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MORTGAGE LOAN GUARANTY INSURANCE RECONSIDERED

An Objective Study of Modern Mortgage Loan Default
Insurance — Its Economics, Law, Regulation, and
Administration as Related to Reserve Adequacy

Prepared At the Request of the
Mortgage Guaranty Insurance Corporation
of Milwaukee, Wisconsin

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PREFACE

The following study is a preliminary report begun in late 1959 at the request of the Mortgage Guaranty Insurance Company of Milwaukee. The study began as an attempt to build a model of reserve accumulation. Over many months, it was expanded into a model of cyclical losses, a collection of historical notes, and a brief biographical analysis of the Mortgage Guaranty Insurance Company and its underwriting record. A rough draft of this study series was furnished to the California Insurance Department, in the spring of 1961, when it was considering legislation to permit the entry of mortgage guaranty companies into that state.

Events in the field of mortgage guaranty insurance have been moving at a rapid pace since our first draft was completed in early 1961. Chapter 719 of the California Insurance Code, regulating entry and operation of mortgage guaranty insurance companies, became effective on September 15, 1961. This legislation was a necessary and progressive step in the regulation of this form of insurance in the United States, but few states have similarly modified their licensing and regulatory requirements. The rapid entry of firms into the mortgage guaranty insurance business may cause serious regulatory problems in these states. Additional research of the regulatory problems caused by increasing competition for mortgage guaranty business is being intensively conducted at the present time.

Consequently, a final draft of these papers is being prepared to include more adequate analysis of developments in California, and competitive developments in other states, such as Florida. A completed study will be published by the University of Wisconsin Bureau of Business Research early in 1962. Until this study is recast to reflect fully the developments since the first quarter of 1961, the principal value of the research can be found in the hypothetical models of reserve accumulation and cyclical losses developed in Parts II and III. The final publication will contain not only these analyses by hypothetical models, but a reasonably comprehensive survey of all recent developments in the guaranty field and their implications to the public interest.

James A. Graaskamp
Richard M. Heins

Resume of Discussion and Conclusions to Part I

1. Conventional residential mortgage lending is currently pushed toward higher loan ratios and more liberal amortization terms by an abundant supply of funds for mortgage investment and by a demand for more liberal loan terms from both the house consumer and producer.

2. The need for higher loan ratios and prolonged amortization is partly the product of a satiated demand for housing and of unsettled economic conditions which have affected the income stability of present mortgage holders and potential home buyers. Lending institutions have experienced a slight but noticeable trend toward increasing frequency of mortgage delinquency and foreclosure. The more liberal the original loan terms the greater the severity of foreclosure loss.

3. Savings and loan associations, due to their prominence, rapid expansion, and legal investment prerogatives in residential finance, are becoming more quickly exposed to trends in residential lending and foreclosure loss than most conventional mortgage lenders. Dependent upon long term savings as a source of capital and committed to mortgages as a primary investment outlet, savings and loan institutions are squeezed between the rate of dividends demanded by savers and the rate of interest which can be charged to the borrower. Mortgage interest ceilings are imposed by the increasing burden of continual reinvestment, the indirect pressure of government monetary policy, the conditioning of debtors' loan

expectations through FHA-VA programs, and the development of a buyer's market for homes. A rise in dividend rate has occurred at the expense of margins available for contingency loss reserve. At the same time the intermediate 42 months durable good cycle has begun to reappear in fore-closure rate and real estate activity after disappearing due to the extra-ordinary housing market between 1945 and 1954.

4. Consequently lending institutions are seeking a method to participate in high ratio, prolonged amortization term mortgage loans without becoming overly subject to erratic income expectations. The application of the insurance mechanism to residential mortgage fore-closure loss uncertainty has long been debated, largely on the basis of two conflicting precedents:

    a. The disastrous failure of mortgage investment guaranty plans during the Great Depression, an institution which had none of the features of an insurance operation nor benefit of effective insurance regulation.

    b. The unquestioned success of the FHA-MMIF insurance program for residential mortgages, a program which features an actuarially justified premium, a vast reserve accumulation, and a revolution-ized home mortgage loan industry.

5. Present proposals for mortgage loan insurance have suffered unde-served condemnation in the minds of many, due to a fallacious association with the mortgage investment guaranties once issued by mortgage banking

houses. This old guaranty was a marketing device and service accommodation of the banker who, in effect, warranted his craftsmanship at loan analysis and debt servicing. It was not insurance nor was it based on or operated according to insurance principles. There were no premiums as such, or loss reserves, and no study of rate adequacy. The total inadequacy of the guaranty agreement was magnified by its application to high value, single purpose real estate properties, by its gravitation toward fraudulent appraisal and foreclosure policies, and by the mechanical flaws in the capital markets and economy of the 1920's.

6. Mortgage loan guaranty insurance on the other hand is the result of a contract made at arms length between a lender making a loan for his own investment account, not for resale, and a guarantor whose only business is insuring government supervised lending institutions. The guaranty contract is available for loans secured only by single family or small apartment unit structures. The premiums are charged on the basis of an actuarial estimate of losses, and the contract is designed to make the insured lender a co-insurer because the guarantor insures only the top 20% of the mortgage balance. Finally the income of the guarantor is carefully allocated by law into unearned premium, long term contingency, and case-loss reserves.

7. The one insurable characteristic a residential mortgage does not possess is freedom from the catastrophe of income recession and property devaluation. However, business cycle theory defines at least three major cycles affecting price levels, income levels, and foreclosure experience.

The modern mortgage insurance mechanism is designed to meet foreclosure losses due to random factors, such as illness, divorce, or other financial dislocations to the borrower, or due to cyclical factors in prices and income related to intermediate durable goods. For these losses lenders can shift risk to a central agency, pooling losses by means of a premium charge based on some expectation of loss.

8. Determination of rate adequacy and of the total capacity of the private guarantor to meet claims arising from possible foreclosure will depend upon reliance on the following assumptions:

a. The entire institutional fabric of mortgage finance has been reorganized since the 1930 debacle. Home loans are not now as susceptible to wholesale default or devaluation due to price and income fluctuations.

b. The policies of the state and federal governments reflect sensitive and broad support to all aspects of real estate, thus insulating real estate to some degree from normal economic fluctuations. On the broader level government policy is dedicated to reducing the amplitude of business cycles to encourage debtors to make further investment, much of it in real estate.

c. A strong demand for real estate can be expected to continue with the expansion of the population and the rising standards of urban dwellings.

d. The terms and execution of residential mortgage loan contracts
within the above institutional framework can give the mortgage
loan the characteristics required for the insurance or suretyship
mechanism.

e. The great strength and success of FHA   residential mortgage
insurance has proven the premium charges of FHA to be more than
adequate because vast reserves have been accumulated.

f. Private enterprise can offer partial protection to the degree re-
quired by lenders without the expense, delay, and interference
in loan policy which characterizes the government program, and
for these reasons may be able to offer this insurance at a lower
premium charge.

9. Private guaranty insurance operations rest on the implicit assumption
that investors will be willing to supplement premium receipts with risk cap-
ital to create security for the lender, in expectation that such security will
not be needed (i. e. , there would be no depression). The investor expecta-
tion is that he will be the beneficiary of unused premium income and high
leverage investment return.

10. Private mortgage loan insurance has been accepted by state insur-
ance departments in 40 states and the District of Columbia. Insurance
regulations have approved a mortgage guaranty policy contract, premium
schedules, reserve standards, and established miscellaneous controls on
company organization intended to make the private guaranty insurance

industry fully adequate to assume partial responsibility for foreclosure loss to the benefit of lender and borrower.

11. To date no one has attempted to test the rules and regulations governing mortgage guaranty insurance to determine their adequacy in terms of frequency of foreclosure and severity of net losses to the guarantor. Without such tests it is impossible to weigh the adequacy of the present guaranty program and its regulation.

12. This testing involves projection of reserve accumulations and loss expectations by constructing several hypothetical models. However, future potential losses of residential mortgage finance are indeterminate, because the nature of the business cycle is unpredictable. Each judge of loan risk or reserve adequacy must decide subjectively if the parameters of loss capacity of the guarantor adequately encompass the reasonable loss expectations of residential finance for the next quarter century. Regulation can only encourage prudent behavior and cannot create absolute security.

Resume of Discussion and Conclusions to Part II

1. One measure of the adequacy of reserve accumulation is a ratio of policyholder surplus to maximum liability potential. Such a minimum ratio required by law could serve to provide a minimum reserve to protect the policyholder. As of this writing the law of mortgage loan insurance does not have any such restriction, even though it can be demonstrated that

unrestrained growth and the resulting increases in the unearned premium and contingency reserves may impair the capital base protecting the policyholder. The adequacy of such a reserve ratio depends on its method of calculation.

2. The present law regulating the organization and operation of a privately capitalized mortgage loan insurance is basically inadequate for two reasons:

   a. Minimum capital for entry is too low and encourages entry of small, weakly financed guarantors who cannot achieve sufficient geographic dispersion and low cost large volume.

   b. Without an enactment of reserve/ratio laws there is no limit on the amount of or rate of increase in liability for the guarantor with the result that reserves shrink in relation to newly assumed liability.

3. There is no agreement on a definition of reserve composition or maximum liability for the loan insurer. The reserve might be policyholder

surplus, including or excluding the contingency reserve and some portion of
the unearned premium reserve. Maximum liability could be the insured loan
balance net of amortization, 20% of insured claims which could be shown
to approach 25% of net insured balance, or 20% of mortgage principal due
lender at default. The choice of definition depends on whether the intent
is to measure resources in comparison to actual liabilities or to force
management to supplement premium accumulation with capital and under-
writing policy.

4. To measure the ratio of resources to potential claim liability this
study defines liability as 25% of insured mortgage balance due at default
and includes in resources net worth, contingency reserve, and 20% of the
unearned premium reserve.

5. The desired level and relative adequacy of a reserve ratio may be
judged partly on the basis of precedent in several analogous situations,
such as FHA-MMIF, FSLIC, S&L reserve policy, and the Alger Report.
These examples can help in determining a prudent reserve ratio. However,
the nature of mortgage loss expectations in a severe economic recession is
too indeterminate to define adequate reserve ratio. These precedents, with
the caveat noted, suggest a proper reserve ratio should fall within a range
of 2.5% to 8% or 1: 40 to 1: 12.5.

6. To test the reserve growth rate and capital accumulation a model
insured mortgage portfolio was hypothesized. Reserve to liability ratios
for contingency reserve, net worth, unearned premium and a combination

of all resources were computed. These ratios were converted into several expressions of loss capacity. Assuming all original mortgages to be of the same amount and all losses to be of maximum severity under the 20% option, a 4% reserve was found adequate to pay a full claim on 40 foreclosures out of each 1000 insured loans. Real estate values would have to decline up to 28% of original appraised property value before a full claim would exceed the optional 20% of maximum liability limitation.

7. The model indicates that over a 15 year span the contingency reserve could supply funds equal to .5% to 4.1% of maximum liability, depending on rate of amortization, rate of termination of coverage, and rate of increase of mortgage volume insured. If funds from forfeited unearned premium, earned premium, and retained earnings on reserves were included,

the model produces resources ranging from 3% of liability in the first year to 6.2% at the end of the fifteenth year.

8. The model further proves that until the contingency reserve has had time to accumulate, or until reserves are producing significant investment income, equity capital will have to provide a major part of any reserve required to meet a minimum regulatory ratio of 4%. The accumulation models suggest that capital must approach 3.5% of maximum liability for several years before the relative share of capital may decline to about 1% of maximum liability by the tenth year and thereafter, presuming uninterrupted maximum accumulation of the contingency reserve. Rapid business growth and the initial operating deficits of business acquisition may push minimum

capital requirements to 2% of maximum liability for the full 15 year span or beyond.

9. The ratio of the contingency reserve to maximum liability varies significantly with rate of termination of insured volume, rate of amortization, and rate of growth of insured volume. The ratio declines in years of business expansion. If this decline is offset by additional capital, leverage is reduced for the capital stock investor.

10. However, a ratio of reserve dollars to dollar liability or mortgage volume may not be a very accurate indicator of possible foreclosure loss experience. It does not reflect basic and changing risk factors of average loan to ratio values, the decreasing risk of a maturing amortized mortgage, or shifting portfolio diversification. Uncertainty of foreclosure loss experience is further heightened in the first years of operation for lack of risk dispersion, economies of scale, acquired future business, and well-sized reserve accumulation.

11. To admit the guaranty of high ratio mortgages as a licensed insurance activity, California and Oregon are expected to make certain legislative amendments of present law, one of which is the introduction of a simple minimum reserve to liability requirement of 1:25 or 4%. Liability is defined as 20% of insured mortgage balance at default, and policyholder surplus is deemed to include the statutory contingency reserve as well as the net worth of the guarantor.

12. An alternative to the straight 4% ratio of reserves to liabilities

involves the assignment of insured loan volume to subgroups according to the critical variables of time elapsed from loan origination. A minimum prudent reserve ratio is then assigned in an arbitrary fashion to each subgroup of loan to value mortgages and duration of loan classification as follows:

		Ratio	% of Portfolio
	84-90% Loans	7% x 25	175
Age 1-60 mo.	78-83.9%	6% x 20	120
	77.9% and below	5% x 15	75
	84-90% Loans	4% x 17	68
Age 61-120 mo.	78-83.9%	3% x 10	30
	77.9% and below	2% x 5	10
	84-90% Loans	2% x 2	4
Age 121-180 mo.	78-83.9%	1% x 1	1
	77.9% and below	1% x 0	0
			483 / 100

Average Reserve Ratio 4.83%
of 25% of net insured mortgage balance

13. In this plan the definition of reserve could include 20% of the unearned premium reserve to recognize the latent loss capacity of minimum premium charges, unearned premium forfeiture upon default, and short-rate refund provisions of the guaranty contract. Inclusion of this resource would offset the net increase in the reserve requirement over that of the straight 4% reserve ratio now receiving legislative attention.

14. The weighted average ratio approach would require slightly higher equity investments in the early years of operation, but as the insured mortgage volumes became distributed throughout the various subclasses, the average reserve ratio would decline as the contingency reserve ratio increased, thereby reducing capital required as compared to that required in the straight 4% plan.

15. Such a reserve ratio would supplant minimum capital levels required for licensing as a credit insurer, a level insufficient to support the scale of operations needed for risk dispersion and operating profits. The shifting importance of capital would be a barrier to the creation of small, local guarantors while encouraging long term investors in a large national concern to expect growing leverage on equity as reserves accumulated at a far greater rate than capital needs.

16. The relative merit of simple 4% reserve ratio as compared to a two variable weighted average ratio is less clear than the importance of some kind of reserve ratio to control growth and to encourage adequate capitalization. The weighted average ratio may appeal to the technician and to the long term investor, where class reserve ratio will eventually temper capital requirements by considerations of the investment leverage necessary to attract risk capital.

17. The 4% plan is consistent with traditional insurance regulation practice for its significantly understates resources more than it understates maximum potential liability. The understatement of loss expectation is due

to the conflict in definition between the insurance contract and the proposed statute. The insurance contract, which presently provides an optional limit to liability of 20% of the maximum _claim_ payable should be reworded to agree with the proposed California definition of maximum liability as 20% of the insured _mortgage balance_ at default.

18. The relative strength of two plans is virtually equal in terms of resources available for foreclosure losses. Where the termination rate of insured mortgages is relatively high and where the volume of guaranties continue to expand for high ratio loans, the advantages of the weighted average plan would be postponed indefinitely. In this event the 4% ratio might favor the guarantor in terms of capital requirement and ease of budgeting underwriting capacity. Since the guaranty premium plan and reserve structure no longer make real distinction between risks for variations in potential loss possibilities, it is logical that reserves can also be established on a broad average basis without the greater precision of the weighted plan.

19. Hypothetical reserve models indicate loss capacity at 45 to 55 foreclosures per 1000 insured mortgages with an average loss of $1900-2000 paid in full were 4% in effect. Loss capacity during the dynamics of business cycle can be better analyzed by construction of a model cycle during which loss frequency and severity can vary, and such a model is put forward in Part III.

<u>Resume of Discussion and Conclusions to Part III</u>

1. A model for estimating foreclosure cycle loss may be reduced to four essential variables: a) duration of cycle trend, b) amplitude of residential housing price cycles, c) frequency of loss, and d) severity of loss, with each variable affected by the magnitude of the others. For these variables the following parameters were assumed:

    A. A fifteen year foreclosure cycle with a five year recession in the 6th to 10th years after the mortgage loan insurer was organized.

    B. A maximum loss frequency assumption of 5% in the 8th or worst year of recession.

    C. A 28% price decline in residential property prices occurring during the foreclosure cycle.

    D. Maximum liability per mortgage limited to 25% of insured mortgage balance which produced losses of $1,975 on the average loan balance loan closed if each loan had an original balance of $12,500.

    E. Normal foreclosure rates of .7 of 1% and normal losses of $830 per foreclosure assumed for years other than recession cycle years.

    F. Business volume, reserve accumulation, and other assumptions carried forward from Model A, Part II, in which growth created the weakest reserve picture of the three models.

2. Based on these certain specific assumptions, the accumulated reserves would be adequate, if augmented by capital in the amount of .75 of 1%

of net insured mortgage balance. In such event the parameters of loss capacity could be a foreclosure frequency in year 6-10 of 15, 30, 50, 30, and 15 per 1000 insured loans. Were maximum liability defined as 20% of net insured mortgage balance, Model A has a loss frequency capacity of 18, 36, 60, 36, and 18 foreclosures per 1000 insured loans for years 6-10 respectively.

3. One can conclude, therefore, that the premium, reserve, and capital structure of an assumed typical guarantor could meet peak losses 8 to 10 times more severe than any FHA 203 annual loss frequency figure in the past 15 years. This conclusion must find significance by comparison to such historical measures of foreclosure frequency and severity as are available and relevant.

4. It is the duration more than the shape of the cycle curve which is critical in measuring loss capacity. One measure of the capacity to endure loss is the aggregate of all resources available during a period of recession divided by the expected severity per loss to determine the cumulative number of claim cases payable. For example, one fragment of savings and loan depression foreclosure experience shows that the number of foreclosures on loans originated from 1925 to 1935 averaged 11% of the number and affected 13.5% of total amount of loans made. More recently the cumulative number of foreclosures for FHA 203 loans since 1950 was .11 of 1% of cumulative number of loans insured.

5. This experience can be compared to Model A which has 83.112

insured mortgages before terminations in the years 6-10, on which it experiences 7.175 foreclosures for cumulative foreclosure rate of 8.6% of total loans insured. This rate of 1 out of 12 loans foreclosed is about one-half the 1 out of 6 loss frequency commonly mentioned as a measure of 1930 loss intensity. Loss severity comparisons are impossible because of the change in mortgage amortization, and the present day use of the 20% stop-loss option.

6. A second measure of adequacy can be applied by comparing aggregate resources of the guarantor to his maximum liability to determine the percentage of claims payable in full. Aggregate resources consist of the initial contingency reserve and capital account at the onset of recession, and investment income, and 70% of earned premium received during the recession. Should recession losses occur early in the life of the guaranty firm, before the contingency reserve became sizable, loss capacity would be derived from premium earned, a significant portion of which is generated by newly insured mortgage loan volumes.

   A. By this standard Model A shows a capacity to pay maximum losses of 7% of the average insured mortgage balance of $8,833 when maximum liability is 25%. This capacity may be reasonably prudent if not completely adequate for all possible recessions. The ratio of capacity approaches the ratio of 10% reserves to conventional loan mortgage balance of the savings and loan industry.

   B. Depletion of contingency reserve by recession losses would, if there were minimum statutory policyholder surplus, deprive the

guarantor of legal capacity to acquire new business. Without new
business income the company would lose both an important source of
loss payment capacity and an opportunity to "dollar-average" collat-
eral property values near the bottom of their cyclical market value
when appraised and mortgaged. Two alternative solutions may be
possible for these significant flaws in loan guaranty mechanics.

7. The first would implement adoption of a straight 4% of policyholder
surplus to liability, presuming it the most acceptable regulatory technique
for establishing size of minimum/~~reserve~~ *policyholder surplus* defined to include the contingency
reserve. It seems reasonable that the reserve level of 4% should be waived
automatically for two years following any year in which the commissioner of
insurance granted the guarantor permission to meet losses out of the con-
tingency reserve.

8. A second method would select a minimum reserve ratio which defined
reserves only in terms of equity capital. An equity reserve ratio would place
a limitation on management decisions as to capital, dividends, and under-
writing capacity while recognizing that the rate of contingency reserve ac-
cumulation is fully ~~defined~~ *delimited* by present regulation. To anticipate the long
term build up of contingency reserve a minimum equity to liability ratio of
1% could be required unless or until equity plus the contingency reserve
exceeded 4% of maximum liability. The minimum equity ratio could be
weighted according to loan ratio and months to maturity as suggested in
Part II to relate reserves to company underwriting policy.

9. To survive a severe recession management will have to make the most sparing use of its 20% stop-loss option, an option of doubtful utility. Except in cases where market value of foreclosed collateral property has fallen steeply for reasons other than the price level cycle, it appears use of the option has several disadvantages. Possibility of future loss reduction is foregone, assets are reduced permanently, and net cash drain may exceed that of acquiring property with the aid of high ratio loans. In the latter case assets would increase minus the amount of the loan and any case loss reserve which anticipates some returns to more normal market value at time of resale. Rent or land contract payments presumably would meet mortgage amortization.

10. It is suggested that the present guaranty policy be changed so that optional partial payment claims provision conform with regulatory definitions of maximum liabilities. Lenders will be protected by the guarantors desire to minimize maximum losses through acquisition and holding of real estate. The only practical purpose of the present stop loss option is to limit losses on properties which have suffered a permanent and significant decline of value and to form a recognized base for a statutory definition of maximum liability.

Resume of Discussion and Conclusions to Part IV

1. The Mortgage Guaranty Insurance Company (MGIC) of Milwaukee, Wisconsin, represents the first and only national attempt to put private enterprise banks in the business of insuring lenders against losses caused by default on mortgage loans. MGIC finds its greatest utilization in the savings and loan field, which is attempting to liberalize loan policy and to stabilize income projections. It finds state banks, savings banks, and smaller insurance companies a lesser market for loan insurance.

2. Dominating all aspects of private guaranty is the rate of growth which MGIC has experienced in four years of operation, growth reflected in premium, liability, assets, personnel, and in the approval by 40 state authorities and by mortgage lenders. Although expansion has required a larger executive staff and considerable initiation expense, expense ratios have declined as insured volumes mushroomed.

3. The reserve adequacy of MGIC is a function of the growth of maximum liability, the rate of accumulation of earned premium and contingency reserve, and the amount of capital in relation to maximum liability. In addition there are nonquantifiable factors related to unearned premium reserves, underwriting controls, investment quality, and management objectives. This study can only stress tangible quantities such as liabilities, reserves, and capital. Other historical data can only be reported without judgment.

4. Growth of liability has more than doubled each year to reach $261.5 million of insurance in force. This expansion has meant some decline in potential loss capacity for the guarantor despite large increases of contingency reserve and capital amounts during these years. Therefore the major problem for the regulator and the company management is to relate growth to some minimum standard of capacity for loss.

5. For lack of an agreed definition of maximum liability as a percentage of insured loan to loss, loss capacity for purposes of adequacy judgments in this study might better be defined as the number of dollars payable on an average claim. The average claim will range between $1,250 and $2,500, which is 20% of an average $10,000 mortgage balance. Severity of loss is indeterminate due to the unpredictable nature of the price cycle.

6. Reserves for losses in excess of random defaults, due to individual situations not influenced by the business cycle, must be paid from contingency reserve or capital. Losses payable from contingency reserve indicate the extent of losses which may be met before capital is impaired. Since accumulation of the contingency reserve lags the growth in liability by several years, it is necessary that paid-in capital supplement premium reserves. Since reserves do not include loss capacity of current earned premium or the future loss capacity of unearned premium, the sum of reserves is always understated, but can be determined within very narrow range.

7. One measure of adequacy proposed by insurance regulators in California and Oregon is a 4% ratio of capital and contingency reserve

to a maximum liability of 20% of net insured mortgage balance. Present

accounting practices of MGIC do not measure the exact degree of amortiza-

tion and termination which reduce coverage each month so that this ratio

depends on company estimates of net insured loan volume. In 1959 and

1960, the two years of operation which best represent an established,

growing loan insurance program, MGIC has more than met the required

4% standard.

8. Another measure of capacity to meet losses is the number of average

claims as a ratio to the number of mortgages in force. Assuming a $1,250

loss per foreclosure MGIC could pay claims on 15 foreclosures per 1000

mortgages in 1959 and 21 foreclosures in 1960 from contingency reserve

funds alone. This trend can be expected to continue upward but at a

declining rate of improvement should insurance volumes continue to grow

at the past rate. Indicative of the adverse effect of rapid growth on relative

policyholder surplus per loan, however, is the fact that the frequency of

$1,250 losses payable in full from total policyholder surplus fell from

96 claims per 1000 insured mortgages in 1959 to 62 per 1000 in 1960.

9. Capacity for loss must be first compared to the present rate of loss

of MGIC. Foreclosures in process and acquired properties have averaged

6.5 per 1000 insured loans in 1960, the first year there have been net

insurance losses. Total loss capacity is 6 to 12.5 times greater than

present loss experience. These losses compare to FHA experience since

1935 of 6.5 foreclosures of section 203 residential loans, which resulted

in 4 property acquisitions per 1000 loans insured.

10. These losses would be payable in addition to losses presently satisfied by 10% of current earned premium or losses which could be paid from forfeiture of unearned premium or 70% of the unearned premium reserve net of terminations as earned.

11. Future claim experience for MGIC can be expected to exceed FHA, Section 203 experience, to some degree for the following reasons:

A. MGIC pays claims in cash upon tender of title to foreclosed property, which removes the reluctance of lenders under the FHA plan to surrender the title for bonds. Except where resale can be made at a profitable price, foreclosures will create property acquisitions for MGIC.

B. MGIC can expect its economic underwriting system may occasionally fail to select only the very best loan situations as may be the case with more stringent, bureaucratic loan analysis methods.

C. The financial skill of the lender, which can vary widely, can influence loss experience in the MGIC program more than in the FHA program.

D. The MGIC plan has more liberal indemnification provisions for foreclosure legal cost and maintenance, and interest accruals will be higher as conventional interest rate will tend to exceed maximum FHA rate.

E. MGIC may lose some salvage values because the law and the contract waive guarantor claim against the defaulted borrower (in

the form of an unsatisfied judgment), in cases where property

was a single family, owner-occupied building.

12. While MGIC may expect somewhat higher losses than FHA-MMIF-203,

it can achieve equal if not higher levels of reserve. FHA-MMIF reserves

are 5.1% as compared to only 4.4% policyholder surplus to maximum lia-

bility for MGIC. However, the MGIC ratio at the end of 1960 understates

the ratio which can be expected by the end of 1961 to a significant degree

because:

   A. Capital budgeting plans for MGIC expect public stock offering

   to more than double the capital account in 1961.

   B. The reduction in expense ratio can be expected to produce more

   earnings from premium in the first full year to which the reduction

   will apply.

   C. The amount of funds invested has reached sufficient size to pro-

   duce significant volumes of earnings which can replace the

   surplus deficit from the initial years of operation, so that the

   ~~tend to re~~

   reserve ratio will gain full credit for capital paid-in to date.

   D. As the portfolio matures and lenders gain more confidence with

   high ratio loans, MGIC can expect a higher termination rate among

   seasoned mortgages as lenders meet competition while reducing

   loan cost to proven borrowers.

13. Consequently, in the opinion of the authors, by the end of 1961

MGIC can expect to meet foreclosure losses from contingency reserve fund

alone of 25 foreclosure losses of $1,250 each per 1000 insured loans. Total policyholder surplus should be able to meet at least 95 $1,250 claims per 1000 insured mortgages if the additional capital is secured through a stock offering. In other words, during 1961, resources of MGIC could meet cumulative losses 8 to 14 times more severe in number than presently experienced, the exact ratio depending on assumptions of average loss severity.

14. Given this estimate of loss capacity, a lender or investor must then decide for himself how many dollars per loss might characterize the next recession or depression. Comparison of his own loss assumptions to expected guarantor loss capacity will tell him whether reserve loss capacity is adequate.

PRIVATE MORTGAGE LOAN GUARANTY
INSURANCE RECONSIDERED

INTRODUCTION

A new species of the genus mortgage guaranty is flourishing in the
fields of residential real estate finance.   With this reappearance of
privately financed residential mortgage loan credit insurance, sometimes
called "mortgage guaranty," mortgage lenders, regulatory authorities, and
the general public are asked once again to reconsider the use of a service
whose ancestor of the same name was thoroughly discredited less than
three decades ago.   The fact that mortgage loan guaranty insurance is now
being offered in more than forty[1] states as a partial solution to meeting

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(1)   A private mortgage credit insurance firm, Mortgage Guaranty Insurance
Company, was licensed to operate in 40 states and permitted as a
surplus line in two others as of ~~June~~, 1961:
December,

Alabama	Illinois	Missouri	Pennsylvania
Arizona	Indiana	Montana	South Carolina
Arkansas	Iowa	Nebraska	South Dakota
California	Kansas	Nevada	Tennessee
Colorado	Kentucky	New Mexico	Utah
Delaware	Louisiana	North Carolina	Virginia
Florida	Massachusetts	North Dakota	Washington
Georgia	Michigan	Ohio	West Virginia
Hawaii	Minnesota	Oklahoma	Wisconsin
Idaho	Mississippi	Oregon	Wyoming

Surplus line states: Maryland
                        Texas

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foreclosure risks, together with the fact that only four years have passed since its first introduction in 1957, dramatizes the immediacy and extent to which this reconsideration and restudy must be made. A considered approval of the new, privately financed guaranty plan, as preliminary evidence indicates may be happening, would be a significant reversal of opinion based on the earlier failures of another species of guaranty company, the mortgage investment guaranty.

As far back as 1885 a form of mortgage guaranty agreement was first offered as a part of a mortgage service agreement. These agreements merely purported to assure the buyer of a mortgage investment from a seller-guarantor the "on-time period interest payments" and "supervision" of tax payments and property maintenance. Such agreements, generally issued by a mortgage banker or his wholly-owned affiliate, were eventually brought within insurance law, and principal as well as interest was guaranteed. To compare a mortgage investment guaranty with mortgage loan insurance, an analogy might be drawn from the service guaranty on a product warranty like that of a tire manufacturer. Where the tire manufacturer will replace a flat tire caused by inferior material or workmanship, it is a warranty; where he will replace it for loss due to any unforeseen road hazards, such an agreement is insurance. Because the mortgage guarantor foresaw no irrecoverable losses from general economic hazard (mortgages were not supposed to exceed 66 2/3% of property value and had never faced a prolonged economic crisis), the guarantor viewed the mortgage guaranty as a warranty of

his loan analysis and debt servicing and not as insurance for loss due to

any economic calamity. Investors could purchase guaranteed whole mortgages

or certificates of participation in mortgage portfolios from title companies,

trust companies, mortgage bankers, and others who could extend the guar-

anty without any more reserves than those required of a title insurance

company. Inadequate supervision was divided between insurance and

banking departments in the state of New York, where the largest volume of

guaranty business was done. Since insurance regulators saw the guaranty

as a service accommodation rather than insurance, there were no premium

or loss reserves and no study of rate adequacy.[2] Nevertheless for thirty

years prior to the Great Depression,mortgage investment guaranty was

mistakenly regarded as offering state supervised protection to all classes

of investors in mortgages, mortgage bonds, and mortgage participation

certificates. Then in a few short years of economic distress the multi-

billion dollar industry was destroyed, the victim of faulty design, non-

existent reserves, self-serving management, and inadequate supervision.[3]

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[2] A full analysis of the mortgage investment guaranty failure can be
found in the 1934 report to Governor Herbert H. Lehman by George W.
Alger, who conducted the investigation of the industry, and Alfred A.
Cook, investigation counsel. A photostat of this report from the files
of the New York Insurance Department was made available to the authors
by the Wisconsin Insurance Department.

[3] In 1934 the state of New York was forced to take over 47 guaranty firms
having $184,000,000 in capital and surplus to secure $1.7 billion in
mortgage guaranties for 225,000 lenders in that state alone. New Jersey,
California, and Massachusetts and some other states had additional
losses.

with corporate structures ravaged by the real estate collapse and razed by state appointed receivers, a strong reaction against all forms of mortgage investment guaranty set in. Salt was sown in this field of finance in the form of legislative prohibition in states where losses had been heaviest[4] and of widespread ~~antipathy for~~ distrust of default insurance ingrained in both the lender and the saving public.

Yet, while these laws and attitudes lingered, the seeds of a renaissance were planted with the creation of mortgage loan insurance plans by the Federal Housing Administration[5] to motivate lenders to adopt new lending policies and loan practices. The term "insurance" was warranted by the efforts to make valid loss projections from the combination of foreclosure data on similar residential risks in order to calculate a premium charge sufficient to create a pool of funds for the payment of losses. Utilization

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(4) States prohibiting the use of Mortgage Guaranty Insurance are New York (Section 438, paragraph 3, Insurance Laws of New York as found in McKinney's Annotated Laws of New York State) and New Jersey, which interprets a statute prohibiting title companies from issuing mortgage guaranties as applicable to guaranty companies classified as credit insurers as well. In addition, some states such as California and Oregon until this year permitted mortgage guaranty where the mortgage insured did not exceed two-thirds of property value. Such a low ratio, a vestigial remnant of depression guaranty experiences, never required use of a guaranty.

(5) For a thorough analysis of the FHA, see Mutual Mortgage Insurance Fund by Ernest M. Fisher and Chester Rapkin, 1956, Columbia University Press, New York.

of the insurance mechanism was made possible by a nearly simultaneous

revolution in real estate finance brought about largely by FHA underwriting

requirements and approved lending practices such as the long term, amor-

tized loan. Within a single ~~generation~~ decade FHA succeeded in stabilizing

residential mortgage finance, in accumulating reserves from premium in-

come, and in raising national housing standards. However, progress came

at a cost, both in terms of premium and independence of action, which

some lenders grew to feel too high and created a desire and enthusiasm for

an attempt at privately capitalized mortgage loan default insurance.

The burden of responsibility for the successful initiation and operation

of credit guaranties has always fallen on government. When state govern-

ment failed to regulate adequately mortgage investment guarantors and real

estate finance in general, the Federal Government entered the breach.

Ultimately the Federal reorganization of the institutional framework for

real estate and real estate finance created the necessary confidence for:

1. The general use of mortgage insurance to stabilize the lending risk

   of the modern, long-term, low down payment, amortized mortgage.

2. The desire among lenders to improve upon the original and incom-

   parable FHA.

3. The belief in privately capitalized mortgage loan default insurance

   designed for insurance safety and investor profit.

At present insurance regulation is still the prerogative of each individual

state, [6] providing each state exercises its privilege effectively. The
effectiveness of state regulation is now under study by Congressional Com-
mittee. [7] Therefore, the next phase in the evolutionary development of
mortgage loan guaranty must look to state insurance laws for its standards
and discipline, and the states may need this opportunity to prove their
ability to regulate effectively when not hampered by an industry tradition
or obsolete law.

Broad Objective of This Monograph

Modern enabling legislation to permit the formation of private mortgage
loan guaranty companies was first enacted in Wisconsin, precipitated in
1956 by a well briefed request for licensing[8] by the Mortgage Guaranty
Insurance Corporation (MGIC) of Milwaukee. The statute revisions[9] and
insurance rules[10] in Wisconsin (which evolved) have been accepted as

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(6) For more precise reference to the problems of Federal versus state reg-
ulation, the reader is referred to South-Easter Underwriters Ass'n, 322
U. S. (1944) 533; 44 Columbia Law Review 772. The text of the statute
called the McCarran Act, is in 59 Statutes 33 (1945). See also Law
and Contemporary Problems, Volume 15, Autumn 1950, published by
the Duke University School of Law.

(7) Current investigation under the direction of U. S. Senator Kefauver and
the staff of the Permanent Subcommittee on Antitrust and Monopoly of
the Judiciary Committee of the U. S. Senate. A partial report of the
investigation as initiated by former U. S. Senator O'Mahoney has been
published as Senate Report No. 1834.

(8) Under the available title guaranty insurance provisions WIS. STATS.
201.04 (7) 1957.

(9) WIS. STATS. 201.04 (8) & (9) 1959.

(10) WIS. ADM. CODE 3.09, 1957.

sufficiently rigorous to serve as model regulation in most other states,
some of which have written Wisconsin's administrative rules into their
statutes. More recently Oregon and California added several important
innovations to the Wisconsin model.

The objective of Wisconsin's model law is to assure solvency,
liquidity, and control of management practices in the policyholder interest.
The strength of such insurance regulation lies in its measures to force ac-
cumulation of adequate reserves to meet rather pessimistic loss expecta-
tions. Life insurance rests solidly on conservative, well-dimensioned
actuarially determined reserves; property and casualty insurance offsets
less predictable loss parameters with such techniques as hypertrophied
reserve accounting systems, experience rating, and selective, extensive
underwriting. Mortgage loan credit guaranty insurance has limited prior
loss experience from which to judge and to project surplus reserve re-
quirements to guide its regulation or operation. Therefore, the broad
objective of this study is to measure, if possible, the adequacy of the
reserve structure and financial underpinning specified by the model Wis-
consin law on which the mortgage loan guaranty industry is now building.

The Scope and Theory of This Study

It is not technically feasible to approach the subject of adequacy of
the new mortgage loan guaranty formula for rates and reserves by estab-
lishing loss expectation assumptions for a postulated number of insured

units, dividing the first by the second to find a pure premium rate. Loan
foreclosure frequency is related to income *employment,* and price cycles, not to mention
other phenomena such as rate of family formations, birth rates, divorce
rates, and population age stratification. Severity of loss is inextricably
involved with customary loan-to-value ratios and with local real estate
market supply and demand fluctuations or changing home-buyer preferences
for style and neighborhood as well as general levels of prosperity, monetary
supply and price level. It should be apparent that any feasible projections
of future market value indexes coincident with income, foreclosure, and
population trends would be meaningless for the exacting needs of insurance
rate-making purposes. The mortgage loan foreclosure experience of the
past thirty years is also practically meaningless, since the Depression ex-
perience was the result of a vastly different economic epoch and of a
species of unamortized loan now extinct. Therefore, the issue of adequacy
must be approached from the standpoint of the size of reserves accumulated
through time by a given portfolio of insured mortgage loan business, simply
avoiding unknown cycle factors until determinate magnitudes of assets
which would be available to withstand a loss in a given year are calculated.
This accumulation of reserves under the Wisconsin law can then be subjected
to the buffetings of a wind tunnel cycle, to test the adequacy of reserves
for a cyclical series of losses.

Part I of this study reviews the institutional and financial risk charac-
teristics which shape the rationale for modern mortgage loan guaranty

insurance and the provisions of newly devised regulatory law and administrative code.

Taking rate and reserve factors as given and assuming a portfolio of business with certain characteristics, Part II develops a model for projection of reserve accumulations. The ratio of reserves thus accumulated at the end of any one year to the maximum liability of the guarantor as set by contract can then be converted to the maximum foreclosure rate or decline of market value parameters which could be absorbed by these reserves. At this point no assumptions are made as to what losses might actually be experienced, as such statistics are far more conjectural than those required in calculation of reserve accumulation.

In Part III the historical foreclosure loss experience of old-line guarantors, various savings institutions, and FHA-VA is surveyed in a cursory fashion. Analysis of this data serves to establish a hypothetical cycle model of loss experience with which to test the loss reserves postulated in Part II. This model is used only to indicate capacity of the guaranty premium structure and the regulatory framework to absorb serious losses over a prolonged period of years.

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Since actual interstate operations in this field are primarily limited to a single Wisconsin company, a review of the development, policy, and practice of this firm in Part IV will serve further to establish the degree of realism and validity of our hypothetical reserve and loss model analysis. In addition such study will attempt to determine what additional margin of

Since actual interstate operations in this field are primarily limited to a single Wisconsin Company, Part IV will review the developement, policy, and practice of this firm. Review will serve to indicate the degree of realism and uolitity of our hypothetical reserve and loss model analysis. In addition observation of this one company will indicate what margins of safety may accure when company practice exceeds the minimum standards required by law and what oversights exist in exsisting legislation to control company practice where profit may conflict with the intent to insure solvency. XXXX XXXXXXXXXXXXXXXXXXXXXX

The regulation problem has been greatly complicated in recent months by the advent of direct competition to the inovating guarantor. Part V is an addendum to this study which attempts to explore possible additional regulations made necessary by the potential excesses of competition. If suggested regulatory measures are attentitive, at least this section will dramatize a repeatidy of evolutionary developments in the mortgage guaranty area in just the past two years, events which call for immediate technical attention by insurance regulators.

In any event the end product of the research should enable lenders and regulatory officials to better measure the capacity of privitaly financed mortgage insurance firms to contribute to the efficiency and safety of national mortgage lending in the next decade.

safety may accrue when company practice exceeds the minimum standards required by law. The end product of this research should enable leaders and regulatory officials to better measure the capacity of privately financed mortgage insurance to contribute to the safety of national mortgage lending in the next decade.

PART I

THE NATURE OF THE MORTGAGE GUARANTY RISK

Mortgage Loan Guaranty Insurance Defined

Mortgage guaranty insurance is defined as "insurance of mortgage lenders against loss by reason of non-payment of mortgage indebtedness by the borrowers,"[1] and is classified as credit insurance subject to the accounting and filing requirements of a casualty insurer. A mortgage guaranty insurance contract falls within a broad definition of suretyship, although a guaranty is legally distinct from true surety.[2]

The Old Mortgage Investment Guaranty Distinguished from Insurance

The present mortgage loan guaranty insurance is similar in name only to the ill-fated mortgage investment guaranty, which had none of the characteristics of insurance. In the Twenties the property which secured

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(1) WIS. ADM. RULES 3.09 (2).

(2) It has some appearance of being performance bonding; there are three main parties at interest (but there are not three parties to the insurance contract or the mortgage note as in surety); the insurer is deeply involved with moral and morale risks and the mortgage is a collateral contract (but the note is not endorsed as in surety; rather, consequential losses to lender are indemnified); and finally again as in surety, the guarantor expects to recoup a claim from salvage rights in foreclosed property (but the insurer waives or is prohibited subrogation rights against the defaulting borrower, a chief source of salvage for the surety). It is a guaranty because losses are not payable until lender can establish the loan's uncollectibility by court action of equivalent measures.

guaranteed loan shares often consisted of high value, specialized struc-
tures such as movie theaters, luxury apartments, golf links, etc., the
values of which are highly vulnerable to income and price deflation. Hence,
there was little dispersion or diversification represented by large dollar
volumes of guaranties and little homogeneity of risk either as to amount
or economic characteristics. Exposure to economic catastrophe was
further magnified by the use of inflated appraisals by competing mortgage
bankers and of short-term mortgage notes requiring balloon payment. The
charge for the guaranty was the traditional ½% ~~management~~ _Servicing_ fee, which was
earned by the mortgage banker for collection and over-all supervision and
which was without restriction for the reservation of special insurance re-
serves of any kind.

The present mortgage loan guaranty insurance is the result of a con-
tract made at arms length between a lender making a loan for his own
investment account, generally not for resale, and a guarantor whose only
business is the profitable guaranty of mortgage loans, loans usually
originated by government supervised lending institutions. The guaranty
contract is available for loans secured only by single family or small
apartment unit structures. The premiums have been charged on the basis
of some actuarial estimate of losses, and the contract has been designed
to make the insured lender a co-insurer for ~~the second 20%~~ _any loss exceeding 20%_ of any claim
in an economic crisis. Finally the income of the guarantor is carefully
allocated by law into unearned, long term contingency, and case-loss
reserves.

The Mortgage Loan Guaranty Coverage Now Offered

The modern mortgage loan guaranty plan is designed to indemnify a lender for the outstanding balance due on a defaulted loan and the accrued interest thereon until payment of claim; in addition consequential expenses for real estate taxes, insurance premiums, maintenance costs, and foreclosure process fees would be paid to the extent these exceeded available offsetting escrow funds, prepayment credits, or other receipts. The aggregate of these loan and expense items would equal the full claim of the lender. On payment of the full claim the lender must transfer clear title to the guarantor, who uses proceeds from resale or rental to reduce his gross claim costs. The guarantor reserves the option of paying 20 per cent of the lender's full claim and foregoing all right to title in the foreclosed property. Presumably the option would be exercised whenever the full claim net of salvage receipts could be expected to be more than 20 per cent of the claim. In effect the guarantor is insuring the top 20 per cent of the amount at risk on a mortgage loan. Such a partial guaranty is acceptable to a lender who is willing to make a loan equal to 70 per cent of the market value of the property without any additional guaranty or collateral, but who would like to make a 90 per cent loan to the same borrower if the additional risk could be shifted, preferably without using co-signers or collateral securities.

The Peril and Attendant Hazards Causing Loss

The specific peril confronting lenders and hence guarantors or insurers is the default on mortgage terms by the borrower, leading to foreclosure and possible loss of income (interest), capital (loan principal), and extra expenses (insurance, maintenance and foreclosure costs) to the lender. The net amount at risk is the difference between the aggregate of those losses and the net recovery value realized from the sale of the foreclosed property. The principal of the mortgage note is the single largest factor in the aggregate claim of the lender; therefore, the net at risk is a function of the ratio of the amortized loan balance to the market value of the property while accrued interest in default and the expenses of carrying the property in good condition and free of new liens are a function of the amount of loan and property values. These costs will vary with the duration of the foreclosure process and fee costs in a given court jurisdiction. [3] Since periodic payment of the debt service charge on a mortgage loan is vulnerable to anything that can affect the borrower's power or will to pay, it is not surprising there is a high frequency of occasional delinquency of monthly payments. While some threats to regular payment are random in nature, such as illness or divorce, delinquencies and defaults tend to cluster around employment and disposable income cycles of an occupation

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[3] See Table 2.

or of a geographic region. The debtor can remove the debt service burden by refinancing to achieve lower periodic payments or by selling the property and applying the proceeds to liquidate the loan balance. It is critical that resale be feasible at a debt liquidating price. Unfortunately resale may not bring a price sufficient to liquidate accrued debt and expenses, before or after foreclosure, because of real estate price cycles, property depreciation, property obsolescence, or other factors of real estate demand and supply.

Urban real estate prices in the United States have a long history of general price fluctuation, and individual property sales vary widely from appraised values due to imperfections in the market structure and the relative bargaining powers of the parties at interest at the time of transaction. The real estate cycle, well documented in many sources,[4] has been closely related to the general business cycle, and in the case of residential real estate to urban employment and family income. At one time the urban real estate cycle appears to have been roughly 18 years in length from peak to peak, but since 1925 the regularity of the pattern has been broken.[5] More recently since 1935 up to 1959 FHA foreclosure experience

[4] Business Cycles and Economic Growth, James S. Dusenberry, McGraw-Hill 1958; "Long Cycles in Residential Building: An Explanation, " ECONOMETRICA, Vol. 8, 1940, J.B. Derksen; "Building Cycles in the United States, " J.R. Riggleman, JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION, Vol. 28, 1933.

[5] The Urban Real Estate Cycle — Performances and Prospects, Homer, Hoyt, Urban Land Institute Technical Bulletin 38, June 1960.

shows a maximum of three years from a low point to a peak in foreclosure,

as a per cent of mortgages in force, for a very damped cycle ranging from

.1 of 1% to .3 of 1%. [6] The cycle has not shown a very elastic response

to minor business fluctuation; an upward trend in real estate prices for a

majority of the past 165 years has only been reversed for a few years at

a time by a major economic crisis, at which point the downturn in real

estate values was abrupt and steep. The duration of the decline, not its

absolute depth, is of prime interest to the mortgage creditor who has

taken over a property to await the return of rising price levels caused by

continued urban population expansion, gradual inflation, and a restoration

of public confidence in debt-financed real estate investment. Market

values in neighborhoods may also decline for reasons of obsolescence,

and such declines are less likely to be reversed by general economic im-

provement. A growing portion of residential values consists of built-in

mechanical utilities with replacement spans which are far shorter than

loan and structural life spans or of residential location and design factors

which are subject to changing fashions or living patterns. Thus the rate

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(6) Page 46, FHA 26th Annual Report (1959); United States Government
     Printing Office, Washington, Superintendent of Documents, 1960.
     (Ed. note: As this study goes into print news releases indicate unusually
     1960-61 recession has hit FHA insured high ratio loans with abnormally
     high default frequency experience. Defaults and foreclosures appear
     to be approaching 1% of insured mortgage volume. FHA officials
     attribute this unexpected elasticity of response to business recession
     to 'riskier" underwriting standards, i. e., low-low down payment
     loans and lower income standards due to prolonged amortization.)

of functional depreciation or market obsolescence may closely parallel or

exceed the rate of debt amortization on the house in some neighborhoods,

particularly in the early low equity years of the loan. Failure of the

owner's equity to increase, in the opinion of the owner or the market,

undermines the will to pay[7] and the collateral value of the property.

Hence the real peril insured by a mortgage loan guaranty contract is the

borrower's ability and intention to repay and the market price deflation of

a particular pledged property, either for reasons unique to the property or

common to a general decline of income and price level where there is little

widespread expectation of a near-term upward correction.

The Guaranty and the Economic Risks of the Lender

Traditionally, the mortgage lender has attempted to stabilize projected

income and to preserve assets by means other than insurance. Credit in-

vestigations and restrictions on the ratio of debt service to disposable in-

come can reduce frequency of defaults which lead to foreclosure. Severity

and sometimes frequency of foreclosure losses can be shifted by requiring

collateral or endorsement and by using contingency reserve allocations from

earned surplus to fund possible future losses. The use of 25 or 30 year

term, high loan-to-value ratio mortgages may actually reduce frequency of

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(7) The will to pay was shown to be more significant than ability to pay
in one study of depression mortgage loan experience. The History of
the Home Owners Loan Corporation, C. L. Harriss; National Bureau
of Economic Research, 1951: New York.

default by reducing periodic debt service payment through stretch-out of principal repayment but increase loss severity since there is little owner-equity to apply toward the additional accrued expense items of foreclosure.

Since 1955 mortgage lender income has not risen as quickly as his money costs, his loan placement and service costs, and his need to fund reserves for potential foreclosure losses due to competitive pressures to make loans at terms that once were unacceptable. Lenders face more exposure per loan as both loan ratios and loan balances rise. Banks, insurance companies, and savings and loan associations, the three principal sources of residential mortgage funds, are not affected to the same degree by income-cost factors mentioned above. The mortgage loan policies of the first two institutions suffer under numerous legal restrictions which can be avoided by shifting investments to a wide choice of other media. Savings and loan lenders are invested primarily in residential loans and evidently must find the bulk of their future loan opportunities in mortgage lending. The present mortgage loan insurance first arose in response to savings and loan risk management problems.

Factors Stimulating Savings and Loan Demand for Mortgage Guaranty

The remarkable expansion of savings and loan lending has led many of these lenders to compete for additional savings with higher dividend rates to savers, which has required an increase in interest yields on loans, a higher interest rate being more acceptable to borrowers *when combined with* higher ratio, longer term loans. The increase in money costs is indicated by the fact that

dividend yield averages have inched upward from 2.9% in 1955 to 3.6% in 1959.[8] In addition, dividends paid to savers have been taking a larger share of savings and loan gross income at the expense of allocations to reserve. The increase in interest rate did not keep pace with the increase in dividends paid, for despite increases in 1958 and 1959 the average rate of increase was about .4%. Of lenders reporting to the Savings and Loan League, 55% indicated a 6% interest charge with only 7% of reporting lenders in excess of that rate. Such an increase barely reflected the hike in exposure per loan risk. A recent study by the Federal Reserve Board[9] indicated that the risk assumed on the average savings and loan first mortgage loan was increasing substantially; since 1955 downpayments were reduced from 37.1% to 33.4% of the average price while the average price of the house increased from $12,900,000 to $15,800,000. The FHA reports almost 70% of all new home owners in the Section 203 program (the Mutual Mortgage Insurance Fund) made downpayments of less than 10%, the average downpayment having dropped from 15% in 1954 to 8½% in 1958 to 6½% in 1959.[10] The median new-home mortgage insured by FHA in 1959 was $13,293, 5% above the comparable figure for 1958 and about

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(8) U. S. Savings and Loan League 1959 Fact Book.

(9) Federal Reserve Bulletin, August, 1960, "Construction and Mortgage Credit," Vol. 46, No. 8, pp. 841-848.

(10) Pp. 62-64, Twenty-Sixth Annual Report of the Federal Housing Administration for year ending 12/31/1959; U. S. Government Printing Office, Washington, D. C., 1960.

two and one-half times the median of $5,504 insured in 1946, the great

bulk of 1959 loans being in the $10,000-$16,999 category. The FHA

further noted the use of the maximum mortgage term of 30 years increased

sharply from 27% to 78% of new-home transactions and from 17% to 25% for

existing-home mortgages insured   in 1959. The respective 1955 figures

were 27% and 7%. During the same 1955 to 1959 period VA downpayments

dropped from 5.3% to 3.3% with a 30 year term now the rule. [11]

Growing public demand for low downpayment, longer term loans,

reflects two economic interests; first, consumers who seek to control the

monthly budget outlay for housing expense, and second, producers who

seek to spur home building and real estate sales activity by removing the

barrier of a large initial payment. Home Loan Bank rules since 1958 have

permitted loan ratios of up to 90% for loans not to exceed a 30 year term

on conventional residential real estate mortgage loans. [12] The public

demand for more generous loan terms has come at a time when turnover of

association investment portfolio is growing impressively in terms of

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[11] P. 71 et seq., Report of the Veterans Administration for fiscal year
ending 6/30/1959. U. S. Government Printing Office, Washington,
D. C., 1960.

[12] A recent study by the HLB indicates that S & L lenders have made
only limited use of this privilege; it can be expected, however, that
urban lenders will make much greater use of the 30 year 90% loans
as management adjusts its psychology to higher conventional limits
and gains confidence in the suitability of mortgage guaranty.

absolute number of dollars. [13] Longer amortization periods can reduce

turnover by delaying the return of capital to the lender; repayment of capital

at a reduced rate may permit the borrower to borrow more with a given in-

come; higher loan ratios put more money back to work at each loan oppor-

tunity; higher ratios need not affect foreclosure frequency and the theoretical

uncertainties of a thirty year term loan are inconsequential for the later

years as normal turnover will result in prepayment in most cases before

fifteen years have passed. There is some opinion in savings and loan circles

to the point that since 1958 loan opportunities may be increasing at a de-

clining rate relative to the increase of loanable funds, with some of the

increase in the ranks of borrowers for new home purchase coming from lower

income or less stable sectors of the population. The alternative to higher

loan-to-ratio commitments is idle investable funds and a declining average

yield on asset dollars.

Supply of loanable funds is further expanded by the need of lenders to

loan out more funds than are supplied by depositors because current dividend

commitments added to loan initiation, loan servicing, and operating expense

may more than equal yield on deposit dollars. Invested in additional loans

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(13) In 1950 of a total net cash intake of $3,863 billion new savings ac-
counted for 28% and mortgage repayment 62%; in the first six months
of 1959 new savings were 33% of a total cash intake of $6,511 billion
while repayments were 53% of total.

leverage funds[14] will improve income but will increase the exposure of the lender to foreclosure loss situations; additional losses from these loans could offset income from other earning assets. Fluctuation of income might require a slight reduction in dividend rates, if only for a single dividend period. However, deposits won on the basis of dividend rate may be very sensitive to a dividend reduction, and a significant flow of withdrawals might follow. The need for stability of projected income, rather than capital conservation per se, could militate for the use of a mortgage guaranty.

Lender Resistance to Government Loan Guaranties

While there are many reasons indicating a trend toward higher ratio loans despite uncertainty as to their ultimate effect on income stability, the savings and loan industry has not stampeded to any guaranty plan for assurances of more stable income. Historically the savings and loan industry has tended to resist the use of FHA-VA guaranty plans. Savings and loan lenders point out that FHA-VA interest ceilings create severe discounts in time of higher interest yields, which penalize the borrower with a cost which cannot be termed interest expense for tax purposes, is unrecoverable if the loan is pre-paid, or is hidden in the purchase price of the home when the discount is paid by the seller. Biased by a general dislike of government

[14] There are four sources of cheap or costless capital for the savings and loan lender: (1) loans from Home Loan Banks on pledged portfolio mortgages, (2) undistributed surplus funds, (3) accumulated loss and contingency reserves, and (4) servicing fees for mortgages sold to non-servicing investment portfolios.

bureaucracy, lenders find procedure for loan insurance approval duplicates lender facilities, is prolonged, and is overly detailed. There is some opinion that FHA is overly priced because political and sociological[15] objectives add to administrative expense. Finally FHA claims are paid in low interest government bonds which are not redeemed until the property is sold by the FHA and which often sell on the market at substantial discounts. These sentiments are sufficiently strong that in 1958, when a proposal[16] reached the floor of Congress to create a special Home Loan bank subsidiary for the insurance of savings and loan mortgages, the amendment of the proposal to include an interest ceiling and other FHA-type features prompted savings and loan people to withdraw their support of a plan which they first sponsored.

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(15) The possibility that integration efforts will be furthered by enforcement of FHA standards for non-discrimination among buyers for reasons of race or creed suggests that builders in some areas of the country will turn to high ratio conventional loan home financing, expanding the market for private mortgage guaranty.

(16) In 1958 a proposal was introduced in the House of Representatives, specifically Title VII of the 1958 Housing Act, to permit the Federal Home Loan Bank Board to form a home mortgage guaranty subsidiary to insure savings and loan mortgages. The proposal called for indemnity not to exceed 20% of mortgage principal and interest due at default for loans bearing not more than 6% interest for a premium of 1/4% per annum for ten years or a single premium charge of 2% at the outset of the loan. Passage was opposed from many quarters by people who objected to the interest ceiling and further governmental control of appraisals.

Advantages of Privately Capitalized Mortgage Guaranty

Mortgage guaranty insurance, privately capitalized or initiated by the government, can offer the economy, the individual lender, and the borrower important economic benefits. Extensive use of mortgage loan insurance may contribute liquidity to many individual lenders if not to the mortgage banking network as a whole and can be considered a contra-cyclical factor in a period of instability. Loan insurance may stabilize lender expenses and income and may lead to equalization of loan capacity among competing types of lenders, thereby eliminating the need for unnecessary secondary financing. It will shift the lending risks of income and price cycles to an equity investor so the lender may better serve in his capacity as a non-speculative savings medium. In a time of depression the guarantor

could stabilize real estate values by withholding foreclosed property from the open market, although admittedly in good times the guaranty can foster inflation of residential real estate value by encouraging high ratio long-term lending. But the borrower and the lender enjoy extra benefits under the private mortgage guaranty.

As presently designed the private loan guaranty offers the borrower a number of advantages not found in the FHA program. First, he may not obtain a higher ratio loan than he might otherwise have had with FHA insurance, but his premium charge is about one-half what it would have been for FHA-VA protection. Where the loan is on an owner-occupied single family residence, the guarantor waives the right of deficiency judgments against the debtor. The borrower is spared the inequities of the discount system and is burdened with the cost of loan insurance for no more than 10 years rather than for the life of the loan. The borrower does not receive the benefit of impartial FHA supervision of construction or inspection of older properties that he would receive under a government program.

The lender receives a number of major economic advantages. He may expect to receive a commitment or rejection of application without delay, without an interest ceiling, and without duplication of his own loan surveys by the underwriter. Private plans presently feature lower premium rates than FHA on an annual premium basis and a 2% single premium plan for which FHA can offer nothing comparable. There are no statutory limits on the amount of a single loan other than loan limits established by lender

policy and the customary restriction on any insurer of exposure on a single risk limited to 10% of admitted capital and surplus. The guaranty is designed to cover only that portion of a loan a lender would not make without collateral insurance and is ~~prepared~~ *expected* to pay the claim in cash, not bonds.

The private guaranty may offer a solution to organizational dilemmas or loan policy as well. The small, young, urban mortgage lending institutions could find the guaranty plan advantageous to stabilize current income prospects and to second-guess an eager, aggressive loan officer. The older loan association might use a private guaranty to arbitrate a difference of opinion on what constitutes a safe loan, as seen by the manager anxious to compete for good loan opportunities and the conservatives on the board of directors who vividly remember depression mortgage experience. In those states where usury rates[17] are as low as 6%, the guaranty premium is not considered interest and therefore offers a means of transferring the loss hazard element of cost while holding interest rates within permissible levels. In some instances use of the guaranty application form has improved the lending techniques of less sophisticated bankers, and experience has shown lenders often submit loan applications to shift the onus of refusal to the guarantor who need not maintain very specific community relationships.

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6 %

[17] In Maryland the Attorney General recently ruled that a ~~six-per-cent~~ interest rate coupled with a guaranty premium did not violate that state's ~~six-per-cent~~ usury law.

6 %

The Guaranty and the Risks Confronting the Guarantor

The theoretical risk that the savings and loan lender shifts to the guarantor is the indeterminate cost of foreclosure losses occasioned by the lack of sufficient owner-equity cushion or by the price and income deflation of severe recession. The insurance of mortgage loans against such losses can be designed and underwritten to have all the attributes sufficient to make it a proper subject for the insurance mechanism, save one, the requisite that loss cannot occur to a majority of exposures in a single catastrophe. While wide geographic dispersal can effectively protect the fire and casualty insurer from most disasters, broad dispersal of insured properties is only partial protection for the mortgage loan guarantor who faces an economic peril which is intangible and regional or national in origin. A catastrophe loss is unpredictable and its insurance cost economically unfeasible. Nevertheless, mortgage loan insurance is intended to underwrite a risk of loss which is "in the nature of a catastrophe hazard which may be characterized as economic in nature and cyclical in pattern."[15]

There is a broad spectrum of opinion on the extent to which the nation enjoys a depression-proof economy, or more accurately, a business cycle of endurable and controllable proportions that will produce mortgage loan

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[15] Page 92, 24th Annual Report of the Federal Housing Administration, for the year ending December 31, 1957, Washington, D. C., 1958, Government Printing Office.

losses of limited magnitude. The private guarantor presumes the preponderance of institutional economic factors are inexorably working for economic conditions which promote his success; only a minority of factors are considered likely to have opportunity to generate a serious downturn of price and economic level. The role of the United States economy in modern history is such that to presume depression is to imply political and social destruction of the country as well. For the guarantor depression, like atomic war to the general public, is incomprehensible and preparation, inadequate and fatalistic. The more immediate threat to survival of mortgage loan guaranty is considered by its proponents to be the "brush war," i. e., a recession of significant slope and duration soon after the start of business. Where short term recession and not long term depression is the peril, rate-making may be within manageable boundaries.

Perhaps the guarantor can be thought of as a judgment underwriter evaluating the perils of institutional economics, for his confidence in his ability to insure mortgages in profitable volume is dependent upon his advantageous use of certain institutional aspects of modern American economics and finance.

Government Policy Makes Private Guaranty Possible

First the private guarantor exists only because a majority of savings and loan executives resist the procedures and policies of available government loan guaranties. Resistance is not so strong that of those who oppose present government guaranties some might not receive very favorably a

revised FHA program, [19] in the event Congress would permit the Mutual Mortgage Insurance Fund to reduce premiums, to adapt some sort of Certified Agency Program (CAP) in all areas to speed processing, and to remove interest ceilings to eliminate distasteful discounting practices. Such a major reform seems unlikely upon review of the legislative fate of several FHA improvement proposals and of the resistance within FHA to the expansion of CAP. Savings and loan lenders might prefer an FHA guaranty to any private plan in order to gain the national mobility, extra high loan limits, and greater liquidity of an FHA-sponsored loan. Such a threat to the useful life of a private guarantor is presently forestalled by Congressional concern with the sociological rather than purely economic aspects of housing legislation and by legislative control of FHA underwriting capacity and operating budget.

Secondly, there is a paradox in the fact that a private guarantor, champion of private enterprise and a beneficiary of lender resentment of government interference, tends to benefit more than most businesses by the activities of Government to support high employment and general price levels. One real estate economist[20] has pointed out that not only is

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[19] For a full critique of the FHA program together with VA and FNMA, see "A More Effective Mortgage Insurance System," by Miles L. Colean, appearing in Study of Mortgage Credit by subcommittees of the committee on Banking and Currency, United States Senate, 1st Session, 86th Congress, Govt. Printing Office, 1959, Washington, D. C.

[20] Homer, Hoyt, p. 11, The Urban Real Estate Cycle — Performances and Prospects, Bulletin 38, Urban Land Institute, Washington, D. C., 1960.

government monetary and fiscal policy important to the support of real
estate market value but also the every day operational policies of various
government agencies will cushion real estate value against economic shock
unlike any institutional network that existed during the 1930's. For ex-
amples of direct relief of pressure on real estate value during an economic
decline consider:

1. The more sophisticated regulation of banks and the guaranty of
   bank deposits by FDIC or of savings and loan deposits by FSLIC
   reduces threat of an accelerated decline in real estate values due
   to forced liquidation by banks to meet withdrawals or insolvency.

2. Mortgage reforms by the FHA (including amortized long term debt)
   creates increasing owner equity as an incentive to hold property
   for an up-turn and eliminate need for refinancing in a period of
   recession.

Government agencies also indirectly sponsor real estate stability. Over the
long term various agencies have accomplished much:

1. Consumer consumption capacity is far more stable than business
   activity due to a myriad of factors like social security, unemploy-
   ment insurance, tax-inspired pension funds and charities, redistri-
   bution of income by tax policy, and so forth.

2. Labor reform has strengthened labor unions to a point where wage
   rates can be maintained in a fairly inelastic range despite unemploy-
   ment and depression, thus supporting a price index which reflects
   labor costs.

It is not unreasonable to assume that each government agency which might come into possession of real property during an economic crisis, be it FHA, VA, FDIC, FSLIC or any one of a dozen others, would hold property under its control off the market to implement direct government policies seeking to reestablish an orderly real estate market. Certainly government fiscal, monetary, and debt management policy are all intended to maintain high employment, consumer income, and business growth, all of which should discourage a high rate of foreclosure or a serious reverse of price level. In short the dependency on government of all real estate activities and therefore of the private guarantor is underscored by the following statement of the well known economist Miles B. Colean:

> Out of this development, in which practically every source of governmental power has been invoked, real estate activity and its financing emerge more fully subject to governmental influence, regulation, and control than any part of the economy not distinctly of a public or public utility character. [21]

Inflation Expectations and the Guaranty

A third economic factor favoring the guarantor, the pressure of gradual inflation on price level, is also the product of government policy to a large degree. Inflation favors the guarantor as well as the debtor while increasing the uncertainties of the lender.

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(21) Pp. 150-151, The Impact of Government on Real Estate Finance in the United States, Miles L. Colean, National Bureau of Economic Research, 1950, New York.

1. Inflation raises the market price of the debtor's property, his equity in the property, and his income, and permits him to pay the lender with cheaper dollars than he borrowed.

2. While inflation would raise home prices, it would not be likely to increase proportionately buyer savings for a down payment so that higher ratio loans would be needed to promote real estate activity.

3. To preserve purchasing power of savings, the saver must seek higher interest yields or find equity investments; savings institutions tend to make conventional loans at higher loan ratios and for longer terms to justify higher interest rates to pay higher dividends.

4. At the same time the lender could use the private guaranty contract as a means to hedge a reversal in inflationary price trends without becoming subject to the interest ceilings and discounts involved with FHA-VA guaranty. Not only does inflation improve the demand for the private guaranty, but a rising price trend quickly reduces the exposure of the guarantor to loss both from lessened severity and a diminished number of foreclosures on pre-existing mortgages made at pre-inflation value ratio.

The Potential Political Resources of the Mortgagor

The real estate debtor in the United States has always enjoyed a certain amount of legislative favoritism in times of economic crisis. Politically

in the majority, the debtor has had the benefit of special moratoriums, delayed foreclosure and homestead exemption statutes, and special lending agencies such as the Home Owners Loan Corporation. In a more serious recession the political capital of his debtor-partner may indirectly relieve the many pressures bearing upon the guarantor at such a time, but political resources are so intangible a quantity that it is impossible to measure their effect on reserve adequacy. Alignment of the guarantor with the debtor may create minor conflicts of interest with the legislative objectives of the lender[22] but only in the narrowest frame of reference; for all parties concerned, reduction of foreclosure and repossession experience in good times or bad is to everyone's advantage.

Long Term Factors Supporting Urban Real Estate Values

There are more positive economic factors to support guarantor optimism. There is evidence of continued heavy demand trend for land in metropolitan areas. There is a rapid growth of suburban populations in single family residential areas; the greater space requirements for new homes, shopping centers, schools and highways mean increasing demands for land and replacement of obsolete housing inventory. [23] The rapid increase in the number of young

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(22) For example, duration of redemption period will affect guarantor claim amounts and net loss experience. In normal times quick foreclosure means reduced claim costs as carrying charges do not accrue; in recession periods, however, guarantor will wish to delay extinguishment of redemption rights when he must exchange liquid reserves for real estate in claim settlement; at least until favorable resale is in sight.

(23) P. 14, The Urban Real Estate Cycle – Performances and Prospects, op. cit.

people reaching marriageable age in the 60's will thereby increase the rate of family formation and the need for residential units; and the various efforts at reconstruction and rehabilitation of central metropolitan areas will preserve values and create the need for additional, central, residential units.[24]

Underwriting Procedures and Risk of Foreclosure Loss

While the guarantor faces the risk that a wide number of economic factors may not perform to his expectations, he also faces hazards in his techniques of underwriting and claim administration. He must discriminate among real estate conditions in various areas, appraise the practices of participating lenders, and evaluate thousands of individual applications for mortgage coverage. The private guarantor must differ greatly from the underwriting procedures established by the FHA-VA programs if he is to offer a competitive service at an adequate as well as competitive price. Except for the Certified Agency Program (CAP), the FHA method performs all the functions of loan analysis, appraisal, and construction inspection with FHA personnel, using the lender primarily as an information collection agency. FHA procedures have revolutionized the art of residential finance. Unfortunately the detail, the shortage of trained personnel due to restricted budgets, and the excessive duplication of the lenders' loan processing staff results in a very expen-

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(24) "Importance of Net Replacements in Housebuilding Demand," p. 32, Study of Mortgage Credit, Subcommittee on Banking and Finance, U. S. Senate, op. cit.

(25) During the history of its operation, the FHA has administered ten separate programs of mortgage insurance, the total income from which amounted to more than $ 1.2 billion by mid-1957. Of this total approximately three-quarters (73%) has come from premiums and the remainder from all other sources, the most important of which is fees. Total expenses have amounted to 42% of gross income including 8% for losses incurred. Expenses excluding losses equal 47% of earned premium. The largest continuing program, and the only one which permits dividends to mortgagors as a mutual insurer, is the M.M.I.F., which, by June 30, 1957, had collected $758 million or 65% of total gross income for all ten funds. As in the case of the aggregate, the major portion (72%) of income of the M.M.I.F. came from premiums, 19% from fees, and less than 9% from other sources. Total expenses absorbed $332 million, or 44% of the total income of the M.M.I.F.; over $308 million was dispersed for administrative purposes; that is, administrative expenses alone amounted to 41% of total income and to 56% of premium income. Only $4 million was needed to meet losses on acquired property. These figures are taken from "The FHA Mortgage Insurance Premium - An Analysis and An Alternative," page 324, Study of Mortgage Credit, Op. Cit. As of December 31, 1959, aggregate mutual participation payments were equal to 30% of total FHA premium collections, and the average dividend per mortgagor, was approximately $120. These dividends are paid when a mortgagor terminates his mortgage for reasons other than default; terminations in the early years preclude any dividend, which increase with duration of insurance coverage. For many classes of business, with durations of fifteen years of more, participation payments currently are equal to the cumulative premiums paid by the mortgagor. The letter has no vested right in the participating reserve, which must be exhausted by loss payment before funds in the insurance reserve are expended. Page 100, 26th Annual FHA Report, Op. Cit. (Editor's Note: In the MMIF plan, basic reserves are supplied entirely by the mortgagor; the stockholder gives the private guaranty plan these essential reserves. Nevertheless, FHA administrative expenses alone equal the total private premium charge, so that insurance costs, even after a favorable termination dividend, favor the private plan.)

sive,[25] prolonged underwriting process, ranging from 10 days to 10 weeks

in length. Realtors and lenders have felt such commitment delays and uncer-

tainties impede real estate sales. Furthermore, it is possible that the ex-

pense of such underwriting care is not offset by a parallel reduction in

incurred losses; underwriting expense may be subject to diminishing returns

in terms of cost of preselection to reduce foreclosure frequency and loss

severity and cost of defaults thereby avoided. Appraisals by different but

competent appraisers of the same property will have only a small degree of

variation, and the acceptance or rejection of a borrower on the basis of

credit report or employment may cause debate among any two experienced

credit analysts. Where a guarantor may at his option pay only 20% of a

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mately three-quarters (73%) has come from premiums and the remainder
from all other sources, the most important of which is fees. Total ex-
penses have amounted to 42 per cent of gross income including eight 8%
per cent for losses incurred. (Expenses excluding losses equal 47 per %
cent of earned premium.) The largest continuing program is represented
by MMIP which, by June 30, 1957, had collected $758 million or 65 per %
cent of total gross income for all ten funds. As in the case of the aggre-
gate, the major portion (72%) of income of the MMIF came from premiums,
19 per cent from fees, and less than nine per cent from other sources.
Total expenses absorbed $332 million, or 44 per cent of the total income
of the MMIF; over $308 million was dispersed for administrative pur-
poses; that is, administrative expenses alone amounted to 41 per cent %
of total income and to 56 per cent of premium income. Only $4 million
was needed to meet losses on acquired property. (Ed. note: since the
premium for private guaranty is about one-half the premium charged by
MMIF, this means that FHA expenses equal the total private premium
charged.) Quoted from "The FHA Mortgage Insurance Premium — An Analy-
sis and an Alternative," p. 324, Study of Mortgage Credit, op. cit.

claim, he pays only 20% of the value of his mistakes — perhaps, on those included in a cross-section, as few as 1% of the insured portfolio.

Consequently, the modus operandi for the private guarantor underwriter is to accept the lender's credit file[26] and appraisal for all loans submitted and to charge an appraisal fee for loans of more than 80 per cent loan-to-value ratio. These fees pay for an independent appraisal of property spot checked by independent, professional, and local appraisers. Where a lender is found to be overly generous on his valuations with any regularity, his rights to submit business without a prior independent appraisal may be withdrawn. This process of post-auditing appraisals does not affect the validity of a loan insurance commitment issued. Since commitments are issued and underwriting is done on the basis of information submitted by the lender, the lender generally receives a commitment by return mail in no more than three days. The speed of this process depends on judging the strength of the borrower from reports of his credit record, employment, and the ratio of family income to family money obligations. Some weight is given to the reliability of the lender furnishing the information and the validity of appraisal reports made by experienced local people familiar with local markets and values. Once the appraisal was considered to constitute

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[26] A lender who has received approval of his appraisal personnel by the guarantor submits a simple one page application summarizing the facts concerning the loan and property. Along with it is sent a credit report, the lender's own appraisal of the property value, a photo of existing property, and a copy of his own loan application from the borrower.

the essential security offered on a property to be mortgaged, but today it is recognized that an analysis of a borrower's ability and intention to repay, and of economic trends affecting incomes and values, can be a much more vital factor in reducing the number of defaults. To a guarantor with a maximum liability of 20 ~~per cent~~ on each aggregate claim the amount of loss per claim which might result from an inexact appraisal is far less significant than accomplishing over-all reduction in the number of claims.

The problem of adverse selection is not minimized so easily. A lender will not choose to antagonize his very best mortgage risks with the added cost of a guaranty. He may wish to insure only those high ratio loans whose eventual repayment or collateral values are subject to reasonable doubt. The lender may shift responsibility for acceptance or rejection of a loan application to the guarantor. He may in special circumstances be overly generous in his appraisal of pledged property, reasoning that it will be noticed only if the coverage is one of every three spot-checked by the guarantor and that the guarantor will do nothing where a precedent of over-appraisal cannot be found. The young guaranty firm, striving to achieve the leverage of premium written and a break-even point for premium earned, is tempted to accept riskier loans than it might otherwise consider. If there are two young guaranty firms, applications might first be submitted to the stronger firm and then, if rejected, sent on to the competitor which is trying to break into the good graces of the market. This second firm is selected against twice, once by the lender and once by his competitor.

With a limited market for the guaranty, a second firm may be in a riskier position than the first at comparable points in their careers despite possible capital advantages. While the guarantor gains experience, it seems certain that adverse selection of risk cannot be avoided and may distort loss experience for a few years following onset of guaranty operations. Preselection of lenders may reduce the frequency of adverse selection while judicious use of the 20 percent option to leave a troublesome property in the hands of a careless lender may reduce loss severity and discourage future adverse selection. The potential insidious problem of adverse selection is one of the most critical that mortgage guaranty underwriters must face, and later detailed underwriting rules intended to control selection will be examined.

The Effect of Claims Administration on Foreclosure Loss

The problem of claims administration would appear to be the weakest link in a guarantor plan of operation. When prices are steady or rising, payment of a foreclosure claim by the guarantor is almost a service rather than indemnity, for the loss incurred is principally the excess of foreclosure above the owner equity cushion. As claims increase in a cyclical pattern, the dilemma for the guarantor is to continue paying claims without losing either his liquidity or his capacity to hold property collateral pending its resale on a rising market. If market value can be expected to rise faster than aggregate net holding expense (fixed holding charges minus

realized lease revenues) holding property pending the rise may reduce the
net loss on each claim. A preconceived arrangement for financing the inven-
tory of real estate during an economic crisis is almost essential. The
"guaranty" companies of the 'Twenties contracted to pay the holder of a
guaranty mortgage share only the interest payment as due, while postponing
a final payment of defaulted principal until eighteen months after the de-
faulted note was to have matured; in effect the mortgagee was paid interest
by the guarantor for the use of funds to bank the real estate holding opera-
tion. This plan had two fatal flaws: first, mortgage loans of that era were
of the balloon payment type of five to ten years' term so that a large propor-
tion of the portfolio would mature each year; and secondly the period of
depressed prices lasted far longer than the average future maturity plus the
eighteen months cushion which was to have provided sufficient time to dis-
pose of the property in question. The FHA-MMIF method which followed in
1934 corrected the flaws in its predecessor while recognizing the value of
the "interest only" gambit. The FHA-insured mortgagee, with a foreclosed,
amortized 20 to 30 year loan, is indemnified with government bonds of longer
maturity date[27] than the defunct loan in an amount equal to insurance

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(27) Insurance benefits are paid with: (1) Mortgage debentures of the fund
in the amount of unpaid balance plus any payments for insurance and
taxes on the property made by mortgages during default. These bonds
were to mature and become payable "three years after the 1st day of July
following the maturity date" of the defaulted mortgage in question. These
bonds, carrying a moral guaranty of the Federal Government, pay no more
than 3% coupon rate; (2) in addition the fund will issue a "certificate
of claim" in an amount which, added to the above debentures, would
represent the amount paid by mortgagor exercising equity of redemption

benefits due. This method creates a long-term, funded liability immediately

balanced by the acquired property recorded as an asset valued at its cost

in bonds; bonds would be called and repaid as properties were sold; mean-

while such an arrangement recognizes that the original lender is financing

the property-holding maneuver but gives the lender a legally approved,

marketable long-term investment with the quality of a quasi-federal govern-

ment bond. Indemnity in this manner makes no inroads on guarantor cash

reserves which may then be used to pay maintenance expenses on the

properties held. In effect FHA has two reserves, those from premium and

those from unrestricted borrowing. Interest costs are held in check by the

long term government debt interest ceiling.

The arrangements for holding real estate by the private guarantor appear

to be less complete and less theoretically balanced than either of the above

plans. The private guaranty contract, as presently conceived, gives the

insurer two options: (1) to pay 20% of the full claim benefits due in cash

and to waive all rights in the foreclosed property which the lender must

then sell to gain full satisfaction; (2) to pay the full claim in cash in return

for tender of clear title to the completed, intact foreclosed property. For

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rights; redeemed only if, as, and when, the Fund sold the property
for funds in excess of debenture indemnity, certificates accrued in-
terest at 3%. Claims were not a liability of fund, and yet Fund could
not profit by appreciation of property values. Mortgagor would re-
ceive proceeds in excess of debentures, FHA administrative costs, and
certificates redeemed. P. 12, The Mutual Mortgage Insurance Fund,
Ernest M. Fisher and Chester Rapkin, Columbia University Press,
New York, 1956.

the lender the first option would cover the principal and those normal expenses above foreclosed loans with lower loan ratios and is similar to the coverage contemplated in the Home Loan Bank mortgage guaranty program proposed in Congress in 1958. [28] Retaining title to the property is preferred by many lenders who remember the profits[29] of holding properties foreclosed in the Thirties until the mobilization and building shortage sent prices soaring in the early Forties. The second option offers the guarantor an opportunity to reduce loss or even profit on resale rights. Of course the lender may preserve resale opportunities by failing to submit a claim, thereby waiving coverage. The FHA system keeps alive equity of redemption rights, as well as possible deficit judgment exposure, so that FHA cannot profit. For the private guarantor neither option automatically conserves cash or establishes a very specific total maximum liability. In the case of the 20% option. liability can vary with the length of the foreclosure, the interest or tax rates. and the required maintenance expense. Payment of benefits in full, while preserving expectations of better than 80% recovery of claims and property carrying charges in the indefinite future, could

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(28) Refer to footnote 16.

(29) "The fact that more than a third of the foreclosures under Section 203 and almost a fifth of those under Section 603 have involved" retention of properties by the lender who has obtained them through foreclosure indicates either conditions for profitable resale of these properties by the mortgagee or strong resistance to indemnification with FHA bonds. " Page 43, 26th Annual FHA Report, op. cit. For an interesting discussion of the profits to be made from properties received via depression foreclosure see History of Savings and Loan Associations of Wisconsin, Robert C. Earnest; published by Wisconsin Savings and Loan League, Millwaukee, 1956.

create a serious drain on working capital and the guarantor must be adequately funded for this purpose. Mortgage refinancing and rental for the interim before resale could mean less of an immediate cash drain than that caused by use of option #1, the option presumed to create financial flexibility. Unfortunately, refinancing might mean a conservative ratio loan on the basis of a depression appraisal; rent levels might be far more elastic in a serious recession than real estate taxes and other operating costs so that refinancing and rental could still leave a significant charge to working capital for each title acquired. In an economic slump so severe that the guarantor's own resources cannot provide sufficient working capital, it is very unlikely that general debt financing of additional working capital will be possible. The guarantor could have no reasonable expectation of favorable emergency loans from government, although aid from a new RFC or HOLC in a crisis is a remote possibility. Total assets of the guarantor offer only an index of capacity to invest in real estate tendered with a foreclosure claim, for demands on assets are varied. It is necessary to maintain a cash transaction balance sufficient to meet both the needs of continuing the guaranty operation and the costs of maintaining the real estate in the holding operation.

1. The liquidity required of the quasi-trust account, the contingency reserve, results in offsetting investments in bonds and de deposits and is designed specifically to be availa. payment.

2. In addition to contingency reserve earned income, retained surplus and finally capital would provide resources for investment in real estate.

3. The unearned premium reserve, also offset by investments in near money substitutes, would not be available for claims payment in excess of that which would momentarily become earned and that which represented "equity" in unearned premium protected by short rate forfeiture provisions.

4. The use of capital may be somewhat restricted, however, by the need for deposit of a liquid guaranty fund with a trustee as a condition of licensing in some states and by any decline of capital and accumulated surplus during a period of net operating deficits.

Unlimited investment in real estate of these funds is permissible under the statutes for periods as long as five years and in many states this period can be renewed by the insurance authorities.

All mortgage loan guarantors, public or private, face the problem of timing resale of property held to coincide with the point where market appreciation net of sales cost best offsets the accrued carrying charges plus the original claim cost. It is expected by the guarantor that such a holding period would not exceed three or four years. Nevertheless mechanisms of the private guarantor, while offering the attraction of cash settlement and other benefits to the lender, lack the liquidity and automatic financing of FHA-MMIF procedures.

The Mortgage Loan Guaranty and the Risks of the State Regulator

The state officials who must license and regulate an unprecedented mortgage loan guaranty are risking not only the public interest but oftentimes the prestige of technicians and the power of the department. As state regulation of insurance is currently held suspect in several areas by those who would find reason to introduce federal regulation of the industry, there is an added risk to failing a second time in the regulation of mortgage loan guaranty insurance. To reject the risk by refusing to license would cost the state considerable premium tax revenue and greater availability of residential mortgage money. Moreover, innovation always has the appeal of a challenging opportunity and of winning recognition for the technicians. In some states development of regulation must be complementary to reforms instituted by the banking department, as in the case of California. Therefore state regulation must establish initial standards for entry into the guaranty field and flexible procedures for instituting additional controls as experience reveals necessary.

The Precedents for Regulation of Mortgage Guaranty

The statutory and administrative law of modern loan guaranty has evolved from a number of legal precedents. First, there was the ill-fated, inadequate, and divided regulatory pattern of the now defunct investment guaranty business, a pattern typified by the experience of New York State. From the autopsy of this body of law and its results, came the study which

first put forward a consistent and cohesive framework of regulatory controls for residential mortgage loan insurance. This report, the _Alger Report_[50] by George W. Alger and his counsel Alfred A. Cook, is a fascinating review of the classic insurance, financial, managerial, and regulatory inadequacies and irregularities which magnified the failure of the mortgage investment guaranty scheme, and some of their findings are summarized in Appendix I. It is interesting in this era of government study projects that the _Alger Report_ conclusions did not shape legislation until a quarter of a century after they were first written. Only then were these conclusions the key to extensive legislative action.

Significantly, the men most knowledgeable on the shortcomings of mortgage guaranty as constituted in the 1930's and on state rehabilitation efforts, the authors of the Alger Report, did not advocate the prohibition of private mortgage loan guaranty, as New York chose to legislate. Rather, they recognized the need and established ground rules for the guaranty of residential loans. Their suggestions, together with the experience of FHA, provide the best standards for measuring the present guaranty law. The applicability of their proposals must be qualified because the authors always conceived the guarantor to be a mortgage investment company (as the 1920 companies were) which maintained reserves to protect the income expectations of investors.

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(50) _The Alger Report_, _op. cit._

Pertinent recommendations of the Alger report were for uniform accounting reports, for standardization of appraisal methods, for prohibition of subsidiary corporations, for complete separation of guaranty firms from other real estate service agencies such as title insurers and trust companies, for annual rather than five year examination dates, and for a restriction of guaranty contracts to mortgages on houses and small apartments using only an amortized mortgage. In addition, the report underscored four problems that new regulatory law would have to resolve:

1. Obtaining accurate appraisals

2. Fixing personal responsibility for appraisals and lending malpractice

3. Limiting the relationship of assumed liabilities and contingent liabilities to capital and surplus

4. Requiring liquidity of investment for capital and surplus.

Replace with 46-4

Prompted by an application for licensing[31] in the fall of 1956, the Wisconsin Insurance Department moved to implement these recommendations cautiously and in a manner designed to create the greatest possible flexibility for meeting an unprecedented regulatory problem. Regulatory control was established by combining a minimum of legislative amendment, new administrative rules, approval of a contract designed to achieve certain regulatory objectives, and the more subtle influences which are the prerogative of "the arrogance of position." Experience has shown that the

(31) For additional detail see Part IV of this study.

Unfortunately, mortgage insurance was not distinguished from the usual credit insurance, so that it is difficult to apply special minimum capital requirements or exclusive limitations on underwriting powers to the guarantor without unfairly penalizing the more traditional credit insurer. The Wisconsin law 1.04 (9) should once again be amended to create (9a) for credit insurance and (9b) for mortgage insurance.

Basic Wisconsin regulatory control was established by drafting Insurance Section 3.09 of the Administrative Code. This approach was felt to introduce more flexible regulation becuase new rules could be promulgated as unprecedented operations might require; to change the rule would be a matter of a department proposal, a public hearing, and a final decision solely at the discretion of the Insurance Commissioner. These rules became the prototype for either statutes or rules in other states as the guarantor achieved licensing across the country. Presented in full in Appendix II, these rules contain in addition to definitions and precedures, provisions for the following:.................

(31) For additional detail see Part IV of this study

(32) 2.1.04 (3) WIS. STATS.

(33) 202.04 (3) WIS. STATS.

The modern mortgage guaranty attempts to solve the first two problems by means of contract and underwriting procedure, but until recently did not specifically treat the last two problem areas. As this study will demonstrate, the third problem is critical.

Prompted by an application for licensing (31) in the fall of 1956, the Wisconsin Insurance Department gave concentrated study to the Alger Report before moving cautiously to approve the guaranty proposal. Many general reforms of insurance regulation had taken place since the '20's. Strict adherence to other Alger Report suggestions would have frustrated the guaranty plan at once. The Department utilized administrative rules and the insurance contract in a manner to create the greatest possible flexibility for meeting unprecedented regulatory problems. Guarantor management practices were regulated by the more subtle leverage which is inherent in the perogatives or arrogance of regulatory power. Experience has shown that the Wisconsin Department excercised a certain degree of tolorant indulgence of the guarantor. The more recent California law reflects an awareness of the need for disciplining this maturing segment of credit insurance, which may have grown at a rate not anticipated by the first Wisconsin laws.

Existing Wisconsin law in 1956 was not clear in its recognition of mortgage default losses as a proper subject for insurance. The Attorney General ruled that it would be permitted under the title insurance class, (32) but within a year it was found that the insurance departments of other states would not accept this classification. Title insurance seemed to be illogical, less restrictive (in many states), and discredited by association with the failures of mortgage investment guaranty. Consequently, the Wisconsin statutes were amended so that the ambiguities of a title insurance definition were removed and mortgage default insurance was specifically recognized as a branch of credit insurance.

Wisconsin Department exercised a certain degree of wise indulgence of the guarantor at the outset and that the more recent California law reflects an awareness of the need for disciplining a maturing segment of credit insurance.

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Basic Wisconsin regulatory control was accomplished by drafting an all new chapter, Chapter 3.09, to the insurance section of the Administrative Code. This approach was felt to introduce more flexible regulation because new rules could be promulgated as unprecedented operations might require; to change the rule would be a matter of a department proposal, a public hearing, and a final decision solely at the discretion of the Insurance Commissioner. These rules became the prototype for either statutes or rules in

[32] 201.04 (8) WIS. STATS.

[33] 201.04 (9) WIS. STATS.

Unit

other states as the guarantor achieved licensing across the country. Presented in full in Appendix II, these rules contain in addition to definitions and procedures, provisions for the following:

1. Determining unearned premium;

2. Establishing a unique unearned premium factor for a single premium plan spanning ten years of coverage; [34]

3. Defining of earned premium;

4. Creating a contingency reserve to consist of 50% of earned premium to be held for 180 months (15 years) to be applied to losses only when they exceed 20% of earned premium;

5. Allocating each premium dollar among contingency reserve (50%), current incurred losses (10%), administrative expense and commissions (37.5%), underwriting profit (2.5%);

6. Relieving borrowers for single family owner occupied dwellings of liability of the guarantor for any deficiency after a foreclosure sale.

The definition of earned and unearned premium recognized what the Alger report did not, namely, that a mortgage loan guaranty is an insurance contract

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[34] The Wisconsin Table of Unearned Premium Factors for Single Mortgage Loan Insurance Premiums was designed to reflect the higher cost and risk factors present in the first three or four years of coverage. The actual factors were a somewhat arbitrary division of 100% of the premium over a period of 10 years. Several insurance departments in the West are now considering a change of the table to conform precisely to the curve of a sum-of-the-digits method of calculation. A technical nicety, this curve will affect the present allocation of premium very little, creating slightly less earned premium in the first two years.

the borrower was relieved by law from exposure to a deficiency judgement as stipulated by the guarantor, but is not protected against the lender who might be left with the property should the guarantor elect be paid 20% of his claim and forfeit an interest in the property. Consequently the borrower, who pays the premium, may receive more favorable loan terms that he might otherwise receive but does not benefit directly from existence of the insurance contract. Waiver of the customary suretyship subrogration privilege is a significant departure from the FHA policy of vigorously pursuing deficiency judgements where necessary. Waiver of subrogation has been critisized as encouraging financial irresponsibility by the borrower. Other studies would seem to indicate a deficiency judgement is a privilege of limited value; some claim little more than 7% of the dollar amount of dificiency judgements obtained is ever realized.(35)

Uniform accounting reports, well developed since the time of the Alger Report needed no detailing, but the rules did leave rather general requirements for calculation of loss reserves. The rules did not specifically restrict underwriting to single residences and small apartment buildings financed with fully amortized mortgages, but there was such an understanding. The issure was left open, for the guarantor was still exploring the application of the guaranty to church mortgages and small home improvement loans, but there interests were soon shelved. The law in Wisconsin is still not explicit on eligible improvements, and consequently recent promotions of new mortgage guaranty competitors have made conversation about the guaranty of commercial mortgage loans, seeing it as "a vast untapped market." Other states have a legal restriction of the mortgage loan guaranty to improved property not exceeding more than four family units. (36) Wisconsin should state the intent of its regulatory technicians with a similar restriction.

and requires long term liability reserves of premium income to reflect the deferred and contingent nature of the foreclosure claim risk. The relief of borrowers from a deficiency judgment was a product of the department's belief that the borrower who pays the premium should receive some protection from the contract as well as more favorable loan terms than he might otherwise receive. This departure from customary suretyship subrogation privileges is contrary to FHA policy of vigorously pursuing deficiency judgments where necessary. While the Wisconsin feature has been criticized as encouraging financial irresponsibility by the borrower, other studies would seem to indicate that subrogation by means of deficiency judgment is a privilege of limited value; little more than 7% of the dollar amount of deficiency judgments obtained is ever realized. [35] Uniform accounting reports, well developed since the time of the Alger report, needed no detailing, but the rules did leave rather general requirements for calculation of loss reserves. The rules did not specifically restrict underwriting to single residences and small apartment buildings financed with fully amortized mortgages, but there was such an understanding. The issue was left open for the guarantor was still exploring the application of the guaranty to church mortgages and small home improvement loans, but these interests were soon shelved. Since that time, many states have

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1) P. 144, The Legal Bulletin, May 1958; United States Savings and Loan League, Chicago, Illinois.

included a restriction of the mortgage loan guaranty to structures not includ- ing more than four family units. [36] Most states require first mortgages only, but in Florida, where there is an active second mortgage market, this restriction was deleted despite the recommendations of the guarantor seeking license approval. While the guaranty corporation is fully sepa- rate from any other possible real estate activities, the Wisconsin law contains no prohibition of subsidiary corporations. The law does require auditing of subsidiaries but not consolidated reports, and the auditors can decide on the admissability of equity interest as an asset of the parent corporation. The insurance department expected to maintain a close audit of operations until there was confidence that a five-year audit would be sufficient.

The Wisconsin law did not specifically resolve any of the four problem areas defined by the Alger report. The problem of standardization of ap- praisal had been greatly mitigated by the techniques developed by FHA and were to be fostered further by contract and by underwriting practice. The spot check appraisal system could be expected to reveal the lender who tended to exaggerate appraisals. Those lenders undetected initially could expect to be co-insurers of foreclosed property, when at the time of notice of default, the guaranty firm made its own appraisal which revealed over-

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[36] Six, eight, and twelve apartment units have received an insured mort- gage on a few occasions, and a very few structures containing some retail space have been underwritten in Wisconsin and a few other states.

valuation. In such event, the guarantor would exercise its contractual option to pay only 20% of the claim; this co-insurance feature, which was also expected to reduce deliberate adverse selection, will be shown to be further refined in the California legislation to be outlined below. Lending malpractice and adverse selection were to be further controlled by careful preselection of lenders entitled to make application and post-selection of those lenders who demonstrated lending incompetence or an unwillingness to submit for insurance a reasonable proportion of their high-ratio loan volume. [37]

However, the Wisconsin law avoided two critical problems regarding the minimum capital needed for entry and licensing as a guarantor and the maximum ratio of contingent liability to capital and surplus. Minimum capital requirements for organization of an insurance company in Wisconsin have been made obsolete by inflation and multiple line underwriting; a stock insurer is still required to have only $200,000 in capital and $50,000 in paid-in surplus, a capital sum which is certainly inadequate for the

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(37) Requested underwriting information when approving a lender, as well as required public reports, will furnish the underwriter with data on loan volume originated by a particular lender. The underwriter can surmise from knowledge of the particular lender's loan market the proportion of high-ratio loans being made, that is, loans having a 75% ratio or better. If only a fractional percentage of such loans are submitted for insurance, the lender is obviously selecting against the guarantor, and the guarantor will not achieve a spread of risk for that specific lender. Cancellation of the master contract or more sales contact with such a lender would be in order. The other extreme is the case, which is often encountered, of a lender which establishes a policy of submitting all loans in excess of 80% ratio for private mortgage loan insurance.

national scale of operation required to provide a guarantor with a prudently

distributed risk. Barring a delay in license approval to permit enactment of

higher capital requirements, the department could have imposed a liability

ratio of mortgage volume insured to capital and forced additional capital

investment to permit underwriting volume sufficient to permit profitable

operations. These steps were not taken because large amounts of additional

capital were probably not available at that time, and their requirement would

have ended any attempt at a loan guaranty operation. This calculated risk

of the insurance department has produced a major new insurance operation

for Wisconsin and considerable volume of premium tax income for the state.

However, these studied omissions required serious reconsideration as the

guarantor expanded rapidly into many other states as growing volumes of

insured loans caused the liability to capital ratio to climb steadily despite

large additions of risk capital and the accumulation of significant con-

tingency reserve. Limiting assumed risks to a specific ratio of policyholders

surplus has always had a rather sketchy precedent in American insurance

regulation. [38] To be sure, fire and casualty insurers once followed rules

restricting premiums written to policyholders surplus to approximately 1: 1

or 1: 2 until multiple line underwriting eliminated most real differences

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(38) European mortgage investment companies always observed a ratio of
debt or liability, direct or contingent, to capital of 8 or 10 to 1. How-
ever, Credit Foncier, the great French mortgage company established
in 1852, still uses a ratio of 20 to 1. None of these ratios contem-
plate a separate arms length insurance contract or endorsement of loans
other than their own against loss, however.

. . . .

In 1961 California decided to permit the use of mortgage loan insurance for high ratio loans to further residential mortgage reform in the state.[41] It is interesting that pre-1929 law (sections 12420 to 12631 of the California insurance code) permitted the guaranty for loans not exceeding 2/3 of the property value, a ratio which a lender today would feel no need to insure. Moreover these statutes remain on the books, although obsolete, as it was felt their repeal might have confused the assembly asked to consider more modern guaranty law.

between the two types of companies. Instead, limits on expansion were

achieved indirectly by means of cash expense accounting and ~~the crude~~ *accrual*

reserve standards as well as by company policy. For guarantors there is

always the danger that management might try to generate cash for claims

by selling ever greater amounts of future claims. In the depression one

of the best managed investment guaranty firms found a voluntarily assumed

ratio of guaranty liability to net worth of 20 to 1 inadequate to meet the

severe 1930 depression needs; officials of the company testified[39] that

a ratio of 15 to 1 might have been satisfactory, with some variance depend-

ing on whether principal were guaranteed as well as interest in expenses.

Where principal was not guaranteed reserves were to equal roughly one

year's interest on balance outstanding (at 6% on each mortgage, liabilities

to capital reserves might be 16-17:1). This more favored scheme[40] of

a partial guaranty would have included coverage of interest, taxes,

insurance and foreclosure costs but not principal and would have been

similar in its net effect to the modern guaranty 20% of a claim payment

option. Where principal was guaranteed, a ratio of 10:1 was thought to

have been called for.

In 1961 California decided to permit the use of mortgage loan insurance

for high-ratio loans(a pre-1929 law had always permitted a guaranty of

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(39) Quoted in the Alger Report, op. cit.

(40) The solution favored by the authors of the Alger Report.

loans not exceeding two-thirds value) to further residential mortgage re-
form in the state.[41] In the process of amending the law to permit

licensing approval of the Wisconsin guarantor who was seeking entry,

California created the first thorough legislation treatment of mortgage

guaranty problems. It is to the credit of the mortgage guarantor who

sought admittance in California that it advocated and participated in the

drafting of strict regulation controlling entry, insurance capacity, and

underwriting practice, reasoning that the concept of mortgage loan insur-

ance would otherwise be discredited by undercapitalized, over-extended,

inexperienced "fast buck" operations.

The California Mortgage Guaranty Insurance Act[42] can be briefly

outlined or described as follows:

1. The definitions restrict the mortgage guaranty business to amortized

   first mortgages not exceeding 90% of the fair market value of the

   real estate of a residential building containing no more than four

   family units. The loan must be originated by a state or federally

   supervised bank, savings and loan association, or insurance company.

2. It carefully defines the liens to which a property may be subject

   without undermining the nature of a first mortgage.

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[41] For background information on California's mortgage problems, see
House and Home, March 1961, pp. 64-65.

[42] State of California Assembly Bill No. 1539, an act to add Section 119
and Chapter 2A to Part 6 of Division 2 of, and to amend Sections 100,
700, 01, and 984 of the Insurance Code.

3. It calls for the creation of a contingency reserve and specifically recognizes it as "established for the protection of policy holders against the effects of adverse economic cycles."

4. It defines "policyholders surplus" as the aggregate of capital, surplus and contingency reserve.

5. The act then puts teeth in the minimum capital requirements by calling for paid-in capital of at least one million dollars and paid-in surplus of at least another one million dollars in order to transact mortgage guaranty insurance in California. In addition, the act requires a contingency reserve of 50% of the earned premium to be restricted for 180 months and the commissioner "shall by regulation determine when an insurer may make withdrawal from its contingency reserve" in any given year in which actual losses exceed expected losses.

6. The act then institutes for the first time in this country a liability ratio which prohibits the transaction of new business whenever total liability "under its aggregate insurance policy" exceeds 25 times the policyholders surplus. Total liability is defined as 20% of the outstanding balances of all the loans insured.

7. Dividends are restricted to the undivided profit remaining over and above the total paid-in capital, paid-in surplus and contingency reserve, and in this regard as in all others, stock, mutual, or reciprocal insurers are all bound alike. Moreover, a mortgage insurer

is not permitted to operate in any other insurance line in California or elsewhere.

8. Not only does the act recognize the 20% of claim option of the lender defined as 20% of the balance of the loan insured, but in event that this option is exercised, the insurer's liability is not to exceed 80% of the actual loss so that the lender is at all times a co-insurer of the loan which he has created, except where the guarantor takes title to the property.

9. Another interesting innovation, warranted by present guarantor experience, is a charge not to insure loans in excess of 10% of policyholders surplus secured by properties in a single tract or contiguous tracts; contiguous is then defined as "not separated by more than one-half mile."

10. Rebates and commissions to any person directly or indirectly interested in the insured lender are prohibited, and published premium charges must apply to everyone.

11. Required financial statements are similar to those of Wisconsin, except the statutes specifically require a loss reserve which has three sub-accounts including:

    a. Estimated losses on insured loans which have resulted in the conveyance of property which remains unsold.

    b. Insured loans in the process of foreclosure.

    c. Insured loans in default for four or more months.

12. Also of interest in the act is the directive to the Commissioner to give "full consideration to the desirability of high liquidity" of the investment portfolio of the guarantor. Finally, there is a specific control of any advertising on the part of lenders as to their use of statements regarding "insured loans."

A reading of Appendix I will reveal how this act makes provision for many of the problems anticipated by the Alger report, except for those which arose on the multiple corporate organization and split personality of the old investment guarantor. Moreover, provisions such as that regarding sub-divisions or minimum capital, codified some of the rules previously self-imposed by the guarantor. The act obviously makes the Wisconsin administrative rules and those laws modeled after the Wisconsin rules appear to be incomplete at best. While the largest mortgage loan guarantor will comply with California legislation quite willingly, new entries[43] into this field may avoid compliance by remaining outside of the California market and that state's jurisdiction. It would appear that the Wisconsin Insurance Department is under obligation to maintain its progressive regulation of the loan guaranty industry by adopting by administrative rule the same standards as those of California. It may then be possible to hasten the same reforms in other states. As will be shown in analysis of reserve

(43) Regulatory problems have become far more complex with the introduction of competition and the accumulation of experience on what the profit motives may do to underwriting practices. These problems are the subject of Part V, written several months after the completion of the major portion of this study.

adequacy, it is particularly important that minimum capital and maximum insurance capacity standards be established that are realistic in terms of the unique characteristics of mortgage loan guaranty and which are not the standards generally applied to property and casualty insurers.

The Mortgage Loan Guaranty Master Policy

The insurance of an individual mortgage loan is accomplished under the terms of a master contract issued by the guarantor to selected and approved lenders. Eligibility of lender is determined by volume of assets, the geographic extent of mortgage lending operations, the demonstrated lending and appraisal ability of the lender's staff as based on past foreclosure experience. A master policy (or in a few states, simply a certificate of approval") is issued to each acceptable institution or branch office. The number of the master contract identifies all transactions under its terms. While the master policy is revocable by either party, existing commitments on insured loans are cancellable only at the option of the lender with appropriate adjustments of unearned premium. Each loan insured under this continuing contract is issued a Certificate of Insurance, and in some states an additional copy of the master policy provisions is sent to the borrower to meet the requirements of full disclosure acts. The provisions of the master policy (a facsimile of which is reproduced in Appendix III) are straightforward, concise, simple in language and format.

The essence of the insurance contract is the amount of loss payable.

which is quoted below because it is the basis for defining maximum potential liability:

> ...principal balance due pursuant to the mortgage agreement, accumulated interest computed through the date of tender of conveyance (to guarantor by insured) excluding penalty interest, real estate taxes and hazard insurance premiums necessarily advanced by the insured, any expenses necessarily incurred by the insured in the preservation of the mortgage real estate, and all other necessary expenses of the appropriate proceedings, including court costs, and reasonable attorneys' fees not exceeding three percent of the principal and interest due.

It should be noted that the policy provides for minimum, short rate, and pro-rate interest *Premium* charges in the event of cancellation or substitution and that coverage is available only for completed structures.[44] Finally, failure of the lender to submit a claim within 60 days of acquiring clear title is deemed by contract to be a waiver of the lender's right to indemnity. This provision prevents the lender from speculating through postponement of his claim until it becomes apparent that the property cannot be sold at a profit. In addition, there is the customary clause barring suits for recovery after two years.

In addition to the approved contract there are rating plans for private mortgage loan insurance on either an annual or single premium basis, for both single residential and multiple unit semi-commercial structures.

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[44] This restriction not only eliminates *Shell* homes completed with do-it-yourself "sweat equity" as permitted by FHA-VA, but also forces the lender to make repairs of damaged property before tendering title to collect a foreclosure claim.

1. Annual Premium Plan

   1/2 of 1% of amount of loan for first year of coverage.

   1/4 of 1% of principal balance due at beginning of each renewal year.

2. Single Premium Plan

   2% of amount of mortgage for first ten years of coverage.

   1/2 of 1% of balance at the end of ten years covering an additional

   five-year period.

3. Annual Premium Semi-Commercial Plan

   Annual premium on semi-commercial loans are 3/4 of 1% of the

   original amount of the loan for the first year's coverage, and 1/2

   of 1% of the principal balance due at the beginning of each renewal

   year.

4. Single Premium Semi-Commercial Plan

   Single premiums on semi-commercial loans are 3$\frac{1}{2}$% of the amount

   of the mortgage for the first ten years of coverage. Renewal avail-

   able at option of lender for 1% of balance covering an additional

   five-year period.

PART II

SOME THEORETICAL MEASURES OF THE FINANCIAL STRENGTH OF MODERN MORTGAGE GUARANTY

A Starting Point

Over the years there have been almost as many measures of financial strength and reserve adequacy of insurance companies as there have been analysts proposing them. While no single set of measures has proven fully adequate, the principle of relating in some manner total financial resources to potential aggregate losses has characterized most studies. Reserve adequacy is the key to appraising the worth of contracted guaranties involving future monetary obligations. Insured and government regulators alike view financial solvency as the touchstone of all insurance obligations.

In attempting to formulate a test for reserve adequacy of companies writing mortgage loan guaranty insurance, the following principles seem to be significant.

1. Allocation of premium income to proper reserve accounts, including unearned premium and loss reserves, must be made on a realistic basis in view of the expected lag in timing of the incidence of loss after the risk is assumed.

2. Maximum potential aggregate liability which can be absorbed by a company must be determined by striking relationships between

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incurred loss assumptions, premium income, expense allowance, reserves, capital and surplus items.

3. Investment income as a source of financial strength to the company must be considered in relation to invested assets and cash flow from premium income to losses or loss reserves.

In pursuing a test of financial adequacy several special problems are apparent when loss expectations are established for mortgage loan insurers. First there are those losses which may be thought of as random and unpredictable financial upsets to debtors, which occur independently of cyclical factors. The cause of such losses could be divorce, illness, loss of job, and so forth. Under the Wisconsin formula these losses are paid out of 10% of the current earned premium income of the insurer. Next there are the losses which occur as the result of major cyclical variations, and these pose the major reserve problem for mortgage insurers. These losses according to the Wisconsin law are paid first with a second 10% of current earned premium[1] and then with funds from the accumulated contingency reserve. Disregarding 10% of current earned premium used to pay normal random claims, 60% of earned premium is allocated to the expectation of severe losses during some future period of economic upset and of this amount 50% of earned premiums is segregated in the contingency reserve to accumulate for 15 years unless used for losses. Just how serious a

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[1] Earned premium gains by forfeiture of any unearned premium refundable at time of foreclosure of insured loan.

crisis in terms of foreclosure frequency and loss severity can be withstood by the accumulated contingency reserve in any one year or over several years is the critical issue of financial strength. The portions of earned premium allocated to current losses and the first of the cycle losses will be considered as supplementary contributions to financial adequacy.

Method of Reserve Accumulation Analysis

The method of analysis which follows involves the creation of two models which take into account the provisions of the law relating to contingency reserves, premium levels, expenses, and losses. The first model illustrates the reserve accumulations available for loss payment from an insured mortgage loan volume of assumed characteristics; establishing the maximum liability faced by the insurer as a function of the amortized loan volumes assumed, it arrives at a ratio of reserve to maximum liability, which can be converted, assuming all loans to be the same size, to a percentage of all claims payable in full, if all loans insured were claims as of that moment. This assumption begins where loss expectations are equal to frequency of loss times a severity of loss per occurrence; if frequency is set equal to one, then loss expectations divided by severity per occurrence equals percentage of claims payable in full or percentage of full claim payable for each insured mortgage. The ratio also may be expressed as so many claims per thousand loans in force, a measure comparable to published FHA-VA foreclosure figures. As maximum expectation of loss is presumed equal to reserves and a product of claim frequency and severity,

there is an exactly inverse relationship between frequency assumption and severity in terms of percentage of claims payable in full. In short, if the frequency assumption is cut in half, the percentage of claims payable in full or the percentage of full claim payable on each insured mortgage is doubled. Admittedly these ratios are static and fail to reveal how annual earned income, newly insured volume, and foreclosure losses over a period of years can affect the financial strength of the firm for additional future years. A second model involving cyclical loss frequencies and severity is hypothesized and presented in Part III.

Determination of Maximum Potential Aggregate Liability

The most calamitous estimate of frequency of claim loss any guarantor could make is that he would be required to exercise his option to pay only 20 per cent of full claim on every insured loan in his portfolio by the end of a specified year and as a consequence forego any possible salvage. Maximum liability of $1,000 of insured, amortized, loan balances could be defined as 20 per cent of the full claim that could be reasonably expected from a defaulted $1,000 loan balance. Assumptions of the components of a full maximum claim and a calculation of a ratio of total claim payable by the guarantor upon submission of clear title by the lender are presented in Table 1.

Just as the darkest frequency of loss assumption is made, the assumptions of claims expense components in Table 1 are unnecessarily severe;

the thought was that if such losses could be withstood, it may be presumed that anything less could also be withstood. For example, to assume that the default and foreclosure process will span two years time is rather severe in light of present mortgage law and lending practice. Where there is no voluntary conveyance to lender, lenders generally initiate the foreclosure soon after a delinquency has become a confirmed default. To date thirty states have equity of redemption periods of six months or less, including 24 that have none (see Table 2), but under the guaranty contract a maximum nine-month default period may be allowed before foreclosure must begin. Instituting proceedings could be followed by up to a fourteen-month foreclosure period, plus an allowance of one month to close a claim for settlement. Therefore, a 24-month foreclosure span recognizes the extreme potential loss of the guaranty contract, but it should be noted to the degree that duration of the foreclosure process is prolonged, carrying expenses are overstated.

At first thought it would appear in error to make real estate tax, insurance, and maintenance cost functions of loan balance due rather than full property value, as these factors should represent a growing proportion of total claim expense as an individual loan balance declines relative to assessed or insurable values. However, on the average, the portfolio of insured mortgages should achieve a fairly constant ratio to pledged property value as new and greater volumes of high ratio loans enter the books and past insured volumes, as a result of termination or amortization, represent

TABLE 1. Assumptions and calculation of maximum loss per $1,000 unamortized loan balance insured.

Item	Description	Amount
1	Mortgage principal due at onset of default	$1,000.00
2	Interest accrued at 6% for 24 months	120.00
3	Insurance on property for 2 years	15.00
4	Foreclosure expense as 3% of items 1 and 2	35.00
5	Real estate taxes	50.00
6	Maintenance expense	25.00
7	Claims expense	25.00
	Total claim payable	$1,270.00

Maximum claim under 20% option $- \dfrac{1,270}{1,000} \times \dfrac{20}{100} = 25.4\%$

Item 2: A 6% interest assumption parallels rate currently being charged in the Midwest; rate is not compounded as claim charges purport to be only severe round number estimates. The 24-month period includes the maximum nine months of default permissible before instigation of foreclosure proceedings, a 14-month foreclosure period, and a 30-day closing of claim submitted.

Item 3: Property insurance is presumed to include fire, E. C., A. C., with an endorsement for vacancy if necessary, plus liability insurance. The net cost to the guarantor for necessary insurance may be far less, for either some portion of an unexpired 3-year policy has gone to the benefit of the lender during the foreclosure process or some escrow arrangement for the payment of insurance and taxes will provide a portion of accumulating expenses.

Item 4: Foreclosure expense as 3% of principal and interest due is the maximum benefit for such expenses payable under the contract.

Item 5: Real estate taxes are computed as an arbitrary 2.5% of mortgage principal per year. Assuming a 90% loan on a $1,000 assessed property value, this tax assumption results in a mill rate of 26.25. Gross tax loss to lender would be reduced by the customary escrow plan included in the mortgage repayment terms.

Item 6: Maintenance expense is a purely arbitrary item as there is little published experience outside of FHA budget recommendations.

Item 7: Claims expense is calculated as $2\frac{1}{2}\%$ of the value of the property to cover transfer costs of property to lender as well as management costs during the period of foreclosure.

TABLE 2. Summary of representative total cost and average time involved in a foreclosure operation.

State	Representative total costs	Average time involved	State	Representative total costs	Average time involved
Alabama	$ 100	26 months	Montana	$350	15 months
Arizona	400	9 months	Nebraska	250	7 months
Arkansas	250	5 months	Nevada	300	15 months
California	250	5 months	New Hampshire	175	2 months
Colorado	300	7 months	New Jersey	275	5 months
Connecticut	200	4 months	New Mexico	250	13 months
Delaware	250	5 months	New York	500	5 months
District of Columbia	150	1 month	North Carolina	175	2 months
Florida	350	3 months	North Dakota	250	16 months
Georgia	175	1 month	Ohio	350	4 months
Hawaii	175	1 month	Oklahoma	350	9 months
Idaho	200,	4 months	Oregon	450	16 months
Illinois	1,200	17 months	Pennsylvania	365	3 months
Indiana	500	15 months	Rhode Island	150	2 months
Iowa	375	16 months	South Carolina	225	4 months
Kansas	200	19 months	South Dakota	200	14 months
Kentucky	375	8 months	Tennessee	150	2 months
Louisiana	250	3 months	Texas	100	1 month
Maine	100	13 months	Utah	375	10 months
Maryland	350	2 months	Vermont	200	12 months
Massachusetts	350	2 months	Virginia	200	1 month
Michigan	150	16 months	Washington	500	17 months
Minnesota	225	15 months	West Virginia	125	2 months
Mississippi	140	2 months	Wisconsin	350	16 months
Missouri	275	3 months	Wyoming	300	8 months

Source: Legal Bulletin, U. S. Savings and Loan League, May 1958.

an ever smaller proportion of total insured volumes. As higher ratio loans
are involved, this constant average ratio would represent a substantial
portion of the property value to which fixed charges are related so that it
is not far off the mark to give them a constant rather than increasing role
in total claim expense. While individual expense items are somewhat
arbitrary, they are related to the Wisconsin scene. Since only 20 per cent
of any exaggerated loss remains in the estimated maximum claim, no
serious distortion would seem to remain. Therefore, for the remainder of
this study, maximum liability on a given distribution of mortgages insured
will be postulated as 25 per cent of aggregate insured, amortized mortgage
loan balance.

Alternative Projections of Reserve Accumulations

While absolute dollar amounts of reserve accumulations may be impres-
sive, reserve projections are more informative, as (1) a ratio of reserves
generated by an original loan of $1,000 to maximum liability incurred on
this single unit, or (2) a ratio of total accumulated reserves at a given
point in time to total maximum liability incurred from a given aggregate
portfolio of insured loans adjusted for amortization. These ratios can then
be converted into standards of maximum loss frequency or severity that
could be withstood by the available reserves; for example, if reserves equal
five per cent of the maximum potential liability and all insured are assumed
equal in size then we can also say reserves are sufficient to meet claims

TABLE 3.   Comparison of loss-reserve derived from three methods of accumulation.

Year	(1) Balance due at first of year on a 6% monthly amortized $1000 loan for twenty years	(2) Cumulative contingency reserve generated by $1000 loan on annual premium plan	(3) Contingency reserve generated by $1000 loan on the single premium plan	(4) Aggregate cumulative contingency reserve $1000 loan balance due as per Model A
1	$1,000.00	$ 2.50	$1.00	$1.21
2	973.24	3.68	3.00	2.15
3	944.82	4.82	4.75	2.94
4	914.64	5.92	6.10	3.65
5	882.60	6.98	7.20	4.40
6	848.60	7.99	8.10	5.45
7	812.48	8.95	8.80	6.46
8	774.15	9.86	9.30	7.93
9	733.44	10.72	9.65	8.38
10	690.23	11.52	9.90	9.48

in full (under 20% option) if 50 out of 1,000 mortgage loans are foreclosed.

The maximum potential loss factor of 25 per cent can be converted into a rough index of the price delcine of real estate which might occur before it became advisable for the guarantor to exercise the 20 per cent option. For example, a property originally valued at $100 with a $90 mortgage loan could produce a net loss after resale at par following foreclosure of $17.50 ($90 of principal due times 1.25 to add in total carrying charges minus $100 resale price minus $5 for resale commission costs). Exercising the 20% option on this lender claim for $112.50 ($90 × 1.25) would cost the guarantor $22.50; compared to the first alternative, this figure means that a property value decline of only $5.00 or 5 per cent of original value might justify the use of the option. Were the same loan for only $80 the resale price might decline by $15.00 or 15% (80 × 1.25 × .2 minus 80 × 1.25 minus 95) before it became cheaper for the guarantor to use the alternative of the option. Then if the loan balance had been only $70, the resale price could decline from the normal $100 value by $25 or 25 per cent ($95 minus $70 × 1.25 plus $70 × 1.3 × .2) before it would benefit the guarantor to resort to his 20 per cent option.

One method of determining accumulated reserve generated by a single $1,000 loan unit is demonstrated in column 2 of Table 3; this alternative is too simplified to reveal a major source of reserve strength contained within the contingency reserve law, specifically that premium earned in the past on mortgages since terminated must remain in the contingency reserve

for the full 180 months after first being credited thereto, thus increasing to significant degree the reserves applicable to the remaining insured units. A more complex formula for measuring accretion of the contingency reserve for each unit could be constructed to reflect reserves available for cells of mortgages of similar age, amortization, and termination rates. It would be more meaningful than the first alternative, but there is an implication in measuring reserves for a single unit that each unit has a specific claim on reserve funds. However, in actual operation, the aggregate reserve will be available to pay any foreclosure claim regardless of the net contribution of the unit foreclosed to the reserves by the time default occurs. Reserve per unit figures also fail to show the impact of a compounding increase of insured mortgage loan volume on a reserve-liability ratio and the relative contributions to income of different premium sources. Therefore this study will work with a model of aggregate reserve accumulation through time; in the next subsection is an explanation of the derivation of given numerical parameters; and in the third section these known quantities are inserted into the abstract model, the crank is turned, and the end results are then interpreted for some tentative conclusions and observations.

A Theoretical Model of Reserve Accumulation

Item #1. Let $1,000,000 equal a unit of savings and loan mortgage loan recordings in an initial base year of a selected state. As all figures over a fifteen year span will be a function of this base, reserve projections derived on this unit can be multiplied by the number of millions recorded to find the theoretical total aggregate reserves from any state in any year of the fifteen.

Item #2. f_n = percentage of yearly increase over year $n - 1$ in savings and loan recordings.

Item #3. A_n = savings and loan mortgage recordings in year n.

A_1 = $1,000,000

A_2 = $1,000,000 (1 + f_n/100)

A_3 = A_2(1 + f_n/100)

.
.
.

A_{15} = A_{14}(1 + f_n/100)

Item #4. g_n = % of recorded mortgages representing 70% or more of the appraised value of pledged property. Only this portion of total recordings would be a possible, logical market for loan guaranty

Item #5. B_n = the total potential market for mortgage insurance of any kind in year n.

B_n = A_n(g_n/100)

Item #6. h_n = % of utilization or penetration of private mortgage guaranty by savings and loan lenders as a % of applicable situations.

Item #7 C_n = total volume of newly insured mortgage in year n .

$$C_n = B_n(h_n/100)$$

Item #8. D_n = 1st year mortgage volume using annual premium plan, assuming 80% of insured volume uses this plan.

$$D_n = C_n(80/100)$$

Item #9 P_n = 1st year annual premium volume written in year n , assuming 1st year premium to be $\frac{1}{2}$% of mortgage face amount insured.

$$P_n = .005(D_n)$$

Item #10. P_r = a persistency factor including an amortization component and a % $(1 - b_t$ a termination rate) of 1st year annual premium mortgage volume remaining on books of insurer at the start of year n after terminations of all types.

Item #11 $D_n(P_r)$ = volume of unamortized mortgage balance renewed under annual premium plan in second year.

$$D_n = (P_{r1}) \cdots D_n(P_{r14})$$

Item #12. R_n = total amount of written renewal premium in year n , assuming renewal charge of $1/4$% of amortized mortgage volume unterminated.

$$R_1 = 0 \text{ (no backlog to be renewed)}$$

$$R_2 = .005(D_{n-1}P_{r2})$$

$$R_3 = .005(D_{n-1}P_{r3} + D_{n-2}P_{r2})$$

$$\vdots$$

$$R_n = .005(D_1P_m + D_2P_{m-1} + \cdots + D_{n-1}P_{r2})$$

Item #13. $.02(C_n - D_n)$ = volume of written premium on 1st year mortgages insured utilizing the single premium plan, assuming a single premium of 2% of mortgage face amount.

Item #14. q_n = statutory earned premium reserve factors adjusted for termination rate b_t .

q_1 = $.10 \times 1$

q_2 = $.20 \times 1 - b_t$

$\vdots$

q_n = $.n \times 1 - b_{tn}$

Item #15. $S'n$ = single premium earned in year n .

$S 1$ = $q_1(B_n)$

$S'2$ = $q_2(S - 1) + q_1(S - 2)$

$\vdots$

S_n = $q_n(S_n - 1) + (q_{n-1})(S_n - 2) \ldots (q_n - q)(S_n)$

Item #16. E_n = mortgage volume left unterminated at beginning of 11th year which is submitted for a 5-year extension of original 10-year coverage, assuming 1% of loans with extension

E_n = $(C_n P_r)(1/100)$

Item #17. Q_n = single premium written on extension mortgage volume, assuming a single premium of $\frac{1}{2}$% .

Q_n = $.005(E_n)$

Item #18. r_n = earned premium factors for extension premiums written adjusted for a persistency factor.

r_{11} = $.20 \times 1$

r_{12} = $.20 \times .8$

r_{13} = $.20 \times .6$

r_{14} = $.20 \times .4$

r_{15} = $.20 \times .2$

Item #19. $Q'n$ = earned single premium on extension contracts in year n.

$$Q'n = Q_n(r_{11})$$

$$Q_{12} = Q-11_n(r_{12}) + Q-12_n(r_{11})$$

$$Q'n = Q_n-1(r_n) + Q_n(r_{n1})$$

Item #20. T_n = aggregate earned premium in a 12-month year n.

$$T_n = P_n + R_n + S'n + Q'n$$

Item #21. U_n = aggregate earned premium on a calendar year basis using the half-yearly reserve method.

$$U_1 = .5 \, T - 1$$

$$U_2 = .5(T - 1 + T - 2)$$

$$U_n = .5(T_n - 1 + T_n)$$

Item #22. V_n = statutory contingency reserve addition in year n.

$$V_n = U_n/2$$

$V'n$ = aggregate contingency reserve

Item #23.   The accumulated total contingency reserve prior to year n

= $E - V_{n-1}$ and this figure is added to the increment to contingency reserve.

Item #24.   The aggregate cumulative contingency reserve = $E - V_n$ and is noted by $V'n$.

Item #25. D_n = the total volume of insured mortgages under the annual premium plan at the end of year n, assuming it to be equal to renewed volume in year $n-1$.

Item #26.   A factor of 1.25 will adjust annual premium mortgage volume to include unterminated single premium volume as these two classes of business have been terminated at the same

rate, amortized at the same rate, and fixed in a relationship of 80 to 20.

Item #27. $L_n = 1.25 D_n$ or total mortgage volume insured of ten-year business but excluding the extension renewal mortgage volume.

Item #28. L_n = total maximum liability utilizing the 20% option and its derivative function .26.

Item #29. W_n = the ratio of the accumulated contingency reserve V'n to the maximum liability L'n in the year n times 100 to determine the percentage of total liability claims that could be paid in full. $W_n = V'n/L'n(100)$.

Item #30. W'n = the ratio of a lagged contingency reserve V'n-1 to the total maximum liability L'n in the year n times 100 to determine the percentage of claims payable in full. W'n = V'n-1/L'n(100).

Item #31. Y'n = the number of foreclosures per 1,000 insured mortgages, assuming homogeneity of volume and number of loans insured. $Y_n = W_n/1,000$.

Range of Projections Utilizing the Reserve Accumulation Model

Using the model just outlined, it is possible to derive theoretical reserve projections by assuming a given mortgage portfolio with certain characteristics as to term, interest rate, terminations, and so forth. There can be no precision implied in a final dollars and cents theoretical result; the assumed variable parameters necessary to solve the model must be derived from averages, arbitrary assumptions, and educated guesswork. Therefore, a range of reserve accumulation forecasts is offered, utilizing three different

sets of assumptions as to the essential characteristics of the mortgage volume to be insured. Data for each set, representing a liberal (Model A), average (Model B), and an ultraconservative (Model C) viewpoint, are drawn partly from statistics in California (A), Wisconsin (B), and Massachusetts (C), a device intended to give these projections a realistic base but not to have any pretense of a market analysis of mortgage lending or the use of mortgage loan insurance in these states.

The model is extended over a period of fifteen years for each set of assumptions to serve two purposes: first, loans can be insured for up to fifteen years if, when the first 10 year contract expires, the lender elects to take an optional 5 year extension for a nominal single premium; second, such a span can be adapted to a number of cycle assumptions. The FHA theoretical actuarial cycle on which its premium schedule was originally constructed called for five years of depression immediately upon insuring a loan to be followed by ten years of prosperity. [2] The actual FHA experience for the fifteen years since 1945 shows a slight cyclical pattern of defaults as a percentage of mortgages in force about six years in duration from peak to peak, with three years of increasing foreclosure followed by three years rapid decline in home mortgages foreclosed and deeds accepted in lieu of foreclosure. [3] As the FHA experience was not as severe as any

(2) P. 6 , Mutual Mortgage Insurance Fund, op. cit.

(3) P. 46, 26th Annual FHA Report, op. cit.

theoretical cycle test of reserve adequacy should be. It was decided to assume a cycle span, beginning with initiation of the guaranty business, consisting of five good years, then five of severe recession, followed by five strong recovery years. Since a private guarantor may elect when to initiate guaranty operations, he may be expected to start as business expectations are for a rising level of economic activity, so that an assumption of five initially good years is not unreasonable. A five year trend will produce steeper, more prolonged growth and recession characteristics and will serve to accent effects of changing volumes of insured loans on reserve to liability ratios and capital-surplus requirements, whether the cyclical variations are exaggerated or not.

Each set of assumptions deals with three basic objectives: determination of market and penetration for the mortgage loan guaranty, first year income and renewal premium income derived from loans insured, and the mechanical operations of aggregating income, of adjusting to the half-yearly reserve accounting system, and of apportioning earnings to reserves. Aside from definition of market, the major difference between each set is in the length of mortgage term and the rate of contract termination. The interest rate of 6% is typical of an average savings and loan interest charge and is common to each set so that differences in results could be attributed to the more significant variables of rate of volume increase, amortization, and termination. The actual mechanical mathematical detail is contained in full for

Model A in the Appendix; only comparative results are contained in the body of the study. An explanation of the quantities assigned each variable in the model will follow in an itemized order corresponding to each step in the mathematical calculation of reserves.

Item 1. A unit of one million dollars of savings and loan mortgage loan recordings in an initial base year of a selected state serves as a point of derivation of loan volume actually insured. It is not meant to be a market analysis. Recordings are published for each state in millions of dollars. Because all projections over the fifteen year span of this study are a linear function of this base year, aggregate reserves generated by a specific loan volume can be calculated by multiplying reserves per million of recordings by the number of millions of recordings in the first year for any market and marketing period assumed to have the characteristics of the chosen assumption set. In the meantime a million dollar unit common to each set establishes a base of comparison. An alternative starting point for aggregate reserve calculation would be an assumption of the dollar amount of insured loans, but such a starting point would eliminate observation of several important variables which cause an increase or decrease in newly insured volumes.

Item 2. Percentage rate of yearly increase in savings and loan record-ings was calculated by determining the average rate of increase[4] for three

[4] For a thorough development of the possible growth of savings and loan business see The Next Decade, October 1959, a research study for U. S. Savings and Loan League by the research staff of the University of Indiana School of Business.

selected states as reported in Tables 4 and 5. The two most extreme growth years were dropped from the averages to find a more normal growth rate in each state. The probability of savings and loan recordings increasing at a decreasing rate in coming years would justify use of a straight line application of the rate of increase factor. On the other hand, the introduction of five recession years in the midst of ten years of compounded growth gives a modest growth factor over the entire fifteen year span with the aggregate increase in recording volume in each set well within the growth ranges projected by the group at the University of Indiana School of Business. While loan volumes might decline in the five year recession periods of the cycle, no one has a basis for estimating the possible extent of such a decline. Indeed extensive, liberal mortgage refinancing might be the order of the day. While mortgage terms and the need for insurance would also change in recession, allowances for these factors are made in the assumptions below. Therefore loan volume is held constant for the five year recession period.

Item 3. The basic mortgage unit, compounded at the rate of growth for the selected range, is aggregated at this point.

Item 4. Loans which represent 70 percent or more of the appraised value of pledged property are the only portion of total recordings which might be justified in using a guaranty. The proportion of loans assumed to fall in this class are derived from the national averages assembled by the U. S. Savings and Loan League and presented in Table 6. The percentages

TABLE 4.   Growth of savings and loan mortgage loan recordings for selected states.

VOLUME OF LOANS OF $20,000 OR LESS RECORDED ON NONFARM PROPERTIES BY SAVINGS AND LOAN ASSOCIATIONS, ENTIRE UNITED STATES AND SELECTED STATES, YEARS 1943-1959 (in millions)

Year	Entire U. S.	California	Wisconsin	Massachusetts
1943	$ 1,237	$ 113	$ 31	$ 71
1944	1,560	144	44	89
1945	2,017	186	52	108
1946	3,483	274	89	205
1947	3,650	334	87	204
1948	3,629	338	90	213
1949	3,646	414	94	203
1950	5,060	666	122	244
1951	5,295	655	130	242
1952	6,452	854	161	271
1953	7,365	940	218	314
1954	8,312	1,046	265	324
1955	10,452	1,497	281	385
1956	9,532	1,517	278	327
1957	9,217	1,634	239	117*
1958	10,516	1,775	220	307
1959	13,094	2,641	288	351

*Incomplete

Source: FHLB Board as furnished to U. S. Savings and Loan League

ANNUAL PERCENTAGE RATE OF GROWTH OF SAVINGS AND LOAN RECORDINGS, ENTIRE UNITED STATES AND SELECTED STATES, FOR PAST TEN YEARS ON PRIOR YEAR RECORDINGS

1959	24.9%	48.8%	30.9%	14.3%
1958	14.4	8.6	-7.9	*
1957	-3.3	7.7	-14.0	*
1956	-8.8	1.3	-1.1	-15.1
1955	25.7	43.1	6.0	18.8
1954	12.9	11.3	21.6	3.2
1953	14.2	10.1	35.4	15.9
1952	21.9	30.4	23.8	12.0
1951	4.6	-1.7	6.6	-.8
1950	38.8	60.9	29.8	20.2
Total	145	220.5	131.1	68.5
Average	14.5	22.1	13.1	6.8
Adjusted**	10%	14%	9%	6%

*Not calculated as figures were incomplete.

**Average is adjusted to drop out 1950 and 1959 extremes, with adjusted

TABLE 5. Growth and volume of savings and loan recordings summarized.

	U. S.	California	Wisconsin	Massachusetts
Per cent of increase from 1945 to 1959	649. 2%	1419. 9%	553. 8%	325. 0%
Average increase per year — total/15	43. 3	94. 7	36. 9	21. 7
Per cent of increase from 1950 to 1959	258. 8	396. 5	236. 1	143. 9
Average increase per year — total/10	25. 9	39. 7	23. 6	14. 4
Per cent of increase from 1955 to 1959	125. 3	176. 4	102. 5	91. 2
Average increase per year — total/5	25. 1	35. 3	20. 5	18. 2
Adjusted average	10%	14%	9%	6%

Typical Maturity	1953	1954	1955	1956	1957	1958	1959	1960
Under 10 years	1.0%	2.4%	1.9%)	23.9%	19.6%	18.7%	12.7%	8.6%
10 and under 12 years	30.0	23.0	24.7)					
12 and under 15 years	31.2	29.8	22.6	23.6	24.2	22.5	17.4	16.3
15 and under 17 years	30.7	35.3	35.4	35.3	36.0	36.1	35.0	32.7
17 and under 20 years	4.8	5.3	8.8	8.5	7.1	9.9	12.6	14.9
20 and under 25 years	2.3	4.2	6.8	8.7	(12.9	12.3	20.7	25.1
25 years and over					(0.2	0.5	1.6	2.4
Total	100%	100%	100%	100%	100%	100%	100%	100%
No. of assn's reporting	690	796	1,154	1,623	1,593	1,550	1,600	n.a.

Typical Loan to Purchase Price Ratio	1953	1954	1955	1956	1957	1958	1959	1960
75% and over	4.6%	7.8%	13.6%	11.9%	9.2%	16.4%	24.0%	26.8%
70% and under 75%	10.6	16.2	21.6	25.0	24.7	27.3	34.0	32.1
65% and under 70%	28.7	26.9	31.1	30.3	30.6	30.2	25.0	26.6
60% and under 65%	29.9	29.6	32.3	23.5	25.1	20.3	12.0	11.3
55% and under 60%	10.6	9.7	4.3	3.7	2.9	2.0	2.0	1.0
Under 55%	15.6	10.5	7.1	5.6	7.5	3.8	3.0	2.2
Total	100%	100%	100%	100%	100%	100%	100%	100%
No. of assn's reporting	564	710	1,066	1,532	1,451	1,434	1,454	n.a.

Data for 1953 was based on all types of loans; data for 1953 and 1954 was based on houses selling for $10,000 to $15,000; data for 1955 to 1959 was based on houses selling for under $15,000; data for 1960 was based on houses selling for $15,000 and over.

NOTE: The above data are based on reports to the United States Savings and Loan League from a representative group of savings and loan associations.

selected must be rather conservative, as in the urban areas, where the bulk of savings and loan business is done, as much as 85 percent of the loans made are in excess of a 70 percent loan-to-value ratio. The proportion of such loans made in a recession is a difficult assumption to make; in theory high ratio longer term loan could achieve the lower debt service charges made desirable by falling income. On the other hand falling consumer income would reduce the number of qualified borrowers, encourage conservatism among new borrowers not seeking refinancing, and cause the lender several severe losses on high ratio existing loans, discouraging the lender from making this type of loan. However, the reduction in this percentage of loans in excess of 70 percent was arbitrary, as there is just no historical situation using high ratio loans; it is possible that any reduction in average loan ratio in a recession might occur as a shift from 90 to 80 and 80 to 70 percent loans on reduced appraisals in which case the total percentage over 70 per cent would not be affected.

Item 5. The product of Items 3 and 4 is the maximum potential market for a guaranty in the field of savings and loan lending.

Item 6. Percentage of utilization or market penetration of mortgage guaranty insurance was selected as a reasonable estimate after study of experience to date of a company in the field. Use is presumed to increase throughout recession as a result of two assumptions: (1) that the guarantor would continue to be solvent and thus gain added lender respect, and (2) that lenders would be more inclined to insure those high loan-to-value

ratio commitments which they did make. The most liberal estimate of loans insured never reaches more than a third of the insurable volume as lenders may use other alternatives such as FHA reserve accumulation, or conservative loan policies. Should the penetration rate be overly optimistic, the error is largely offset by the conservatism of Item 4.

Item 7. Total volume of loans newly insured each year is the product of Items 5 and 6. Actual projections could begin with this figure.

Item 8. Total volume of newly insured loans is divided between the annual premium plan and the single premium plan. Each type of business is assumed to contribute one half of annual written premium; since 2% single premium is 4 times as large as the first year $\frac{1}{2}$% annual premium, the net premium written on an annual basis would represent 4 times as much loan volume. Thus it is assumed 80 percent of insured volume is on the annual premium plan and the remainder on the single premium plan. Only the annual premium business is considered in the next few steps, hence the factor 0.8 to determine volume written on annual basis; the remaining 20% of volume reappears in Item 13 for conversion to earned premium derived from single premium plan business.

Item 9. Total volume of loans newly insured under the annual premium plan multiplied by the first year premium of $\frac{1}{2}$% provides the total annual premium written and earned in a period of 12 calendar months.

Item 10. Determination of premium written and earned in 12 calendar months from renewal of annual premium business requires an assumption of

a persistency factor which must include an amortization component and a persistency component of (1 - b), where b is the termination rate of loans insured from all causes on an annual basis. Loan volume is amortized as if all loans in a given set of assumptions were either for 15, 20, or 25 year terms at 6% interest with level monthly payment of principal and interest. [5] The longer the term, the more liberal is the assumption set. While a fifteen year term is far too conservative for actual lending practice, its use will exaggerate a tendency for stronger reserves in relation to liability, should there be one, for the faster reduction of loan balance and hence liability outstanding. In practice a portfolio of loan guaranties would be of mixed maturities, but such a mix can be simulated by developing a weighted average of reserves generated by each model based on a single term.

A termination rate must be hypothecated from comparable experience. The average age of an FHA mortgage upon termination from any or all causes has ranged from 7.55 years in 1951 to 8.61 years in 1959, for 1 to 4 family mortgages insured under Section 203. [6] Savings and loan groups have no data collected on termination rate, although turnover rate of investable portfolio is once every 7.8 years. Therefore a spread of termination rates, based on the average age of mortgages divided into 50, 50% being the proportion of loans insured terminated within the average or half-life term. Consequently

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[5] Monthly Payment Direct Reduction Loan Amortization Schedule, 4th Enlarged Edition; Financial Publishing Co., Boston, 1940.

[6] P. 46, 26th Annual FHA Report, op. cit.

a termination rate was selected of 6% (half-life of 8.33 years) for 25 year

loans, 7% (half-life of 7.4 years) for 20 year loans, and 8% (half-life of

6.5 years) for 15 year loans. Such a narrow spread recognizes that a

25 year loan is not expected to have a much lower rate of termination than

a 15 year loan as mortgage loan term is more a function of monthly payment

size than expected duration of home ownership.

Although termination rate has been applied on a straight line basis, it

is more natural that termination of prepayment or sale of property would

increase as the loan grew older. By the same token terminations due to

foreclosure should decline as owner equity increases over time. As little

real information as to the timing and slope of a termination factor for savings

and loan mortgages is available, and so it is a workable assumption that a

level rate of termination is an average of a termination from prepayment trend

moving upward and inversely to the trend in foreclosure rate, even though in

practice the net termination slope would tend to move upward over time. It

is further assumed that the level rate includes terminations from all causes,

other than maturity of the loan as in no case does the insurance run for the

full term.

Item 11. Newly written business is carried into the renewed, amortized

insured volume as a product of the appropriate consistency factor times the

original mortgage volume insured on annual premium plan for each of the

nine succeeding years. The aggregate volume of each year's annual renewal

volume, adjusted for amortization and termination, serves the model twice;

once in Item 12 as the base for calculating the annual renewal premium written and earned in 12 months and once again in Item 25 as a base for determining a total unamortized loan balance insured by the guarantor at the end of any given year.

Item 12. The aggregate loan volume renewed is multiplied by the renewal premium of 1/4% to produce the annual renewal premium written and earned in 12 months.

Item 13. The remaining 20% of total loans insured multiplied by the single premium of 2% produces the total single premium written on new business for a 10 year period of coverage. These premiums must then be converted to earned premium on a 12 month basis.

Item 14. To reduce original written single premium business to earned premium, a termination factor and an earned premium factor are required. The same termination rate and hence persistence factor is assumed as utilized for annual renewal premium volume. In actual operation the inertia of the insured savings and loan would tend to hold terminations down for single premium business as compared to annual renewal business where the opportunity to reconsider the need for insurance is placed directly before the lender each year. The difference should be small, however, and its inclusion here would unnecessarily complicate determination of maximum liability, number of loans insured, and other factors which require aggregation of the two classes of business.

The earned premium factor to be multiplied by premium written is specified for each year the insurance remains in force by the provisions in 3.09 WIS. ADM. CODE (see Appendix). The earned premium factors are weighted to release the majority of written premium to income in the early years, which are deemed to be the years of greatest exposure to loss. Consequently, a mortgage on the single premium plan will generate more earned premium in the first five years than will a note on the annual premium basis.

Item 15. The earned premium from both the current year's insured volume and the remaining volume of past years still insured under the single premium plan is totaled for each year to produce earned premium on single premium volumes for a twelve month period.

Item 16. Plans of the present guarantor call for the use of a five year optional renewal extension at the end of the tenth year, for which all business will be written on a single premium basis. Since the essence of the private plan is to insure the riskiest top 20% of the loan and to cover only the uncertain seasoning period of the first ten years, the need for a renewal of five years after the first ten years have passed is unproven. To recognize such an indeterminate source of liability and income, it was assumed that one-half the remaining 25 year loans (1/2 times 40%) would renew as a 90% 25 year loan would not be amortized below a critical 70% ratio in ten years; 1/4 of 20 year loans remaining in the 11th year would renew (1/4 of 30%), and none of the 15 year mortgages would find it necessary to renew. These

estimates of extension renewals may be high, but the assumption produces the minimum increment income that could be of significant value to the projections.

Item 17. Premium written on extension mortgage loan volume is the renewed volume multiplied by the single premium of 1/2%, and the premium written must then be converted to the premium earned in 12 months.

Item 18. Since 3.09 of the WIS. ADM. CODE makes no provision for special proration of the single extension premium, it is allocated to earned premium according to 201.18 WIS. STATS., that is, prorated in 5 equal portions. Coupled with the earned premium factor is an assumed termination rate of 20% per year for each original renewal volume, a rather high assumption which reflects the doubtful utilization of the extension option.

Item 19. Total earned extension premium for a 12 month period is determined by adding earned premium from each annual unit. These totals appear only in the last five years of the model, since it was assumed the guarantor began operations in the year 1 ; since no 15 year mortgages were renewed, Items 16 through 19 are omitted in model range C.

Item 20. The aggregate earned premium in a 12 month period is determined by adding the earned first year premium, earned annual renewal premium, the earned aggregate single premium, and the earned aggregate extension premium, all 12 month totals which are recapped on the work sheet for ease in computation and to indicate proportionate contribution of each premium source to annual earned premium as the years progress.

Item 21. The reserves required by regulation are based on calendar year accounting so that is is necessary to convert the earned premium on a 12 month basis. Under 201.18 conversion can be made either under the half-yearly reserve or the monthly reserve method. While the latter method would be used in actual operations as most reflective of a regular growth in monthly premium written and earned, this model uses only yearly aggregate figures so that the monthly system is not applicable and the half yearly reserve method is indicated. As a result one-half the aggregate earned premium on a 12 month basis is released in the first calendar year, and the remainder released in the second calendar year so that earned premium for a calendar year becomes a moving average of premiums earned over a 12 month span.

Item 22. Section 3.09 (4c) requires that the contingency reserve increment in the calendar year equal one half of all premium not assigned to the unearned premium reserve, i. e., earned premium in a calendar year.

Item 23. The accumulated total of the contingency reserve prior to the year in question is added to the increment to contingency reserve to determine the aggregate contingency reserve at the end of any given year, shown in Item 24.

The accumulated dollar amount of the contingency reserve is of little significance to the insured or the insurance regulator until compared to the liability incurred on the mortgage loan balances insured. The investor, on the other hand, is interested in the accumulation of the contingency reserve

in relation to invested capital due to its value as a tax sheltered investment fund that will, if not used for policyholder losses, provide leverage income on his stock investment and a prime source of dividend income after the first 180 months of operation. In the early years, of course, the unearned premium reserve would be a prime source of leverage for the investor. However, before estimating contributions to company income from invested reserves, adequacy of reserves can be studied to measure their capacity to fulfill insurance commitments. With this objective, the following calculations are made:

Item 25. It can be presumed that the borrower would make some payments on a loan before foreclosure took place, or that the borrower could sell the property immediately upon encountering unexpected financial problems in the first year before any decline in prices was too significant. Therefore, insurance volume subject to foreclosure in the first year is assumed to be the first year business remaining unterminated at the beginning of the second year. A previous determination for unamortized end-of-year insured balances is available for annual premium business in Item 11; this aggregate must be adjusted upward to derive total insured volume.

Item 26. To determine total, end-of-year amortized annual loan balance it is only necessary to multiply the annual plan insured volume aggregate in Item 11 by a factor of 1.25, as these two classes of business have been terminated at the same rate, amortized at the same rate, and fixed in a relationship of 80 to 20. End of year balances create comparability with reserves calculated as of the end of a given year.

Item 27. The annual aggregate amortized loan volume thus adjusted produces the net insured volume for the first ten years of business but excludes the extension renewal loan volume for years 11 through 15.

Item 28. The extension renewal volume is introduced using the 11th year volume unterminated as of the beginning of the 12th year as calculated in Item 16 as the increment to total insured volume for the 11th year, with the pattern repeated for each consecutive year.

Item 29. Aggregate amortized insured loan volume is the total of Item 27 plus the adjustments for Item 28 in the 11th through the 15th years.

Item 30. The maximum liability incurred on the net insured volume of Item 29 can be determined approximately by multiplying the net volume by the loss factor 0.25, a value assumption which was established previously.

Item 31. Maximum liability incurred is the product of the constant .25 and Item 29.

Item 32. The total accumulated contingency reserve as of the end of each year is recapped from Item 25 for visual convenience and computational aid.

Item 33. Total contingency reserve divided by maximum liability and Item 31 for the corresponding year determines the percentage of maximum liability payable in full from the contingency reserve. If each mortgage insured is assumed to be of the same original amount, this percentage can be converted into foreclosure rate per thousand mortgage loans insured by multiplying by 1000.

Item 34. Since the loss factor assumption of .25 contains the presumption that claims would not be payable until 2 years after default, there is an implication that claims arising out of first year business foreclosures could be paid from the contingency reserve accumulated at the end of a two year period following foreclosure. Therefore a ratio of contingency reserve at the end of the second year to maximum liability as of the end of the first year may be more indicative of the total reserves available for paying losses and may highlight the fact that there is no requirement for the business of each year to carry its own weight or that reserves are to be spared for claims as yet unincurred on business already on the books. The value of such a ratio is limited by the implication that losses incurred in the current year can be paid from next year's income; since financing with expectations of non-vested income is not sound practice, this ratio indicates cash resource adequacy but is not any more indicative of financial strength than that of Item 33.

Item 35. To permit comparison between reserves accumulated by the aggregate process, the reserves computed on a single $1,000 mortgage loan unit as in Table 3 contingency reserve dollars have been converted to a base of $1,000 of amortized mortgage balance.

The contingency reserve is not the first source of financial strength, however. Losses must be paid from annual earned premium until equal to ?.?? of the earned premium in any one year; and this earned premium is

augmented by forfeiture of any unearned premium credited to the account of a foreclosed mortgage. The liability-to-reserve ratio in this model assumes each and every mortgage insured to be of equal amount and term and foreclosed all in just one year. With a frequency of foreclosure of 100%, the entire unearned premium account would be forfeited and used as a supplement to the contingency reserve. To calculate the unearned premium as in Item 36 one must first convert the single premium written   volume to unearned aggregate premium reserve by means of the unearned premium factor given by 3.09 (5) Wisconsin Adm. Ins. Code and adjusted for terminations and withdrawals.

Item 36. In Appendix V single premium written per annum multiplied by the unearned premium factor times the appropriate persistency factor indicates the major source of unearned reserve is the single premium business. Extension renewals provide a minor source of reserve, while annual unearned premium on the monthly or half yearly reserve system contributes the remainder. The total of these unearned reserves is then converted into a ratio to maximum liability as determined in Item 31. This ratio can be expected to move inversely to the contingency reserve, except to increase where there is a notable expansion in premium written.

Item 37. To determine the percentage of maximum liability payable from 20% of annual earned premium before the contingency reserve and forfeited unearned premium are utilized, it is only necessary to multiply the calendar

year earned premium in Item 22 by 20% and divide by maximum liability as determined in Item 31.

Item 38. Since the percentage of maximum liability payable from earned premium, unearned premium, and on cumulated contingency reserves is set on the same base, it is possible to add each percentage for the total percentage of maximum liability payable from these funds.

The selected ranges of parameters summarized in Table 6 were plugged into the procedural model, and the complete calculations form a considerable volume of work sheets. In the interest of brevity and economy of reproduction Appendix IV holds only one complete set of work sheets, specifically those of Model A. The final results of all three model ranges are summarized in Table 8 in the following section of analysis.

Analysis of Reserve Trends Projected by the Accumulation Models

The accumulation models are of analytical value in observing the variables which affect reserve adequacy, the basic results which may be converted to a test of adequacy, and the potential reserves which a private capital enterprise can generate as compared to parallel government agencies. Scanning the comparative summary in Table 8 indicates that while there is a very big difference in the total mortgage volume insured in A, B, or C, there is not so great a variation in the ratio of reserves to liability under any one set of assumptions. However, several significant relationships should be underscored.

TABLE 7.   Summary of parameters assumed for projection of contingency reserve accumulation models.

Factor		Years 1-5	Years 6-10	Years 11-15
Per cent growth of mortgage	A	14%	None	14%
loan volume compounded	B	9%	None	9%
from year to year	C	6%	None	6%
Per cent of total loan vol-	A	50%	34%	50%
ume in excess of 70%	B	40%	27%	40%
loan-to-value ratio	C	25%	20%	30%
Per cent of utilization of				
private mortgage insurance	A	.06-.18	.20-.28	.31-.43
for loans exceeding 70%	B	.06-.10	.11-.15	.16-.20
loan-to-value ratio	C	.04-.08	.09-.13	.14-.18
Per cent of terminations from	A	6%	6%	6%
all causes as per cent of	B	7%	7%	7%
first year volume (linear)	C	8%	8%	8%
Per cent of insured loans on annual premium basis	A-B-C	80%	80%	80%
Per cent of insured loans on single premium basis	A-B-C	20%	20%	20%
Per cent of renewal of	A	-	-	20%
remaining insured loans	B	-	-	$7\frac{1}{2}$%
at beginning of 11th year	C	-	-	None
Insured loans @ 6% inter-	A	25 yrs.	25 yrs	25 yrs
est, monthly amortization,	B	20	20	20
have term of	C	15	15	15
Half-life of insured loans	A	8.33 yrs	8.33 yrs	8.33 yrs
portfolio	B	7.14	7.14	7.14
	C	6.25	6.25	6.25

Table 8 page number

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TABLE 8. Comparative summary of reserve accumulation model.

Description		1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.	6th yr.	7th yr.	8th yr.	9th yr.	10th yr.	11th yr.	12th yr.	13th yr.	14th yr.	15th yr.
27. Total insured amor-tized mortgage volume	A	27,695	72,785	138,554	229,286	349,550	424,414	501,836	581,181	661,839	734,105	921,804	1,154,313	1,439,778	1,788,043	2,236,979
	B	21,723	47,125	76,553	110,393	146,320	169,813	190,710	211,605	232,348	248,168	298,336	355,353	420,026	493,257	581,792
	C	8,810	19,338	31,575	45,521	61,189	72,094	83,143	94,213	105,219	115,231	143,638	177,555	213,119	252,188	294,508
31. Maximum liability as 25% of insured amor-tized mortgage volume	A	6,924	18,196	34,639	57,322	87,388	106,104	125,459	145,295	165,460	183,526	230,451	288,578	359,945	447,047	559,245
	B	5,431	11,781	19,138	27,698	36,580	42,453	46,678	52,901	58,087	62,042	74,584	88,838	105,007	123,314	145,448
	C	2,202	4,835	7,894	11,380	15,297	18,024	20,786	23,553	26,305	28,808	35,910	44,389	53,280	63,047	73,627
32. Total cumulative contingency reserve at end of year	A	33	142	454	807	1,347	2,031	2,812	3,707	4,723	5,857	7,220	9,015	11,270	14,088	17,583
	B	26	102	225	404	644	926	1,233	1,373	1,947	2,353	2,832	3,417	4,111	5,029	5,984
	C	11	43	96	172	276	402	544	706	888	1,089	1,332	1,639	2,012	2,452	2,964
33. Per cent of maximum lia-bility payable in full from contingency reserve	A	0.48%	0.78%	1.31%	1.41%	1.54%	1.91%	2.24%	2.55%	2.85%	3.19%	3.13%	3.12%	3.13%	3.15%	3.14%
	B	0.49%	0.86%	1.81%	1.46%	1.76%	2.18%	2.64%	2.97%	3.35%	3.79%	3.80%	3.85%	3.91%	4.08%	4.13%
	C	0.50%	0.89%	1.21%	1.51%	1.73%	2.23%	2.62%	3.00%	3.36%	3.78%	3.71%	3.69%	3.78%	3.89%	4.03%
34. % of max. liability payable in full from contingency reserve lagged one year	A	2.05%	2.50%	2.33%	2.35%	2.32%	2.65%	2.96%	3.25%	3.54%	3.93%	3.91%	3.91%	3.91%	3.93%	
	B	1.87%	1.91%	2.11%	2.33%	2.53%	2.90%	3.37%	3.68%	4.05%	4.56%	4.58%	4.63%	4.79%	4.85%	
	C	1.94%	1.98%	2.18%	2.43%	2.62%	3.02%	3.40%	3.80%	4.14%	4.62%	4.56%	4.53%	4.60%	4.70%	
35. Contingency reserve per $1,000 of total insured mortgage volume	A	1.19	1.95	3.28	3.52	3.85	4.78	5.60	6.37	7.13	7.97	7.83	7.81	7.82	7.87	7.86
	B	1.21	2.15	2.94	3.65	4.40	5.45	6.46	7.43	8.38	9.48	9.49	9.61	9.79	10.19	10.28
	C	1.56	2.77	3.78	4.73	5.64	6.96	8.18	9.37	10.54	11.80	11.58	11.54	11.76	12.14	10.07
36. Per cent of maximum liability payable from forfeited unearned premium	A	2.40%	2.19%	2.06%	1.81%	1.89%	1.69%	1.62%	1.55%	1.50%	1.47%	1.59%	1.63%	1.67%	1.70%	2.10%
	B	2.56%	2.23%	2.06%	1.95%	1.92%	1.69%	1.64%	1.56%	1.52%	1.54%	1.68%	1.68%	1.70%	1.70%	1.69%
	C	2.60%	2.38%	2.24%	2.14%	2.06%	1.84%	1.89%	1.89%	1.82%	1.85%	1.92%	1.93%	1.92%	1.90%	1.85%
37. % of max. liability payable from 20% of earned premium before use of reserves (Item 21 x .2 + Item 31)	A	0.19%	0.24%	0.25%	0.25%	0.25%	0.26%	0.25%	0.25%	0.25%	0.25%	0.27%	0.25%	0.25%	0.25%	0.25%
	B	0.19%	0.26%	0.26%	0.26%	0.26%	0.27%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%
	C	0.20%	0.26%	0.27%	0.27%	0.27%	0.28%	0.27%	0.28%	0.28%	0.28%	0.27%	0.28%	0.28%	0.28%	0.28%
38. Per cent of total maximum liability payable from contin-gency reserve and retained earnings	A	3.07%	3.21%	3.62%	3.47%	3.68%	3.86%	4.13%	4.35%	4.60%	4.91%	4.99%	5.00%	5.05%	5.10%	5.49%
	B	3.24%	3.35%	3.50%	3.67%	3.94%	4.14%	4.54%	4.79%	5.13%	5.59%	5.74%	5.79%	5.87%	6.04%	6.08%
	C	3.30%	3.53%	3.72%	3.92%	4.06%	4.35%	4.78%	5.17%	5.46%	5.90%	5.90%	5.90%	5.98%	6.07%	6.16%

CONTINGENCY RESERVE PER $1000
OF TOTAL INSURED MORTGAGE
VOLUME

MODEL
C

MODEL
B

MODEL
A

DOLLARS

12

9

6

3

YEARS

2   3   4   5   6   7   8   9   10   11   12   13   14
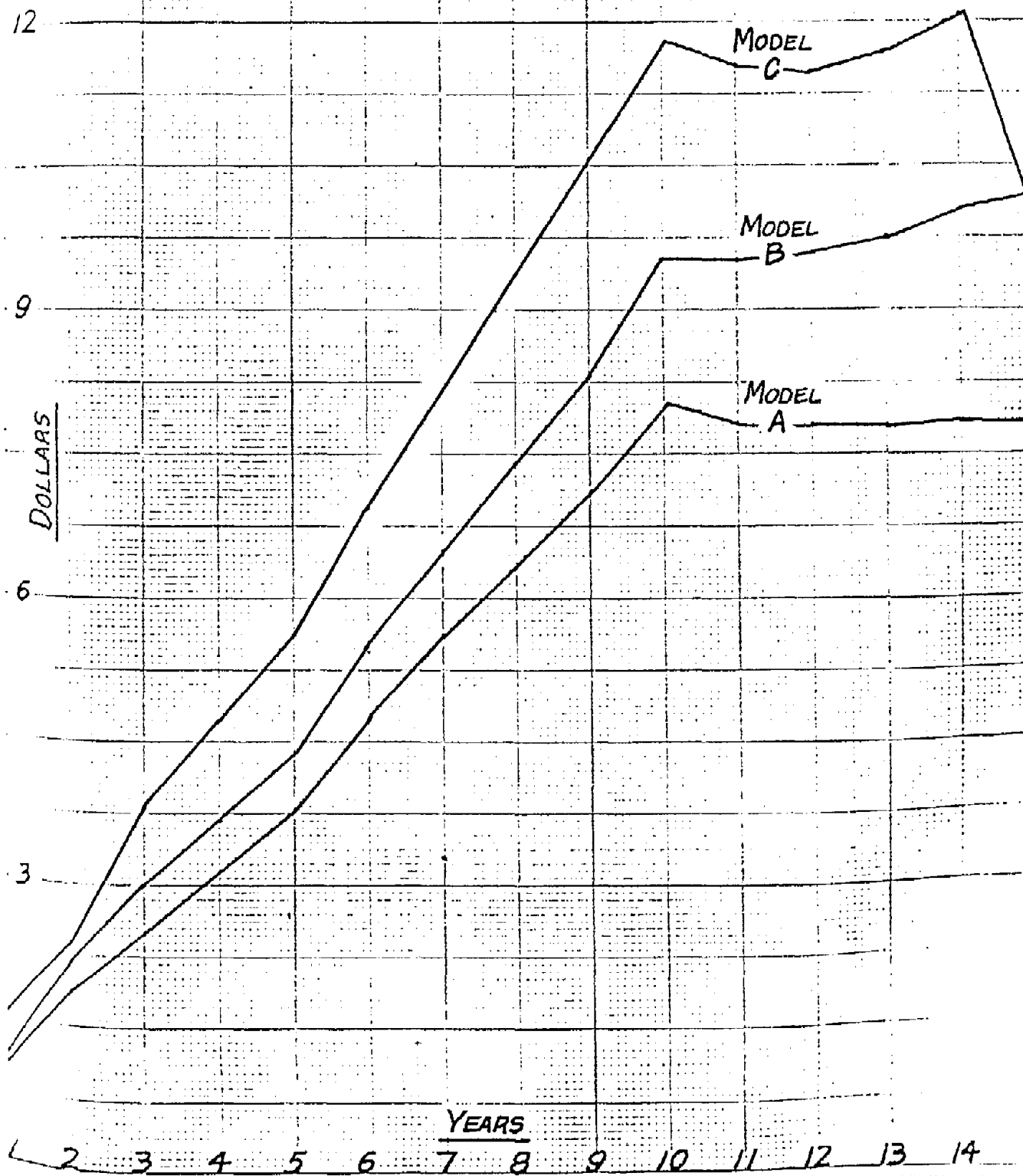
PERCENT MAXIMUM LIABILITY
PAYABLE IN FULL FROM
CONTINGENCY RESERVE

MODEL B

MODEL C

MODEL A

PERCENT

YEARS
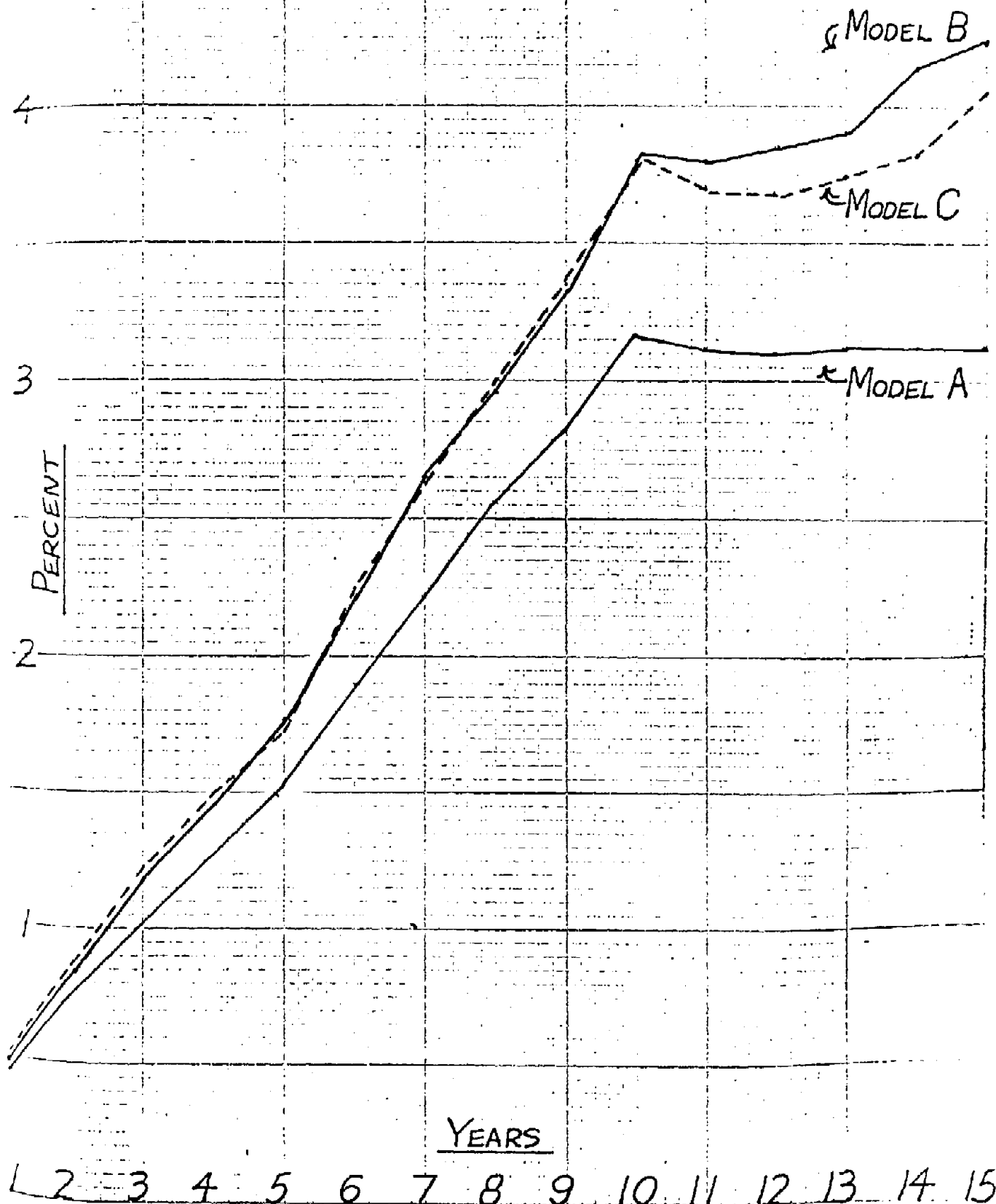
Analysis of the variable assumptions is directed first toward the failure

of reserves to grow faster than liabilities as growth revives in the tenth

year, particularly in the model range using the 25 year loan term.

1. Rate of growth of the volume of loans insured is apparently the most

important variable which materially affects the ratio of reserve accumula-

tions to liability. This growth factor, as illustrated in the model, is a

composite result of the general growth of savings and loan mortgage volume

(in Item 2), the percentage of mortgages exceeding a 70 percent loan to

value ratio (in Item 4), and the percentage of these loans utilizing the

guaranty (in Item 6). Charts 1 and 2 illustrate that in each model range

A, B, and C, reserve ratios grow steadily and are almost equal until the

resumption of growth of volume (following the stability of years 6-10)

abruptly reduces the rate of increase for the years 11-15. In the case of

Model A the reserve ratio begins to decline in year 11 and is unable to

increase through the 15th year. The growth in liability for Model A was

somewhat steeper than its growth in reserves due to its lower termination

rate and larger volume of extension renewals in years 11-15 offset by a

reduced earned premium of 1/10 of 1% per annum.

2. Rate of termination is a second critical variable for the ratio of

reserves to liability. One half of the earned premium generated from termi-

nated contracts must remain in reserve for the remainder of the 180 month

reserve period. This fact means that in 4 years a termination rate of 6 per

cent per year could increase the reserves applying to remaining insured

volumes by 24% (were there no dilution from newly insured volumes of mort-gages). The lower 6 per cent termination rate in A helps to accent the dilution of the reserve ratio as compared to C , since a termination rate of 8 per cent will produce a third more accumulated reserve than one of 6 per cent.

3. Amortization of loan volume affects adequacy both as a type of termination and as a control on the moral hazard due to the increase in borrower equity. Considered as a termination, amortization enjoys a magni-fied effect on reserve adequacy under the single premium plan; the written single premium is released to earnings and reserves under the statutory formula, thereby exaggerating reserve contributions in the early years. This acceleration of reserve increments is not to be found on the annual renewal plan where premium income is halved and declines with the rate of amortiza-tion after the first year. Therefore, reserves accumulate most readily where rate of termination plus amortization exceed rate of growth as in the case of Model C. Even on the annual plan, amortization reduces the liability base on which the premium is paid, which might have some slight effect on severity of loss in the event of foreclosure. Important too, amortization can be seen as an increase in owner equity, as this equity is a kind of co-insurance re-ducing both the frequency and severity exposure of the insurer.

4. The single premium share of premium written has a significant effect on reserve adequacy. As a result of the special unearned premium factor assumptions stated in the administrative rules for single premium policies,

together with the contractual provision for forfeiture of unearned premium in the event of default, the single premium plan can bring more than average reserves to bear on foreclosure situations in the earlier years of the guaranty contract. Moreover, the more rapidly a collected premium is earned and allocated to the reserve, the larger the amount which is available after policy terminations to offset diminishing liabilities of the remaining old business.

Reserve Ratios and Loss Expectations

The reserve to liability ratios resulting from the accumulation model should be tested in terms of loss expectation and compared to reserve ratios used by analogous institutions. The contingency reserve accumulation plus 20% of earned premium is presumed under the statutes to be adequate to cover the insurer's maximum expectations of loss. Assuming all mortgages insured to be a claim, the ratios on the summary sheet indicate the per cent of claims payable, the maximum loss being 25% of net insured mortgage volume. Were loss severity halved (i.e., 12.5% of net insured mortgage volume), the frequency rate of loss could double before reserves would be exhausted. However, this relationship, while it also remains true for the per cent of claims payable from the first 20 per cent of earned premium, does not hold for the proportion of claims payable from forfeited unearned premium. If the foreclosure frequency rate were to be halved, only half of the unearned premium account is forfeited and made available for claims as a portion of earned income.

Whatever ratio of claims payable to insured mortgages is selected,

assuming maximum loss or some proportion thereof, and irrespective of

whether the reserve from each class of ratio is totaled or considered sepa-

rately, the ratio may be read as foreclosure per thousand. For example,

the maximum liability can be paid in full for 31.9 mortgages out of 1,000

in the 10th year assuming all mortgages are $12,500 in original amount

and with the characteristics of those in Model A. That number of mortgages

foreclosed gains significance when it is pointed out that FHA foreclosure

frequency for all types of FHA loans presently averages about 6.5 fore-

closures per 1,000 loans.[7] Were retained earnings and forfeited unearned

premiums totaled in this ratio, foreclosures at a rate of 49 per 1,000 loans

could be handled in the 10th year under the assumptions of Model A.

With the assumption that the option to pay 25% of the claim is cheaper

than resale of an accepted title at some discount from a par value of 100%,

reserve ratios can be a rough measure of the extent of price decline in a

period of rising foreclosure rate. For example, assuming a mortgage with an

°5 per cent loan to value ratio, and assuming that a property sold at par

would net after expenses 95% of par, the price decline necessary before the

20% option actually reduces the net loss of the insured can be calculated by

taking 25% of 85%, adding 5% of par for transaction costs, and dividing by

100 to ascertain the percentage of these costs to par value at 100. This

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(7) P. 44, 26th Annual FHA Report, op. cit.

indicates that the price level would have to decline 26.25% from the level at the time property was appraised for loan ratio purposes, not quite one-half some Depression experiences.

The loss capacity of any single reserve or capital fund must be considered in light of the sequence of application of reserves to foreclosure losses. Administrative rule 3.09 first allocates 20% of current earned premium[8] plus the increment to earned premium from the forfeiture of unearned premium; only when this resource is inadequate can the contingency reserve be tapped for loss payment; with the contingency reserve exhausted, retained earnings and eventually paid-in capital would bear the load; finally under Wisconsin law[9] impairment of capital could result in assessment of stockholders or forfeiture of shares for public auction. Using the tenth year of Model A as an example, the aggregate loss capacity ranked by priority of application to loss is made graphic in Graph 3.

Analogous Institutional Reserve Ratios

One standard for evaluation of reserve adequacy would be comparison of the ratio of reserves to liability for the private guarantor to the reserve ratio

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(8) It is not realistic to assume the first foreclosures in an annual period will result in the maximum loss as is the assumption in the .25% ratio: actual losses would more likely represent a half or a third of the maximum so that current earned premium should be entirely adequate to handle losses of from 5.0 to 7.5 foreclosures per thousand, sometimes better in more normal or inflationary periods.

(9) WIS. STATS. 200.06.

SEQUENCE & CAPACITY
OF RESERVES APPLIED TO
FREQUENCY OF LOSS

FORECLOSURES PER 1000 PAYABLE FROM
MINIMUM CAPITAL OF 0.75% OF INSURED
LOAN BALANCE   30.0

FORECLOSURES PER 1000 PAYABLE FROM
CONTINGENCY RESERVES   31.9

FORECLOSURES PER 1000 PAYABLE FROM
TOTAL FORFEITED PREMIUMS   14.7

FORECLOSURES PER 1000 PAYABLE FROM
20% OF EARNED PREMIUMS   2.5

79.1
70
60
50
40
30
20
10
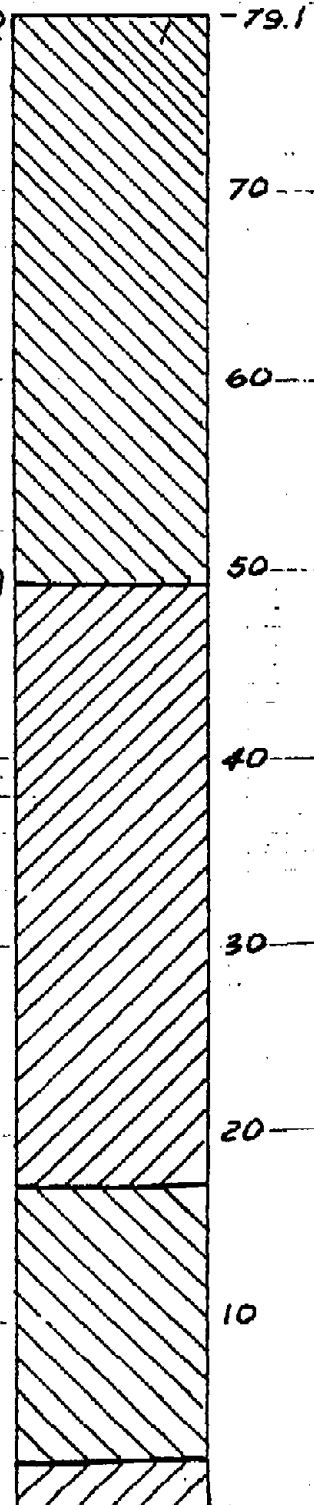
of similar institutions with parallel objectives. The first problem is to survey possible institutional parallels; the second to select the proper definition of a reserve ratio for the guarantor. It would seem that the most appropriate data might be taken from FHA-MMIF, FSLIC, and FDIC experience; important also would be the reserve situation of the savings and loan industry, and perhaps the reserve judgments of the NAIC mandatory securities valuation reserve method or of the Alger report. Each of these pseudo-insurance plans can provide a benchmark for comparing the ratio of reserves to total liabilities; unlike the mortgage guarantor their liability extends to the last dollar of the deposit, mortgage, or investment to be offset by their guaranty. However, such a total loss would require a frequency of loss of 100%, a frequency assumed in the reserve-to-liability ratios of the guarantor. Therefore, a ratio of reserves to <u>total deposit liability</u> is comparable to a ratio of <u>maximum liability</u> defined as 25% of the insured net mortgage balance, since both assume a 100% frequency of loss rate.

1. Most directly comparable to the private loan guarantor would be the reserve situation of the Mutual Mortgage Insurance Fund of FHA. While the total FHA residential-multifamily-project mortgage volume in force as of December 31, 1959, was $33.9 billion, offset by $.758 billion of insurance reserves and surplus[10] for

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(10) P. 44, <u>26th Annual FHA Report</u>, <u>op. cit.</u>

a reserve ratio of 2.25%, the MMIF had insured outstanding loans

as of December 31, 1959, of $~~21.25~~ billion and reserves of $.476

billion for a reserve liability ratio of $~~5.1~~$ %. [11] This ratio is

rather understated considering the realities of the true insurance

risk, since a mortgage must remain insured until termination or

maturity, many older, seasoned mortgages, whose equity ratios

well exceed 50%, are included in the liability factor for reserve

calculation so that a statement of liability is significantly removed

from a statement of realistic insurance loss potential.

2. A second comparison might be found in the reserves and undistributed

profits of the savings and loan industry as a percentage of uninsured

conventional loans in their portfolio. Since 1954 the reserves,

surplus, and undivided profit of the savings and loan industry as a

whole have ranged from 6.8% to 9% of total assets in the savings

and loan institution. [12] Conventional loans are 66% of the indus-

try's total assets or about $36.4 billion of all types and age. [13]

Total surplus and reserve of $3.8 billion suggest a reserve ratio

of about 10%.

3. With the interest of the private guarantor in savings and loan mort-

gages, the Federal Savings and Loan Insurance Corporation would

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(11) P. 107, 26th Annual FHA Report, op. cit.

(12) P. 77, Savings and Loan Fact Book, 1959, op. cit.

(13) P. 80, Savings and Loan Fact Book, 1959, op. cit.

offer analogous perils and reserve requirements. However, the
FSLIC is intended to protect depositors in a savings association
from a general and an extensive devaluation of the assets from both
external economic crisis and from internal mismanagement, only
when losses in the aggregate have led to insolvency. The guarantor
has an interest in each discrete loss, thereby being subject to a
far higher frequency of loss. Indeed the real success of the guar-
antor would mean a reduction in exposure for the FSLIC, which is
in the nature of reinsurance on an excess aggregate loss basis for de-
positors. Moreover, the specific high ratio mortgage insured by
the guarantor would appear to be more unstable in value under ad-
verse economic conditions than the average association asset. The
guarantor should therefore have a far stronger reserve ratio than the
FSLIC. As of the end of 1959 approximately 96% of 24.3 million
savings accounts, totaling $51.2 billion, [14] were covered by
FSLIC insurance. For a gross liability on deposits of $49,152
million the FSLIC had surplus and reserves of some $328.3 million
for a reserve to liability ratio of .7 of 1 per cent; if one were to in-
clude the $750 million authorized borrowing power of FSLIC, which

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(14) P. 102, Savings and Loan Fact Book, 1959, op. cit. It is relevant to
note that since the beginning of FSLIC operations in 1935 there have
been 38 cases involving insurance settlements with net losses to the
corporation of $5.25 million, which represents less than 3% of premium
income.

is available in a period of economic upset, total reserve resources
are 2.2% of insured deposits.

4. The Federal Deposit Insurance Corporation is even more removed
from the exigencies of mortgage insurance, for like FSLIC it is an
excess loss type of reinsurance for depositors involving banking
insolvency. The FDIC year-end 1959 statement showed insurance
reserves of more than $2 billion which was 1.47% of total insured
deposits. [15] Since FDIC has extensive and continuing controls
of banking management practice, it is in far better position to pre-
vent or reduce losses than a mortgage guarantor so that comparison
of reserve ratios is rather specious except for the conclusion that
the guarantor should seek a far higher reserve ratio than FDIC.

5. The National Association of Insurance Commissioners recently
adopted the Mandatory Security Valuation Reserve Method for life
insurance company bonds and preferred stocks. Two formulas, of
the many promulgated, as to rate and limit of reserve accumulation
can be noted. Shares in FSLIC insured savings and loan institutions

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(15) Table 8, p. 16, Annual Report of the Federal Deposit Insurance Corpora-
tion for the year ended December 31, 1959, Government Printing Office,
Washington, D. C. Since January 4, 1934, the FDIC has had to make
disbursements to protect more than 1.4 million depositors in 439 failing
banks involving total deposits of nearly $600 million. Estimated net
loss after completed liquidation is estimated at $29 million. Moreover,
the bulk of cases and disbursements occurred during the first nine years
of operation, for during the past 17 years bank failures have not exceeded
five in any one year and the amounts involved have been relatively
small.

are to have a reserve of 1/20 of 1% of admitted asset value per annum until reserve totals 1% of value; another class of preferred stocks requires a 20% maximum reserve accumulated from a reserve charge of 1% admitted asset value each year. A house mortgage, like a preferred stock, is a first claim on net income after subsistence of the family "business" operation so that ultimate reserve ratios for the private mortgage guarantor should bear some relationship to reserve requirements of a preferred stock or at least exceed the annual reserve increments required of a better class bond.

6. A reminder should be made of the suggested reserve to liability ratios in the Alger Report, which proposed a 5% reserve where a partial guaranty plan was used and 10% for a plan promising full indemnification.

While these six precedents are only roughly analogous to the modern mortgage guarantor program, one can presume that an adequate reserve to liability ratio formula for the private guarantor could be found to lie within the following ranges: The upper limit should be related to the 5% ratio of _exceed_ _2.25 %_ FHA-MMIF and/of the Alger Report (which expressed it as 20: 1), but might _approach the ratio_ _ultra conservatism_ _call for_ better exceed this ratio to approach the 10% reserve ratio of the savings and loan industry. The lower range below which reserves should never fall might be the 2.2% ratio of the FSLIC. A final consideration should be the NAIC requirement for preferred stock, greatly tempered by recognizing that

the mortgage is better secured than the preferred stock and represents a declining capital investment. Selection of a reserve ratio might operate on the assumption "the more reserves, the better for the policyholder;" but given the present premium structure, standards of reserves could be set so high as to make private guaranty unattractive to equity investors and therefore economically unfeasible. However, a reserve ratio falling within a spread of 4 to 8 per cent of maximum liability as 25 per cent of insured loan balances may be within the financial capability of the private guarantor as well as within the extreme ranges of reserve precedents outlined above.

The advisability of selecting a single reserve ratio from the 4 to 8 per cent range can be questioned where a reserve ratio schedule related to varying types of mortgage risks might better reflect actual loss expectation. The second important question is what resources are to be included in a definition of reserve for any selected reserve ratio. The question of how much time the guarantor may be allowed to accumulate the minimum reserve is quickly dismissed. The guarantor is most vulnerable to loss in the first years of operation when earned income is low, insured mortgages are unamortized, and distribution of risks is insufficient to make the law of averages effective. Consequently reserves should be higher, if possible, not lower in the early years of operation.

A single reserve-to-liability ratio could be established for the private guarantor. Such a ratio is a rather rough measure of capacity or adequacy

to meet the real risk created by given portfolio of insured mortgages, for it would have different degrees of meaning depending on variations of pertinent portfolio characteristics, underwriting standards, capital, and net exposure to loss under the impact of inflation. Liability can be shown[16] to vary in terms of net loss to the guarantor after sale of a foreclosed property with the age, loan ratio, and average mortgage size so that time and underwriting practice could greatly change the real risk facing the guarantor without affecting the reserve ratio or amount of required reserves. The distribution of the portfolio of the insured mortgages according to these significant characteristics would reflect likely loss experience; the higher the proportion of high ratio, longer term, more recently insured loans in the portfolio, the smaller the equity cushion there is to provide incentive to repay and value to offset the consequential expenses of foreclosure. Reserves should be higher on the average for a portfolio with such a risk distribution than for one where a significant proportion of portfolio consists of loans with conservative ratios and term to maturity. On the other hand, inflationary increases of owner equity will reduce the severity and frequency of loss on mortgages previously insured, and at the same time inflation would raise home prices and thereby accelerate the growth in loan volume insured. This dollar increase per loan, together with the expected increase in market penetration, would contribute substantial premium to additional

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(16) Variations in possible loss experience are explored more fully in Part III.

reserves as well as increasing insurance liability; but the accumulation

of reserves at an increasing rate, depending as it does on reserves created

from terminated contracts, would nevertheless be greatly diluted.[17] A

reserve ratio is closely tied to management policy for underwriting and

acquisition of capital funds. Minimum capital requirements of most states

are obsolete and inadequate. In early years of the guarantor initiation

and expansion, the years of greatest vulnerability, the burden of reserve

strength would fall on capital. An adequate reserve ratio would magnify the

need for capital in any period of rapid expansion of insured loan volume.

Since the guarantor cannot always secure additional capital without proper

timing,[18] the management of a private guarantor should have the alter-

native of reducing the reserves required by a given ratio by reducing the

risk through policies which retard growth or improve the quality of newly

insured mortgage volume in regard to equity cushion and average age. In

addition a reserve ratio must be in a form easily promulgated by administrative

code and readily computed from standard accounting information on a monthly

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[17] Ironically, the same inflation which would make possible very profitable
operations for the guarantor would also require retention of the investors'
anticipated profits, if the guarantor management were conscientious in
maintaining a minimum level of policyholder surplus or minimum reserve
ratio.

[18] If stock base is expanded at too fast a rate, business volume lags
capital growth and investor leverage is diluted. If equity is added too
slowly in relation to growth, a decline in policyholder surplus means a
crimp in the growth rate, increased exposure to a general decline in real
estate value, a curb on dividend paying capacity, and therefore death
of investor interest.

basis. Finally a ratio must be selected which is not exaggerated in the interest of safety to a point which destroys the investment leverage necessary to attract risk capital to the enterprise.

Alternative Reserve Ratio Formula to Determine Capacity and Minimum Capital

There are three basic types of reserve ratios which might serve the capital and capacity problem of mortgage loan insurance. These are a weighted average ratio of policyholder surplus to liability which is adjusted to changing risk characteristics of the portfolio, a simple ratio of policyholder surplus to liability, or a simple ratio of net worth to insured mortgage volume. Each method can have several variations in the delineation of the maximum liability, policyholder surplus, or any other admissable reserve selected.

Maximum liability was defined earlier in this study as 25 per cent of the net amortized mortgage balance as of the date the mortgage is insured, renewed, or in the case of single premium business, marked by a 12 month anniversary. This ratio represents the maximum payout under the 20% stop-loss option. However, an argument can be made that the 20% option is not a likely management choice of action, even in the recession, for reasons to be discussed in Part III. Moreover, a statement of maximum liability as 15%, 20% or 25% is quite arbitrary. For purposes of reserve regulation either 20% or 25% would be suitable, but in the California and Oregon legislation as proposed, there is a technical conflict with the present mortgage insurance contract. The guaranty contract defines the 20% option in terms of _claim_ payable, in

effect 25% of mortgage balance due, while the proposed statutes define

20% maximum liability in terms of mortgage balance due.

The proper components of a reserve or policyholder surplus is a more

difficult question. The reserve must be defined so that the ratio can control

the expansion of guaranty volume on the upswing of the business cycle but

does not prevent the issue of new guaranties as loss reserves are depleted

by recession losses as will be elaborated in Part III. Capital stock, paid-in

surplus, and retained earnings can be included as basic. Contingency re-

serve is specifically designed for, and of growing importance to, the long

term security of policyholders and should therefore be recognized in a defi-

nition of reserve. Indeed, if the premium rate is adequate, equity capital

is necessary to the guarantor only to provide reserve strength until the con-

tingency reserve has achieved a certain normal level. Emphasizing reserve

accumulation and ignoring the problems of reserve disbursement, until

Part III, the contingency reserve should be included in a measure of policy-

holder surplus. The proposed California Code for a reserve ratio of 4%

establishes a precedent for defining the reserve in that way.

Then there is a question of recognizing in a definition of reserve the

role of current earned income, investment income, and forfeited unearned

premium in creating policyholder security.

Since a reserve ratio is intended as a measure of capacity to absorb

uncommon losses, it should not include the 10% of earned premium allocated

to meet normal random loss situations. The additional 10% of current earned

premium income allocated to the first cyclical losses could create an operating deficit; in effect these funds would then be drawn from surplus and result in a double counting of surplus funds in the reserve total. Moreover, earned premium will appear indirectly in the reserve ratio through the retained earnings account, so that current earned premium should not be a reserve item. Unearned premium reserves may be a more justified source of credit to the guaranty reserve. Minimum premium requirements coupled with short rate premium refunds partially protect the investment by the guarantor in commission and underwriting expenses for business acquisition. There is a certain vested equity in the unearned premium, and rapid expansion of premium written causes the unearned premium reserve-to-liability ratio to trend inversely to the contingency reserve ratio for the short run. Inclusion of some portion of the unearned premium reserve would help to offset the downward trend of contingency reserve ratio brought on by an increase in the rate of expansion. Forfeiture of unearned premium is also provided for under the mortgage terms. For measurement of the true policyholder surplus it would be preferable that at least 15% of the unearned premium reserve be included in aggregate reserves. However, it would then be necessary to use a different definition of policyholder surplus for determination of minimum required capital. Since measurement of total loss capacity and regulation of minimum capital are two different questions, omission of unearned premium from the latter task seems reasonable.

A weighted average ratio, designed to vary with the risk quality of

the portfolio, might take the following form: the portfolio would be divided
into three age groups by months from date of loan origination with each age
group subdivided into three sub-classes or "cells" according to original
loan ratio. [19]

Each subclass would be assigned a constant reserve ratio which would
roughly reflect the distribution of loss expectations within the entire range
of subclasses and relative to ratios suggested by analogous guaranty insti-
tutions. To determine an average reserve ratio for the entire portfolio each
cell reserve factor would be weighted according to the proportion of loans
in its subclass to the total insured portfolio. These percentages would equal
100% so that the sum of the weighted reserve factors divided by 100 would
determine the average reserve ratio comparable to the single ratio now
applied to the total maximum liability. The proposed reserve formula might
appear as follows:

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[19] In the opinion of the authors severity of loss, and to a lesser degree
frequency of loss, are strongly related to the original loan-to-value
ratio and the time elapsed since origination, i.e., the age of the loan.
Except for some FHA data in this area no real "mortality tables" are
available so that division of the portfolio by age group must be on a
broad average, arbitrary basis designed for administrative convenience.

		Ratio	% of Portfolio	Weighted Factors
Age 1- 60 months	84-90% loans	7 × 25		175
	78-83.9%	6 × 20		120
	77.9% and below	5 × 15		75
Age 61-120 months	84-90% loans	4 × 17		68
	78-83.9%	3 × 10		30
	77.9% and below	2 × 5		10
Age 121-180 months	84-90% loans	2 × 2		4
	78-83.9%	1 × 1		1
	77.9% and below	0 × 0		0
				483 / 100

Average Reserve Ratio 4.83%
of 25% of net insured mortgage balance

Grouping by the three monthly age classes roughly parallels the three phases of risk in the mortgage loan. The first five years of the average loan are probably the most uncertain as to the payment pattern of the borrower and the adequacy of the equity cushion to absorb foreclosure expenses and price fluctuations. While mortgages in the second age class may be as subject to default of a periodic payment at a time of real crisis as less mature loans, the equity cushion and the established payment pattern provide a greater margin for refinancing by the lender or substantial salvage by the guarantor. Certainly mortgages in the last group, limited to those exercising the extension option, have a limited need for a guaranty and will represent an insignificant proportion of total insured portfolio. Grouping by age implicitly recognizes the reduction in risk through amortization without bogging down in any fractional differences such as found between a 22 or 25 year term mortgage.

for example. Moreover, the amortization rate in each case was probably selected by the loan officer as the shortest which could fit the necessary amount to be borrowed into the available monthly housing budget, so that more rapid amortization need not reflect any improvement in the financial risk as represented by a ratio of periodic payment to income. The loan-to-value ratios for determination of subclasses or cell groups were selected so as not to fall on the most common ratios of 75%, 80%, or 90%. Because both the amounts of the loan and the appraised value are set by the lender, the guarantor would have little chance to lower reserve ratio requirement through distortion of reported loan ratios.

Reserve ratios assigned each subclass were distributed in an arbitrary manner except that they were intended to fall within the range of ratios suggested by analogous institutions. Presumably new loans in excess of 84% of value will cause the most severe losses and were therefore assigned a reserve ratio of 7%. The lowest risk class was assigned a reserve ratio of 2% for the equity accumulation in ten years is sufficient to secure renewal extension commitments from any great loss. The remaining loan ratios were distributed in the interest of symmetry.

For the sake of illustration each cell was weighted on the assumption that 25% of total insured mortgage volume was in Group 1, 20% in Group 2, etc., giving a distribution which might be typical of the maturing, expanding guaranty firm. With time much loan volume would move into the middle age ranges having lower reserve standards thereby lessening reserve requirements.

The converse would be true if there should be an increase in new loan volume in the high ratio subclasses, exceeding the percentage of loans which fell to the next age class or were terminated for any reason.

Certain additional rules would have to be formulated as to classification of property types or renegotiated mortgages. For example, multifamily or semi-commercial properties should be classified in the highest subclass of each group regardless of loan ratio because of the speculative aspect of rental property. In the case of partial prepayments or of open-end mortgages, when an existing loan is extended to cover additional loans /an or increase in the loan, the resulting loan would be reclassified by its new loan ratio and the number of months which remained until the maturity. Such a reserve system should have comparative ease in calculation as IBM cards for each insured loan would be classified by a month of origination for contingency reserve purposes and by loan ratio for underwriting purposes in any event, so that it would only be necessary to calculate reserve requirements for nine subtotals of insured mortgage volume.

This proposed weighted average ratio formula probably is not presently feasible legislation. Regulation has always sought understatement of insurance resources by ignoring vested interest of insurer in unearned premium; and in addition, no example can be found where a weighted average has been used as a feature of a required financial structure.

A second, less complex reserve ratio formula can be found in the bill presently before the legislature of the state of California. Designed to

permit entrance of a high ratio loan guarantor to the California loan residential market, it proposes that a reserve-to-liability ratio of 1: 25 or 4% be required of the guarantor. The act defines reserves to include contingency reserve and net worth with maximum liability to be 20% of mortgage balance due at the time of default. While a 4% reserve is not as flexible in terms of capital plans for the guarantor in future years, it can be just as adequate in terms of resource creation as the more complex weighted average ratio. In terms of predictable capital needs it may simplify present capital budget plans of the guarantor more than a plan introducing two additional variables. While the California plan may understate present liability slightly, it understates resources in the form of earned and unearned premium to an even greater extent.

Since the actual accumulation and disbursement of a contingency reserve is fully controlled by existing law, its inclusion in policyholder surplus does nothing to change the rate of accumulation. A third method of applying a reserve ratio would involve only net worth. As discussed more fully in Part III such a ratio might fall in the range of .5 to 1.5% of net insured mortgage balance.

The setting of a reserve ratio in the early stages of a guaranty operation is really stating minimum capital requirements for entry into the guaranty business as well as forcing a certain scale of operations. As the accumulation models reveal, it takes several years to accumulate significant reserves from earned premium. Any ratio selected must be a compromise between

capital necessary for absolute safety and maximum capital permitted while preserving a rate of leverage attractive to risk investors.

Until a plateau of volume insured is reached where normal new volume about equals terminations, the contingency reserve accumulation must be supported by regular additions to capital. At that point when the contingency reserve reaches sufficient size, the need for great holdings of equity capital will decline and only tend to dilute investment income. The 1:25 liability ratio would not adjust to the seasoning of insured risk over the years for reasons of inflation, growing borrower equity, or established payment pattern. At the same time a 1:25 ratio provides sufficient leverage of capital to achieve at least the minimum financing where the second alternative might not; but the latter plan could reduce the need for retained earnings in later years and thereby increase potential dividend returns.

Any reserve method must be converted into expressions of loss capacity in terms of foreclosure rate, loss severity, and price level declines and this is the objective of Part III. Development of either reserve ratio as a major regulatory device is necessary as a limitation on entry and as a control of the guarantor who expands too rapidly or fails to achieve an adequate distribution of loans in his portfolio.

PART III

THE ADEQUACY OF ACCUMULATED RESERVES TESTED BY
A HYPOTHETICAL FORECLOSURE CYCLE

Reserve accumulation has been measured as a ratio of possible liability

in a single year; the analysis was related first to reserves generated from

premium income, and second to total policyholder surplus assumed available

under various suggested reserve standards. A second measure of adequacy

would be to submit reserve accumulation from premiums to the inroads of a

hypothetical foreclosure loss cycle to determine additional capital needed

to forestall bankruptcy. A cycle implies loss expectation (loss frequency X

average loss) over a period of time, and so an imaginary business cycle for

a period of 15 years will be constructed to test the reserve accumulations

in Model A, the model which has the weakest reserve position in Part II.

Aggregate cycle losses each year would be a product of foreclosure frequency

and average loss per foreclosure. A frequency rate may be imputed only partly

from historical data, and a severity rate may be presumed by constructing of a

series of assumptions on the relationship between average claim cost and the

recovery value of the pledged property. Should these losses exceed reserve

accumulation, an additional portion might be satisfied from the other policy-

holder surplus reserves suggested in Part II. Should loss still exceed avail-

able reserves, it should be possible to estimate what the cyclical loss

break-even point might be for a guaranty firm funded as suggested. In effect it should be possible to state the reserve adequacy of Model A in terms of cyclical average frequency and average loss parameters for a representative cycle model. To choose hypothetical frequency and loss parameters it is useful to survey the possible sources of historical foreclosure loss rate.

Historical Data on Foreclosure Loss Cycles

Since 1926 the Federal Home Loan Bank Board has been compiling a general estimate of the number of non-farm real estate foreclosures[1] from reports of approximately 1500 counties and political subdivisions embracing more than 2/3 of all non-farm U.S. buildings. (See Table 9.) Measured from trough to trough, these statistics reveal a cycle 20 years long; or measured downward from 1933 until the index reverted to the level of a previous high, that is 1926 to 1940, a 14 year cycle of an upward and downward movement of seven years each. Unfortunately these figures are without orientation to the total number of outstanding loans subject to foreclosure in a given year. One cannot tell to what extent the upward drift in foreclosures is due to the significant growth in the number of mortgaged properties or is due to an increase in actual rate of foreclosure. These figures further lose identity as to the type of property pledged, the kind of

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(1) It is believed about 15% of reported figures may be on non-residential property. Page 74, The Mutual Mortgage Insurance Fund, Ernest Fisher and Chester Rapkin, Columbia University Press, New York, 1956.

lender involved, and the nature of mortgage terms defaulted. Their only value is to index the maximum proportionate swings in the broad foreclosure frequency cycle.

Heterogeneous statistics from prior mortgage guaranty programs are virtually irrelevant to this study as the mortgage contract then in vogue has been supplanted by the long-term amortized loan. Pledged property was often of large scale and value and of a specialized, non-residential nature. Credit analysis and appraisal of such mortgages was crude and non-objective, and collection management and responsibility to savers for pledged property was rather ineffective in the average guaranty firm.

The foreclosure experience of various financial institutions has never been fully analyzed for the period beginning in the early 1920's up to the present. One survey of several recent studies[2] of institutional foreclosure losses (see Table 10) reveals the type and scope of the general magnitudes of foreclosure experience of life insurance companies, commercial banks, and savings and loan lenders. To be noted is the grouping of losses by year of loan origination and not by the year in which foreclosure upset occurred. As loans were of the balloon payment type with five to ten years term, those originated prior to 1923 had been largely refinanced by 1929. Refinancing of loans originated in 1925, beginning in 1930, precipitated an unprecedented rush of foreclosures. It is not known to what degree the presence of balloon

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(2)   See pp. 90-91, Mutual Mortgage Insurance Fund, op. cit.

TABLE 9. Estimated number and index of nonfarm real estate foreclosure, exclusive and inclusive of HOLC activity (Index: 1939 = 100)

Year	Exclusive of HOLC[a]		Inclusive of HOLC[b]	
	Number	Index	Number	Index
1926	68,100	67.8	68,100	103.2
1927	91,000	90.6	91,000	137.9
1928	116,000	115.5	116,000	175.7
1929	134,900	134.3	134,900	204.4
1930	150,100	149.5	150,100	227.4
1931	193,800	193.0	193,800	203.6
1932	248,700	247.7	248,700	376.8
1933	252,400	251.4	289,649	438.8
1934	230,350	229.4	919,342	1,392.7
1935	228,713	227.8	474,262	718.5
1936	185,439	184.7	211,413	320.3
1937	151,366	150.7	101,043	153.1
1938	118,357	117.9	67,160	101.7
1939	100,410	100.0	66,010	100.0
1940	75,556	75.2	56,296	85.3
1941	58,559	58.3	47,019	71.2
1942	41,997	41.8	36,427	55.2
1943	25,281	25.2	25,281	38.3
1944	17,153	17.1	17,153	26.0
1945	12,706	12.7	12,706	19.2
1946	10,453	10.4	10,453	15.8
1947	10,559	10.5	10,559	16.0
1948	13,052	13.0	13,052	19.8
1949	17,635	17.6	17,635	26.7
1950	21,537	21.4	21,537	32.6
1951	18,141	18.1	18,141	27.5
1952	18,135	18.1	18,135	27.5
1953	21,473	21.4	21,473	32.5
1954	26,211	26.1	26,211	39.7
1955	28,529	28.2	28,529	45.8
1956	30,963	30.4	30,963	43.8
1957	34,204	34.1	34,204	51.8
1958	42,367	42.3	42,367	64.2
1959	44,075	44.0	44,075	66.8

[a] Home Loan Bank Board (Operating Analysis Division, Federal Savings and Loan Insurance Corporation).

[b] This series adds the number of original home loans closed by HOLC in 1933-1936 to the number of foreclosures as reported, on the (somewhat extreme) assumption that all loans made by HOLC would have gone into foreclosure

[*] Brought up to date from quarterly FHLB.

The Mutual Mortgage Insurance Fund, p. 75.

TABLE 10. Foreclosure rates for mortgage loans on nonfarm one- to four-family dwellings made by life insurance companies, commercial banks, and savings and loan associations, by year made — 1920-1947[a]

Year Made	Life insurance companies		Commercial banks		Savings and loan associations	
	Number	Amount	Number	Amount	Number	Amount
<u>1920-1924</u>	<u>5. 3%</u>	<u>8. 0%</u>	<u>2. 7%</u>	<u>3. 4%</u>	<u>3. 4%</u>	<u>4. 1%</u>
1920	2. 7	6. 2	2. 2	2. 1	2. 9	4. 0
1921	1. 7	4. 9	2. 5	2. 3	1. 2	1. 4
1922	2. 4	3. 2	2. 1	2. 0	. 9	. 3
1923	5. 7	7. 9	1. 6	2. 5	4. 7	5. 3
1924	8. 9	12. 0	4. 2	5. 6	6. 1	7. 1
<u>1925-1929</u>	<u>20. 9</u>	<u>23. 0</u>	<u>10. 3</u>	<u>11. 5</u>	<u>11. 6</u>	<u>12. 9</u>
1925	13. 4	15. 0	9. 2	10. 6	11. 5	9. 5
1926	18. 0	19. 6	9. 3	8. 9	10. 9	11. 0
1927	22. 2	21. 8	9. 9	11. 1	9. 1	9. 0
1928	24. 1	28. 5	12. 1	14. 1	14. 3	15. 1
1929	26. 4	29. 6	11. 5	13. 7	11. 9	19. 2
<u>1930-1934</u>	<u>17. 4</u>	<u>21. 1</u>	<u>5. 1</u>	<u>6. 4</u>	<u>10. 4</u>	<u>14. 0</u>
1930	20. 4	22. 0	5. 2	6. 4	14. 6	17. 7
1931	19. 3	23. 9	7. 1	9. 0	8. 5	12. 0
1932	9. 7	16. 7	6. 7	4. 6	12. 2	11. 3
1933	. 0	. 0	2. 5	2. 5	7. 1	12. 2
1934	6. 1	5. 2	. 0	. 0	3. 0	9. 7
<u>1935-1939</u>	<u>1. 8</u>	<u>2. 0</u>	<u>. 6</u>	<u>1. 1</u>	<u>1. 2</u>	<u>2. 0</u>
1935	3. 4	3. 4	. 8	. 8	1. 0	1. 2
1936	2. 0	2. 5	. 0	. 0	. 8	3. 5
1937	1. 6	1. 8	2. 0	5. 0	1. 8	3. 8
1938	2. 0	1. 7	. 0	. 0	1. 3	1. 2
1939	1. 2	1. 9	. 3	. 1	1. 0	. 6
<u>1940-1947</u>	<u>. 2</u>	<u>. 2</u>	<u>. 0</u>	<u>. 0</u>	<u>. 1</u>	<u>. 1</u>
1940	. 4	. 4	. 0	. 0	. 5	1. 1
1941	. 2	. 1	. 0	. 0	. 0	. 0
1942	. 4	. 3	. 0	. 0	. 0	. 0
1943	. 4	. 4	. 0	. 0	. 0	. 0
1944-1947	. 0	. 0	. 0	. 0	. 1	. 1

Source: Morton, <u>op. cit.</u>, Table 39.

[a]Based on National Bureau of Economic Research Surveys. Foreclosure rate equals the number and original amount of loans made in a given year and eventually foreclosed as a percentage of the number and original amount of all loans made in that year.

<u>The Mutual Mortgage Insurance Fund</u>, p. 91.

payment, short-term loans magnified foreclosure rates nor how much losses were minimized by unreported, offsetting forfeiture of savings accounts by borrowers, an S & L feature of that era which gave loans many characteristics of direct amortization. For savings and loan associations the average foreclosure rate for the 1925-29 and 1930-34 periods combined was 11% of all loans originated during that span; these foreclosed loans represented an average of 13.5% of the total amount of loans made for these same two periods combined. A loss of two-thirds of the mortgage principal in these cases would mean losses of 9% of the total principal committed to all mortgages. While such an estimate offers some measure of severity, it is more useful as a measure of the extreme loss frequency estimate for future years as it spans the depth of the depression, unlike the FHA experience which follows below.

FHA foreclosure experience is the one reliable current source of data concerning loans and homes similar to those insured by the private guarantor. Loans under Section 203, the Mutual Mortgage Insurance Fund, best represent the minimum foreclosure experience that can be expected on high-ratio loans on medium range value homes, and MMIF experience is presented in Table 11. This data is singularly useful because the number and amount of mortgages originally insured is known, as is amortization and termination rate, number and amount of foreclosure loss, and other vital characteristics of a vast sample with national urban dispersion. As a result, it is possible to express foreclosure frequency as a percentage of insured cases and

TABLE 11. Terminations of FHA-MMIF insured home mortgages, selected years 1950-1959, for Section 203 loans.

Year	Insurance written		Total terminations			Foreclosures			FHA acquisitions		
				Cumulative through end of year			Cumulative through end of year			Cumulative through end of year	
	Number of cases for the period	Cumulative through end of year	Number for the period	Number	Percent of total insured	Number for the period	Number	Percent of total insured	Number for the period	Number	Percent of total insured
1950	338,125	2,000,812	97,144	880,845	44.02	677	6,324	.32	225	4,333	.22
1952	212,748	2,459,014	81,301	1,047,652	42.60	684	7,768	.32	282	5,022	.20
1954	175,698	2,866,157	105,603	1,255,087	43.79	1,131	9,640	.34	427	5,712	.20
1955	294,772	3,160,929	144,937	1,400,024	44.29	1,096	10,736	.34	485	6,197	.20
1956	234,929	3,395,858	133,083	1,533,107	45.15	2,089	12,825	.38	1,572	7,769	.23
1957	181,680	3,577,538	99,659	1,632,766	45.64	1,514	14,339	.40	910	8,679	.24
1958	353,418	3,930,956	101,436	1,734,202	44.12	2,061	16,400	.42	1,328	10,007	.25
1959	460,966	4,391,922	166,847	1,901,049	43.29	3,190	19,590	.45	1,828	11,835	.27

Source: Page 47, 26th Annual Report, Federal Housing Administration, op. cit.

TABLE 12. Veterans Administration insured loans experience.

Year	Number of farm, home, and business loans insured by VA	Claims paid
1959	5, 632, 249	68, 031
1958	5, 425 282	57, 150
1957	5, 251 975	49, 343
1956	4, 810, 625	42, 675
1955	4, 203, 668	37, 016

Year	Number of home loans insured by VA	Total amount insured
1959	5, 327, 157	45, 882, 189, 112
1958	5, 122, 199	43, 258, 382, 147
1957	4, 951, 833	41, 097, 236, 190
1956	4, 515, 042	35, 909, 690, 741
1955	3, 914, 535	29, 135, 766, 719

Year	Number of defaults reported	Per cent of mortgages foreclosed	Per cent of defaults ending in foreclosure	Number of paid claims
1959	731, 927	. 96 of 1%	6. 6%	50, 791
1958	643, 614	. 78 of 1%	6. 2%	40, 195
1957	560, 647	. 66 of 1%	5. 8%	32, 767
1956	489, 774	. 57 of 1%	5. 4%	26, 718
1955	427, 262	. 57 of 1%	5. 2%	22, 285

severity as an average loss per foreclosure. For Section 203 loans default

frequency as of December 31, 1959, was running slightly more than .56 of 1%

of total loans in force, [3] but FHA generally has had to acquire foreclosed

property in just one-half the cases. Another table indicates that 92% of

defaults occur before five years of payments are completed; the earlier the
by month of maturity

default the higher the loss, which can range from an average of $828 to

$222. [4] Because FHA insures to loan maturity, not just for the first ten

years, significant volumes of insured mortgages within the total portfolio

remain unterminated but have been rendered virtually riskless by amortiza-

tion and inflation. If it were not leveled by averages, default frequency

in fact must be closer to .8% for newer high ratio loans. Through

December 31, 1959, 9,058 acquired properties insured under Section 203

had been sold at prices which left a net charge against the fund of

$6,789,922, an average of $749 per case. [5] As Section 204 (f) of the

National Housing Act provides that where the net amount realized by FHA

from a foreclosed and resold property exceeds all expenses incurred in

handling and disposing of such property, as well as the face value of the

debentures issued, interest, expenses, and any cash paid in exchange for

such property, any excess balance remaining will be refunded to the

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(3) P. 49, 26th Annual Report of the Federal Housing Administration, op. cit.
(4) P. 58, ibid.
(5) P. 117, ibid.

mortgagee, or the mortgagor, if the former has been paid in full. There were excess proceeds on approximately 22% of the 9,058 (2,034) properties acquired and sold that resulted in an average refund per case of $361. The average loss per case involving a loss (7,024) should then be $966; [6] since this average figure has increased from $783[7] in 1957, the most recent years must be experiencing losses per case somewhat higher than average. At the same time these loss figures might be considered the result of adverse selection because, in the case of 203 loans, in a third of the default-foreclosure cases, lenders did not exercise their rights to FHA indemnity. [8]

Preliminary reports indicate delinquency and foreclosure experience for the 1960-61 recession period rose steeply. FHA officials[9] stated the recession was only partly responsible for the sharp break with traditional levels of loss. Instead they saw the influence of very low ratio loans and reduced underwriting requirements for income to debt service ratios as being major adverse factors. Now 3% downpayment loans, protracted amortization, and reduced underwriting standards were political measures, not underwriting

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(6) P. 119, Ibid.

(7) P. 41, 24th Annual Report Federal Housing Administration, op. cit.

(8) This tendency to resell foreclosed properties at a modest profit whenever possible is strengthened by the lender's disinclination to accept FHA indemnity debentures.

(9) These unnamed officials were referred to in a Wall Street Journal article in June of 1961. However, a letter to the author from Neil J. Hardy, commissioner of the Federal Housing Administration, stated that the increase in defaults and foreclosures ". . . is consistent with our insurance risk assumptions. The earlier experience of the home mortgage program, when default and foreclosure levels were lower, was more favorable than could be expected to obtain indefinitely. "

decisions, and the resulting increase in loss experience indicates that foreclosure losses are subject to underwriting control to a greater degree than suspected.

VA Home Loan Guaranty Plan has had more adverse experience than FHA-MMIF. In its program losses are paid directly from income rather than a specially funded, long term, contingency reserve. Average home loan in 1959 was about $12,200.[10] On its over-all program of loans on homes, farms, and businesses and the record for home loans is indicated in Table 12. Noteworthy is the fact that while new loans are increasing at a reduced rate, foreclosure rate is rising steadily to where it almost equals 1% of loans insured, and foreclosure as a percentage of default notices has had a corresponding increase. It is difficult to relate VA experience directly to possible loss estimate for the private guarantor. VA appraisal and underwriting standards have been related in part to questions of social and political policy in regard to helping veterans rather than avoiding foreclosure at any cost.

Basic Hypothetical Foreclosure Cycle Loss Assumptions

The model foreclosure cycle proposed contains four basic cycle parameters and three distinct areas of assumptions. Significant cycle variables are limited to the duration of the recession, the curve of earned premium

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(10) Page 242, Annual Report of the Administrator of Veterans Affairs 1959, Washington, D. C.

income, the frequency of foreclosure, and the severity of the average loss.
Three areas of assumptions regard the conversion of mortgage loan volume
to numbers of loans involved, the calculation of losses and their distribution
among current income and contingency reserves, and the effects on operating
profits (or losses) of operating expenses and investment income. Finally,
it is possible to estimate the maximum foreclosure frequency which can be
met by reserves and capital assumed necessary to meet the proposed reserve
schedule of Part II, assuming loss severity to the degree found in the model.

The choice of quantities was predicated on creating a severe recession
cycle which bordered on depression. Presumably the guarantor could with-
stand any cycle less than the worst one might hypothesize. Consequently
the 5-5-5 year cycle pattern was retained to be more prolonged than the
cycle presently experienced; the model begins with the 25 year, 6% mort-
gage Model A of Part II because this portfolio has the lowest reserve ratio,
the slowest amortization, and the largest volume of insured mortgages. An
initial loan ratio of 85% was assumed to recognize that although a large
proportion of new loans made would equal the maximum ratio of 90%, many
other loans would be of a lower ratio so that an average ratio of 85% is
still a severe assumption.

Before presenting an itemized analysis of the model work sheet, the
severity of the cycle assumption should be highlighted. The loss frequency
rate begins with the current FHA-MMIF acquisition experience of .3 of 1%
and then builds to an expected rate of .8 of 1% by the fifth year when the

first signs of recession may be seen; with a sharp upturn in the sixth through tenth year, foreclosure frequency reaches a maximum of 5% or 50 per 1,000 insured mortgages in the eighth year, receding to .7 of 1% by the thirteenth year. A 5% rate is more than ten times higher than that annually experienced by FHA-MMIF and about one-half the average loss frequency reported for savings and loan lenders in 1930-1934 in Table 10. Severity of loss estimates range from $731 to $1,987 in the eighth year, the last year of recession, a figure which represents 25% of the maximum average claim possible at that point. This average assumes all loans begin as 25-year $12,500 mortgage loans which are 85% of a $14,700 property. The heart of net loss calculation is the ratio of recovery value of an acquired property on an immediate resale compared to depreciated cost value, for the recovery value subtracted from claim cost equals net loss to guarantor except in those years where the 20% option is a lesser amount. Without historical justification the price index of real estate ranges from 95% of depreciated cost value to 67% in the eighth year, always assuming a sales cost of 5% of depreciated cost. Such an assumed price drop is a very stiff jolt to any economy in this era of price rigidity. Review of the work sheet will serve to introduce other assumptions and the mechanics of analysis.

The Mechanics of the Model Cycle Test

Item 1. Annual earned premium is taken from the computations for the liberal set of assumptions (Model A) found in Appendix IV.

Item 2. The prior claim of the increment to contingency reserve from gross earned premium must be segregated.

Item 3. Gross earned premium minus increment to contingency reserve yields the total earned premium available for current losses, expenses, and underwriting profit.

Item 4. The cumulative unearned premium is recorded as calculated in Appendix V, for reference in further computations of available loss reserve and investable funds.

Item 5. Loan volume originally insured is recorded as taken from Item 7 of the theoretical Model A of reserve accumulation.

Item 6. As foreclosure rate is best expressed as the number of loans foreclosed per thousand, it is necessary to convert the amount of loan volume originally insured into the average number of insured loans. This conversion is made by dividing the new volume of loans insured each year by $12,500 to establish the original number of loans initially insured in any year. This operation assumes that loans are homogeneous in amount and number when first insured. Number of loans is determined to three significant numbers to reflect that just one unit volume would be multiplied several hundred times to determine the total number of loans made in relation to a state's total recorded mortgage loan volume.

Item 7. The average number of insured loans in force will reflect the termination rate, which in the case of Model A was 6%. The number of loans from each original year's mortgages remaining unterminated will provide in

the aggregate the total average number of insured loans in the portfolio for each year. The total average number of insured mortgages as of the beginning of each year, assuming all new business to be written on the first of the year, appears in Item 8.

Item 9. An arbitrary and imaginary foreclosure cycle, expressed as a decimal per one thousand loans, is introduced as the first cycle parameter. Basically symmetrical, as in Chart 4, the rate is lower in the second and third years as the portfolio is so very new that defaults have not had time to occur or to result in a completed foreclosure action. FHA experience indicates the majority of defaults occur between the 12th and 35th month of payment, with average claim payment declining sharply by the end of the 36th month of loan duration. [11]

Item 10. Multiplying the average number of insured loans by the number of foreclosures expressed as a percentage from $f/1,000 \times 100$ established the number of foreclosures on insured loans.

Item 11. The number of loan foreclosures multiplied by the average loss per foreclosure will determine the total losses incurred by the guarantor. Computation of the average loss for each year of the cycle appears in Appendix VI together with necessary explanation. The average net loss figure recorded is rounded off to a whole number, and it is obvious that extensive mathematics need not produce a loss estimate which is highly accurate prediction of reality; however, these figures can be considered

(11) P. 58, 26th Annual Report Federal Housing Administration, op. cit.

Model "A"
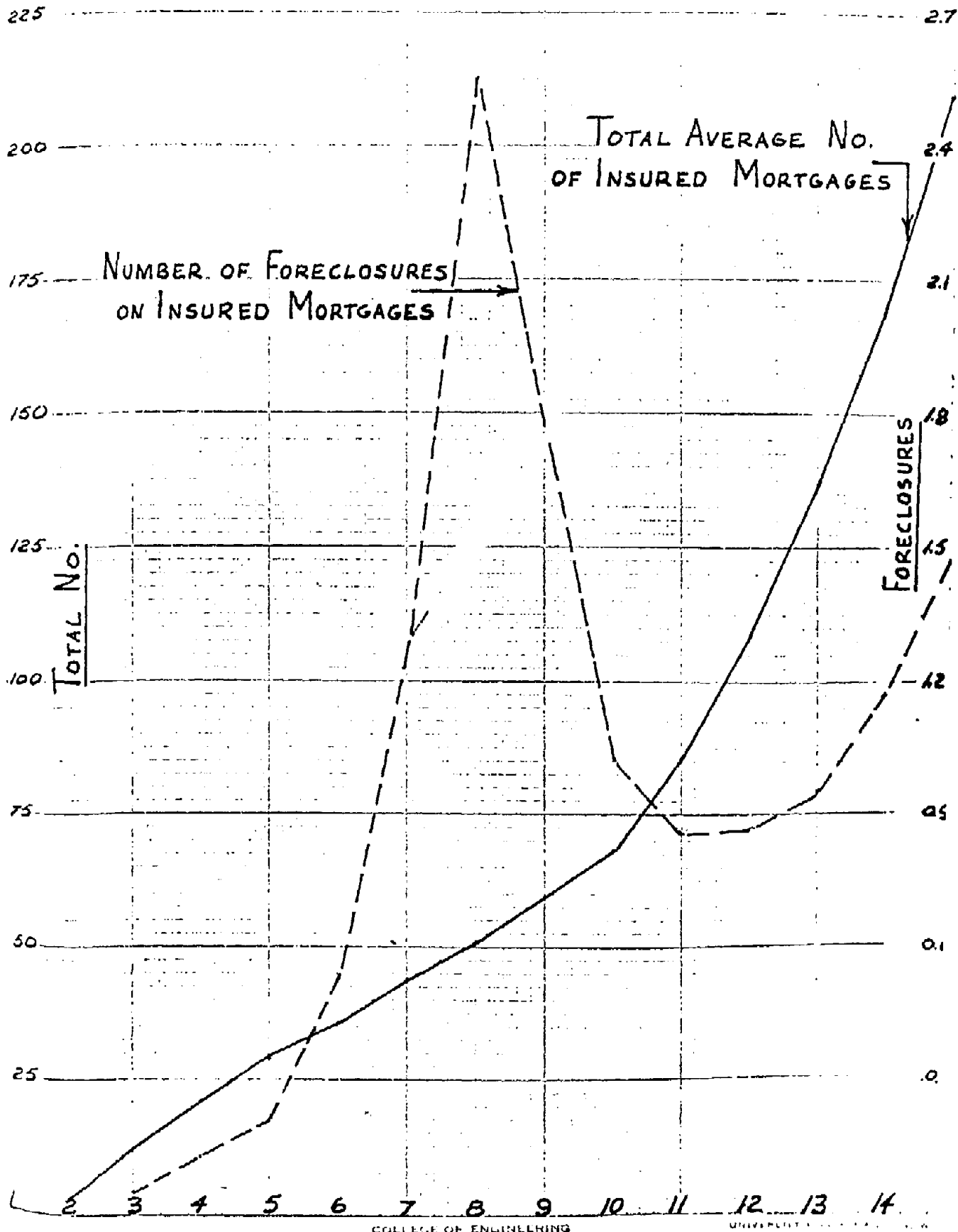
the maximum loss which is likely to be experienced on the average, for in their computation not only is price level deflated with great severity but all claims are assumed to be the maximum 125% of mortgage balance due. Possible price inflation prior to the deflation of recession was not considered, and all losses were estimated on a distribution by years rather than by the monthly cycle which characterizes the real situation. Consideration of the latter factors would have softened the severity loss estimate.

Item 12. Total loss incurred by the guarantor is the product of the average loss per foreclosure and the number of foreclosures on insured mortgages.

Item 13. Since the rate formula provides that 10% of earned premium is available for current losses, and that the contingency reserve cannot be called on to pay losses until losses exceed the rate formula allowance by an additional 10% of earned premium, all current losses up to 20% of earned premium are taken from current year's income, with any balance paid from contingency reserve. Where 20% of earned premium in Item 13 is greater than incurred losses in Item 12, incurred losses are paid entirely out of earned premium. To the degree that incurred losses exceed earned premium in Item 13, the balance must be paid from forfeiture of unearned premium or from contingency reserve.

Item 14. The position of the unearned premium forfeited from the accounts of the mortgages foreclosed is computed by multiplying the percentage of the foreclosure per one thousand loans in Item 9 by the

accumulated unearned premium reserve in Item 4. This assumes that the foreclosures are distributed among mortgages insured in the same proportion as these mortgages are contributing to the unearned premium reserve; it is unlikely that the incidence of default will be related to method of paying the guaranty premium.

Item 15. The balance of loss payable from the contingency reserve is calculated by subtracting Item 13 plus Item 14 from total incurred loss from Item 12.

Item 16. The accumulative contingency reserve net of losses is determined by adding the net reserve at the end of the previous year (Item 16) to a current year increment to the contingency reserve in Item 2 and then subtracting the balance of loss payable from the contingency reserve in Item 15. When the contingency reserve has been exhausted, the annual increment in the contingency reserve is applied to the balance due from the reserve with the remainder of the balance due being paid out of current income together with the basic 20% of earned premium loss charge.

Item 17. Underwriting income or loss is computed by subtracting Item 12 or Item 13, whichever is smaller, from earned premium available for incurred losses in Item 3. In years where contingency reserve suffers a deficit, the net deficit is also added to incurred losses subtracted from earned premium available.

Item 18. Expenses as a percentage of earned premium will drop as volume of insured loan increases as the guaranty business appears to be

the beneficiary of a decidedly decreasing cost curve. The rate formula estimates operating expenses as 37.5% of annual earned premium, but such an expense ratio is unlikely. Therefore expenses are made a varying proportion of income, increasing slightly during the five recession years to reflect a drop of loan volume and an increase in claim administration. The rule of severity is tempered in the case of the first few years when start-up expenses might well absorb 100% of earned premium instead of 40%. The arbitrary expenses factor is as follows:

Year 1 — 40%	6 — 25%	11 — 25%
2 — 30%	7 — 30%	12 — 20%
3 — 25%	8 — 30%	13 — 20%
4 — 25%	9 — 30%	14 — 20%
5 — 25%	10 — 25%	15 — 20%

These factors times Item 1 produce the operating expense allowance.

Item 19. Operating profit or loss is determined by subtracting Item 18 from Item 17 and is unadjusted for possible investment income or corporate income taxes.

Item 20. The cumulative profit or loss can indicate the trend in surplus accumulation and the average profit as a percentage of earned premium in the aggregate. The aggregate loss replaced by profits, presuming survival of the guarantor in a crisis, will be of interest to the investor.

Item 21. A cumulative earned premium is readily computed by means of a running total of the premiums in Item 1.

Item 22. To determine an average percentage of profit on earned premium, cumulative profit is made a percentage of cumulative earned premium.

Item 23. To determine investment income, it is necessary to compute available investable reserve. Aside from an indeterminate amount of capital,investable reserve will be equal to the unearned premium reserve net of the losses (Appendix IV), the contingency reserve net of the losses (Item 15), and the earned surplus, in such years as there is any (Item 19).

Item 24. The net effective invested reserves are the sum of the above factors in this model. These investments will be supplemented by capital in actual case, but one of the objectives of this model is to determine the amount of capital necessary to supplement reserve carved from current income.

Item 25. Interest income is calculated as 4% of total investable reserves as presently the bulk of private guaranty reserves are invested in insured savings and loan shares or government bonds, on which there is little appreciation, if any.

Item 26. The net income (or loss) is operating income (Item 19) adjusted for investment income (Item 25) and is not adjusted for taxes due to the possibilities of refunds and loss carry-overs during years of initiation or extraordinary losses. The income does not include accumulations in the contingency reserve as this is, in essence, a liability, an above the line account, although some analysts have seen it as an addition to surplus

which has then been restricted as to use for company purposes.

Item 27. Cumulative income or loss indicates whether resources from premium income or contingency reserve were adequate to meet losses or whether minimum capital required for licensing will have to be augmented with additional funds to offset losses. This figure was a basic objective of this model; it gains added significance if compared to maximum liability or total insured amortized loan balances.

Item 28. A ratio of aggregate profit or loss to the end of year amortized total loan balance insured will indicate the minimum ratio of capital to full liability that will permit survival of the guarantor in a cycle of the dimensions assumed.

Item 29. The ratio of accumulated profits (or losses) to insured mortgage balance reveals the degree to which capital will be called on to meet the obligations of the guarantor.

Item 30. The ratio in Item 29 multiplied by end of year total insured balance indicates the minimum capital necessary to remain solvent throughout the cycle of the size presumed in the model. Presumably, to have some cushion for continuing business, actual capital should be greater than twice the minimum capital required. In this case the peak loss year saw aggregate losses reach .73 of 1% of insured balance so that insured balance is multiplied by .015 or 1.5% to determine minimum workable net worth.

TABLE 13 The effects of cyclical foreclosure losses on reserves and capital of Model A.

Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Annual earned premium	66.--	210.--	425.--	707.--	1,080.20	1,369.--	1,562.--	1,795.--	2,032.--	2,274.--	2,747.--	3,590.--	4,912.--	5,636.--	6,941.--
2 Less contingency reserve requirement	33.--	109.--	212.--	353.--	540.--	684.--	781.--	897.--	1,016.--	1,136.--	1,363.--	1,795.--	2,455.--	2,818.--	3,499.--
3 Earned premium available for incurred losses	33.--	109.--	212.--	353.--	540.--	684.--	781.--	897.--	1,016.--	1,136.--	1,363.--	1,795.--	2,455.--	2,818.--	3,499.--
4 Cumulative unearned premium reserve (see Appendix V)	168.--	399.--	714.--	1,035.--	1,052.--	1,789.--	2,057.--	2,254.--	2,478.--	2,784.--	3,667.--	4,717.--	6,003.--	7,615.--	11,731.--
5 Mortgage volume originally insured	30,000.--	51,300.--	77,866.--	111,116.--	112,006.--	114,849.--	126,334.--	137,819.--	149,304.--	160,789.--	198,639.--	273,145.--	442,920.--	570,517.--	699,169.--
6 Original number of mortgages insured (Item 5 divided by 12,500)	2.4	4.104	6.228	8.889	8.96	9.188	10.107	11.025	11.944	12.863	23.879	29.562	37.034	45.641	55.934
7 Average number of insured mortgages (at beginning of each year) 2	.94	2.256	3.858	5.854	8.356	8.422	8.637	9.501	10.363	11.227	12.091	22.643	28.061	34.812	42.603
3	.88		2.113	3.612	5.480	7.822	7.886	8.096	8.874	9.702	10.561	11.319	21.010	26.270	32.490
4	.82			1.968	3.365	5.107	7.289	7.347	7.534	8.288	9.041	9.774	10.568	17.576	24.479
5	.76				3.119	4.733	6.766	6.810	6.993	7.681	8.379	9.077	9.774	18.145	
6	.70				1.640	2.388	4.356	6.222	6.272	6.432	7.073	7.718	9.004		
7	.64					1.536	2.627	3.986	5.689	5.734	5.880	6.448	7.056		
8	.58						6.392	2.360	3.612	5.197	5.329	5.842			
9	.52							1.216	2.134	3.156	4.622	4.659	5.256		
10	.46								1.104	2.696	3.239	4.099	4.226		
11	.20									430	1.888	.821	1.246	1.792	
12	.16										.304	.653	.995	1.422	
13	.12											.288	.492	.747	
14	.08												.192	.528	
15	.04													.696	
8 Total average number of insured mortgages (Item 6 + Item 7)		2.256	12.198	20.323	27.985	35.338	43.060	51.069	59.381	67.874	86.126	108.631	135.184	169.712	210.961
9 Number of foreclosures per $1,000		.003	.004	.006	.008	.015	.030	.050	.030	.016	.010	.008	.007	.007	.007
10 Number of foreclosures on insured mortgages (Item 8 × Item 9)		.007	.049	.122	.224	.530	1.292	2.554	1.781	1.918	.861	.869	.953	1.188	1.477
11 Average loss per foreclosure		731.--	768.--	831.--	900.--	1,887.--	1,937.--	1,975.--	1,987.--	1,597.--	968.--	928.--	862.--	783.--	718.--
12 Total incurred losses (Item 10 × Item 11)		5.12	37.63	101.38	201.60	1,000.11	2,502.60	5,044.15	3,538.85	2,022.77	833.45	803.83	821.49	930.20	1,060.49
13 Minus 20% of earned premium available for loss		21.80	41.40	70.60	108.--	136.80	156.20	179.--	203.20	264.80	272.60	359.--	451.--	563.60	699.--
14 Portion of loss payable from forfeited unearned premium		1.20	2.85	6.21	13.21	26.03	61.11	112.70	74.34	40.69	56.63	37.73	42.--	53.30	82.11
15 Balance of loss payable from contingency reserve (Item 12 − Item 13 − Item 14)				24.57	80.39	836.48	2,386.29	4,752.46	3,261.31	1,755.38	524.22	396.73	328.49	313.30	279.38
16 Cumulative contingency reserve net of loss (Item 2 − Item 15 for first year, Item 16 + Item 2 − Item 15 thereafter)	33.--	142.--	356.--	682.43	1,142.04	989.56	(−614.73)	(−3,855.45)	(−2,245.31)	(−621.38)	838.78	2,237.05	5,163.56	6,682.26	7,883.38
17 Underwriting profit or loss (Item 3 − Item 12, add Item 14 when negative)	33.--	87.26	170.60	453.--	452.--	547.20	10.07	(−3,137.44)	(−1,432.51)	295.82	1,040.40	1,656.--	1,804.--	2,256.40	2,796.--
18 Expenses as a varied per cent of earned premium	26.40	66.60	106.25	176.75	270.--	342.26	410.60	538.50	508.--	568.90	696.76	718.--	902.40	1,127.20	1,399.20
19 Operating profit (or loss)	6.60	21.80	64.35	276.25	162.--	204.95	(−458.53)	(−3,675.94)	(−1,940.51)	(−282.68)	393.65	718.--	901.60	1,127.20	1,397.80
20 Cumulative profit (or loss)	6.60	28.40	92.75	269.--	531.--	735.95	277.42	(−3,398.52)	(−5,339.02)	(−5,621.71)	(−5,228.06)	(−4,510.06)	(−3,608.46)	(−2,481.26)	(−1,083.46)
21 Cumulative earned premium	66.--	284.--	709.--	1,416.--	2,496.--	3,865.--	5,427.--	7,222.--	9,254.--	11,528.--	14,315.--	17,905.--	22,417.--	28,053.--	35,044.--
22 Cumulative profit as a per cent of cumulative earned premium	10%	10%	13.08%	26.06%	21.27%	19.14%	5.1%	(−47.06%)	(−57.69%)	(−48.77%)	(−36.52%)	(−25.19%)	(−16.15%)	(−8.84%)	(−3.09%)
23 Total investable reserve 1) unearned premium reserve N/L	167.--	398.--	711.--	1,029.--	1,659.--	1,767.--	1,976.--	2,142.--	2,403.--	2,665.--	3,631.--	4,680.--	5,962.--	7,562.--	11,648.--
2) contingency reserve N/L	33.--	142.--	356.--	682.43	1,142.04	989.56	(−614.73)	(−3,855.45)	(−2,245.31)	(−621.38)	838.78	2,237.05	5,163.56	6,682.26	9,883.38
3) earned surplus	6.60	28.40	92.75	269.--	531.--	735.95	277.42	(−3,398.52)	(−5,339.02)	(−5,621.71)	(−5,228.06)	(−4,510.06)	(−3,608.46)	(−2,481.26)	(−1,083.46)
24 Net effective reserves and capital	206.60	568.40	1,157.75	2,060.43	3,312.04	3,487.51	1,637.69	(−5,111.97)	(−5,181.34)	(−3,578.09)	(−758.28)	2,406.99	6,517.10	11,763.--	20,447.92
25 Investment income on effective reserve at 4%	8.26	22.72	46.31	83.22	132.48	139.50	65.51					96.28	260.68	470.52	817.92
26 Net underwriting and investment income before tax (Item 19 + Item 25)	14.86	44.55	110.66	359.47	294.48	344.45	(−393.02)	(−3,675.94)	(−1,940.51)	(−282.68)	393.65	814.28	1,162.28	1,597.72	2,215.72
27 Cumulative earned income or deficit	14.86	69.41	170.07	529.54	824.02	1,168.47	775.45	(−2,900.49)	(−4,841.--)	(−5,123.68)	(−4,730.03)	(−3,915.75)	(−2,753.47)	(−1,155.75)	1,059.97
28 End of year total amount loan balance insured	47,679.--	72,784.--	138,554.--	229,554.--	349,550.--	424,914.--	501,834.--	581,181.--	661,839.--	734,105.--	921,804.--	1,154,513.--	1,459,778.--	1,788,043.--	2,236,979.--
29 Ratio of accumulated losses to originally insured balance	.00053	.00081	.00122	.0023	.00235	.00275	.00154	(−.00499)	(−.00731)	(−.00697)	(−.005131)	(−.0003592)	(−.00019)	(−.0006446)	(−.---423)
30 Minimum capital and paid-in surplus required for assumed insured volume	207.71	545.89	1,034.15	1,719.66	2,421.62	3,183.10	3,263.77	4,356.86	4,963.79	5,606.79	6,913.53	8,657.35	10,748.33	13,410.33	16,777.35

Analysis of Cycle Model Results

The fact that reserves from premium, together with capital of less than 1% of net insured mortgage balance, could survive a cycle of the scale hypothesized in this model would seem to recommend the present premium and reserve schedule of mortgage guaranty. While it is problematical whether a guarantor could rebound from such a severe recession so early in its development, nevertheless the chart does show the guarantor could fulfill its existing obligations. This is no mean accomplishment, considering the peak of foreclosure frequency in the five-year cycle is ten times the average loss frequency recently experienced by FHA. For three years the foreclosure rate exceeds the 2% delinquency rate some mortgage men feel to be the starting point of critical loss severity, and maximum losses are presumed paid in each case without anticipation of salvage. However, there are several implications to the cycle model which must be examined before the model result can be said to prove this degree of loss capacity.

The first resource of the guarantor in good times or bad is 20% of earned premium and a major source of earned premium is that received on newly underwritten loan volume where the first year premium is twice that of renewals. A critical implied assumption necessary to reserve adequacy is continued acquisition of new business by the guarantor despite public knowledge of the guarantor's mounting recession losses. It is almost certain there would be a demand for a loan guaranty during the stress of

recession. Insurance has always been bought more conscientiously at a

time that the need for coverage is a vivid part of the news. The protection

would cost lenders nothing, would be a logical concession for the borrower

to make, and so would offer a valuable speculation as to the duration and

degree of protection available. As in past recessions there would still be

a good volume of lending ᵃguaranty, and in a period when demands on income

must be most carefully budgeted, high ratio loans, although based on ap-

praisals of recession value and income, would provide necessary capital

at a minimum debt service. In addition lenders might feel an obligation to

support an institution they helped to build, directing insurance volume to

it and expected that the economic tide would soon be reversed. The existence

of legal reserve ratio, however, would soon make it possible to satisfy the

demand because loss reduction of the contingency reserve would evaporate

a major portion of assets which were defined as reserve. As contingency

reserve dwindled, capital would have to supply more and more of the reserve

necessary to meet the 4% reserve ratio, but additional equity capital would

not be available in the market. Further sale of guaranties would be suspended.

It is not logical to force accumulation of reserve to meet contingent losses

and then to restrict a company from transacting further business if these

accumulations must be used for the specific function of the business. There-

fore it is imperative that any reserve ratio law contain a provision that the

commissioner may waive the reserve requirement in any period that losses

must be paid from the contingency reserve. An alternative solution would be

to base reserve ratios on net worth alone, rather than net worth plus contingency reserve. Since accumulation of the latter is fully determined by present rules, the reserve ratio is really intended to force sufficient capitalization for a guarantor during the first years of reserve accumulation. A reserve ratio which was a weighted average — an average stressing the two important variables, the original loan ratio and the time remaining until loan maturity, as developed in more detail in Part II — could fall in a range of .5 to 2% of maximum liability or .3 to 1.5% of net insured mortgage balances.

Such a scheduled ratio plan based on net worth would still make capital requirements a function of the major risk elements in the portfolio without choking off operations for the guarantor in a recession depleting the contingency reserve.

While the severity of assumptions on the consequential expenses of foreclosure and of the recovery ratio of pledged property values may be justified in the name of conservatism, the assumption that the guarantor would pay claims in years 6-10 under the 20% option may be unreasonable. Such an assumption serves to measure the maximum potential loss but does not recognize that actual losses could be reduced were property acquired for future resale or income purposes. The implied assumption is that the guarantor would have to depend entirely on his own assets (which could meet five times as many claims using the 20% option) and could not borrow money to hold real estate. A major economic function of the guarantor is to hold

real estate pending restoration of market values, thereby relieving the lender of an unproductive investment. Exercise of the 20% option in a recession will seldom minimize losses to cash or to capital. Payment of 20% claim reduces assets and surplus equally. This reduction of contingency reserve or of net worth means the erosion of the required 4% reserve and the reduction in earned-premium generated from new business available for current losses. Losses of minimum reserve requirements, as explained above, would accelerate drains on the accumulated reserves, which is directly opposite to the intent of the 20% option. On the other hand, if the guarantor could be assumed to mortgage acquired property for 80% of claims paid and to rent the property for a time, then assets would remain unchanged, as real estate equity replaced cash; liabilities would be increased by a mortgage for 80% of real estate value in an asset ledger plus some addition to case loss reserve. This latter liability could well be less than 20% of real estate equity because recession appraisal might not reflect current market prices but instead might be weighted to anticipate "normal" values such as contemplated in government guaranties. It would appear that use of the 20% option has destroyed all possibility of future loss reduction, could create a greater net cash drain than payment of the claim in full minus funds raised by "mortgaging out," and would hasten impairment of capital by failing to replace a cash asset with an admissible real estate asset of greater value (offset by a mortgage liability and case loss reserve on liability side). The case loss reserve would reduce claims

on income and reserves to the extent that it was less than the net equity in real estate. To be "land poor" holds more possibility of recovery following recession than to be "flat-busted." While this option has effective application in special cases, [12] there is no incentive for management to use this alternative for a majority of recession losses, so that its power as a stop-loss arrangement would appear to be compromised. In relation to the model cycle, if the assumption regarding the 20% option were relaxed, the loss capacity of the guarantor might be considerably improved. If one could assume all losses would be no more than 10% of the maximum liability after eventual resale by the guarantor, that is the losses would be only one-half those losses assumed in years 6-10, a foreclosure frequency exceeding the 5% maximum in the eighth year could be withstood without impairment of capital.

One solution to the ineffective 20% option would be to reduce the percentage of claim payable to 15%, perhaps. However, the 20% option has become so associated with the private guaranty plan, it would be more feasible to change the contract to read 20% of mortgage balance due at

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(12) For example, the possibility that the lender will be indemnified for only 20% of his claim and must dispose of the foreclosed property at his own risk should be a useful countermeasure to blatant adverse selection. Moreover, MGIC has found that for smaller mortgages of $5,000 to $7,500 received in foreclosure, cases are settled at less cost to the company if the 20% option is exercised than if MGIC takes title and then becomes involved in disposal of the property.

default rather than as 20% of full claim due at completion of foreclosure. The guaranty contract and the proposed California code regarding definition of maximum liability would then be consistent, and the option would be a more effective stop-loss arrangement. In addition, maximum liability would be more precisely defined with removal of the indeterminate "paying 20% of such amount due (in accordance with policy condition 11) to the insured" from the contract to be replaced by "paying 20% of the principal mortgage amount due to the insured upon the day of default. " So defined the maximum liability presumed throughout this study would have to be reduced from 25% to 20%, which in turn would increase all reserve ratios by 20% of their present values. The direct result would be a reduction in estimated additional capital needs by an even greater percentage: for example, where equity contributed one-half the recognized policyholder surplus, capital needs would be reduced by 40%. Since one objection to a sliding reserve ratio schedule would be the demand which it creates for equity money in the early years, this objection would be partly mitigated by correction of the measure of maximum indemnity under the 20% option. It should be emphasized that such a change would only reduce the capital amounts required in the models; such a change would not affect a guarantor just having to meet the provisions of the proposed California 1:25 ratio for the first time; only the ratio's understatement of resources would be equalized by the ratio's understatement of liability as defined by the contract.
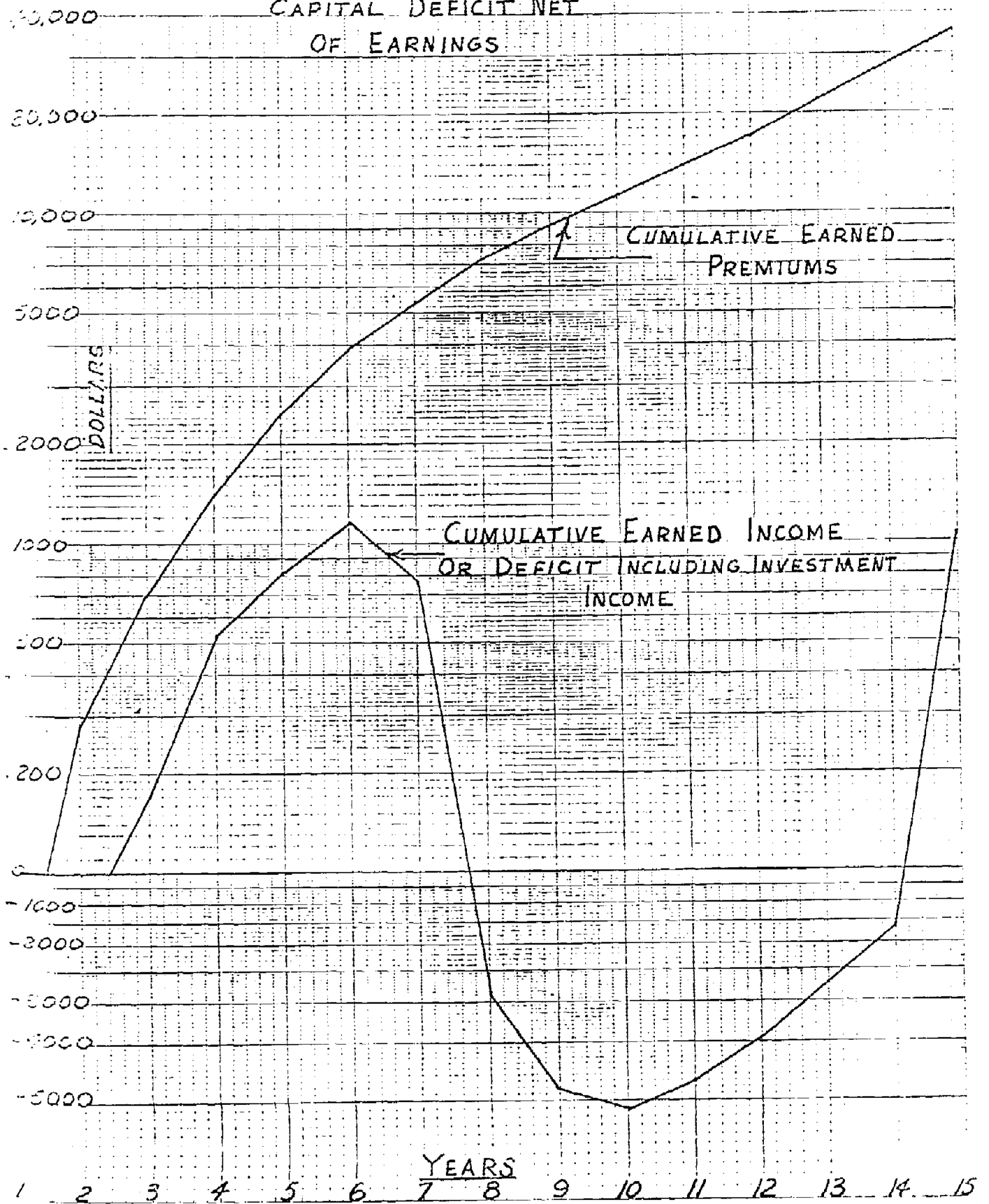
Losses have been distorted and exaggerated to a minor degree in the model for several reasons. In years 12-15 a frequency of loss factor was used which was considered normal for the prosperous 1st-5th as well; this loss ratio was applied to all mortgages in the years of recovery despite the large proportion of the mortgages eight to fourteen years old and presumably not very subject to foreclosure loss. As mortgage portfolio grew older and more dispersed, providing older mortgages did not terminate coverage, one could expect an over-all foreclosure rate of .7 to .4 of 1%, as described in connection with the FHA foreclosure rate. Losses relative to earned premium in these years would also reflect the lag of earned premium income to the rapid expansion of maximum liability in these years. Since 50% of premium income cannot be touched until losses exceed 20% of earned premium, the large number of mortgages in the portfolio in years 11-15 can create sufficient random nuisance claims to spend all or more of the earned premium allowance. Capital growth also would depend upon retained earnings. Losses of capital and surplus by the seventh year were due to the rapid exhaustion of the contingency reserve which shifted burden to current income. Had the cycle occurred at the end of ten years, or better, fifteen, despite the larger number of foreclosures that would be involved, the contingency reserve could have carried a greater share of the burden in the earlier, high loss years of the recession due to its compounded growth after the tenth year. In the long run, time for reserve accumulation is probably the principal factor affecting reserve adequacy.

Graph 5 indicates the recession burden and comparative regeneration of the contingency reserve and net worth in years 12-15, suggesting an unbalanced relationship between the demand of current losses and of contingency reserve on current earned premium. Current losses could conceivably approach 20% of earned premium each year as earned premiums lag liability expansion, so that if expenses could be contained within a 30% limit, there will be operating losses each year while the contingency reserve is soon restored to pre-recession levels. Reallocation of the contingency reserve to current earned premium would cost reserves a portion of their tax exemption; failure to do so postpones the day that investors might once again receive dividends following correction of capital impairment. This problem of deficit operation following a recession setback would be complicated by the tendency of expense ratios on premium earned to rise rapidly during recovery periods when presumably there would be rapid increases in premium written and acquisition expense. Release of earnings from the demands of capital deficit restoration would require a financial reorganization in which capital stock values were reapportioned to paid-in surplus. An immutable reserve ratio would complicate reorganization. Unable to attract new equity capital, the guarantor would have to scale down insured liability in proportion to the loss of capital and reserves by means of termination and amortization of insured mortgage balances. To write new business the guarantor might encourage termination of seasoned mortgages, at the expense of a balanced portfolio. Guaranty capacity might

MODEL 'A'
RETAINED EARNINGS
&
CAPITAL DEFICIT NET OF EARNINGS

CUMULATIVE EARNED PREMIUMS

CUMULATIVE EARNED INCOME OR DEFICIT INCLUDING INVESTMENT INCOME

DOLLARS

YEARS

be prorated to lenders in proportion to their termination of existing guaranty contracts. These strategems would be unnecessary if the reserve ratio were temporarily waived or if the ratio applied only to net worth.

A ratio of net worth to insured mortgage balance, as in Item 29, of .7 of 1% is comparable to a reserve to maximum liability ratio of 2.8 or 3.5%, depending on whether maximum liability is 25% or 20% of insured mortgage balance. This proportion is comparable to the expected contribution of capital to the 4% reserve ratio suggested in Part II. If capital were held to the standard suggested by Item 30, 1.5% of total insured mortgage balance, the leverage of premium reserves will be a low 1:2; were capital requirements reduced to an average .75 of 1%, leverage would approach 1:1 or perhaps 5:4. For example, in year 3 the capital requirements were .75 of 1% of end of year mortgage balance and net effective investment reserves were $1158, leverage would produce an 8.4% return on a $1039 net worth. If total operating and investing income of $111 were added to a 4% return on $1039 of capital the total operating yield on net worth might approach 15% before taxes. However, this model is poorly designed for any projections of profit for several reasons. First, the expense assumptions are somewhat understated in years 1-3 until a profitable scale of operations would be reached. Next, these predictions do not make allowances for the fluctuations in the capital account due to the need for advanced capitalization of future reserve needs, which will cause the capital-to-liability ratio to move up and down after each new supplementary stock issue. The

problem of predicting income per share is further complicated by the possibility of dilution due to successive stock issues. A yield necessary to attract capital must depend on the subjective estimate of the investor as to the downside risk, i. e., the probability of grave recession.

MODEL 'A'
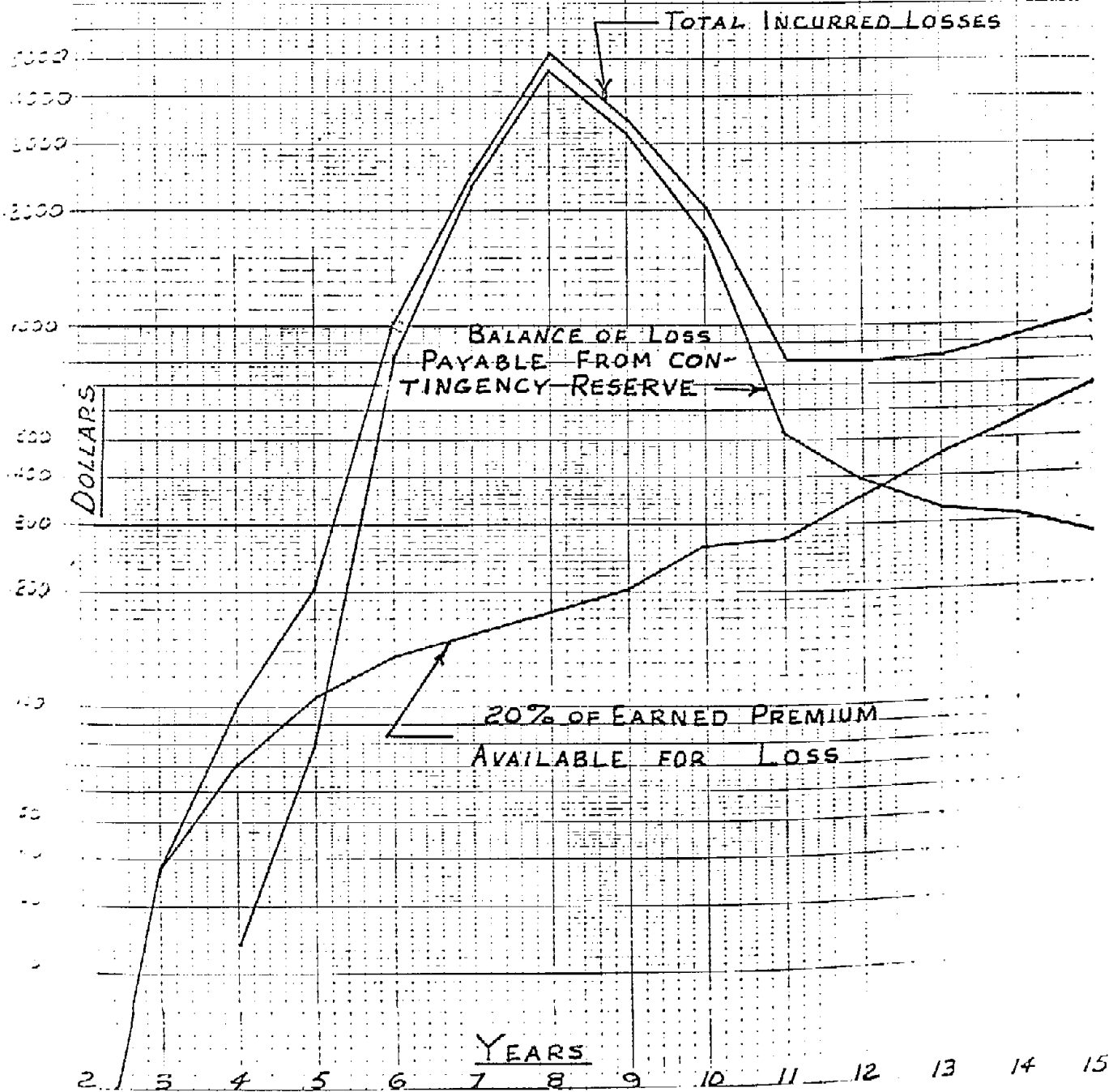
status throughout the country.

A Brief Biography of the MGIC Operation

The story of the rapid development of MGIC since 1957 has been the story of the development of the modern private mortgage loan guaranty insurance to date. There was apparently trade talk about 1950 in the financial districts on the East Coast of initiating a private capital mortgage guaranty operation, but the fall of 1956 marked the first sustained efforts since 1929 to launch any kind of a privately financed guaranty firm. A Milwaukee group, led by two successful Milwaukee real estate attorneys,[2] negotiated and won approval of a guaranty plan for first mortgage loans for their Wisconsin corporation from the licensing authority of the Wisconsin Insurance Department. The department had carefully researched and analyzed the unprecedented proposal and had given approval only after establishing as severe a code for long term reserve accumulation as was felt feasible within the initial income-expense-surplus picture of a firm meeting Wisconsin's rather minimal capital requirements for an insurance company.

Licensed in mid-February of 1957, the company began writing mortgage insurance the following month. March showed insurance written of $41,000 on the single premium plan for a grand total of $228.00 written premiums.

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(2) Messrs. Max H. Karl and M. P. Frank of the Milwaukee realty law firm of Frank, Karl & Hiller, and Spiros W. Kallas, a Milwaukee real estate investor, were the prime movers in the original promotion of MGIC.

By the end of the year, MGIC was licensed in five states, had 33 approved lenders, and had written $14,205,000 on about 1,000 mortgages for a total of $94,174 of net written premiums.[3] Starting capital consisted of only 1,000 shares of no par value stock aggregating $262,500, just $12,500 more than the minimum capital and surplus required for licensing. A small coterie of Milwaukee real estate investors supplied the risk capital in what was a closed local corporation.[4]

As premium income, capital structure, and personnel resources grew, the company expanded its insurance service to parallel broadening HLB permissible loan standards for the savings and loan industry. Once MGIC sought as a maximum only 80% twenty-year loans with an $18,000 ceiling for a first mortgage on an owner-occupied one or two family residence in large urban communities; today the company regularly issues guaranties for 90% of value loans on properties with four and sometimes eight family occupancy, loans up to 30 years in term and in any amount permitted by government regulation. MGIC is presently approaching a consistent volume

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[3] Data taken from an MGIC Prospectus dated February 25, 1960.

[4] It is interesting to note that a little-known provision in the WIS. STATS. at that time made stockholders of a domestic insurer liable for capital deficits to the same extent as a member of a Lloyds association, i.e., unlimited liability. The statute 200.06 was rewritten by the 1959 legislature to require at most forfeiture of stock shares for resale at auction where capital of a firm was impaired. The bankers had removed the assessment liability feature from bank shares in 1933 but no one had similarly changed the insurance law.

of $20 million of loan insurance applications each month, almost 90% of which is acceptable. As of December 31, 1960, 941 approved lenders in 39 states had put $261,590,982 of insurance in force on 20,388 insured loans. [5] Net worth of the corporation had expanded as a result of successive stock sales to $1.8 million, including an earned surplus of $84,000 as the company turned its break-even point in November of 1960. Unearned premium approached $1.7 million and contingency reserves exceeded $.5 million by a good margin. [6] Reference to Tables 14 and 19 and Appendices VII and VIII will further detail the growth record of this firm. [7]

The importance of the adequacy of statutory reserve structure for a mortgage guarantor is dramatized by the magnitude of past growth and the potential future expansion of the premium dollar and insurance volumes revolving about a company like that of MGIC. Past growth has been the result of very able and persistent management efforts to overcome skepticism to win extensive acceptance for the guaranty. Market penetration was facilitated by several institutional events. As pointed out in Part I, the Home Loan Bank broadened their regulations as to acceptable loan terms

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(5) Statistics from an MGIC Progress Report to stockholders in January of 1960.

(6) Data based on Monthly Financial Report to MGIC stockholders in January, 1960.

(7) Brokers' reports indicate MGIC expansion is reflected in occasional over-the-counter transactions in MGIC stock, which is priced in the neighborhood of $25 a share for stock with an original cost of $1.56 per share.

PART IV

THEORETICAL RESERVE ADEQUACY AND
ACTUAL GUARANTOR OPERATIONAL PRACTICES

Hypothetical Reserve Adequacy and Actual Guarantor Operation

A study of reserve adequacy can gain an additional dimension by review

of the financial alternatives and operational variables experienced by an

actual mortgage loan guaranty company. The business statistics of such a

firm will provide a yardstick for evaluating the reasonableness of the various

assumptions made in Parts II and III of this monograph. A survey of the

major events, policies, and institutional factors which have affected the

development of a guarantor can illustrate how management may implement

the legal minimum standards of adequacy and spotlight factors affecting

reserve adequacy which were not fully considered in present state insurance

codes. To these ends the operations of the Mortgage Guaranty Insurance

Corporation (MGIC) of Milwaukee, Wisconsin, can be reviewed and compared

to the explicit and implicit assumptions in Parts I, II, and III. This firm

was selected because it is not only the prototype of modern mortgage loan

guaranty companies, but also the only such firm[1] to achieve operational

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(1) A number of mortgage guaranty companies patterned after MGIC are now
in various stages of initial operation in their home states. As of June,
1961, this study knew of the following companies attempting to enter
the mortgage guaranty field: National Home ~~Mortgage~~ Insurance Co.
(Florida); The Guaranty Mortgage Insurance Co. (GMIC) (Florida); The
American Mortgage Insurance Co. (North Carolina); The St. Lawrence
Mortgage Insurance Co. (Chicago, Illinois); ~~The Home Loan Mortgage~~
~~Insurance Co. (Madison, Wisconsin)~~.

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for member savings and loan banks. Then in 1958 the proposal for an in-
surance subsidiary through the Home Loan Bank was defeated on the floor
of Congress, blocking creation of a governmental alternative to private
mortgage guaranty insurance acceptable to savings and loan lenders.
Leaders of the savings and loan industry began to look with ever-growing
favor on the independent MGIC program; [8] prospects for MGIC also won
respectful attention from members of the real estate and insurance industry.
By the first of 1959 MGIC had attracted personnel who were nationally
recognized in their field. [9] With the right personnel and entree to all

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(8) Whatever the role of individual members of the U. S. Savings and Loan
League in the development of MGIC, the League itself has made every
effort to prevent any appearance of endorsement of the mortgage guar-
anty movement, at one time even prohibiting ownership of guaranty
firm stock by incumbent officials and staff.

(9) Chairman of the Board is Mr. Henry A. Bubb, a past president and
Washington strategist of the U. S. Savings and Loan League; he is Presi-
dent of the Capitol Federal Savings and Loan Association, Topeka,
Kansas; past President and presently Chairman of the Legislative Com-
mittee of the U. S. Savings and Loan League.
    As Executive Vice-President MGIC now has Paul J. Rogan, formerly
Insurance Commissioner of the State of Wisconsin (1955-1959) and one-
time Republican floor leader in the State Legislature, who has among
his responsibilities liaison with various state and national regulatory
agencies. Senior Vice-President is Mr. C. W. Smith, who prior to
joining MGIC was official of the Housing Research Foundation of the
Southwest Research Institute; he was also known as pioneer of the
Quality House Program and Housing Editor of NBC-TV; he serves as
director of agents and the marketing program.
    In addition to the top company officers are the following directors:
C. A. Duncan, Jr., President, Farm and Home Savings and Loan Associ-
ation, Nevada, Missouri; Henry P. Irr, President, Baltimore Federal
Savings and Loan Association, Baltimore, Maryland, past President,
U. S. Savings and Loan League; Harry C. Lindquist, Chairman of the
Board, Minnesota Federal Savings and Loan Association, St. Paul, Minn.,
past international President, Society Residential Appraisers; Walter A.
McAllister, Sr., Chairman of the Board, San Antonio Savings and Loan

the nation's lender council chambers, MGIC was able to expand rapidly due to uncertainty as to the trend of real estate values and the faltering economy of 1959-60 and the trend toward more liberalized conventional loan terms.

The latent future growth of the MGIC operation can be implied from a few figures on just one of its possible markets. The bulk of its present 941 approved lenders are savings and loan institutions, of which there are about 6,200 including 3,890 federal and state chartered banks insured by FSLIC. The savings and loan industry as a whole originated about $10.5 billion[10] in mortgages in 1959, more than 50% of which exceeded 70% loan ratios. Assuming 1,000 lenders participated in the MGIC plan and each submitted only one $13,000 loan a month acceptable for insurance, the guaranty firm would insure $156 million of mortgages each year. Were first-year premium allocated equally to the annual and single premium plan, written premium on new business would reach $1.85 million dollars each year. In following years the model in Part II indicated that this first-year business would be less than 50% of the total premium written as renewal premium volume grows. One need only change assumptions to one or two loans per lender per week to send potential premium volume estimates soaring. While past

Association, San Antonio, Texas, past President, U. S. Savings and Loan League, formerly Chairman, Federal Home Loan Bank Board, Washington, D. C. ; Kenneth E. Sarles, M. A. I., Vice-President and Director, Underwriting Department, past International President, Society Residential Appraisers.

(10) P. 69, U. S. Savings and Loan League Fact Book, op. cit.

growth has been the result of extending mere acceptance of the guaranty

plan extensively throughout the country, future growth will come largely as

a result of intensive utilization of the plan in states where it has just been

introduced. Many states had issued licenses to MGIC only a few months

before this study was prepared; in the state of Wisconsin, where MGIC had

operated for almost four years, more than ten per cent of savings and loan

1960 mortgage recordings were insured with the company!

The Historical Refinement of the Original MGIC Program

The management of MGIC has adapted the company service and organiza-

tion to the needs of an expanding business horizon with good timing and con-

siderable originality. At the same time the original conception of the program

has proved to be a sound one from an organizational point of view so that

development has been mainly a gradual refinement of the original program.

Three areas deserve brief comment — the contract form, the financial structure,

and the marketing policy. A separate section will deal with non-monetary

management practices which implement the basic concern of this study for

reserve adequacy.

The present contract issued by MGIC is identical to the original master

contract plan with the exception of the very important addition of the clause

to limit liability at the option of the guarantor to 20% of the maximum benefits

available to the lender at the cost of forfeiting all interest in possible salvage

value realized from sale of the foreclosed property. This clause, introduced

, January 1, 1954,

in April of 1959, formally recognized that a guaranty contract was essentially

underwriting the difference in loss expectations between a high ratio loan and a lower customary ratio loan which the lender would have given a particular borrower were guaranty insurance unavailable. This firm limitation on maximum liability is critical to measurement and maintenance of reserve adequacy.

The financial structure of MGIC has been continually modified to meet corporation needs for capital conservation, for attraction of additional investment equity, and for facilitating marketing operations. There have been three major stock splits, two liquidations of affiliated corporations, two major stock flotations, and creation of an over-the-counter market for MGIC stock. Without attempting a detailed financial biography or anything resembling a security analysis, several financial strategems are worth noting. To protect capital and surplus in the early years of operation from the drain of sales commission payments paid on premium written rather than premium earned, a problem common to most insurers, a separate corporation, Guaranty Insurance Agency, Inc., was organized at the very outset and capitalized by requiring investors to purchase one Agency share with each four shares of MGIC stock. By contract this corporation organized all sales functions for MGIC for which it received commissions on a premium earned base rather than a premium written base; since Agency paid its sales representatives on the basis of premium written, the balance between receipts and disbursements was financed from bank loans and a surplus deficit. Ownership of Agency by MGIC shareholders removed Agency from direct regulation

by the insurance department; the bank financing of acquisition costs of new
business did not appear on MGIC statements. With a change in commission
schedule and marketing policy and a stronger MGIC financial statement,
Agency was liquidated in October of 1960, its functions being performed by
MGIC. In Florida a temporary guaranty insurance corporation was organized
to resolve a dilemma posed by Florida insurance law. The law required a
new, non-domestic insurance corporation to operate successfully for three
years outside of Florida before becoming eligible for licensing in that state.
Domestic subsidiaries of an ineligible foreign insurer were also excluded;
however, Agency was not an insurance corporation under Florida law and so
organized an MGIC of Florida, a corporate structure quickly liquidated by
merger into the parent MGIC organization as soon as MGIC became approved
in Florida. The year 1960 also marked the organization of a wholly-owned
MGIC subsidiary, the Mortgage Finance Corporation. This corporation is
intended to perform real estate appraisals on behalf of MGIC for the appraisal
fees paid in conjunction with high ratio loans, and in addition it will acquire
property at cost to which title had been taken by MGIC due to full payment
of a guaranty claim. It is expected that MFC will then operate the property
as a rental unit or sell the property under land contract so that in the long run
MFC can recover its investment in the property and MGIC will experience no
net loss on claims so handled. MFC is expected to finance such properties
with lending agencies in each property locale. Since Wisconsin insurance
audit procedures recognize MGIC holdings of MFC stock as an inadmissible

asset, properties held by MFC and extensively financed need not appear on a consolidated balance sheet.

The equity base of MGIC is being continually broadened through sale of MGIC common stock. The original no par value shares have been successively transformed through stock splits to $80 par, $10 par, and $1 par shares. Sale of stock was at first limited to assorted management individuals in the mortgage finance field and was underwritten entirely by MGIC; more recently stock distribution has broadened sufficiently to permit a Milwaukee broker to make an over-the-counter market for the shares; a New York investment banking firm has been called on to manage and fully underwrite a much more ambitious equity capital program, which is expected to add more than $5.5 million in equity in 1961 through the sale of about 236,000 shares at a price near $24 per share. [11]

Marketing arrangements have not only shifted from Agency to MGIC but have also shifted from commission sales to direct promotion by salaried MGIC personnel. Original arrangements to sell by commission were made necessary by the desire to conserve capital during the first formative years, when loan volume in any one territory could be expected to be insufficient to meet the fixed cost of salaried representatives. Once a lender

(11) Over-the-counter stock prices ranged between $32 and $40 per share in the spring of 1961 in a thin market. The early investors in MGIC had an acquisition cost adjusted for stock splits in the neighborhood of $1.60. This rate of capital appreciation rather than any expectation of early dividends may be the primary lure for investors and explains the rash of new, recently organized guaranty ventures.

has been enlisted in the program, repeitive sales, renewals, and self-servicing to a degree via direct mail with the home office have made salaried representatives a logical marketing choice. [12] Repeated personal sales contact is necessary, however; experience has shown MGIC that education of lender personnel is necessary to simplify application procedures. Moreover, once the lender acclimates lending policies to high ratio lending with the aid of MGIC, there is a tendency for the lender to make high ratio loans without benefit of mortgage insurance. Advertising promotion has only limited institutional value. Far more important to MGIC has been the favorable editorial acceptance of MGIC in lending and building trade publications, which have done innumerable educational articles on the development of the private mortgage loan insurance program.

Non-Monetary Practices Affecting Reserve Adequacy

The expansion of written premium volume and earned premium income is a direct product of a huge expansion in potential liability. The guarantor

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(12) To attract suitable commission agents from the ranks of mortgage brokers, loan officers, or association personnel a generous commission schedule was first established which allocated 30% of premium written to the franchise holder (5%), to the agent representatives (15%), and to a sub-agent (10%) where necessary. As volume in a given market area has permitted and existing commission contracts would allow, MGIC has switched to direct sales, thereby slashing sales expenses to 6% of first year annual premium, 5% of the 1/4% renewals, and 6% of single premiums paid as written and adjusted for terminated coverage. The potential commission in a well-developed territory has been sufficient to attract such calibre of men as a former state FHA director, a savings and loan officer, and an established mortgage broker.

must institute a system of controls which will assure that the losses paid as a result of this potential liability are for reasons beyond control of the lender, as contemplated when the premium rate was established. The proper selection of eligible lenders, properties, and borrowers is greatly complicated by the opportunity in this field for adverse selection. The guarantor does not often receive[13] a cross-section of the residential mortgage business of a given lender, but rather only those loans the lender would not accept without a financial guaranty. Not only may the quality of loan applications and terms of lender security be less than average, but the guarantor, struggling for sufficient volume in the first years of operation, may be tempted to lower underwriting standards. The presence of guarantor competitors will increase adverse selection of loan application. A loan refused coverage by one guarantor, perhaps the preferred guarantor, may be resubmitted to a second guarantor, and even a third, in hopes that one may need the business. MGIC has found that lenders may use an MGIC refusal as an excuse for turning down a loan applicant without injuring their own "community relations."[14] The first level of underwriting

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(13) Nevertheless, some lenders have made it a policy to send all loan applications indicating a loan ratio in excess of 80 or 85% for insurance from MGIC. It is possible that in such cases MGIC underwriters may occasionally accept a more marginal loan due to the generally higher quality spread of risks previously placed through the institution sponsor.

(14) Some applications have even contained a note requesting refusal, but most lenders cannot be expected to be so solicitous of both client and insurer.

selection standards is found in marketing policy as to eligibility of lender, properties, and loans; the second level is the credit analysis of a borrower; the third level is evaluation of the particular property; and perhaps the risk objectives of guarantor investment policy may further restrict underwriting activities.

Selection of lending institutions to be sold the guaranty plan, which will have an important impact on the quality and quantity of loan applications from which underwriters can select a profitable distribution of risks, must discriminate both by class of lender and by rank within the class. While the federal savings and loan industry is presently the best market for mortgage guaranty because it has been permitted more flexibility in making a loan, barriers to high ratio loans for other types of lenders are gradually being removed. The spread of "prudent man" investment statutes will permit trusts and pension funds to find investment outlets in high ratio loans, and a mortgage guaranty will be most attractive where these loans are not originated or serviced by the investor. As another example, the laws in Arizona[15] and Iowa[16] governing permissible loan ratios for state chartered savings and loan associations have been amended to include not only federally insured loans but privately guaranteed loans as well,[17] as qualified

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(15) ARIZONA STATS. Chap. 446, Section 5. (6) (1959).

(16) IOWA STATS. ANN., Section 534.21 (1960 Suppl.).

(17) To qualify the guarantor must be approved by the respective state insurance commissioner.

exceptions to the law restricting mortgage loans to not more than 66 2/3%
to 70% of value. In Wisconsin state chartered savings and loan associa-
tions are permitted to lend up to 90% of value on owner-occupied homes
where there is acceptable collateral covering amount of loan in excess of
80% or when there is approved governmental or private mortgage insurance.
With such precedents banking departments may soon approve the private
mortgage guaranty for use by state banks, credit unions, and savings banks.[18]
But should these market areas open for the private guarantor, there is some
question whether these lenders may have the impartiality, lending skills,
or servicing facilities which are required if the guarantor can afford to shift
much of the loan-making responsibility to the lender as MGIC presently
does with savings and loan firms. However, savings and loan institutions,
who are primary lenders, might serve the secondary market for conventional
loans by selling guaranteed mortgages to pension, credit unions, and others.

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(18) As this report was prepared for printing, a study of the second mortgage
situation in California by Dr. Leo Grebler and Dr. James Gillies of UCLA
made the following recommendations to check abuses:

1) unfreeze FHA and VA interest rates to make loans more attractive to
investors,
2) require full disclosure of information on loan terms to borrower,
3) equalize the lending power of all mortgage institutions so that
banks, insurance companies, and state chartered savings and loan
loans can make the same 80% (and in some cases 90%) loans that
federal savings and loans can,
4) relax geographical limitations on conventional lending institutions
to improve inter-regional flow of money,
5) study the possibility of setting up a state or private insurance
company to insure the upper 20% of conventional loans.

(As reported in House and Home, March 1961, pp. 64-65.)

Equalization of lending power has tremendous and obvious implications for the
market for private guaranties. The possible flexibility and competitiveness
of FHA-VA has already been discussed.

Given a class of lender such as savings and loan, the guarantor must

select approved lenders from restricted size and type considerations. Low

cost, high market penetration might be secured by selling the very largest

urban savings and loan lenders, lenders most likely to have the most

sophisticated lending practices and to be the most frequent users of the 90%

loan. However, the very largest city lenders have felt very little need of

MGIC. Less well endowed savings institutions have greater need of risk

distribution, income stabilization, and innovation of high ratio loans. All

the attention given the high loan-to-value ratio mortgages obscures the fact

that most lenders still resist too many such loans and make the majority of

their home loans in the neighborhood of 75-80% of value even in the bigger

cities. An insured loan of more conservative ratio would reduce the pressure

on the reserve adequacy caused by great risk of foreclosure losses on high

ratio longer term loans. The lending territory of the medium-sized lender

is also a factor, or more specifically, the size and economic base of the

community in which the mortgagor and his property are located. A large indus-

trial city may be more subject to income cycles among certain home buying

groups than home owners in a smaller town yet provide a more active resale

market. A small town, however, may be less able to arrest economic decline

in a short run and it would always be more difficult to sell a property acquisi-

tion quickly. [19]

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[19] Small town property foreclosure may best be indemnified with the 20%
option to avoid a sticky real estate market.

MGIC has carefully restricted eligible lenders to lending institutions which are regulated and supervised by federal or state authorities, [20] having assets in excess of $1 million. Selection depends further on analysis of income and balance sheet statements, study of typical borrower clientele, competence of debt servicing personnel, and the requirement of regular daily banking hours. [21] Until recently lenders had to be located in medium or large metropolitan communities but recently the directors approved a change in policy to make lenders and loans in smaller cities of less than 5,000 population eligible for approval. [22] Finally a system of post selection of participating lenders has been established by MGIC, utilizing regular spot-check appraisals of one out of every three properties on which loans were accepted for insurance to uncover those lenders who have regularly submitted overly generous appraisal values. As a result several lenders

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(20) Originally a basic underwriting precept self-imposed, restriction to loans originated by a bank, savings and loan association, or insurance company is now part of the California code (Chapter 2a, 12640.02(b)(1)).

(21) The daily banking hour requirement eliminates eligibility for those saving associations and small credit unions which still enjoy the spirit of the cooperative movement, with weekly meeting hours and part time, sometimes donated, management by members of the group. These associations have reached qualifying size in several local areas of the country but seem to lack both the experience and impartiality required to minimize lender losses in event of foreclosure.

(22) The underwriting rationale was that each small town could offer opportunities for a few well-secured loans, loans to established families for which far more credit information could be gleaned from common knowledge of one another in a village than could be had on a city loan reported on by a big city credit bureau.

have been denied further coverage, although existing loan commitments have had to be honored.

Underwriting policy[23] has been carefully evolving the classes of residential property suitable for privately insured loans. Property must meet the following typical requirements: a) The loan must be secured by a first mortgage and provide for monthly payments covering interest, amortization of principal, taxes and insurance; b) 90% loans may have a thirty year amortization period if property is owner-occupied and less than ten years old, or term is not to exceed twenty-five years and 80% of appraised value if not owner occupied; c) The mortgaged property must be a nonfarm residence, or semicommercial building at least 50% of which is used for residential purposes (limited for use by not more than four families in some states); d) Homes must be fully completed before claim for loss will be valid, and shells or other "do-it-yourself houses" do not qualify until completed satisfactorily; e) Homes more than twenty years old must be modernized significantly to be eligible for loans in excess of 80% ratio, and loans of more than 80% ratio require accrual reserves for taxes and *all* insurance. MGIC has no hard and fast ceiling on the amount of loan insurable and will consider any loan which approved lending institutions are permitted and willing to make. With certain exceptions the HLB limits its members to maximum

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(23) Chief underwriter for MGIC presently is Arthur Lenroot, Jr., formerly the Wisconsin State Director of FHA.

single family residential loans of $32,000 where the ratio does not exceed

$1 26,500

f0% of the value, or ~~$19,000~~ where it does exceed f0% of value and there

is no other collateral. Where lender regulations permit second mortgages

and family income is adequate, MGIC brochures profess[24] no objection to

a second loan so long as borrower maintains a minimum equity of 5%.

The financial situation and income of the borrower are individually

underwritten far more carefully than the property mortgaged.[25] The under-

writer loan-analyst typically establishes the following benchmarks:

a) Income, age, and employment must be favorable in the relation to total

family obligations; b) Total monthly payment of borrower on an insured loan

should not exceed 25% of gross income except in special cases where wife's

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(24) The problem of the second mortgage has been a thorny legislative issue. MGIC management would prefer that a mortgage guaranty be legal only for first mortgages, and many state statutes so read. However, in Florida a well-organized second mortgage market erased such a restriction from guaranty enabling legislation. On the other hand, in California the introduction of mortgage guaranty insurance is seen as a partial solution to the second mortgage mess in that state (House and Home, March 1961, pp. 64-65). By raising permissible loan ratios to 90% for state supervised conventional lenders when a guaranty is used, it is hoped to eliminate the need for second mortgage financing. The mortgage guaranty can only be used to insure first mortgages.

(25) The administrative process requires that each application for loan be submitted together with a property appraisal report, including legal description, borrower's credit report, photo of property, a copy of lending institution's loan application, and a fee of twenty dollars for appraisal review of loans over f0% of appraised value. Two underwriters can usually review all applications within a day of receipt and, for those acceptable, issue commitments for insurance pending closing of the loans.

income may be given some consideration;   c) The credit report submitted on the borrower must satisfy MGIC;   d) Businessmen must furnish firm financial statements, income, and expense estimates for leased property;   3) People over age sixty may be restricted to short amortization periods depending upon income projections while young married couples, who often furnish co-signers to the mortgage, are not restricted by special underwriting caveats; f) Although recently MGIC has generally disapproved loans intended for speculative builders, when such loans are accepted, financial statements, advanced builder loan commitments, and a current inventory of unsold homes are all required underwriting information.

Upon acceptance of a loan for insurance the underwriter issues a commitment for insurance pending closing of the loan.   Commitments may be held open for six months on incomplete construction, for three months on existing construction, or for one month on loans closed prior to application.   Various underwriting rules permit open ending of loans, refinancing of loans, advance firm (take-out) commitments in name of the builder, and conditional, interim dual commitments for a builder and qualified borrower-owner.   There are additional rules for modification or cancellation of coverage.   It is possible to change from an annual premium to single premium plan on a pro-rata basis. All other premium refunds are on the standard short rate basis with a minimum retained premium of $50 on initial coverage or of $10 on renewal coverage. minimum retention fee does not apply to pro-rata cancellation.   There is a

$20 appraisal review fee,[26] paid to MFC on all loans over 80% of value, which creates income in excess of the cost of the spot-check appraisal system. A portion of these receipts have been spent to collect data on the desirability of various neighborhoods in major metropolitan areas to aid in selection or disapproval of loan applications.

Before discussing the operating experience of MGIC and its foreclosure loss experience in particular, MGIC claim procedure and objectives should be outlined. Potential claims first appear as delinquent monthly debt service payments. In order for a claim to be valid, lenders must notify MGIC within ten days after a loan is in default for an accrual of four monthly payments but may notify MGIC at any time there is a change in the delinquency status of the loan. The permissible time lag for reporting delinquencies effectively reduces the nuisance to the guarantor of the usual run of late payments, seasonal defaults, and other collection problems. Presently lenders tend to prefer quick foreclosure action where a workable compromise for the collection of interest and taxes as a minimum temporary payment cannot be obtained. Appropriate proceedings to recover title must be initiated by the lender either when insured loans are nine months in default or when the guarantor may direct such action on loans more than four months in default. Of course, the circumstances and the recommendation of lender, as to how tough collection policies should be, temper the actions of the guarantor. To meet

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(26) Receipts of these fees appeared as "other operating Income" on the consolidated income statement before the formation of MFC.

possible losses on reported default and foreclosure actions, MGIC maintains a "case-basis" reserve covering estimated losses on insured loans which have resulted in conveyance of property to MGIC, on insured loans in process of foreclosure, and on insured loans reported to be in default more than four months. The reserve is calculated as the difference between estimated recovery value on the property in question as derived from a fresh appraisal upon default or foreclosure notice and the expected maximum claim due the lender.

As previously mentioned, the private guarantor has a somewhat weaker mechanism for the administration and financing of foreclosed, acquired properties than does FHA-MMIF. The formation of the MGIC subsidiary Mortgage Finance Corporation (MFC) will, it is hoped, reduce net losses on property acquired at foreclosure by deferring the capital losses until they can be offset by long term income receipts. Acquired properties are sold to MFC for cash in the amount of claim cost to MGIC, a transaction which appears to eliminate any net losses for the parent corporation. MFC pays for the property with cash raised on a high ratio loan plus equity, created by issuance of its own stock to MGIC, and if necessary, long term debt borrowed directly from MGIC or on the strength of an MGIC endorsement. MFC then rents or sells by land contract acquired properties, offsetting income with accelerated depreciation permitted the real estate investor for income producing property. While such rental and sale operations may merely support the property and debt service on the mortgage

(placed with a lender in the property locale), MFC can generate working capital sufficient to offset any loss due to a purchase price paid parent corporation in excess of realizable market values. On rental property MFC can hope for inflationary increases in building values which might permit sale without loss other than the opportunity cost of capital so employed without net interest returns. In short, capital losses are amortized through interest income of land contract or lease. Moreover, by financing each property with a local lender, a diversified source of expandable long term debt financing can be tapped. These loans would offer the lender a secured, first priority loan on a specific asset, a claim on marketable residential real estate, endorsed by a corporation with significant assets. Since Wisconsin does not require a consolidated annual statement, the long term debt accumulated by MFC will never appear on MGIC balance sheets, and MGIC by shifting property "write-downs" to MFC may experience minimum losses in all phases of the short term and intermediate foreclosure cycles. Two potential flaws in this arrangement need to be underscored: MFC must try to liquidate as much of its portfolio as possible, when net interest income has offset capital deficits, in peaks of real estate activity, to generate liquidity for the next cyclical increase in property acquisition; more important to the measure of reserve adequacy of the parent corporation is that MGIC receive cash and not IOU's[27] from MFC. While an audit of MGIC would

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(27) Common practice of guarantors in the Thirties was to sell properties to dummy holding companies at claim cost, so there was no "loss" to

include MFC, so that collectability of notes might be determined to qualify their admissability as an asset to the guarantor, MGIC losses could be substantially understated and assets optimistically valued in expectation that with time, recession prices would stop sliding and return MFC to financial solvency. Using the MFC device need not require extensive capitalization. Since the average discrepancy between market value and claim cost may be expected to range from $700 to $1,500 on a $12,500 loan, and since refinancing loan ratios should approach 90% of current recession market values, $25,000 of MGIC equity can finance from ten to twenty properties at one time.

An additional source of financial strength is income from investment of reserves and capital funds. In the final quarter of 1960 investment income was responsible for creating the first net addition to retained earnings. The investment problem of the guarantor is somewhat different from that of a fire and casualty company. Claims of the latter two are adversely affected by inflation because premium rates tend to lag actual inflationary loss experience due to the time required for compilations, for rate changes, and for contract renewal dates. Consequently these firms must invest to a large extent in stocks that will rise with inflationary increases in the price index

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guarantor who took notes in full payment of claim. The interest on notes was listed as interest receivable, made an income item, and disbursed as a dividend up to the final collapse! Insurance auditors permitted the practice to continue because notes were secured by property 50% greater in value — i.e., loan ratios were only 66 2/3%.

so that investment profits can offset unexpected increases in claim cost.
On the other hand, the guarantor should find that losses decline rapidly
as the price index rises; in such event any inflation-caused bond price
declines are an easily afforded vice. By the same token a sharp decline
in stock prices would precede an increase in foreclosure loss rate occa-
sioned by deflation; therefore the guarantor must select liquid investments
which are not subject to the same risks as mortgages and which do not
respond too quickly and too sharply to income and price cycles. For this
reason a guaranty firm will resemble the so-called bond type company
of the fire and casualty field, and the leverage effect to benefit investors
must be largely one of income rather than the more volatile one of capital
appreciation. By 1960 the investment account of $3.72 million was almost
twice the net worth of MGIC. This leverage should increase gradually with
the simultaneous build-up of unearned and contingency reserves, except
when there are large additions to capital stock or loss inroads. If the
contingency reserve continues to increase its relative share of policyholder
surplus, capital need not grow as fast as either reserve to satisfy strong
which presently account for 35% of base-
growth demands. The more preference shown the single premium plan, the
more the leverage factor may increase. While the rate formula does not
contemplate an interest assumption in determining the future amount and
adequacy of reserves, investment income resources can nevertheless play
an important part in the financial adequacy of a young corporation. Since

the young company is not immediately under pressure to pay investment income out in the form of dividends, the income can offset drains on surplus created by the build-up of unearned premium reserve. Once MGIC invested almost entirely in savings accounts not exceeding $10,000 with a yield of 3% to 4% each with savings and loan associations insured by FSLIC and utilizing MGIC insurance. Such accounts presently represent about half of its investment portfolio. In an effort to improve the rate of return on invested assets, MGIC has leaned toward selective purchase of industrial bonds, a few government obligations, and some preferred and blue-chip stocks. Should market interest rates once again parallel savings account rates, investments for yield may seek out more preferred stocks and secondary bond issues. The effect of investment management on yield in the past four years can be seen from the following chart built from company statements:

Year	Investment Account End of Period	Income Produced During Period	Rate of Return on Average E.O.M.B.
1957	$ 480,993	$ 13,902	3.69%
1958	739,838	23,103	3.84%
1959	1,830,078	46,278	3.78%
1960	3,726,620	101,883	3.79%

This source of income not only can pay investors a suitable dividend yield but also help pay losses in a year of economic crisis.

The amount of capital stock and paid-in surplus required by the guarantor

has been a matter of concern throughout the study. Reference to Table 17

indicates that the reserve ratio and capital liability ratio have been declining

with continual expansion of insured mortgage volume balance. However,

the capital stock position of the company is in a stage of flux. A public

offering of stock is expected in the spring of 1961 in an amount approaching

~~$3,000,000~~ with another ~~flotation plan for early 1964~~. Not only does manage-

ment seek the security and trade acceptance of a multi-million dollar net

worth, but also it anticipates the introduction of reserve ratios to existing

legislation at a time of continued rapid expansion of insured mortgage volume.

The underwriting skill necessary to float such stock has been discussed in

Part III; the investor incentive is both leverage investment income and ex-

pectation of an eventual slice of the contingency reserve. Realizing that

business growth will require several excursions to the capital market,

management has been careful to reduce dilution of investor equity. At the

outset promoters did not receive free shares of stock as is often the custom.

Compensation of officers has been conservative and purchase options granted

officers have been limited in number. No person owns of record, or is known

by MGIC to own beneficially, more than 10% of the outstanding common stock,

and the directors, officers, and employees as a group have only 21.9% of

the stock. Pre-emptive stock rights are barred by the provisions of incor-

poration, and careful watching of stock sales in the over-the-counter market

has kept stock prices rising in an orderly fashion despite the limited supply

available and the allure of the stock as an inflation hedge or speculation

that depression is an extinct phenomenon.

The Growth of MGIC and Its Operating Statistics

Before discussing the reserve adequacy of MGIC or parallels between

the firm of the model of cyclical loss advanced in Part III, the historical

financial record of the corporation should be outlined. Various finance

statements are included in Appendices VII and VIII without further prose

comment, as the only objective of this study is to wrestle with the problem

of reserve adequacy and not to perform the functions of a security analyst.

The rapid rate of growth for MGIC is indicated by monthly comparison

of mortgage loan volume insured and premium written which appear in

Table 14. Study of the rate of market penetration is also revealing. In

the 37 states in which MGIC was active to some degree in 1960, applica-

tions for loan insurance[28] were generated in an amount equal to 2.25%

of the total mortgage volume recordings of savings and loan associations

in these states for 1959. These states recorded $9 billion in 1959, while

MGIC received application for .6% of this total in 1959 or 1.6% in 1960.

Following the assumption of Model A, that 40% of loan volume would exceed

a 70% loan ratio and hence be a potential contract for insurance, MGIC re-

ceived applications for 2% and 4.1% of a $3.6 billion market potential in

On the same basis MGIC volume for 1961 is estimated to be about 5.5% of potential market.

1959 or 1960. In the state of Wisconsin, where MGIC has operated for

three and one half years, insured volume in 1960, not "application volume"

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(28) Application volume is a better indication of market penetration than
     actual volume insured because some applications are rejected and
     actual coverage is delayed about 60 days from time of acceptance
     until notice of loan closing.

4. MGIC — Monthly comparisons.

	Application volume				Premium income		
1957	1958	1959	1960	1957	1958	1959	1960
$	1,677,150	3,410,694	9,417,578		9,241.10	21,439.49	67,449.26
	1,564,600	3,232,603	13,489,694		10,685.20	19,137.97	92,415.76
63,800	2,605,334	6,105,751	13,167,841	227.50	10,527.55	26,875.10	139,173.86
63,800	5,847,084	12,749,048	36,075,113	227.50	30,453.85	67,452.56	299,038.88
823,550	2,698,934	7,671,748	15,432,097	4,184.13	15,555.54	44,955.60	126,763.54
1,583,450	4,003,256	8,053,076	17,390,404	6,642.25	17,514.57	65,969.86	141,816.14
2,077,995	4,146,798	9,038,462	18,147,259	9,282.00	30,628.40	78,785.29	162,229.09
4,548,795	16,696,072	37,512,334	87,044,873	20,335.88	94,152.36	257,163.31	729,847.65
2,174,250	3,809,315	12,872,716	18,550,356	15,590.05	23,362.99	80,548.86	164,404.31
1,749,950	2,832,930	11,456,830	22,132,577	10,655.38	18,863.71	93,126.11	189,238.70
1,243,100	4,161,805	10,001,562	19,889,597	8,855.00	19,881.96	105,274.00	189,315.73
9,716,095	27,500,122	71,843,442	147,617,403	55,436.31	156,261.02	536,112.28	1,272,804.39
2,492,660	4,485,197	9,695,941	20,222,991	12,402.88	32,752.11	97,720.80	178,318.85
1,864,380	4,075,560	9,719,053		11,146.95	28,302.81	89,205.19	87,531.61
2,467,660	3,033,723	7,938,197		14,324.55	28,365.41	78,727.93	126,617.29
16,540,795	39,094,602	99,194,258		93,310.69	245,681.35	801,766.20	1,807,718.68

or "insurance in force," totaled $38.25 million, 13.3% of $288 million of recordings for that state of 33.3% of the $115 million which might be suitable for loan insurance. While national averages of penetration for MGIC parallel penetration assumptions of Model B as summarized in Table 16, growth in several states like Wisconsin has far exceeded the liberal growth estimates of Model A. The implication is that actual reserve ratios will decline more than anticipated unless there is increasing capital support.

Characteristics of the loan portfolio insured will give added meaning to company reserve ratios. The average amount of mortgage originally insured in 1960 is about $13,200, an amount which company records indicate is about $100 above previous averages. [29] Average mortgage balance yet to be amortized can only be estimated. MGIC can only take the original loan volume insured or renewed and adjust by a factor of 97.6 to allow for six months amortization of annual business and amortization of the single premium business which would not be included in annual renewal figures. Company accountants estimate average balance due at $12,850. This balance has increased slightly due to the tremendous influx of newly insured loans. As business stabilizes in the future this balance can be expected to decline as portfolio matures. The termination rate for coverage in force hovers

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(29) Present company runs on IBM records do not reveal the exact number of a few four-family and duplex loans which tend to distort this average slightly.

around 5%, with a slightly lower rate on single premium business as com-
pared to annual renewal business, where the insurer can reappraise the
need for insurance each year. Due to the small volumes of business in 1957
and 1958 and a possible tendency for lenders to reappraise insurance needs
after five years' seasoning of the loan, no reliable termination rate has
been firmly established. On a cumulative basis 23,303 loans remain of
25,246 insured in the four years ending in the first quarter of 1961. MGIC
management has been pleasantly surprised by the conservative loan ratios
of loans submitted for insurance; the company estimates that present average
loan ratio is about 82% of value. Average term is 21 years. Some savings
and loan groups make it a practice to insure all loans in excess of 75%
loan-to-value ratios. Many savings and loan groups regard an 80% loan as
a high ratio loan and have as yet to enter the 90% loan market. The trend
in loan ratios for the entire portfolio, as well as for the individual applica-
tions of a single lender, is carefully watched as one sign of possible adverse
selection. Nevertheless the average loan ratio is expected to advance
somewhat in the next few years of mortgage lending competition.

Premium income and expense ratios reveal trends in present and future
resource growth and the relative decline of expense which accompanies
larger volumes of business. The beginnings of adequate geographical dis-
persion can be found in Table 15. Of $1.8 million of premium written in
1960, 32.3% was from annual premiums, 56.1% single premiums, and 11.6%

TABLE 15.   Mortgage Guaranty Insurance Corporation — Premiums received
January 1, 1960 to December 31, 1960

State	Year to date Annual	Year to date Single	Year to date Renewal	Total
Alabama	$ 2,768.00	$ 190.00	$ 362.60	3,320.60
Arizona	9,787.20	1,270.00	2,075.32	13,132.52
Arkansas	463.59	19,848.10	----------	20,311.69
Colorado	631.83	3,508.00	306.85	4,446.68
Florida	58,062.14	55,823.81	47.23	113,933.18
Georgia	----------	3,008.00	----------	3,008.00
Hawaii	23,342.96	530.00	2,909.91	26,782.87
Illinois	37,513.17	45,286.55	19,409.20	102,208.92
Indiana	39,992.03	92,552.32	10,967.15	143,511.50
Iowa	24,297.80	143,195.78	60.02	167,553.60
Kansas	34,779.24	242,020.05	7,644.98	284,444.27
Kentucky	966.00	----------	240.74	1,206.74
Louisiana	1,603.30	10,000.00	25.96	11,629.26
Maryland	8,131.37	250.00	2,350.53	10,731.90
Massachusetts	83.50	----------	----------	83.50
Michigan	7,332.35	6,803.20	61.68	14,197.23
Minnesota	5,946.63	57,267.80	632.39	63,846.82
Mississippi	1,006.07	6,610.89	----------	7,616.96
Missouri	18,661.67	81,754.74	2,592.01	103,008.42
Montana	65.00	----------	585.20	650.20
Nebraska	18,322.48	315.00	898.34	19,535.82
Nevada	4,886.00	----------	193.85	5,079.85
New Mexico	6,557.06	360.00	936.31	7,853.37
North Carolina	----------	467.00	----------	467.00
North Dakota	9,041.30	3,968.09	2,297.88	15,307.27
Ohio	41,155.79	61,684.10	10,692.53	113,532.42
Oklahoma	551.75	10,126.00	43.93	10,721.68
South Carolina	1,563.88	6,683.00	----------	8,246.88
South Dakota	1,086.50	21,276.50	----------	22,363.00
Tennessee	7,173.00	1,194.00	----------	8,367.00
Texas	11,494.65	68,460.35	2,326.39	82,281.39
Utah	77.50	1,628.00	----------	1,705.50
Virginia	2,408.10	9,321.00	----------	11,729.10
Washington	6,336.50	2,252.80	936.17	9,525.47
West Virginia	13,272.15	----------	91.73	13,363.88
Wisconsin	178,505.76	54,862.92	141,207.33	374,576.01
Wyoming	6,497.00	688.00	253.18	7,438.18
	$584,363.27	$1,013,206.00	$210,149.41	$1,807,718.68
Per cent to total premium receipt	32.22%*	56.04%	11.63%	100.00%

TABLE 16.' Rate of market penetration assumed in models of reserve accumulation in Part II (ratio Item 7 to Item 3).

	Model A	Model B
1st year	3. 00%	2. 40%
2nd year	4. 50%	2. 80%
3rd year	5. 99%	3. 19%
4th year	7. 50%	3. 59%
5th year	8. 99%	3. 99%
6th year	6. 79%	2. 97%
7th year	7. 48%	3. 24%
8th year	8. 16%	3. 51%
9th year	8. 84%	3. 78%
10th year	9. 52%	4. 05%
11th year	15. 49%	6. 40%
12th year	16. 99%	6. 80%
13th year	18. 50%	7. 20%
14th year	19. 99%	7. 60%
15th year	21. 50%	8. 00%

3LE 17. Determination of expense ratios in regard to annual written premium and approximate MGIC equity in unearned premium reserve.

	1957	1958	1959	1960
Net premiums written	94,174	242,054	794,194	1,807,719
Total underwriting expense	115,645	193,449	380,807	529,976
as a percentage of net premium written	122%	80%	48%	29%
Commissions as a percentage	8,460	27,604	113,370	173,530
of net premiums written	9%	11%	14%	11%
Compensation of directors and officers,	49,555	94,543	129,490	190,250
and employers as a percentage of net premiums written	27%	28%	12%	10.5%
Net premiums earned	22,948	139,692	325,420	787,256
expenses on an accrual basis	27,997	111,754	156,201	228,304
Prepaid expense or equity in unearned	87,648	81,695	224,606	301,672
premium reserve as percentage of total underwriting expense	75.8%	42.2%	28.1%	16.7%
Total insurance in force	14,205,000	48,827,500	127,319,700	261,590,982
maximum liability as 25%	3,551,250	12,206,875	31,829,925	65,397,746
maximum liability as 20%	2,841,000	9,765,500	25,463,940	52,318,196

from renewal premium. Models in Part II indicate renewal premium should approach 50% of premium income in future years despite large absolute increases in new annual and single premium receipts. In Wisconsin, for instance, after three and one half years, renewal volume exceeds 37% of total written premium of $374,576 in 1960. In some states such as Illinois, Indiana, Iowa, and Kansas the single premium plan accounts for more than two-thirds of premium written so that renewal premium will not be so important a factor in all states.

The conformity of expense ratios with the expense allowance of the rate formula has a great impact on reserve adequacy. Reference to Table 17 dramatically underscores the decreasing cost curve of the MGIC operation. As is true of all insurance operations, acquisition and operating expenses are charged to income on a cash basis although premium receipts are credited to income on an accrued earnings basis. Incurred expenses minus earned premium flow from surplus into unearned premium; and the larger the expense item relative to earned premium, the greater is the surplus deficit problem. The policyholder surplus is thereby understated to the degree that surplus has been invested in expenses which are certain of recovery from the unearned premium reserve in future income periods. Where the major expense involves acquisition of expanding volumes of insurance and premium written, a good measure of expense control can be found in the ratio or percentage of total underwriting expense to net premium written. This percentage should parallel the rate formula expense allowance for earned premium if future income is to

be sufficient to replace the surplus deficit and to provide an adequate profit. The expense ratio of the guarantor is contemplated as 50% to contingency reserve, 10% to current losses, 37.5% for underwriting expenses, and 2.5% for profit. Reference to Table 17, Item 2, will show that the rapidly increasing volume of premium written has caused the expense-to-premium written ratio to fall from 122% in 1957 when business initiation cost was highest to a slim 29% for 1960. Not only is the trend favorable but the aggregate expense to aggregate premium written[30] in this period has declined to 41.5%, down from 62.8% the year before, indicating that MGIC is reaching a break-even point in its operations, i. e., 40%. The decline in the ratio of underwriting expense to premium written can be expected to continue as changes in the commission policy have reversed the trend in sales cost as a percentage of net premium written, Item 3. The increased volume has sent the proportion of relatively fixed costs, such as compensation of officers in Item 4, plummeting downward. Although unrecognized by law or accounting practice, there is an equity investment of an insurer in the unearned premium reserve arising from cash acquisition expenses in advance of actual contribution of business acquired to company earned income. An estimate of this equity can be made if one assumes that expenses could be accrued to produce a ratio to earned premium identical to the ratio of expenses to premium written; the

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(30) Aggregate expense for 45 months is $1,219,877 while aggregate premium written totals $2,938,141.

difference between this amount and total underwriting expense actually paid can be considered as a prepaid expense to be recovered from future income and this expectation is often termed "company equity in unearned premium." The decline in the proportion of prepaid expense contained within the unearned premium each year, in Item 6, suggests that surplus need bear an ever smaller burden of expansion of premium volume. Still the amount in absolute dollars is a heavy burden on capital. Nevertheless the trend encourages the view that increments in capital need not parallel increments in premium written; expansion need not create an endless treadmill of trips to the equity investor markets. November and December 1960 marked the first month of company operation in which applicable earned premium exceeded cash expenses, so that previously surplus had been shifting to the unearned premium reserve.

Reference to Appendix IX, the surplus deficit summary, illustrates company policy to establish the income-expense statement on the basis of full earned premium before transfer to contingency reserve. The required increment to contingency reserve is then deducted from surplus. Such an accounting treatment seems inconsistent with management's insistence that for tax purposes this fund consists of unearned premium and for rate purposes this portion of the premium is for inordinate loss expense occurring some time within the next 180 months. Expenses must be paid out of 50% of premium, as the contingency reserve is properly a liability. The balance of earned surplus in

Item 2 is a true statement of current profit (or loss) at the end of the current period, if equity in prepaid premium is ignored.

The marketing position and expense ratios of MGIC carry several implications as to capital adequacy standards for a guaranty firm. At present the guaranty market is limited principally to savings and loan associations with secondary markets to be found with some state banks and smaller insurance companies. MGIC has captured the bulk of those savings and loan lenders who presently accept the private guaranty mechanism. There is insufficient volume in the minor markets at present to support many additional guarantors. Assuming there were sufficient demand for a mortgage guaranty to support a half dozen companies, no one state could provide such volume and certainly would not provide adequate geographic distribution. A multi-state operation takes and time and large deficit operations to establish. The conclusion must be that far more capital is required to initiate a guarantor in the 1960's than the pittance MGIC soon found to be inadequate in 1957. Without its 1961 stock issue MGIC could not meet the capital and surplus standards for a mortgage guarantor that will be established in California and Oregon. MGIC won grudging support from risk capital investors on the basis of geographic expansion and proven lender acceptance. On what basis can a new guarantor raise $2 million? Of course, the newly formed guaranty company need not operate in California and may begin with capital considered minimum for old-style fire companies many years before

the dollar had lost its value. Consequently many companies can be expected

to imitate the MGIC pattern; the failure of any guaranty company will re-

flect adversely on all. *On the State Commissioner of Insurance whose responsibility it is to regulate the business.* Therefore, many state insurance departments as

well as MGIC management feel that the California capital requirements must

be adopted in the other states to recognize the unique financial character-

istics of a mortgage guaranty operation. The meaning of capital in terms

of losses can be illustrated from MGIC experience.

MGIC Loss Experience

Losses to MGIC, either incurred or anticipated by the case-loss reserve,

have contributed only minor charges to annual income; in fact in 1959 favorable

resale of the only acquired title created positive claim experience of $397.

In 1960 losses charged to income consist of claims paid of $12,666 and

anticipated losses of the case loss reserve of $40,000 or about 6.7% of

earned premium. [31] Claim status as summarized in Table 18 for properties

acquired in 1960 plus foreclosures in process produces a claim frequency of

about 6.5 claims and potential claims per 1,000 insured loans in force. The

number of properties in the process of foreclosure or in the MGIC property

inventory can be expected to rise to at least 1% as the effects of the 1960-61

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(31) Financial Report — Mimeo, December 31, 1960.

TABLE 18.   Foreclosure experience and acquired properties,
Mortgage Guaranty Insurance Corporation — December 31, 1960

Insurance in force

1. Number of insured loans   20, 388

2. Amount of insured loan balances $261, 590, 982

3. Maximum liability (top 20%) $ 52, 318, 196

Claim status

1. Properties acquired in 1960

     By claim paid   11

     By voluntary conveyance   25

     Total   36

2. Defaults as of December 31, 1960

     Foreclosures in process   66

     Foreclosures directed   15

     Others pending·   13

     Total   94

3. Combined acquisitions and defaults for 1960   130

(This is 6. 5 claims and potential claims
per 1, 000 insured loans in force.)

Property inventory

1. Properties acquired since start of operations

     By claims paid   18

     By voluntary conveyance   25

     Total   43

2. Properties sold   8

3. Properties on December 31, 1960   35

recession have their impact on the large volumes of newly insured 1959-60 mortgages. The majority of defaults can be expected to appear in the first 36 months according to FHA experience. As the bulk of losses charged to income are the results of estimated case losses, data on the severity of loss is rather tentative. A total of 43 properties acquired since the start of operation in 1957 have produced net losses of $52,269 or an average of $1,215; eight properties sold account for $12,666 of incurred losses for an average of $1,583 per sale. This loss severity practice is somewhat higher than that of FHA although total losses represent 1/10 of 1% of the maximum liability defined as 20% of insured loan balance. Severity of loss can be attributed to several factors. First the loans foreclosed had not been in force long enough for any significant amortization to have improved the equity cushion. Secondly prior to the formation of MFC it was not company practice to hold properties for rental or land contract profits but to dispose of all property as quickly as possible. Third a few properties insured in the first months of operation were found to suffer from generous but faulty appraisal which had increased loan ratios to market value to a point in excess of the maximum 90% ratio permitted. Spot-check appraisal and withdrawal of insurance privileges from several lenders are expected to eliminate most incidences of adverse selection. The number of foreclosures and acquisitions [32]

was aggravated by the failure of two small builders who voluntarily

(32) It is expected that arrangements, now in negotiation, will relieve MGIC of any liability in these two cases. There may be a few more insured subdivision projects which could result in significant underwriting losses. The authors are now studying the advisability of some regulation of limiting insured volumes in a single subdivision or for a single mortgagee. The California law has established one criterion for subdivision underwriting limits.

conveyed title to completed units for quick disposal by MGIC. While rate formula contemplates annual random losses as high as 10% of earned premium, it is conceivable that the losses in a recession year such as 1961 could exceed that amount without approaching the 20% level necessary for use of the contingency reserve; to avoid deficit operations it will be necessary to hold the expense ratio to earned premium well below the 37.5% estimate of the rate formula. On the other hand, the use of MFC to buy properties at claim cost from MGIC to operate the properties as rental units or land contract sales may reduce or postpone apparent MGIC losses to an unpredictable extent.

The Adequacy of MGIC Reserves

There are a number of measures of reserve adequacy which may reveal the financial strength of a guarantor. One measure is the reserve ratio which has been shown to have a number of forms. A static measure of loss capacity, the definition of liability as a maximum ratio of insured volume, makes the reserve ratio a benchmark of capacity in catastrophe. In 1959 and 1960, the only two years which may be said to represent an established loan insurance program, the reserve ratio calculated according to the California proposed law, as in Table 19, Item 14, shows MGIC has more than met the required 4% reserve standard. Assuming all mortgages insured were of equal size at origination, loss capacity is in the neighborhood of 45 foreclosures per 1,000 insured mortgages.

TABLE 19. Calculation of policyholders' surplus, estimated maximum liability, and policyholder surplus-liability ratio based on four years of MGIC experience.

		1957	1958	1959	1960
1.	Contingency reserve	$ 6,884.45	$ 48,786.25	$ 178,894.70	$ 572,523
2.	Capital stock	379,600.00	506,720.00	725,440.00	1,265,118
3.	Net surplus	150,883.25	165,059.88	232,231.99	454,549
4.	Total policyholders' surplus	530,483.25	720,556.13	1,136,566.69	2,292,190
5.	New mortgage volume insured	14,205,000.00	36,043,000.00	83,517,000.00	112,865,000
6.	1957 mortgage volume renewed*	-------	12,784,500.00	11,364,000.00	9,943,500
7.	1958 mortgage volume renewed	-------	-------	32,438,700.00	28,834,400
8.	1959 mortgage volume renewed	-------	-------	-------	75,165,300
9.	1960 mortgage volume renewed	-------	-------	-------	-------
10.	Aggregate mortgage volume insured	14,205,000.00	48,827,500.00	127,319,700.00	261,590,982
11.	25% of aggregate mortgage volume insured to equal maximum liability	3,551,250.00	12,206,875.00	31,829,925.00	65,397,749
12.	20% of aggregate mortgage volume insured to equal maximum liability	2,841,000.00	9,765,500.00	25,463,940.00	52,318,196
13.	Policyholder surplus-liability ratio (Item 4 divided by Item 11)	0.149	0.059	0.036	0.035
14.	Policyholder surplus-liability ratio (Item 4 divided by Item 12)	0.187	0.0738	0.045	0.044
15.	Ratio of contingency reserve to maximum liability (Item 1 divided by Item 11)	0.0019	0.004	0.0056	0.0088
16.	(Item 1 divided by Item 12)	0.0024	0.005	0.007	0.011
17.	Proportion of policyholder surplus contributed				

Another measure of potential loss-paying capacity would be the number
of average claims payable from existing reserves as a ratio to number of
loans in force.

	1959	1960
Number of $1,250 claims payable from contingency reserve	143	458
Number of $1,250 claims payable from total policyholder surplus	909	1,834
Total number of insured loans as of end of year	9,432	22,303
Frequency of $1,250 loss payable in full from contingency reserve	15/1,000	21/1,000
Frequency of $1,250 loss payable in full from total policyholder surplus	96/1,000	82/1,000
Frequency of $2,500 loss payable in full from total policyholder surplus	48/1,000	41/1,000

It should be noted that contingency reserve is increasing its proportional con-
tribution to policyholder surplus, and that despite the growth of mortgage
numbers insured there is an increase in the percentage claims payable from
contingency reserve alone. Nevertheless, 1960 total percentage of claims
payable declines as capital growth fails to keep pace with expansion of in-
loans insured. This evidence is further argument for application of a minimum
reserve ratio to capital rather than to total policyholder surplus. Nevertheless,

assuming average losses of $1,250 on each foreclosure, total loss

capacity of 82/1,000 is 12.6 times the 6.5/1,000 loss frequency experienced

in 1960. Assuming more severe losses of $2,500 per foreclosure, the firm could withstand loss frequency six times greater than currently experienced; of these losses about one-fourth could be paid from contingency reserve without recourse to capital. All these losses would be payable in addition to losses presently paid from 10% of current earned premium. A loss frequency of 41/1,000 mortgages closely conforms to the 44/1,000 estimated payable in Table 19, Item 14, where maximum liability is defined as 20% of insured mortgage volume. It supports the California definition of maximum liability as a reasonable estimate well related to the dollar loss which might be expected on a $13,200 loan. These dollar estimates could be reduced in the long run by proper real estate holding operations, implying additional but indeterminate loss capacity. If loss capacity were to include 20% of unearned premium for these years, a reserve of $1,634,305, maximum loss frequency would be increased by 6/1,000 assuming a $2,500 average loss.

Finally some estimate of future reserve adequacy of MGIC can be gained from lessons learned on reserve accumulation and cyclical losses models of Parts II and III. MGIC has experienced a slightly lower termination rate than assumed in any model (although this rate may curve higher as insured mortgages are seasoned), which retards the increase in the contingency reserve to liability ratio. With the arrival of nationwide state licensing MGIC insured volumes can be expected to mushroom as intensive rather than extensive distribution efforts get under way. This growth trend was typified by comparative 1959-1960 figures which produce an over-all decline in loss

capacity from 48/1,000 to 41/1,000. The implication is that loss capacity

will decline steeply if business grows without the addition of more capital

and despite continued increases in contingency reserve. The growth factor

plus the lower termination rate for MGIC lead logically to the conclusion

that it could not in future years endure the losses suggested in the cycle

model unless additional capital supplemented premium reserves. In 1960

capital and surplus of $2.29 million represented about .87 of 1% of total

mortgage volume insured, slightly more than the .75 of 1% required as

minimum by the cycle model. To prevent further decline in loss frequency

capacity, capital should be maintained at a level of .8 to 1.0% of aggre-

gate mortgage insured until contingency reserve contributes about one-half

of the necessary policyholder surplus. In such event, assuming normal

property acquisition, MGIC could be expected to survive a cyclical down-

turn similar to that of the hypothetical model in Part III. Such a recession

could span five years and involve total foreclosures of 80-90 loans per

1,000 insured with loss per loan ranging from $1,250 to $2,500, depending

on assumptions of distribution of foreclosure among years of the recession

and on extent of loss reduction due to real estate holding operations.

APPENDIX I

SOME HISTORICAL NOTES ON MORTGAGE INVESTMENT GUARANTY

Naivete, which characterized a large element of American financial managers during the last quarter of the nineteenth century and the first quarter of this one, is nowhere more apparent than in the boom and bust history of mortgage investment guaranty. Modern day mortgage insurance plans appear to suffer in undeserved guilt by association with the defunct investment guaranty business. The bankruptcy of the guaranty industry, which almost appears in retrospect to have been engineered by a single financial genius of the caliber of a Jay Gould or a Ponzi, was actually a grand monument to the muddling of a large number of undistinguished middle class minds confronted by unprecedented crisis. The lingering demise of investment guaranty has been carefully detailed in a rarely-seen 1934 report by George W. Alger and his counsel, Alfred A. Cook, to the Governor of New York, Herbert H. Lehman. A review of the classic insurance, financial, and regulatory sins that took place under the New York law as chronicled by the Alger Report can be valuable not only because these details help one to recognize what must be avoided by present day regulations but also because they underscore the point that the guaranty of the Twenties bears little resemblance to the FHA or private guaranty plans. Mortgage loan insurance plans.

The mortgage guarantor has never had the heraldry of the insurance

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underwriter. The business of guaranteeing mortgages was apparently born

out of wedlock with the law by conceiving a poorly worded stretch of the

1885 title insurance statutes of New York state to permit the guaranty of

mortgages against losses for reasons other than title defect. By 1895 at least

four large mortgage banking firms allied with title companies offered guar-

anties of "prompt" payment of interest on mortgages which they had marketed;

in 1904 the statutes adopted the infant industry by amendment, permitting

title insurance firms to insure "the payment of" bonds and mortgages, the

phrase being inserted in the title insurance law of 1892 which had been in-

tended to clarify the 1885 law by carefully restricting it to title insurance.

Since title insurers have traditionally experienced only the most negligible

losses, their required reserves are minimal in relation to gross liability.

Guarantors were subject to title company standards and so needed no more

reserve funds, other than the legal requirement of a nonsegregated guaranty

fund to equal two thirds of the original capital of a mortgage guaranty opera-

tion. In 1911 the insurance law was further amended to permit title companies

"to invest in, to purchase, and to sell with guaranty of interest and principal

or with guaranty of title such bonds and mortgages as were legal for insur-

ance companies." Rather than discriminate against the investment banker or

trust official who wished to sell guaranty mortgages, a firm going into the

guaranty business could be organized under either the insurance or banking

laws of New York or both. While the majority of banking firms registered

under insurance laws, organization under the New York banking law required

only $100,000 of capital; the New York Commissioners of Insurance stated publicly that the mortgage guaranty could not be considered insurance but was rather a misplaced responsibility of the banking commission. The insurance commissioner of Wisconsin, on the other hand, one W. Stanley Smith, in 1926 recognized the guaranty of mortgages as insurance under both subsections (7) surety and (8) title insurance of section 201.04 of the Wisconsin Statutes. The regulation of the guaranty business was furthered with the aid of the Securities Division which would not recognize guaranty mortgage bonds for legal investments by Wisconsin Fiduciaries unless the guarantor were in good standing with the Wisconsin Insurance Department. By 1930 few, if any, had such approval, and losses in the next five years were at a minimum for Wisconsin investors in this kind of security.

Following the 1911 legislation title companies and allied trust companies began to sell guaranteed mortgages for which interest was guaranteed on the date due but principal was due 18 months after mortgagor defaulted on principal repayment; payment of defaulted taxes and foreclosure expenses was never guaranteed, but some companies found it expedient to represent that they would "attend to payment of taxes and assessments," an airy legal flourish which many investors mistook for additional guaranties.

An ill-defined legislative afterthought was added in 1913 to the effect that the power to guaranty mortgages was applicable only to those sold by the originating guarantor on "improved an unencumbered single property worth 50 per cent more than the amount loaned thereon." This provision not

only created unresolved debates on the definition of "improved" property but also opened the door for accommodating appraisers who sought to win mortgage banking business by inflating appraised values in relation to actual construction cost. These loans were the first attempts at high ratio lending and "mortgaging out" with a single first mortgage.

A favorite guarantor security was the small denomination participation certificate. As far back as 1906 large single mortgages were placed among the many small investors in certificate form; these notes were issued under an indenture which made the guarantor irrevocable agent in the exercise of the mortgagee's rights in pledged property. The epitome of unsound investment practice on the part of savers was the group series certificate, which purported to assign the holder an undivided interest or share in a specified amount of a bond-mortgage portfolio for which the insurer often served in the double role of trustee and "depository" from which the insurer reserved the right to withdraw and substitute any mortgage from the group.

These substitution privileges were intended to permit sound management of the portfolio and ease of refinancing by mortgagors without disrupting the continuity of the investment trust. Well-intentioned as these provisions were, the right of substitution enabled guarantors on the brink of insolvency to loot portfolios of good mortgages which were sold to insurance companies for cash and replace them with weakly secured, sometimes defaulted mortgages. The cash was paid as periodic interest payments to certificate holders who seldom knew that the actual mortgage loan in which they held a beneficial interest was in default and that their collateral was being progressively

an amendment to prohibit sales of participation certificates in defaulted mortgages never came to a vote, and as late as 1929 an act to impose ratios of capital and surplus to assumed liability to bring an explosive growth problem under supervisory rein died in committee. The legislative history of mortgage guaranty reveals the ease with which its politically astute management achieved its legislative whims and the lack of any voting bloc which promoted the interests of certificate holders. A few selected items from the Alger report will reveal the nature and extent of regulatory neglect and management malpractice that occurred both during its great era of profitability and during its mortal convulsions of the Thirties.

The staff involved in actual direction of examinations consisted of one career man of little formal auditing experience, who commanded a yearly stipend of $4,500 and who was under the direction of the Miscellaneous Bureau. Investigation revealed he was never given specific instructions as to particular aspects of inquiry into any firm and that his orders were for twenty-five years to make a "full and complete examination of the company." Examinations never extended to subsidiary corporations which were frequently used to hold foreclosed real estate (to keep it off the books of a land-poor parent company) and to hold defaulted mortgages, assets paid for by transferring stock shares or notes to investment accounts of parent firms. These notes were always valued at book value by examiners. Far worse was the practice of these subsidiaries to pay interest on notes or defaulted.

guaranteed mortgages by issuing a note to the parent company which debited

that amount to receivables and to income and thence to earned surplus — on

which dividends were then paid to stockholders until firms went into receiver-

ship! The viciousness of this practice is underlined by the fact that fore-

closed properties were put on books at the value of principal of foreclosed

mortgage plus interest and taxes plus foreclosure expenses. Thus the

parent firm's balance sheet position was unaffected and disclosed no real

estate held. Examiners allowed mortgages on books of a parent corporation

at par even though in default or in process of foreclosure, on the assumption

that properties were 50% greater in value than the note foreclosed; there

were no regulations to require any different treatment of the problem. The

current position of guaranty firms was entirely misleading as books were on

an accrual system which established no reserves for uncollected items which

were accumulated indefinitely. While most companies had contingency re-

serves items on their balance sheet, none were for guaranties outstanding

because these were considered contingent liabilities and not subject to audit

and correction; one company with outstanding guaranties as high as $900

million had no reserve for these liabilities whatever and no mention of same

on the balance sheet! Examiners generally ignored the annual company audits

by public accounting firms though even these reports sometimes criticized a

particular company for its poor practices. But despite the gross distortion of

balance sheet figures, examination was not entirely to blame for the ignorance

of the department as to conditions in mortgage guaranty, as such figures as

there were reached analysts one to two years following the date of actual inspection. The speed of events in the Thirties destroyed any value in these stale reports. The absence of reserves for shrinking real estate values or increasing uncollectible receivables made analysis of income statements futile, and so logically the prudence of cash dividend payments was also ignored. Final examination reports, when critical, were softened or corrected to eliminate criticism, once because the company officers told the department that if it "were to close this company the whole financial structure of _____ county would collapse." Action on such examiners' reports as did mention the imprudent or fraudulent was that the reports "were filed, and that, following what seems to have been the practice of the Department for many years, was the end of the matter."

This brief selection of items indicating a certain lack of "special vigor" in regulation leads to a view that while the main causes which led to the destruction of the industry were beyond control of regulatory author-ities, nevertheless prompt and decisive attention to the situation as it developed, plus adequate financial controls, would have mitigated actual losses to some significant degree if only by conservation of assets for claim holders.

Guaranty companies were often organized as a vast corporate network, financed by trust companies who in turn were allied with banks, and shared the same officers and directors. Advertising was intentionally fuzzy as to the assets and to the functions of each so that many savers thought their

guaranties were from a bank or trust company affiliate. Trust company mortgages could be guaranteed to gain additional revenue from trust accounts, to create appearances of conservatism, and to make possible other questionable practices conflicting with a banker's duties to the public; finally, with increasing liquidity problems and decreasing mortgage investment quality, banks tried to forestall collapse of guaranty firms by making large advances which eventually compounded the losses and problems of all concerned. Subsidiaries to guaranty corporations were the rule, such as holding companies, bonding firms, title plants, and security brokerage houses, to name a few; one guaranty firm was one of a complex of thirteen firms, each owning shares of the other and doing business with the other. The Alger report concluded that subsidiaries should be prohibited except where permitted and regulated by the Insurance Supervisor and where outside ownership interests were not sufficient to prevent filing of a mandatory consolidated statement.

While the banks' money filtered through these corporate frameworks, the good sense reputed to bankers did not follow the money. Loans were made on vacant lands, on all types of specialty buildings (such as churches, theaters, hotels, garages, golf clubs, etc., whose value in default is often worth less than the land were it standing vacant), on construction loans, and on mortgages issued by holding company subsidiaries on properties received after foreclosure. The inferior marketability of these mortgages was disguised by using them as straw for the various group certificate series, as

ease of substitution made these series readily available dumping grounds. A few loans were made in excess of legal maximum ratios (67%) or in excess of the 10% of capital and surplus limit common to most financial intermediaries. Borrowers often had to deal through favored brokers to gain acceptance of a loan, particularly excessive loans. One company not only managed to over-certificate the face value of a mortgage group but also held coordinate mortgages simultaneously recorded against the same property and certificated in different series!

Perhaps these random catalogings could only convict the industry of inept management and well meaning bungling. Nevertheless, in 1932 and 1933, industry management realized that their only hope of continued liquidity lay in reselling their own securities, purchased in the money markets at great discounts back to the poorly informed small investor at par. Rising above the level of the everyday shill, mortgage guaranty advertising men showed the mettle of the great American patent medicine men. Mortgage guaranty ads described guaranteed first mortgages as late as 1932 as "pure gold" or "absolutely safe" and "horoscope not needed" and there was "no watching" required. One ad in 1931 urged the use of $100 group series certificates for children's savings and for Christmas gifts to grandchildren. The executive of the enterprising firm who sought the financial support of infants admitted in the investigation that at the time he was running such an advertising campaign, he switched the investments of his own family to government bonds.

Reading the Alger report today can underscore the fact that mortgage investment guaranty as it was constituted before the Crash was a grand scheme of mortgage flotation, a debt service agency, a stirring saga of a run before the wind of bankruptcy, but it was never, ever an insurance business. The story of the denoument of mortgage investment guaranty will never gain the recognition and following of the Vanderbilt-Gould feuds and the other classics of adolescent American finance because the personalities involved were well meaning, middle class, bumbling bankers who lacked the brazen gall and magnificent aplomb that might have saved the guaranty for the gravy days of real estate value recovery in the years following 1940.

APPENDIX II

WISCONSIN ADMINISTRATIVE RULES 3.09

Mortgage Guaranty Insurance

(1) Purpose — This rule is intended to implement and interpret applicable statutes for the purpose of establishing minimum requirements for the transaction of mortgage guaranty insurance.

(2) Definition — Mortgage guaranty insurance is defined as insurance of mortgage lenders against loss by reason of nonpayment of mortgage indebtedness by the borrower, and is authorized by section 201.04 (9), Wis. Stats.

(3) Accounting — (A) The financial statement required by section 201.50, Wis. Stats., shall be furnished on the Fire and Casualty annual statement form.

    (B) Expenses shall be recorded and reported in accordance with the "Uniform Classification of Expenses of Fire and Marine and Casualty and Surety Insurers."

    (C) The unearned premium reserve shall be computed in accordance with section 201.18 (1), Wis. Stats., except that in the case of premiums paid in advance for ten-year policies the annual pro rata factors specified below or comparable monthly pro rata factors shall apply.

Year	Unearned Factor to be Applied to Premiums in Force	Year	Unearned Factor to be Applied to Premiums in Force
1	90.0%	6	19.0%
2	70.0%	7	12.0%
3	52.5%	8	7.0%
4	39.0%	9	3.5%
5	28.0%	10	1.0%

(D) From the premium remaining after establishment of the premium reserve specified in paragraph (C) of this subsection, a portion equal to the contingency factor prescribed in paragraph (C) of subsection (4) shall be maintained as a special contingency reservation of premium and reported in the financial statement as a liability.

(E) The case basis method shall be used to determine the loss reserve, which shall include a reserve for claims reported and unpaid and a reserve for claims incurred but not reported.

(4) Contingency Reserve — (A) The reserve established in paragraph (D) of subsection (3) shall be maintained for 180 months for the purpose of protecting against the effect of adverse economic cycles. That portion of the special premium reserve established more than 180 months prior shall be released and shall no longer constitute part of the special reserve and may be used for usual corporate purposes.

(B) Subject to the approval of the commissioner, the reserve shall be available only for loss payments when the incurred losses in any

one year exceed the rate formula expected losses by 10% of the corresponding earned premiums.

(C) The contingency factor in the rate formula shall be 50% of the premium remaining after establishment of the premium reserve specified in subsection (3) (C).

(D) In event of release of the special reserve for payment of losses. the contributions required by paragraph (D) of subsection (3) shall be treated on a first-in-first-out basis.

(5) Rate Making — (A) Mortgage guaranty insurance shall be subject to the provisions of section 204.37 to 204.54 inclusive, Wis. Stats.

(B) The rate formula shall contemplate losses, expenses, contingency reserve, $2\frac{1}{2}$% of premium for profit, and any other relevant factors.

(C) All policy forms and endorsements shall be filed with and be subject to the approval of the commissioner of insurance. With respect to owner-occupied single-family dwellings, the mortgage insurance policy shall provide that the borrower shall not be liable to the insurance company for any deficiency arising from a foreclosure sale.

HISTORY

APPENDIX III

A TYPICAL MORTGAGE LOAN GUARANTY INSURANCE MASTER CONTRACT

AGREES TO PAY TO

_____

_____

(Hereinafter called the insured)

In consideration of the premium or premiums to be paid by the Insured as specified in the Certificate, and in reliance upon the statements made in the Application submitted by the Insured, any loss sustained by reason of the default in payments by a Borrower as hereinafter set forth, subject to the following conditions:

CONDITIONS

1. APPLICATION AND COMMITMENT

The Insured shall furnish the Company with an Application in connection with each mortgage loan for which coverage under this policy is desired, on forms furnished and with requirements prescribed by the Company. Approval of the Application shall be at the discretion of the Company and shall be in the form of a Commitment prescribing the terms of the coverage.

2. NOTICE AND CERTIFICATE

Within five (5) days after consummation of the mortgage loan transaction the Insured shall forward notice thereof to the Company, together with the premium, and the Company shall immediately issue and forward a Certificate to the Insured, binding the Company according to the terms and conditions of the Commitment and of this policy. The effective date of the Certificate shall be the date on which the mortgage loan transaction was consummated.

3. PAYMENT OF PREMIUMS

In the event that coverage includes renewal privileges, the renewal premiums shall be paid within 45 days following the anniversary of the effective date of the Certificate. Failure so to do will terminate the liability of the Company with respect to the mortgage loan insured pursuant to the Certificate.

4. TERMINATION BY COMPANY

The Company shall remain liable under this policy with respect to such Commitments or Certificates issued to the Insured, as long as the terms and conditions herein contained are fully complied with. However, the Company reserves the right to terminate this policy at any time, subject to its remaining liable on such Commitments and Certificates already issued to the Insured.

5. CANCELLATION BY INSURED

The Insured shall have the privilege of canceling the coverage pursuant

to any Certificate by returning such Certificate to the Company. On receipt thereof, the Company shall refund to the Insured such sum as may be determined to be due in accordance with the cancellation schedule set forth herein; providing however, that no refund shall be paid in the event that a claim for loss has been filed.

6. RESTORATION OF DAMAGE

As a prerequisite for the payment of such loss as may be determined to be due herein, should there be physical loss or damage to the property from any cause, whether through accidental means or otherwise, the Insured shall cause the said property to be restored to its condition at the time of the issuance of the Certificate, reasonable wear and tear excepted.

7. OPEN-END PROVISION

The Insured may increase the mortgage loan balance by making an additional loan to the Borrower, provided that an Application is made therefor subject to approval by the Company. In the event of such approval, the prevailing premium therefor shall be paid to the Company, for the additional amount loaned to the Borrower, and the Company shall issue a Certificate insuring the additional amount.

8. COMPLETED CONSTRUCTION

In the event that the mortgaged premises consists of improvements in the process of construction, the Company shall not be liable until such construction is completed.

9. NOTICE OF DEFAULT

Within 10 days after the Borrower is four (4) months in default, notice

thereof shall be given to the Company by the Insured. Monthly reports indicating the default status of the Borrower's account shall be given to the Company thereafter until such time as appropriate proceedings are commenced, title has been vested in the insured, or the Borrower is less than four (4) months in default.

10. PROCEDURE ON DEFAULT

When the Borrower's account is four (4) or more months in default, the Company may direct that the Insured commence appropriate proceedings as herein defined, which shall be commenced, in any event, when the Borrower's account is nine (9) months in default. Such proceedings, when instituted, shall be diligently pursued, and should applicable laws permit the appointment of a receiver, application therefor shall be made by the Insured, with the recommendation that an agent of the Company be appointed to act. The Company shall be furnished, within a reasonable time, copies of all motions and pleadings required in such proceedings, and with any pertinent information requested by the Company. The Insured shall also furnish to the Company, at least fifteen days prior to the foreclosure sale, if any, a statement indicating the amount anticipated to be due, at the time of the sale, to the Insured under the terms of this policy and shall be required to bid, at the sale the amount due to the Insured under the terms of this policy. Acceptance by the Insured at any time of a voluntary conveyance from the Borrower of his interest in the Mortgaged real estate or commencement by the Insured of appropriate proceedings on default of the Borrower, even

though his account is less than four (4) months in default, shall not preclude the Insured from recovery for loss under this policy.

11. COMPUTATION OF LOSS

The amount of loss payable to the Insured shall be limited to the principal balance due pursuant to the mortgage agreement, accumulated interest computed through the date of the tender of conveyance, as hereinafter set forth (penalty interest excluded), real estate taxes and hazard insurance premiums necessarily advanced by the Insured, any expenses necessarily incurred by the Insured in the Preservation of the mortgaged real estate, and all other necessary expenses of the appropriate proceedings, including court cost, and reasonable attorneys' fees not exceeding three (3) per cent of the principal and interest due as herein set forth.

12. WHEN LOSS PAYABLE

Any loss due to the Insured shall be payable within 60 days after filing a claim for such loss on a form to be furnished by the Company. The claim for loss must be accompanied by a tender to the Company of conveyance of title to the mortgaged real estate together with satisfactory evidence that such title is good and merchantable in the Insured, free and clear of all liens and encumbrances. Failure to file a claim for loss within 60 days after completion of appropriate proceedings shall be deemed an election by the Insured to waive any right to claim payment under the terms of this policy.

13. OPTION TO PAY 20% OF AMOUNT DUE

In lieu of Conveyance of title to the mortgaged premises and payment

in accordance with Condition 11, the Company shall have the option of paying twenty per cent (20%) of such amount due to the Insured and have no claim to said real estate, such payment to be a full and final discharge of the Company's liability.

14. WHERE NOTICE IS GIVEN

All notices, pleadings, claims tenders, reports and other data required to be given by the Insured to the Company shall be mailed postpaid to the home office of the Company.

15. NO RIGHT OF SUBROGATION AGAINST BORROWER

The Borrower shall not be liable to the Company for any loss paid to the Insured pursuant to this policy; provided, however, that the real estats shall consist of a single family dwelling occupied by the Borrower; otherwise, the Company reserves the right to make claim against the Borrower for any loss paid or deficiency suffered by the Company.

16. TO WHOM PROVISIONS APPLICABLE

The provisions of this policy shall inure to the benefit of and be binding upon the Company and the Insured, and their successors and assigns.

17. SUIT

No suit or action on this policy for recovery of any claim shall be sustained in any court of law or equity unless all the conditions of this policy have been complied with, unless specifically waived by the Company in writing, and unless commenced within two (2) years after the loss can be determined.

18. CONFLICT WITH LAWS

Any provision of this policy which is in conflict with laws of the jurisdiction in which this policy is effective is hereby amended to conform with the minimum requirements of such laws.

19. DEFINITIONS

Four (4) months of default is defined as the failure to pay the total aggregate amount of four (4) monthly payments due under the terms of the mortgage agreement. Similarly, nine (9) monthly payments due under the terms of the mortgage agreement.

Mortgage agreement is defined to include a note, mortgage, bond, deed of trust, or other instrument used in connection with the Borrower's loan.

Appropriate proceedings are defined as any practical legal remedy permissible, under the laws of the jurisdiction in which the real estate is located, to vest title in the Insured, including, but not limited, foreclosure by public or private sale.

The term Borrower, or Insured, when used herein, shall mean the single or plural, male or female, individual, partnership, or corporation, as the case may be

IN WITNESS WHEREOF, The Company has caused its Corporate Seal to be hereto affixed and these presents to be signed by its duly authorized officers in facsimile to become effective as its original seal and signatures and binding on the Company by virtue of countersignature by its duly authorized agent.

APPENDIX VI

EXPLANATION OF COMPUTATION OF
AVERAGE LOSS PER FORECLOSURE

The average loss per foreclosure of the guarantor is the difference between the net proceeds recovered on the foreclosed property and total claim paid. Wherever the residual exceeds 20% of gross claim, the guarantor will be presumed to use the option. Where the guarantor accepts title upon the property it would be in expectation of significantly reducing the claim. Rental and resale in a favorable market are assumed to reduce by one-half the deficit in every case.

Column 1. Assuming a one thousand dollar mortgage is 85% of appraised property value, then the market value of the property when new would be $1.176. The property is then depreciated at a compound rate of 2% to represent a decline in market value due to aging.

Column 2. Were this property resold immediately upon acquisition the net value would vary with the price level. An arbitrary recovery ratio representing a 28% decline in price from par in year 1 ,is a severe test. While it presumes an additional 5% of par value as sales and transfer cost, it makes no allowance for inflationary increases in building value.

Column 3. A net recovery value of foreclosed property is the product of Column 2 × Column 1. Actually since World War II home prices have inflated gradually so that the depreciation has not appeared directly in sales

prices, which often exceed the original cost of value. It is the continued inflationary trend which some investors expect to minimize private guaranty losses; but reserve adequacy must be determined in terms of a stable dollar as inflation is an unpredictable and exogenous variable.

Column 4. The basic claim of the insured consists of the amortized balance of a $1,000, 25 year, 6% interest, monthly payment loan.

Column 5. The total insurance claim is determined by multiplying 1.25 times the amortized balance of mortgage due in Column 4.

Column 6. While the guarantor would pay the total claim as represented in Column 5, the actual loss to the guarantor, presuming immediate resale or a credit to accrued loss reserve on a case appraisal basis, would be the difference between the total claim in Column 5 and net recovery value in Column 3.

Column 7. Presumably the guarantor would not take title to the property where the net loss in Column 6 exceeded 20% of Column 5. To see which years the guarantor might exercise such an option, Column 7 records stop-loss maximum. This column reveals that the losses would be minimized in the sixth to tenth years by exercising the 20% option.

Column 8. There is a further presumption that if an acquired property is rented until resold in a favorable market, net loss may be further reduced. It is possible that interest on a purchase money mortgage or land contract, to the degree that it exceeds money costs and average yield on invested assets, will replace the dollar loss on an immediate resale. Therefore, in

the prosperous years of the cycle, i. e. , 1-5 and 11-15, proper property management it is assumed will reduce net losses by at least one-half the amount in Column 6.

Column 9. The losses realized by the guarantor after exercising his options to an immediate resale on favorable refinancing terms (Column 8) or the stop-loss option of Column 7 are then recast using the lowest figures for each period, 1-5, 6-10, and 11-15.

Column 10. Since the mortgages were assumed to be $12,500 at origination, it is necessary to multiply the net loss per one thousand dollars of mortgage by 12.5 to determine the average loss per mortgage for each year of the cycle. Since mortgages are homogeneous in size and amount and since an aggregate volume of mortgages represent from 1 to 15 cells according to date of origination, the same net loss figure would be derived as an average representing all combinations of recovery ratios and amortization level of mortgages within the portfolio. However, such an average would presume equal distribution of mortgages throughout the fifteen cells, which is not the case in Model A. By the same token, the loss assumptions of this model are too arbitrary to assume great mathematical precision for them. For lack of more accurate assumptions, the loss curve was taken as representative of an average loss per foreclosure for the entire spread of mortgages in the portfolio.