	13,882
7,000 to 9,999	2,312	1,783	2,090	6,185
10,000 or more	1,208	1,070	1,361	3,639
Total	74,020	71,323	95,729	241,072
New Homes				
Less than $1,000	216	59	118	393
$1,000 to $1,499	1,412	1,052	1,949	4,413
1,500 to 1,999	3,235	4,673	10,215	18,123
2,000 to 2,499	4,020	6,981	15,235	26,236
2,500 to 2,999	3,216	4,235	9,566	17,017
3,000 to 3,499	1,431	4,148	8,267	13,846
3,500 to 3,999	1,726	2,541	4,783	9,050
4,000 to 4,999	1,765	2,541	4,311	8,617
5,000 to 6,999	1,353	1,611	2,952	6,116
7,000 to 9,999	843	730	1,063	2,636
10,000 or more	392	458	590	1,440
Total	19,609	29,209	59,049	107,867
Existing Homes				
Less than $1,000	871	126	110	1,107
$1,000 to $1,499	6,094	2,316	1,577	9,987
1,500 to 1,999	11,209	8,212	6,566	25,987
2,000 to 2,499	11,916	10,781	9,170	31,867
2,500 to 2,999	8,053	5,306	4,842	18,201
3,000 to 3,499	3,101	4,970	4,548	12,619
3,500 to 3,999	4,244	3,201	2,751	10,196
4,000 to 4,999	3,809	3,074	2,824	9,707
5,000 to 6,999	2,829	2,443	2,494	7,766
7,000 to 9,999	1,469	1,053	1,027	3,549
10,000 or more	816	632	771	2,219
Total	54,411	42,114	36,680	133,205

Table 8a

RATIO OF PROPERTY VALUE TO BORROWER'S GROSS ANNUAL INCOME: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES BY YEAR ENDORSED 1935-1938

Ratio of Property Value to Borrower's Annual Income	1935-1936	1937	1938	Total
All Homes				
Less than 0.5	370	286	265	921
0.5 to 0.9	4,406	3,445	4,088	11,939
1.0 to 1.4	15,005	13,299	17,908	46,212
1.5 to 1.9	21,034	21,045	29,312	71,391
2.0 to 2.4	16,930	18,202	25,986	61,118
2.5 to 2.9	10,327	10,701	13,602	34,630
3.0 to 3.4	4,078	3,285	3,588	10,951
3.5 or more	1,870	1,060	980	3,910
Total	74,020	71,323	95,729	241,072
New Homes				
Less than 0.5	98	117	118	333
0.5 to 0.9	706	876	1,594	3,176
1.0 to 1.4	2,980	3,739	8,444	15,163
1.5 to 1.9	5,255	8,032	17,538	30,825
2.0 to 2.4	5,177	8,558	18,246	31,981
2.5 to 2.9	3,471	5,521	9,861	18,853
3.0 to 3.4	1,412	1,811	2,598	5,821
3.5 or more	510	555	650	1,715
Total	19,609	29,209	59,049	107,867
Existing Homes				
Less than 0.5	272	169	147	588
0.5 to 0.9	3,700	2,569	2,494	8,763
1.0 to 1.4	12,025	9,560	9,464	31,049
1.5 to 1.9	15,779	13,013	11,774	40,566
2.0 to 2.4	11,753	9,644	7,740	29,137
2.5 to 2.9	6,856	5,180	3,741	15,777
3.0 to 3.4	2,666	1,474	990	5,130
3.5 or more	1,360	505	330	2,195
Total	54,411	42,114	36,680	133,205

Table 9a

RATIO OF ANNUAL PAYMENT TO BORROWER'S GROSS ANNUAL INCOME: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING SINGLE-FAMILY OWNER-OCCUPIED HOMES BY YEAR ENDORSED

1935-1938

Ratio of Annual Payment to Borrower's Annual Income	1935-1936	1937	1938	Total
All Homes				
Less than 5%	1,160	882	1,242	3,284
5% to 9.9%	14,631	11,438	21,848	47,917
10 to 14.9	30,101	29,942	46,679	106,722
15 to 19.9	21,053	22,997	22,911	66,961
20 to 24.9	6,103	5,506	2,762	14,371
25 to 29.9	824	487	191	1,502
30 or more	148	71	96	315
Total	74,020	71,323	95,729	241,072
New Homes				
Less than 5%	235	292	472	999
5% to 9.9%	2,824	3,563	11,101	17,488
10 to 14.9	6,922	11,538	29,879	48,339
15 to 19.9	6,961	10,953	15,648	33,562
20 to 24.9	2,294	2,600	1,772	6,666
25 to 29.9	334	234	118	686
30 or more	39	29	59	127
Total	19,609	29,209	59,049	107,867
Existing Homes				
Less than 5%	925	590	770	2,285
5% to 9.9%	11,807	7,875	10,747	30,429
10 to 14.9	23,179	18,404	16,800	58,383
15 to 19.9	14,092	12,044	7,263	33,399
20 to 24.9	3,809	2,906	990	7,705
25 to 29.9	490	253	73	816
30 or more	109	42	37	188
Total	54,411	42,114	36,680	133,205

Table 10a

TERM OF MORTGAGE: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW AND EXISTING 1- TO 4-FAMILY HOMES BY YEAR ENDORSED

1935-1938

Term of Mortgage	1935-1936	1937	1938	Total
All Homes				
21 to 25 years	(a)	(a)	30,379[a]	30,379[a]
17 to 20 years	53,534	61,756	53,437	168,727
13 to 16 years	29,987	28,377	18,358	76,722
9 to 12 years	15,295	10,820	6,666	32,781
5 to 8 years	1,711	1,021	437	3,169
Less than 5 years	101	102	2	205
Total	100,628	102,076	109,279	311,983
New Homes				
21 to 25 years	(a)	(a)	27,035	27,035
17 to 20 years	24,631	41,662	33,597	99,890
13 to 16 years	7,194	7,274	3,937	18,405
9 to 12 years	2,227	1,831	984	5,042
5 to 8 years	171	101	66	338
Less than 5 years	34	2		36
Total	34,257	50,870	65,619	150,746
Existing Homes				
21 to 25 years	(b)	(b)	(b)	(b)
17 to 20 years	28,903	20,094	18,468	67,465
13 to 16 years	22,793	21,103	17,944	61,840
9 to 12 years	13,068	8,989	6,679	28,736
5 to 8 years	1,540	920	567	3,027
Less than 5 years	67	100	2	169
Total	66,371	51,206	43,660	161,237

(a) New homes became eligible for 25-year mortgages under February 3, 1938 amendment.

(b) Existing homes are ineligible for mortgages of more than 20 years' duration.

Table 11a

CITY-SIZE GROUPS: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES BY YEAR ENDORSED

1937-1938

City-size Groups	1935-1936(a)	1937	1938	Total
All Homes				
1,000,000 or more		14,237	17,813	32,050
500,000 to 999,999		5,189	4,130	9,319
250,000 to 499,999		12,601	11,447	24,048
100,000 to 249,999		10,461	10,656	21,117
Total 100,000 or more		42,488	44,046	86,534
50,000 to 99,999		8,367	8,864	17,231
25,000 to 49,999		8,220	8,033	16,253
10,000 to 24,999		12,292	13,917	26,209
5,000 to 9,999		8,102	8,890	16,992
2,500 to 4,999		5,501	6,318	11,819
Less than 2,500		17,106	19,211	36,317
Total, less than 100,000		59,588	65,233	124,821
Total		102,076	109,279	211,355
New Homes				
1,000,000 or more		8,330	11,903	20,233
500,000 to 999,999		1,659	2,064	3,723
250,000 to 499,999		4,713	5,759	10,472
100,000 to 249,999		5,310	6,144	11,454
Total 100,000 or more		20,012	25,870	45,882
50,000 to 99,999		3,713	4,816	8,529
25,000 to 49,999		3,911	4,610	8,521
10,000 to 24,999		5,834	7,966	13,800
5,000 to 9,999		4,175	5,256	9,431
2,500 to 4,999		2,841	3,860	6,701
Less than 2,500		10,384	13,241	23,625
Total, less than 100,000		30,858	39,749	70,607
Total		50,870	65,619	116,489
Existing Homes				
1,000,000 or more		5,907	5,910	11,817
500,000 to 999,999		3,530	2,066	5,596
250,000 to 499,999		7,888	5,688	13,576
100,000 to 249,999		5,151	4,512	9,663
Total 100,000 or more		22,476	18,176	40,652
50,000 to 99,999		4,654	4,048	8,702
25,000 to 49,999		4,309	3,423	7,732
10,000 to 24,999		6,458	5,951	12,409
5,000 to 9,999		3,927	3,634	7,561
2,500 to 4,999		2,660	2,456	5,116
Less than 2,500		6,722	5,970	12,692
Total, less than 100,000		26,730	25,484	54,214
		51,206	43,660	94,866

(a) Data unavailable.

CITY-SIZE GROUPS INSIDE METROPOLITAN AREAS; NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES BY YEAR ENDORSED 1937-1938

City-size Groups Inside Metropolitan Areas	1935-1936[a]	1937	1938	Total
All Homes				
1,000,000 or more		14,237	17,813	32,050
500,000 to 999,999		5,189	4,130	9,319
250,000 to 499,999		12,601	11,447	24,048
100,000 to 249,999		10,461	10,656	21,117
100,000 or more		42,488	44,046	86,534
50,000 to 99,999		5,134	5,691	10,825
25,000 to 49,999		2,650	2,999	5,649
10,000 to 24,999		6,301	7,849	14,150
5,000 to 9,999		4,213	4,706	8,919
2,500 to 4,999		2,242	2,713	4,955
Less than 2,500		6,180	11,770	17,950
Less than 100,000		26,720	35,728	62,448
Total		69,208	79,774	148,982
New Homes				
1,000,000 or more		8,330	11,903	20,233
500,000 to 999,999		1,659	2,064	3,723
250,000 to 499,999		4,713	5,759	10,472
100,000 to 249,999		5,310	6,144	11,454
100,000 or more		20,012	25,870	45,882
50,000 to 99,999		1,892	2,736	4,628
25,000 to 49,999		1,029	1,632	2,661
10,000 to 24,999		2,987	4,512	7,499
5,000 to 9,999		2,124	2,736	4,860
2,500 to 4,999		1,161	1,728	2,889
Less than 2,500		3,983	8,783	12,766
Less than 100,000		13,176	22,127	35,303
Total		33,188	47,997	81,185
Existing Homes				
1,000,000 or more		5,907	5,910	11,817
500,000 to 999,999		3,530	2,066	5,596
250,000 to 499,999		7,888	5,688	13,576
100,000 to 249,999		5,151	4,512	9,663
100,000 or more		22,476	18,176	40,652
50,000 to 99,999		3,242	2,955	6,197
25,000 to 49,999		1,621	1,367	2,988
10,000 to 24,999		3,314	3,337	6,651
5,000 to 9,999		2,089	1,970	4,059
2,500 to 4,999		1,081	985	2,066
Less than 2,500		2,197	2,987	5,184
Less than 100,000		13,544	13,601	27,145
Total		36,020	31,777	67,797

[a] Data not available.

Table 13a

CITY-SIZE GROUPS OUTSIDE METROPOLITAN AREA: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING 1- TO 4-FAMILY HOMES BY YEAR ENDORSED
1937-1938

City-size Groups Outside Metropolitan Areas	1935-1936[a]	1937	1938	Total
All Homes				
50,000 to 99,999		3,233	3,173	6,406
25,000 to 49,999		5,570	5,034	10,604
10,000 to 24,999		5,991	6,068	12,059
5,000 to 9,999		3,889	4,184	8,073
2,500 to 4,999		3,259	3,605	6,864
Less than 2,500		10,926	7,441	18,367
Total		32,868	29,505	62,373
New Homes				
50,000 to 99,999		1,821	2,080	3,901
25,000 to 49,999		2,882	2,978	5,860
10,000 to 24,999		2,847	3,454	6,301
5,000 to 9,999		2,051	2,520	4,571
2,500 to 4,999		1,680	2,132	3,812
Less than 2,500		6,401	4,458	10,859
Total		17,682	17,622	35,304
Existing Homes				
50,000 to 99,999		1,412	1,093	2,505
25,000 to 49,999		2,688	2,056	4,744
10,000 to 24,999		3,144	2,614	5,758
5,000 to 9,999		1,838	1,664	3,502
2,500 to 4,999		1,579	1,473	3,052
Less than 2,500		4,525	2,983	7,508
Total		15,186	11,883	27,069

(a) Data are not available.

Table 14a

TYPE OF MORTGAGEE: NUMBER OF MORTGAGES INSURED ON TOTAL, NEW, AND EXISTING 1- to 4-FAMILY HOMES BY YEAR ENDORSED
1935-1938

Type of Mortgagee	1935-1936	1937	1938	Total
All Homes				
National banks	34,314	29,806	33,330	97,450
State banks & trust companies	29,887	26,846	26,227	82,960
Total commercial banks	64,201	56,652	59,557	180,410
Mortgage companies	2,616	13,474	22,512	38,602
Building & loan associations	15,497	15,822	11,693	43,012
Insurance companies	10,566	10,105	7,977	28,648
Savings banks	3,824	2,552	2,295	8,671
All other	3,924	3,471	5,245	12,640
Total	100,628	102,076	109,279	311,983
New Homes				
National banks	11,647	14,447	19,423	45,517
State banks & trust companies	8,153	12,463	15,289	35,905
Total commercial banks	19,800	26,910	34,712	81,422
Mortgage companies	1,233	7,732	14,699	23,664
Building & loan associations	6,338	7,325	7,152	20,815
Insurance companies	3,289	5,596	4,200	13,085
Savings banks	1,370	1,374	1,181	3,925
All other	2,227	1,933	3,675	7,835
Total	34,257	50,870	65,619	150,746
Existing Homes				
National banks	22,667	15,359	13,907	51,933
State banks & trust companies	21,734	14,383	10,938	47,055
Total commercial banks	44,401	29,742	24,845	98,988
Mortgage companies	1,383	5,742	7,813	14,938
Building & loan associations	9,159	8,497	4,541	22,197
Insurance companies	7,277	4,509	3,777	15,563
Savings banks	2,454	1,178	1,114	4,746
All other	1,697	1,538	1,570	4,805
Total	66,371	51,206	43,660	161,237