

"REDLINING" URBAN NEIGHBORHOODS"
MORTGAGE RISK MYTHS OR REALITIES

by

Harriett Tee Taggart
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Signature of Author _____
Department of Urban Studies and Planning
February 27, 1981

Certified by _____
Langley C. Keyes
Thesis Supervisor

Accepted by _____

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MORTGAGE RISK MYTHS OR REALITIES?

by

HARRIETT TEE TAGGART
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Submitted to the Department of Urban Studies and Planning on February 27, 1981 in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Urban Studies and Planning.

ABSTRACT

Residential mortgage lending has been guided by two axioms of neighborhood analysis which generally classify urban neighborhoods as high risk. One, the life cycle theory, maintains that neighborhoods as organisms pass through stages of growth, maturity, and, at some point after 40 years, inevitably decline. The other principle of neighborhood homogeneity argues that social, economic and physical conformity maximizes property values. Property values are not defined as market prices. Prices are to be discounted by predictions made by the bank appraiser of the life cycle stage and adverse influences in the neighborhood.

Mortgage risk research has generally focussed on individual loan characteristics without further analysis as to whether neighborhood characteristics do indeed contribute to mortgage delinquency and default. Thus, the lender's emphasis on property appraisal as a key determinant of mortgage risk has not previously been subject to much empirical analysis.

Analyses of metropolitan Boston data indicate that savings institutions have placed considerable emphasis on property appraisal in loan origination. An application on a property with a lower appraised dollar value or a bank appraised value of less than the purchase price is more likely to be approved as a federally insured loan, with coverage of 100 percent of the outstanding loan amount, than a conventional loan wherein the lender assumes full risk. Subsequent experience with delinquency or default, however, is best explained by the household financial resources and the downpayment amount relative to the value of the property purchased. Age of the loan is also key. For all households, the longer the loan has been outstanding, the lower the probability of delinquency or default.

New forms of mortgage instruments and lending institutions have been introduced in recent years. New instruments, such as the variable rate mortgage, will require more stringent underwriting standards regarding the borrower's ability to make higher payments as interest rates increase. Access to home mortgage credit may thus decrease. New institutions introduce their own portfolio risk considerations and, to date, appear to be adopting the traditional anti-urban appraisal standards now abandoned by the publicly regulated depository institutions.

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INTRODUCTION AND SUMMARY

Mortgage risk has traditionally been the exclusive concern of actuaries, bankers, and a few academic researchers. In recent years, however, public focus on urban reinvestment, fair housing, and equal access to home mortgage credit has made this previously esoteric subject a matter of more general public interest.

The major question raised by urban neighborhood groups and various public agencies and consumer protection organizations is whether mortgage underwriting standards used by lending institutions accurately reflect bad business risks. Related issues are disinvestment and discrimination.

Banking industry representatives have generally maintained that their loan policies and lending records in urban neighborhoods are a result, not a cause, of the economics of the housing markets in these areas. Urban housing problems are economic problems which stem from property owner disinvestment, not from lack of available loan funds for property maintenance and improvement.

Community organizations, however, claim that by withholding capital resources for which there is creditworthy demand, mortgage suppliers disinvest and, thus, contribute, rather than simply react, to decline. They contend that anti-urban lending practices are often based not on economic facts but on theoretical assumptions about types of borrowers, housing, and neighborhoods.

In metropolitan Boston, confrontation between the savings institutions as the major residential mortgage lenders in the region and urban neighborhood organizations surfaced in 1974. In the spring of 1976, the Boston

Urban Mortgage Review Board, a voluntary organization of bankers, community leaders, and public officials was created.¹ The purpose of this Board, similar to that of its counterparts in other major cities throughout the country, was to address redlining problems through appeals made by individual homebuyers who had been denied mortgage loans at one of the participating banks. After a number of cases had been reviewed by the Boston Board, the participating banks publicly proclaimed that, indeed, no one of them practiced redlining.² The community organizations and public officials, however, reached a very different conclusion. Several cases had indicated that while participating institutions might not categorically deny a mortgage application because of property location, a number of them had policies which amounted to de facto redlining. Among these policies and practices were:

- mortgage terms on two- and three-family homes (the prevalent type of housing stock in the cities) less advantageous than those on single-family homes (predominantly found in the suburbs)³
- urban properties valued at considerably less than market prices of comparable sales on the basis of predicted decline in property values even where price trends had steadily increased for several decades (thus discouraging applicants from pursuing financing for a purchase and, cumulatively, resulting in a negative impact on property values)⁴

- loans denied because of the bank's assessment that while a property was in good physical condition that it was, regardless of what buyers were willing to pay in arms-length transactions, "economically obsolescent".⁵

Cumulatively, community leaders and public officials concluded that the lenses through which some of the participating banks viewed urban neighborhoods, both in their evaluation of particular properties and development of underwriting standards were (1) formulated on inaccurate theories, and (2) likely to serve as self-fulfilling prophecies in their implementation. Participating bankers, however, maintained that these policies were generally supportable insofar as they reflected an institution's mortgage risk experience.

The analyses presented in the following chapters are an effort to provide some insight and further understanding of lending practices and home mortgage risk. In the course of evaluating mortgage lending theory, practice, and results of other risk research, two general themes evolve. One is that "history matters". That is, socio-economic structure and organizational relationships change over time. Moreover, professional theory, research, and practice reflect the various socio-economic contexts in which they are developed. Second, "institutions matter". The "market" is shaped by existing, new, and nascent institutions. Institutional economic and non-economic agendas affect which theoretical perspectives are adopted as operating principles and practices.

TRADITIONAL APPRAISAL AND UNDERWRITING STANDARDS: APPLIED THEORIES OF METROPOLITAN DEVELOPMENT

Chapter 1 examines the theories of metropolitan development on which appraisal and underwriting standards traditionally used in residential lending were formulated. There are two key assumptions in these theories with regard to mortgage lending in urban areas. One is the principle of neighborhood conformity in which homogeneity, that is, residents of comparable socio-economic status, race and ethnicity, and housing stock of comparable age and type, are assumed to maximize residential property values and, hence, minimize risk to the mortgage lender. Since the enactment of federal and state civil rights legislation, professional appraisal and underwriting textbooks have placed less emphasis on racial and ethnic homogeneity. In fact, during the last few years, new editions of some of these texts now emphatically discourage the use of this aspect of the homogeneity principle (Bloom and Harrison, 1978: 87-88). However, homogeneity of housing types and socio-economic status of residents is still taken into consideration by many public and private institutions.⁶

The neighborhood life cycle theory is the other residential appraisal principle with negative implications for urban mortgage lending. Under this theory, a neighborhood is tantamount to an organism with an estimated life of 40 years and with

- a growth period of 10 years after the commencement of new construction;
- a mature and stable period for two or three decades; and,
- a period of decay and decline at some point after the homes are 40 or more years old.

This principle was formulated on the basis of early 20th century analyses

of metropolitan growth in the United States which observed a "succession of higher and better uses", i.e., lower density residential development followed by more intensive commercial and industrial development of higher value. While metropolitan development in the ensuing decades did not follow these theoretical patterns, the neighborhood life cycle principles have still been applied in residential appraising and underwriting.⁷ For example, the Federal Home Loan Mortgage Corporation ("Freddie Mac") created by Congress in the early 1970's had, until recently, a provision in their underwriting matrix which required special scrutiny for any mortgage in which the age of the property plus the maturity of the loan exceeded 60 years. Many mortgage lenders have had policies similar to one adopted by the largest savings bank in western Massachusetts in which mortgage applicants were offered differential rates based on the age of the property purchased. On a new home, applicants were offered a cut rate of 1 percent below the going mortgage rate; on a home less than 30 years old, market rate; on a home built prior to World War II, a "high risk" charge of 1 percent above the market rate. Again, while some modifications have been made in residential appraisal and underwriting practices in recent years, much of this has focussed on neighborhood revitalization through reentry of upper income households which is simply the life cycle theory in series:

Decline may cease when...there is an organized effort to rejuvenate the neighborhood. This renewal period is comparable to the original growth period. The life cycle is then repeated with another period of stability and a period of decline. (Bloom and Harrison, 1978: 102)

Thus, the neighborhood life cycle theory as a cipher used by the residential appraiser to assess the risk exposure to the mortgage lender is still

relatively intact. The only major modification in this theory has been the introduction of neighborhood rebirth, that is, older housing stock recycled to upper income occupants.

There has been very little change in this metropolitan development gestalt of the residential lending industry since the 1920's and 1930's. It was during these decades that both residential appraising and underwriting were nationally institutionalized through federal and state chartered savings and loan associations, federally administered mortgage insurance and guarantee programs, and through the creation of private trade associations of residential appraisers, brokers, and lenders. Once institutionalized, theoretical formulation and practical application have remained essentially intact.

NEWER PERSPECTIVES ON METROPOLITAN DEVELOPMENT

Metropolitan development perspectives of other professional disciplines, particularly city planning and urban economics, espoused similar Social Darwinistic principles in the 1920's and 1930's. However, in subsequent decades, these disciplines have offered alternative theories to the evolutionary determinism of inevitable decline and to socio-economic segregation in perpetuity. Chapter 2 reviews this literature for two purposes. One is to provide some insight on the extent to which empirical research and response to changing social attitudes and mores have led to modification of professional theory, particularly in city planning. The other purpose is to set forth metropolitan development theories formulated by political economists which are fundamentally different from the essentially deterministic theories to which the residential lending industry,

city planning profession, and conservative and liberal economists subscribe.

Many political economists engaged in spatial analysis maintain that metropolitan development patterns are not preordained and inevitable but, rather, the outcome of institutional investment patterns and decision-making. To understand development patterns, one must examine the configuration of institutions - banks, savings and loan associations, real estate brokers and appraisers, government agencies, and so on -- which shape the environment in which individual households seek housing and financing through home mortgages. Thus, these alternative theoretical perspectives suggest that one should not simply examine whether the theoretical principles applied by the residential lending industry are empirically valid, one should also assess the various institutions, their financial constraints, economic objectives, and organizational relationships. Analyses in subsequent chapters are formulated in terms of institutional structures and their import vis-a-vis the analytical assumptions and approaches taken in mortgage risk research, the data generally available for analysis, and incipient changes in mortgage instruments and lending institutions.

ANALYSES OF MORTGAGE RISK: THE EMPIRICAL BASIS FOR APPRAISAL AND UNDERWRITING PRACTICES

Chapter 3 reviews the research to date on the risk experience on one-to-four family homes. Each study, the research approach and results, is discussed in terms of the institutional sources of data and institutional context in which it was conducted.

The first set of published mortgage risk studies in the United States

were those authored by federal government agency staff or consultants to the Federal Housing Administration (FHA) or Veterans Administration (VA). These studies, based exclusively on federally insured or guaranteed loans, were performed for limited actuarial purposes. That is, they were designed to assess whether (1) appraisal and underwriting criteria used at origination were effectively screening out any borrower, property, or neighborhood characteristics systematically associated with higher risk loans, i.e., serious delinquencies and defaults, and (2) the mutual insurance fund administered by FHA could be expected to remain sufficiently solvent, i.e., mortgage insurance premiums collected exceeded the sums required to compensate private lenders for the outstanding mortgage amount on those loans which had gone into default. The authors of these studies were not concerned with those borrowers, types of property, or neighborhoods, which may have been rejected through the underwriting criteria applied at origination but which may not have been inherently riskier. Their objective was to ascertain whether, among those mortgages granted, were there any which should have been denied and, in terms of adverse effects on the FHA insurance and VA guarantee programs overall, were there any considerable number of loans likely to default?

A second series of studies, again based on federally insured or guaranteed loan data, was directed at expanding the scope of borrowers served by these publicly administered programs. Prior to 1968, both FHA and VA had favored new construction over existing houses and had actively discouraged lending in many urban neighborhoods, particularly predominantly minority or racially mixed areas. Civil rights legislation enacted by

Congress in 1968 prohibited public and private agencies from rejecting mortgage applications on the basis of the race of the applicant or the racial composition of the neighborhood. Congress also mandated in the Housing Act of that year that the Federal Housing Administration undertake an affirmative lending program in urban and minority neighborhoods and, to assure adequate implementation, required that a Special High Risk Insurance Fund and a homeownership subsidy program be created such that loans ineligible for FHA's ongoing mortgage insurance funds could still be made.

Risk studies done in conjunction with this broadened mandate fall in three categories. One, done by an outside researcher, analyzed FHA loan data prior to 1968 in an effort to demonstrate to FHA officials that risk determinants of their portfolio to date had been the equity investment made by the borrower, not lower income households per se. A second set, also done by outside researchers, analyzes the post-1968 experience from the perspective of the recipients and residents of those neighborhoods which were inundated with FHA-insured mortgages. Much of this literature, comprised of case studies and survey research in urban neighborhoods, concludes that the high delinquency and default rates experienced were largely attributable to the institutional behavior, i.e., poor administration on the part of FHA officials and private lenders at origination, inadequate servicing attention given to delinquent loans, and, in some instances, fast foreclosure practices pursued by some private lenders as a means to maximize their profits on these mortgages. One final study on post-1968 data completed in-house by the Chief Statistician of the FHA was directed at assessing FHA loans issued after 1968 and evaluating how the

agency might contend with the growing competition from private mortgage insurance companies.

A third type of study commissioned by the private mortgage insurance companies (PMI's), had a set of actuarial objectives comparable to the first set of in-house studies conducted by the federal agencies. While the results of one major study of PMI's indicated that the loss incidence associated with urban-based properties was actually less than that of suburban properties, no recommendations were based as to how underwriting criteria might be broadened to be more inclusive of borrowers purchasing types of properties and/or in urban neighborhoods. The purpose of the study was accomplished in demonstrating to two federally sponsored credit agencies, the Federal National Mortgage Association ("Fannie Mae") and the Federal Home Loan Mortgage Corporation ("Freddie Mac"), that (1) PMI's were engaged in actuarially sound loans, and (2) these agencies should expand their institutional criteria for purchasing loans to include those made with private mortgage insurance.

A fourth series of published mortgage risk studies have been conducted by trade associations of private lenders. Historically, these studies were prompted by a general economic recession in which member institutions have experienced extraordinarily high rates of delinquency and default. Given that these studies examine conventional loan data as well as loans made with private or federal insurance, the data available to these researchers are more representative of the general mortgage risk experience. Unfortunately, most of the research simply compiled rudimentary statistics and few examined urban property or neighborhood characteristics so as to be

able to offer their membership some insight on any risk experience associated with either. In recent years, trade associations have commissioned research directed at assessing the risk implications of regulatory enforcement of various civil rights, equal credit, and anti-redlining provisions. One of these studies, based on New York savings bank data in seven metropolitan areas, provides some particularly useful insights on the factors used by savings institutions in deciding whether to accept or reject a mortgage application.

The fifth series, performed by university-based researchers, is a diverse set of risk studies. Each of these were based on whatever data the individual analysts could obtain from a private lending institution and, thus, are generally based on limited data. These studies offer a range of theoretical perspectives from those who accept the mortgage market as relatively perfect with funds adequately supplied to meet creditworthy demand and only adjustments in terms (e.g., higher interest rates required by the lender to compensate for somewhat higher risks associated with the borrower, the type of property, or the neighborhood) to those concerned with broadening the range of borrowers, properties, and neighborhoods eligible for conventional mortgage financing.

The final section of Chapter 3 is devoted to the public regulatory requirements which have shaped savings institutions since the 1930's as the primary source of residential mortgage funds. Historically, the emphasis of regulatory agencies has been exclusively on "safety and soundness". Annual examinations were concerned not with the scope of borrowers and neighborhoods served or mortgage credit services provided, but with the

institution's track record at minimizing serious delinquencies or defaults in their mortgage portfolio. In other words, for several decades, public regulatory agencies encouraged savings institutions to pursue exclusively risk averse objectives without regard for those creditworthy consumers who may have been systematically denied credit. Since the 1960's, however, bank regulatory agencies have been mandated to enforce various civil rights and consumer protection laws and thus broaden their limited focus. Two key pieces of legislation in this transition have been Equal Credit Opportunity Act passed in 1972 and the Community Reinvestment Act passed in 1978. Loan underwriting criteria applied to all types of consumer credit applications, including residential mortgages can no longer be justified simply on the grounds that they have been effectively applied in the past to maintain an actuarially sound loan portfolio. Any criteria which may have a disproportionate, and thus potentially discriminatory effect on a class of borrower, a type of housing, or a neighborhood, must be justified by the institution as so demonstrably riskier that the use of these criteria constitutes a business necessity.

MORTGAGE RISK IN METROPOLITAN BOSTON: A CASE ANALYSIS OF CONVENTIONAL AND FEDERALLY INSURED LOAN EXPERIENCE

Chapter 4 provides an empirical assessment of the residential loan risk perceptions and experience in one major metropolitan area. This chapter presents several analyses.

Initially, an assessment is made of the loan data available. This includes an evaluation of possible biases introduced through the mortgage application process at banking institutions and of the sampling methodology which may have some skewing effects and, thus, should be taken into con-

sideration in the interpretation of any analytical results. For those borrower, property, loan, neighborhood, and bank characteristics for which sufficient data were available, an assessment is also made of the relative statistical strength, the distribution and frequency of these factors.

Next, two series of analyses are formulated. The first is an effort to identify those borrower, property, lender, and possible neighborhood characteristics which determine the probability of an applicant receiving a conventional or federally insured loan.⁸ These analyses are focussed on the mortgage risk evaluations made by the lender at the loan organization. The second analyzes which factors known to the lender at origination differentiate delinquencies and defaults from those loans which remain paid up.

Over the past several decades, savings institutions in metropolitan Boston have been actively engaged in making both conventional and federally insured loans on one-to-four family homes. Since federal mortgage insurance programs were designed to encourage these institutions to lend to borrowers without sufficient financial resources to make the equity investment required for conventional loans, federally insured homebuyers have generally been considered higher risk.

The results of the first series of analyses, however, indicate that the decision to grant one type of loan or the other has generally not been based on risk issues associated with the financial resources of the borrower. The bank's appraisal of the value of the property to be financed appears to have had a pronounced effect on loan type decisions. The lower the dollar amount of this appraisal, the greater the likelihood of a federally insured loan. Also, loans where this appraisal was less than the

corresponding purchase price that the homebuyer was willing to pay for the property tended to be federally insured.

Of the financial factors for which banks obtained information on the loan applicant, household income, measured in terms of dollars earned divided by the number of persons supported by that income, was not an important consideration influencing the lender's loan type decision. Only one household financial factor, installment debt derived from non-mortgage loans such as personal loans or car loans appeared to have any marginal effect on this decision. As monthly installment debt, measured as a percentage of monthly earnings, increased, the likelihood of receiving a conventional loan decreased somewhat.

Finally, of the institutional lender characteristics, the deposit size of the bank appeared to have a strong influence on the type of loan granted, regardless of household finances or other characteristics of the loan. In other words, if the same borrowers were to apply for a mortgage at two different banks, they would be more likely to receive a conventional loan at the smaller bank.

The second series of risk analyses based on loan status (current, delinquent, or default) concluded that mortgage risk is generally difficult to predict at the time of loan origination. However, household financial resources relative to the property purchased and to other installment debt appear to be most important as determinants of mortgage delinquency and default risk.

Default, the most serious type of risk, occurs when the borrower has stopped making mortgage payments altogether, usually for a period of three

months or more. Factors found most strongly related to default are: the age of the loan, the amount of the loan relative to the bank appraised value of the property, and regular earnings per capita. Age of loan, that is, the number of months a loan has been outstanding, is critical as defaults tend to occur within the first five years of the loan for both conventional and federally insured. Among conventional loans, the higher the loan amount as a percentage of the bank appraised value, the greater the likelihood of default. On federally insured loans, loan to value ratios were generally high and, thus, this factor did not serve to distinguish defaults from non-defaults within this loan type. For both loan types, the higher the household income per capita, the lower the likelihood of default. It should be noted that this does not refer to household income per se, but to total income divided by the persons supported by that income.

Delinquencies, loans in which the borrower has failed to make one or more monthly mortgage payments, do not initially impose substantial risks of loan losses or administrative expenses to the lender. Subsequently, a borrower may either make up these overdue payments or continue in arrears and go into default. The three factors identified as determinants of default risk -- loan age, loan to value ratio, and regular earnings per capita -- were also significant factors associated with delinquency risk. In addition, installment debt to earnings and refinancing are important determinants of delinquency but not default. For both conventional and federally insured loans, the higher the monthly debt on personal loans or auto loans relative to household income, the greater the likelihood of

delinquency. Among conventionals, refinanced loans tend to be more prone to delinquency than loans originally made to purchase the property.⁹

In both the first and second series of risk analyses, property characteristics, neighborhood characteristics, and nonfinancial attributes of the borrower were evaluated after statistically controlling for the influence of financial characteristics of the household and loan terms.¹⁰ Given that, as discussed in Chapter 1, traditionally residential appraisal and underwriting criteria have placed considerable emphasis on these non-financial factors, to what extent (1) have metropolitan Boston savings institutions used these factors in their original underwriting decision between conventional and federally insured loans, and (2) have these factors subsequently proved to be important determinants of delinquency and default?

Property and neighborhood characteristics for which sufficient data were available by census tract or zip code area for analysis included:

- the number of units (single versus two-to-four family);
- property location (urban versus suburban);
- average household income in the neighborhood;
- proportion of minority residents in the area; and,
- percentage of older residential structures.

In the first series of analyses on the lender's origination decision, most of these property and neighborhood characteristics bore some relationship to this decision but were overshadowed by bank appraised value. As discussed in Chapter 1, traditional appraisal practice has been to arrive at an estimate of value which incorporates any negative property and neigh-

neighborhood factors by lowering the appraised value. Only the most recent appraisal textbooks have rejected such practices concluding that

A house is an integral part of its neighborhood... its market value is affected substantially by the neighborhood in which it is located....The primary purpose of neighborhood analysis is to identify the geographic area which is subject to the same influences as the property being appraised. Prices paid for comparable properties in the defined area theoretically reflect the positive and negative influences of the particular neighborhood....[I]t would be incorrect to adjust value for neighborhood influences because these influences can be assumed to be reflected in the observed market prices. (Emphasis added.) (Bloom and Harrison, 1978: 85)

In metropolitan Boston data based on the past several decades, appraised value as a factor appears to incorporate the bank's assessment of neighborhood factors. Some evidence of this is also provided by the fact that loan applications where appraised value is markedly below the purchase price tend to be awarded federally insured loans.

The second series of analyses on determinants of delinquency and default risk indicate that savings institutions which have not modified their appraisal and underwriting emphasis on property and characteristics, as recommended in texts published by major trade associations such as the one quoted above, may be well advised to do so, particularly for conventional loans. After controlling for household financial characteristics and loan terms, none of the property or neighborhood characteristics nor appraised value of the property were important for conventional loans. For federally insured loans, the overall results were extremely weak. Household financial and other economic data available were inadequate in explaining much of the variation in risk outcomes of these loans. Number

of units and proportion of minorities indicated some marginal association with risk outcomes, but none were sufficiently significant to account for much of any federally insured loan risk. Either delinquency and default outcomes on these loans are more random occurrences than conventional loans or the factors for which data were available were particularly inadequate for this loan type. Research in other metropolitan areas on lender and investor behavior on loans with full risk coverage provided by the federal government has concluded that no risk exposure on the part of the lender often means inadequate servicing provided to assist borrowers in arrears and, ultimately, higher risks assumed by the borrower as the lender is less concerned about default on loans for which the full loan amount outstanding can be recouped from the federal government.

In sum, the conventional loan status outcomes indicate that economic data on the household, rather than non-financial borrower attributes and property or neighborhood characteristics, provide the soundest information on risk probabilities associated with an individual mortgage. Federally insured loan status outcomes are either more random occurrences than their conventional counterparts or the factors for which data were available were particularly inadequate for this loan type.

Findings in these analyses are limited to the extent that they are based on loans which metropolitan Boston savings institutions decided to originate as conventional or federally insured mortgages. These analyses are predicated on assumptions that (1) lenders are most averse to default as they must recoup the loan amount outstanding through means other than a repayment schedule with the borrower; and (2) lenders seek to avoid loan

commitments to applicants likely to be delinquent as they may either default or, as chronic delinquents, impose substantial servicing costs. If one subscribes to liberal or structuralist theories of housing markets, underwriting practices of these mortgage suppliers may have had considerable influence on the household mortgage demand which is the subject of these analyses. Despite the limited data base and limitations of such analyses, the analytical approach developed in this chapter offers a foundation on which subsequent research directed at testing assumptions made in mortgage underwriting may be further developed.

TOWARD ALTERNATIVE LENDING POLICIES: REFORM AMIDST UPHEAVAL IN RESIDENTIAL MORTGAGE MARKETS

Chapter 5 introduces a new series of mortgage risk considerations. One set of risk factors is introduced by the alternatives to the fixed-rate mortgage instrument currently being implemented by savings institutions nationally. A second set of risk considerations is related to new institutional sources of mortgage funds. To what extent will these institutions, which are subject to less public scrutiny and regulatory authority adopt and perpetuate anti-urban underwriting standards?

Analyses in the preceding chapters focus primarily on individual loan risks associated with one type of mortgage instrument -- the fixed-rate long-term mortgage introduced in the 1930's. Empirical research in Chapters 3 and 4 is limited to this mortgage instrument since it has been the only one commonly used by savings institutions and other mortgage originators over the past several decades. However, since the mid-1960's, thrift industry interest in alternative mortgage instruments such as the variable rate mortgage and five-year renegotiable mortgage has increased.

These alternative instruments would enable savings institutions to better match assets with short-term liabilities, and, thus, minimize their portfolio risk.

Alternative mortgage instruments introduced by savings institutions in the past several years generally assume that household financial resources either (a) are presently adequate to cover any increase in monthly mortgage payments, or (b) will increase over time. Only a few researchers have ventured to assess the impact on lenders if household finance resources do not increase commensurately or, conversely, the impact on households if lenders make loan origination requirements more stringent in anticipation of increasing monthly mortgage payments. Moreover, little analysis is devoted to the importance of the seasoning effects in reducing loan risk. As indicated in Chapter 4 and the risk literature reviewed in Chapter 3, loans aged five years or more are the least likely to default. If this seasoning effect is attributable simply to track record of repayment, alternative mortgage instruments may not introduce a new set of portfolio risks. However, if these effects result from fixed mortgage payments relative to stable or a rising household income, new portfolio risk factors, yet to be considered in the alternative instrument literature, may be introduced.

Risk implications of new institutional investors in residential mortgages are also examined in Chapter 5. The growth in the mortgage securities markets, both through mortgage-backed bonds and pass-through certificates, has introduced a new set of investors with potentially different set of portfolio risk considerations from the savings institutions. Moreover, the underwriting standards adopted by these institutional

investors have raised some concern where they appear to adopt traditional anti-urban lending standards. For example, the Standard and Poor rating report published in 1978 and used by many of these institutional investors states:

A two-to-four unit dwelling, even if owner-occupied is partly an investment property and as such the payment record has been inferior to that of single family homes where the owner's emotional attachment contributes to the excellent payment record on these properties. Therefore, we prefer loans...on one-family properties.
(Standard and Poor, 1978: 15)

Thus, Chapter 5 examines both the mortgage instruments and institutional investors on the horizon in an effort to assess how research on mortgage risk myths and realities of the past may be brought to bear on mortgage credit availability in the future.

NOTES TO INTRODUCTION AND SUMMARY

¹The Boston Urban Mortgage Review Board was comprised of six voting members, three savings bankers and three community leaders from urban neighborhood organizations. There were also two ex officios, the Banking Commissioner and a representative of the Mayor of Boston. Originally, there were twelve participating savings banks, the largest residential mortgage lenders in the city; subsequently, most of the smaller cooperative banks joined as well.

²Originally used to refer to areas delineated on a map in red crayon where bankers would refuse to lend, "redlining" is a term now applied to lending practices which may be less overt but which may discriminate against urban neighborhoods in favor of suburbs.

³At the inception of the Mortgage Review Board, this was the stated policy of the Boston Five Cents Savings Bank, the second largest savings institution in Massachusetts.

⁴There were a series of cases before the Mortgage Review Board where appraised values were as low as 50 percent of the sales of neighboring homes of identical design and construction.

⁵Cases before the Review Board included situations in which a savings bank would refuse to lend any amount on the grounds that while there was some market for the property, its true economic value was zero.

⁶See, for example, the FHA, FNMA, and FHLMC appraisal manuals and lead articles by F. Gregory Opelka in the Savings and Loan News.

⁷See references to empirical work on post-World War II development in Chapter 1. Even during earlier decades when these theories were developed, empirical analysis (e.g., Davie, 1932 in Hat and Reis, 1951) questioned these assumptions.

⁸Federally insured loans, most of which are now made under programs of the Federal Housing Administration (FHA) are not particularly advantageous for the borrower. Clearly, if borrowers do not have the funds to make a large enough downpayment to qualify for a conventional loan, an insured loan may be the only means through which they can purchase a home. However, for those borrowers who may qualify for a conventional loan, possible disadvantages of a lender deciding to grant only a federally insured loan include: higher costs of dual processing of the loan by both the lender and the insuring agency; mortgage insurance premium charges of one-half percent on the outstanding loan amount; "points" levied on the seller as well as those charged to the homebuyer (which in recent years may be no greater than those charged on conventional loans); and considerable time delays often associated with obtaining final loan approval. Thus, there are no financial incentives for an applicant qualified for conventional financing to pursue a federally insured loan.

⁹This may occur because refinancing is an indicator that a household needs additional funds (and by refinancing can realize the dollars accumulated through principal repayment and appreciation in the property value). Also, refinancing may have been initiated by the bank on a previously delinquent loan as a means of extending the period over which past and future mortgage payments are due.

¹⁰The borrower attributes examined included age, occupational prestige, employment status, sex and marital status of the primary wage earner. Data on race of borrower were inadequate for analysis. Information was missing in 75 percent of the cases selected for final analysis. Whether the household income was provided by one or two or more wage earners was also assessed. None of these factors were generally important in predicting risk outcomes. Only occupational prestige showed any relationship to conventional loan status -- the higher the prestige of the primary wage earner, the lower the probability of delinquency or default. Multiple wage earners, contrary to conventional wisdoms held by some segments of the mortgage lending industry in the past, actually appear to be less prone to delinquency than single wageearner households.

CHAPTER 1

TRADITIONAL APPRAISAL AND UNDERWRITING STANDARDS: APPLIED THEORIES OF METROPOLITAN DEVELOPMENT

INTRODUCTION

A residential mortgage application is evaluated by the lender on the basis of two types of risk, one related to the financial soundness of the loan and the other related to the value of the subject property which is to serve as collateral security. While the weight given to either consideration varies from lender to lender, traditionally substantial emphasis has been placed on the value of the property, as determined by the real estate appraiser employed by the lender.

The appraiser is responsible for estimating the value of the home. To do so, the appraiser begins by applying one or more of three methods: the market method, which compares the sales prices of similar properties; the income method, which bases value on the rental income of the property; and, the replacement method, which sets the value at the cost of rebuilding the house. The initial estimates of value arrived at through any one of these three methods may be adjusted on the basis of the "as is" physical condition of the property and the cost of capital improvements necessary or desirable in the near term. Subsequently, this initial estimate may be further modified by a negative prognosis for future trends in value in the neighborhood where the property is located.¹

Valuation of property thus influences the mortgage lending process in two ways. First, on specific mortgage loan applications, a lender may

either reject a loan or approve it only with modifications indicative of a higher degree of estimated risk, such as a larger downpayment, higher interest rate, or shorter repayment period. Second, as a matter of general loan underwriting policies, any of these modifications in loan terms may be categorically required based upon a lender's assessment of certain classes of properties or neighborhoods as inherently riskier. For example, larger downpayments have been required for two-to-four-family, as opposed to single-family, properties by some Boston area institutions. Other banks have simply refused to even consider applications on any but single-family property (Taggart, Smith, Phenix, 1977). As documented in a study done for the New York Banking Department on Rochester, New York, financial institutions collectively required shorter repayment periods on the basis of the age of the property (Benston, 1977). Differential interest rates have been charged, for example, by a major urban bank in Springfield, Massachusetts where mortgages made on properties built before 1945 were charged 1 percent above market rates as a matter of policy.

Mortgage underwriting standards of individual institutions historically have not been accessible to the consumer or researcher. However, the manuals of professional appraiser associations and of federal agencies engaged as mortgage insurers and purchasers through the secondary market are available. These serve to elucidate the theoretical framework as well as the practical application of property and locational criteria used by the mortgage loan industry.

This chapter examines the origins and development of residential appraisal theory and practice at the turn of this century in the United

States. Early treatises of a mortgage banker in New York City and that of sociologists at the University of Chicago applied the principles of Social Darwinism to metropolitan development. These principles have served as the theoretical framework for much of the residential appraisal literature in subsequent decades. In the 1930's, these principles were institutionalized in training handbooks and textbooks of professional appraisal societies and in the underwriting manuals of the mortgage insurance programs administered by the Federal Housing Administration (FHA). While there have been considerable revisions in these documents over the past 50 years, the basis for the appraisal of the neighborhood in which the property is located has remained essentially the same. Understanding the historical and institutional context in which this theoretical framework was formulated is essential to assess its empirical validity and applicability to mortgage risk issues in metropolitan areas today.

ORIGINS AND DEVELOPMENT OF MORTGAGE APPRAISAL THEORY AND PRACTICE IN THE UNITED STATES

Origins: The Work of a Mortgage Banker in the Early 1900's

The basic theorems of metropolitan growth applied to real estate appraisal were initially formulated by Richard M. Hurd in his book Principles of City Land Values first published in 1903. As a mortgage banker, Hurd stated his reasons for writing such a book as follows:

"When placed in charge of the Mortgage Department of the U.S. Mortgage & Trust Co. in 1895 the writer searched in vain, both in England and this country, for books on the science of city real estate as an aid in judging values. Finding in economic books merely brief references to city land and elsewhere only fragmentary articles, the plan arose to outline the theory of the structure of cities and to

state the average scales of land values produced by different utilities within them.

The material for this study of the structure of cities -- including their locations, starting points and lines of growth -- has been gathered from a large number of local histories of American cities, old maps, commercial geographies, etc.

The material for the study of average scales of values has been drawn from the mass of valuations of land and buildings, rentals and mortgages, obtained in about fifty cities in the course of the mortgage business of the U.S. Mortgage & Trust Co. and also from many visits to these cities.

The viewpoint is that of a conservative lender on real estate, and, while the examples cited are chiefly from the smaller cities, it is believed that the principles stated are universal and differ only in application and in resulting combinations." (Hurd, 1924: v)

These premises reflect both the historical and institutional context in which they were formulated. Practically speaking, business firms such as Hurd's were financing the rapid expansion and real estate development in urban centers outside the northeastern United States. Mortgage investment decisions were no longer limited to local real estate markets familiar to the lender. Universal principles of metropolitan development offered a means to systematize and rationalize the process by which real estate financing decisions could be made on a national basis. This practical perspective was reinforced by more generally held concepts that universal laws of evolution could be applied to society as they had been to physical phenomenon in the natural sciences. In this context, Hurd's quest for a "science of real estate" predicated on laws of metropolitan evolution was simply a practical application of the social science of that period.

The laws of metropolitan evolution which Hurd arrived at in this treatise may be summarized as follows:

- . "Cities originate at their most convenient point of contact with the outer world.... The point of contact differs according to the methods of transportation, whether by water, by turnpike or by railroad";
- "Growth in cities consists of movement away from the point of origin in all directions, except as topographically hindered.... Central growth takes place both from the heart of the city and from each subcentre of attraction and axial growth railroads, turnpikes, and street railroads";
- . "Residences are early driven to the circumference, while business remains at the centre, and as residences divide into various social grades, retail shops of corresponding grades follow them and wholesale shops in turn follow the retailers ...and the banking and office section remains at the main business centre." (Hurd, 1924: 13, 14, 15)

Hurd perceived that "all value in city land undergoes a continual evolution from a state of non-existence (i.e. non-urban) through a cycle of changes" to higher and better uses (Hurd, 1924: 17). He concluded that metropolitan growth would continue contiguous to transport routes with an ever expanding commercial and industrial core.

With specific regard to residential development, Hurd postulated that "there will be as many residence neighborhoods in a city as there are social strata". He saw this tendency to speciate as being "in harmony with the law of evolution, that increasing differentiation is accompanied by increased integration" (Hurd, 1924: 78, 82). Hurd also equated social status of the residents with property values:

"The value of residence land varies directly according to the social standing of its occupants.... The ultimate aim in residence location is to be as close as possible to those of highest social position.... Business property is selected by the man from an economic standpoint

and residence property by the woman from a social standpoint." (ibid.)

Thus, residential growth in a metropolis would be directed by the gravitational pull of the upper class neighborhoods in outlying areas. Commercial retail development would follow the residential population served. The central business district would continue to expand and push these lower order uses away from premium locations at the core of the metropolis.

Hurd's laws of metropolitan evolution are an amalgamation of two schools of nineteenth century thought: one, social Darwinism; the other, value theory promoted by some early economists over the subsequently dominant utility theory. The importance of social Darwinism applied to land use patterns in the metropolis was that it provided real estate investors with laws of spatial determinism to guide and to justify their investment decisions. Financing real estate transactions on residential development in outlying areas would be encouraged as that development would house the better socio-economic stratum of society. By virtue of creating value through the conversion of non-urban land to urban (or suburban) uses, these were likely to be speculative and profitable investment. Conversely, financing commercial and industrial expansion in the developed urban areas would be recommended as these uses were appropriately situated in the urban core. However, investment in existing residential properties, particularly those in proximity to the urban core, would not be advisable, as these properties would be occupied by lower order social groups and, in accordance with the laws of metropolitan evolution, residential land uses in these areas would be inevitably supplanted by higher and better commercial or industrial uses.²

An essential corollary to the application of these laws of spatial determinism is an economic theory of ideal value in which value is defined in terms of future highest and best use (Weimar, 1960: 471). The application of the ideal value theory to real estate practice permitted appraisers to deviate considerably from market prices of property in their assessment of value. Market prices were viewed as only one indicator of future value. Subscribing to this platonic theory in which prices were only a shadow of true value, Hurd and subsequent appraisal theorists rejected the prevailing objective theory of value in which "value was defined as the ratio of exchange between goods and services", or market price (Weimar, 1960: 471). In this respect, twentieth century real estate appraisers adopted theories of value which had largely been rejected by economists by the end of the nineteenth century. Appraisers would argue that their departure from generally accepted economic theory was well founded in that the long term nature of real property and real estate investment, unlike many other economic goods, made future rather than present value paramount.³ Critics, however, would maintain that appraisers were no more omniscient than those engaged in real estate transactions. Appraisers were simply discounting market prices which buyers and sellers had already adequately discounted.

Nonetheless, the ideal theory of value as Hurd applied it to real estate appraisal, remained intact. This, combined with his application of the principles of social Darwinism to metropolitan development, formed the basis of residential appraisal theory and practice for decades. Academicians, particularly the Urban Ecologists at the Chicago School of Sociology, further developed the laws of spatial determinism in metropoli-

tan evolution. Practicing appraisers, particularly those based in Chicago who were actively engaged in the creation of national professional appraisal societies headquartered in that city and in the development of the Federal Housing Administration (FHA), continued to build on Hurd's axioms of spatial determinism and ideal value.

The School of Urban Ecology and Its Disciples

In 1916, a sociologist at the University of Chicago, Robert E. Park, published an article in the American Journal of Sociology in which the theoretical premises of an urban ecology, the natural patterns of spatial distribution in the urban environment, were set forth (Park, 1916). Subsequently, Park and his academic associates, Ernest W. Burgess and Roderick D. McKenzie, developed specific theories of neighborhood evolution within a metropolis. These theories were largely defined in terms of plant ecology. Central city neighborhoods were successively "infiltrated" by lower user groups and, subsequently, "higher and better commercial and industrial uses" supplanted residential uses altogether (Park, Burgess, and McKenzie, 1925).

According to the ideal urban form postulated by Park's associate, Burgess, there were a series of five concentric zones. The first zone, which served as a common center, was the central business district. The second, "zone in transition" adjoined the first and was allowed to deteriorate as its primary value was speculative based on future expansion of the central business district. The third zone was labeled "the zone of workingmen's homes"; the fourth, one of "better residences"; and, the fifth, the "commuter's zone" which housed the well-to-do (Reissman, 1970:

105-107).

This theory of urban ecology was the subject of empirical studies on a number of metropolitan areas in the United States. The most comprehensive of these, authored by Maurice Davie, was based on direct observation of spatial patterns in New Haven and a careful study of land use maps of 20 other cities in the United States and Canada. Contrary to the Urban Ecologists' quest for universal principles of metropolitan evolution, Davie concluded that the spatial patterns of the urban areas examined varied considerably. The only unifying principles of development identified in his research were:

"(1) a central business district, irregular in size but more square or rectangular than circular, (2) commercial land use extending out the radial streets and concentrating at certain points to form sub-centers, (3) industry located near the means of transportation by water or rail, wherever in the city this may be -- and it may be anywhere, (4) low-grade housing near the industrial and transportation areas, and (5) second- and first-class housing anywhere else..." (Davie quoted in Riessman, 1970: 108)

Other empirical research included studies of Cleveland (Green, 1932), Long Beach, California (Longmoor and Young, 193), St. Paul (Schmid, 1937), Seattle (Schmid, 1944) and a sixteen-city study (Bartholomew, 1932). From the results of these studies and his own work, Davie maintained that "there is no universal pattern, not even of an 'ideal' type" (Davie, 1951: 259).

Nonetheless, the quest for a universal urban spatial pattern of development continued beyond Burgess' concentric circle theory. The most notable of these subsequent theories was Homer Hoyt's sector analysis. Hoyt maintained that metropolitan development occurred in wedge-shaped

sectors, with high rent neighborhoods attracting middle-income households, leaving low-income households in the core areas (Hoyt, 1939). Hoyt generally described the metropolitan housing market in terms of "push" forces, or "infiltration of lower user" groups, and "pull" forces, or attraction of groups of more modest means into higher rent areas (Hoyt, 1933).

Practical Application of Urban Ecology Theories

Much of the work of urban ecologists is likely to have had a limited readership, largely among academic social scientists, were it not for the fact that practitioners published professional textbooks which applied these theoretical perspectives, particularly the neighborhood life cycle and conformity principles. One of the more prolific publishing practitioners was a Cleveland real estate broker, Stanley L. McMichael.

In 1923, McMichael co-authored a work entitled City Growth and Values (McMichael and Bingham). In this text, he offered a practical means for the appraiser to apply the life cycle theory through historical documentation and visual surveys of retail district development. In Chapter 14, entitled "Shifting Business Districts: Change in Location a Natural Law of Growth taking From 10 to 40 Years", McMichael provides the appraiser with three case examples -- Cleveland (1820-1920); Los Angeles (1900-1923); and New York City (1910-1923) -- in which he correlates the shifts in prime retail locations with the shifts in prime residential locations.

In this first and subsequent texts, McMichael also provides the practicing appraiser with a means to apply the principles of neighborhood conformity. Over the decades in which McMichael's Appraisal Manual was

revised and republished, civil rights legislation and court decisions made it somewhat more difficult to adhere to social conformity, i.e., ethnic and racial homogeneity, principles. Prior to his work in the 1920's, the U.S. Supreme Court had struck down a Kentucky state law prohibiting Negro occupancy of areas not already inhabited by Negroes. As an alternative, McMichael and his co-author recommended the use of racially restrictive covenants or informal agreements among neighborhood homeowner associations (McMichael and Bingham, 1923: 181). In 1948, the court further decided that racially restrictive covenants could exist as private agreements between homeowners but that they could not be enforced by the courts. At this point, McMichael introduced a new chapter to his appraising manual entitled "Racial Covenants" in which he strongly advocates the use of such covenants as the best means to assure maximum property values (McMichael, 1951: 156-163). To reinforce his position, McMichael draws heavily from Homer Hoyt's One Hundred Years of Land Values in Chicago as a "comprehensive survey of the infiltration of foreigners into that city...[and of] the effect of racial and national movements upon Chicago land values". (McMichael, 1951: 159). As a practical reference for the appraiser to assess the relative impact of racial and ethnic groups on land values, McMichael recommends a ranking system in which each group is identified, in descending order, from those considered most desirable to those which have the most adverse effect on property values:

- (1) English, German, Scotch, Irish, Scandinavian
- (2) North Italians
- (3) Bohemians or Czechs

- (4) Poles
- (5) Lithuanians
- (6) Greeks
- (7) Russians, Jews (lower class)
- (8) South Italians
- (9) Negroes
- (10) Mexicans

In the most recent revised edition of his manual, McMichael who by then had moved from Cleveland to California suggested this same ranking system with the addition of Japanese and Chinese (1975).

As an eminent practitioner and author, McMichael's adherence to the life cycle and conformity principles of urban ecology was not only influential but also indicative of the extent to which professional appraisers continued to subscribe to these theoretical principles which were formulated in the 1920's and essentially unmodified in the following decades. In fact, apart from individual publications, such as those authored by McMichael, national associations of appraisers were instituted in the 1930's. These associations not only published textbooks but also sponsored courses and professional licensing exams based on these instructional materials. Thus, some degree of uniformity was achieved in the training of professional fee appraisers and staff appraisers employed by mortgage lenders throughout the United States.

INSTITUTIONALIZATION OF MORTGAGE LOAN APPRAISAL AND UNDERWRITING PRINCIPLES

Overview

The theories of value and the laws of evolution of the metropolis

applied by residential appraisal and underwriting practices appear to have remained essentially intact since the 1930's when they were initially institutionalized. Chicago served as the spawning ground for national real estate industry associations with professional appraisal societies as subsidiary affiliates. Two prominent appraisal organizations were formed at that time. One, the American Institute of Real Estate Appraisers (A.I.R.E.A.) was created as an adjunct of the National Association of Real Estate Boards (now known as the National Association of Realtors). The other, the Society of Real Estate Appraisers (S.R.E.A.) was created under the U.S. Savings and Loan League.

Another institution created in the 1930's, the Federal Housing Administration (FHA), was instrumental in the development of residential appraisal and underwriting practices. Created as a measure to stabilize the home mortgage market during the Depression, the FHA generated manuals and texts which subsequently became a mortgage lending industry standard. Key administrators in the formative years of the FHA were well versed in the life cycle and conformity principles of urban ecology. The adoption of these principles by the FHA thus sanctioned their application in private appraisal practice as a matter of public policy for several decades.

Professional Appraisal Societies Develop Within National Organizations of Savings and Loan Associations and Real Estate Brokers

Residential appraisal as a profession grew in response to needs of real estate brokers and institutional investors engaged in facilitating or financing real property transactions. Both the A.I.R.E.A. and the S.R.E.A. developed textbooks to be used in their training courses and as preparation

for any professional qualifying exams.⁴ The evolution of philosophical premises of these organizations may best be explicated by comparing texts of different generations. Those published in the early 1970's generally had changed little since the 1930's. By the late 1970's, considerable public scrutiny and some civil rights litigation had introduced some modifications, particularly regarding racial or ethnic conformity. Also, the concept of recycling through urban revitalization introduced the notion that metropolitan development did not necessarily occur under inevitable natural laws of evolution. Rather, historical and institutional change could have a pronounced effect on metropolitan housing markets. Rather than residential uses necessarily deteriorating and replaced with denser commercial development, existing buildings could be rehabilitated. However, these developments are regarded as deviations and the life cycle and homogeneity principles otherwise regarded as the norm applicable to most neighborhoods.

Life Cycle Principle: Inevitable Deterioration of Neighborhoods

As recently as 1974, an A.I.R.E.A. residential appraisal manual (Knowles) maintained:

Neighborhoods pass through three life stages similar to the life cycle of all nature: integration, equilibrium, and disintegration. Neighborhoods start to develop after the land has been subdivided and improved with streets and public utilities. At first, dwelling construction progresses at a rapid rate and then continues at a slower rate until the area is fairly well developed, at which point integration is reached. In the following period there is little or no new construction; and during this time, as the houses grow older, a state of equilibrium is reached in which there is neither increase nor decrease of desirability and value. Later, because of infiltration of lower user groups, inharmonious land

uses, and/or greater appeal of newer and more attractive houses elsewhere, properties decline in desirability and value, and the period of disintegration is reached. (Knowles, 1974: 26)

The organic imagery and neighborhood biological determinism had clearly remained intact for decades.

Nonetheless, both the A.I.R.E.A. and S.R.E.A. had already begun in some of their texts to modify their presentation of the life cycle theory by adding a fourth stage labeled "renewal" or "rehabilitation". An S.R.E.A. text in 1975 portrayed the life cycle theorem thus:

All neighborhoods exhibit a life cycle which varies only in the intensity and duration of each phase. The phases are:

- (1) Development and Growth. This is the period during which prices are increasing, and the neighborhood is built up.
- (2) Stability. This period may last from approximately the 10th to 15th year of the life of the neighborhood, perhaps through its 40th year. This is generally the period of highest value and attractiveness of the neighborhood.
- (3) Transition and Decline. This occurs as the attractions of the neighborhood are offset by those of new, competitive areas. The properties become functionally obsolescent, as does the pattern of the neighborhood. New uses begin to move in, and transition frequently results in lower values.
- (4) Renewal and Rehabilitation. In some instances, it is possible to renew and revive a neighborhood. Examples may be found in nearly every city: e.g., Old Town in Chicago, and Society Hill in Philadelphia.¹¹ (S.R.E.A., 1975: 6-16)

By 1978, A.I.R.E.A. text also described the life cycle theory as including a fourth stage:

Neighborhoods go through life cycles that start when the neighborhood is developed. This is called the growth period. When construction slows down or stops, a period of stability follows. This period ends either because the housing stock deteriorates or changes occur in the economic, social, or physical and governmental forces that affect the neighborhood. Decline may cease when these forces change again or when there is an organized effort to rejuvenate the neighborhood. This renewal period is comparable to the original growth period. The life cycle is then repeated with another period of stability and then decline. If the period of decline is not reversed, the neighborhood will come to the end of its economic life and usually will change to another use. (Emphasis added.) (Bloom and Harrison, 1978: 102)

The A.I.R.E.A. text makes it clear that the principles of neighborhood evolution still ultimately apply to all neighborhoods. The fourth stage simply allows for exceptions where the same physical structures may house two sequential socio-economic evolutions, thus "filtering" from upper socio-economic occupancy ("the renewal period is comparable to the original growth period") to lower income occupancy twice in the same housing stock. As stated in the final sentence of this passage, expectations are that eventually the neighborhood structures will be succeeded by higher and better uses as dictated by the original laws of metropolitan evolution.

Some leading appraisers have maintained that decline is not necessarily inevitable and have argued that these cultural perceptions have led to self-fulfilling prophecies:

In the United States, the average life of a home is generally taken to be 50 years, and apartment offices, and loft buildings are given a shorter length of effective life. In foreign countries, however, it is not unusual to hear of homes, and even communities, which have maintained their character for periods well over 100 years.

* * * * *

We have not been a nation of investors -- we have been a nation of speculators, and that very fact has probably caused neighborhood blight and slum areas more than any one factor. (Armstrong, 1938)

Nonetheless, while the 1978 A.I.R.E.A. text acknowledges that an appraisal "always must be objective, supported by facts and based on current social standards", there is still an ideal form of metropolitan growth which individuals or institutions may modify on an interim basis but which will ultimately follow the pattern of development for which it is destined.

Neighborhood Conformity Principle: Socio-Economic and Physical Homogeneity to Maximize Value

The Sixth Edition Textbook Committee of the A.I.R.E.A. stated the conformity principle as follows:

The principle of conformity holds that maximum value is realized when a reasonable degree of sociological and economic homogeneity is present.... (A.I.R.E.A., 1973: 40)

And yet, in response to civil rights legislation and litigation, the same text section entitled "Social Considerations" in the chapter on Neighborhood Analysis also disclaimed the traditional principles of social homogeneity:

It was once common practice to examine the racial composition of a neighborhood in an effort to detect any signs of nonconformity or change, which were assumed to adversely affect value. Such an approach is now regarded as misdirected. This evaluation in appraisal practice reflects a corresponding evolution in social attitudes and public policy and demonstrates that the standards of conformity are subject to the principle of change. Obsolete standards of conformity have no place in modern neighborhood analysis. Broad federal and state fair housing laws and changing social standards have encour-

aged the establishment and maintenance of many stable, integrated residential areas. There is no factual support for the assumption that racial or ethnic homogeneity is a requirement for maximum value.

* * * * *

Another example of social change of direct concern to the appraiser is the growing preference for social heterogeneity in some neighborhoods. In such areas, the traditional social groupings have little or no relevance in the appraisal process. In a changing society, there can be no universal set of social standards, and the factors that are relevant in one neighborhood may be irrelevant in another. The objective of the analysis should therefore be to identify factors which are relevant and can be objectively measured, without attempting to assess deviation from some presupposed social norm. (A.I.R.E.A., 1974)

These discrepancies appear to stem from the fact that the theoretical premises of the recommended neighborhood analysis remain fundamentally the same. Revisions have been made by inserting paragraphs which modify the original premises but essentially leave them intact.

The training manual of S.R.E.A., published in 1975, summarizes the conformity principle for its members and trainees thus:

- (1) Similar styles of houses.
- (2) Houses of similar utility.
- (3) Similar age and size of houses.
- (4) Similar quality of houses.
- (5) Similar price range of houses.
- (6) Residents' income in the same general bracket.
- (7) Residents of similar cultural, educational, ethnic and social backgrounds.
- (8) Similar land uses. (S.R.E.A., 1975: 6-11)

The traditional appraisal form of the savings and loan associations, commonly known as the "Green Hornet", has asked whether the ethnic composition of the neighborhood was stable or changing. In a recent defense of this

form, one influential appraiser wrote in the Savings and Loan News:

Appraisers know ethnic stability or change in a community is a very real and important economic consideration in the minds of buyers and sellers. Consequently, it is important for loan underwriters to know about and appreciate this value trending factor. The 'Green Hornet', through its ethnic composition statement, served this purpose. (Opelka, 1975)

Note that the author defends the use of data on neighborhood racial and ethnic composition by saying appraisers as professionals per se do not need these data but loan underwriters, the residential appraiser's clientele, need to know them since homebuyers and sellers, that is, free agents in the marketplace (not institutional providers of financing), evaluate the worth of real estate based on racial and ethnic composition.

However, the general consensus of the professional appraisal societies today seems to be that social aspects of the conformity principles, at least ethnicity and race, should not be incorporated in the appraisal report. Other aspects of the conformity principle, economic and physical considerations, are still subscribed to as generally valid principles.

Genesis of FHA Appraisal and Underwriting Standards

The Federal Housing Administration was created in the early 1930's as a measure to stimulate the housing market. Housing construction had come to a halt. Unemployment had forced many homeowners to default on their mortgages. Financial institutions which had survived the Crash of 1929 were reluctant to provide funds for either new construction or home purchase.

New housing construction was identified as a labor intensive sector of the economy in which unemployment rates were particularly high. FHA was to

administer a mortgage insurance fund created to leverage private loan funds for new construction and home mortgage financing. By providing assurance that in the event of default the lender would recoup at least a substantial portion of the unpaid balance of the mortgage, it was anticipated that financial institutions would make funds more readily available for these purposes and, hence, stimulate employment and capital investment in housing.

The FHA insurance fund was designed to be replenished through premiums paid by borrowers in conjunction with their monthly mortgage payments. The fund was dependent on most loans remaining paid up, in order to accumulate enough to meet claims and remain solvent without subsidy from the U.S. Treasury. As a result, FHA officials were immediately concerned with minimizing the risks associated with any insured loan so as to assure solvency of the fund and continued operation of the program.

An administrative history of the FHA credits Frederick M. Babcock with recognizing "the need for the FHA to set up an underwriting system" and authoring "the underwriting manual that has been the FHA Bible ever since." (F.H.A., 1960: 11) Babcock came to the FHA in the mid-1930's after practicing as an appraiser in his father's firm in Chicago and formal study of real estate appraisal at the University of Michigan.⁵ Both of these experiences had contributed to Babcock's conviction that (1) the function of the appraiser is to determine the future ideal value of the real estate under appraisal, and (2) the conceptual framework which enables the appraiser to extrapolate from present to future land uses and the laws of metropolitan development articulated by Park, Burgess, and MacKenzie (1916)

and their disciples. As stated by one of Babcock's university mentors in a foreword authored for McMichael's City Growth Essentials (1928):

"Another impulse in professional appraising has come from the study of sociologists of what has come to be known as human ecology.... The relationship between this approach and that of the student of land and its uses is too obvious to need any comment." (Fisher in McMichael, 1928)

In 1932, Babcock published his first major work on appraisal in which he further developed the application of these two principles to appraisal practice.

In his underwriting manual for the FHA first published in 1936, Babcock advocated an approach to residential real estate investment analysis which made the appraiser's assessment of "long term warranted value" a keystone of FHA's decision to insure or not to insure. Babcock's definition of value, based on the appraiser's prediction of highest and best use for the site, became "the central value concept influencing residential appraisals" for decades (Wendt, 1974: 34). Babcock also introduced the concept of rating the borrower, "appraising the moral risk" as well as the property and location (McMichael, 1951: 151).

The underwriting procedures for FHA personnel developed by Babcock consisted of three preliminary rating grids, one devoted to location factors, a second to property characteristics, and a third to borrower attributes. A fourth grid, entitled "mortgage patterns", provided a summary rating for the loan application with particular emphasis on the location grid.

Babcock's location grid, presented in Exhibit 1-1 on the following

page, incorporated both Social Darwinist assumptions about the life cycle of urban neighborhoods and the impact succession of inhabitants on property values. Sixty percent of the possible points in this grid were devoted to "relative economic stability" and "protection from adverse influences". Economic stability was defined as the stability and sufficiency of family incomes,* the "social characteristics of neighborhood occupants", and "the stage and trend of neighborhood development" (FHA, 1938: 188). Protection from adverse influences included racially restrictive covenants and "surrounding homogeneous neighborhood" (FHA, 1938: 189). This grid was used by FHA appraisers until 1963 when FHA officials abandoned this system as a result of civil rights activities and Congressional action.

Since 1963, the FHA has gradually eliminated references to race, ethnicity, and religious heritage. However, other aspects of the physical and economic conformity have been retained. For example, as of the late 1970's, the FHA Valuation Manual still read:

To obtain its maximum value, the property must conform to its existing surroundings in size, age, condition, and style, and should attract an occupant of similar economic status.

Thus, conformity principles have been maintained as an integral part of FHA's appraisal and underwriting procedures despite Congressional mandates to the contrary.⁶

While conformity principles have remained relatively intact in FHA's procedural manuals, recent analytical work entitled Techniques of Housing Market Analysis does reflect modifications in the original models of metropolitan determinism in preordained and universal patterns of successive

EXHIBIT 1-1
RATING OF LOCATION

Rating of Location

Feature	Reject	1	2	3	4	5	Rating	Total Weight Assigned
Relative Economic Stability						40		40
Protection from Adverse Influences		4	8	12	16	20		20
Freedom from Special Hazards		1	2	3	4	5		5
Adequacy of Civic, Social, and Commercial Centers		1	2	3	4	5		5
Adequacy of Transportation		2	4	6	8	10		10
Sufficiency of Utilities and Conveniences		1	2	3	4	5		5
Level of Taxes and Special Assessments		1	2	3	4	5		5
Appeal		2	4	6	8	10		10
Total Rating of Location								100%

Source: FHA. Underwriting Manual. Washington, D.C.: U.S. Government Printing Office, 1938. Part II. Section 9. pp. 186-198.

land uses (FHA, 1970). First, "filtering" as a concept is defined in economic terms as "a change over time in the position of a given dwelling unit or group of dwelling units within the distribution of housing rents and prices in the community as a whole". Previously, the filtering process had been "defined in terms of the occupants, by occupation, ethnic group, or social status classifications". This reference advocates the use of the first definition as it "avoids confusion between the process of filtering (changes in price) and its effects (changes in occupancy) and provides a guide to measurement" rather than subjective evaluation (FHA, 1970: 103). Second, the metropolitan housing market is portrayed as consisting of many submarkets cross-linked in complex patterns.⁷ Regarding traditional location theory, the text acknowledges that "the delineation of the housing market area and submarket areas therein, involves consideration of the physical structure and growth of the urban community". The reader is referred to the classics on this subject by Burgess, Fisher, Hoyt, and Hurd.⁸ However, the text concludes that (1) "modifications in the theories and principles of urban growth and structure have become necessary"⁹ and, (2) each metropolitan analysis should be carried out by careful observation of "the present pattern and trends of development against the background of historical perspective" (FHA, 1970: 11).

In summary, the FHA developed a systematic formulation of appraisal and underwriting standards predicated on the principles of neighborhood conformity and inevitable decline. While these standards incorporated other factors, such as "moral considerations" related to the creditworthiness of the borrower, property and location factors remained paramount. This

emphasis continued despite actuarial evidence to the contrary. In 1963, FHA researchers concluded that "the general bias in property (and location) ratings may have had a tendency toward encouraging acceptance of cases which were marginal in other respects, particularly with respect to loan-to-value ratio and quality of the borrower" (FHA, 1963: 69). Yet, five years later, the agency's special high risk mortgage program (which was not subject to the solvency requirements of the original mutual insurance fund) was premised on urban neighborhood characteristics rather than borrower-related and loan factors as the source of delinquency and default risk.¹⁰ FHA appraisal and underwriting standards favoring new construction and discouraging loans made in older urban areas had a pronounced effect not only on the availability of federally insured loans, but also on the private industry standards formulated for conventional loans.¹¹ If the federal government perceived a type of property or neighborhood as too high risk, why would a private institutional lender invest?

CONCLUSIONS

Mortgage risk evaluation methods on which current underwriting procedures are based were first formulated in the early 1900's. To make mortgage lending a science, initial efforts such as Richard Hurd's sought to discover universal laws of metropolitan evolution comparable to those on which modern biological and physical sciences were based. Thus, the focus on the permanent (i.e., the location of the site without present improvements as the use of the land was subject to change) rather than the transient (i.e., the borrower and the buildings). The three rules of real estate were axiomatically summarized as "location, location, and location".

As a result, the valuation made by a real estate appraiser became an integral and often preeminent concern in a lender's decision to grant or to deny a loan. Moreover, real estate value theory rejected market prices as inadequate indicators of property values. To develop a systematic means to determine long term value, practicing appraisers worked closely with academic social scientists who were applying theories of human ecology to spatial development patterns in metropolitan areas. Several of these leading practitioners, such as Frederick Babcock, and applied theorists such as Homer Hoyt and Ernest Fisher, were instrumental in the development of appraisal and underwriting guidelines of the Federal Housing Administration (FHA) during the 1930's. In subsequent decades, FHA had a pronounced impact in the standardization of mortgage loan practices nationally. Thus, FHA served to transmit the emphasis on real estate appraisal with generally negative ratings on urban locations not only on federally insured loans but on conventional loans as well.

Value theories on which appraisal principles are based were largely formulated by nineteenth century economists. Twentieth century neoclassical and liberal economists have generally rejected value theories in favor of price theories in which the value of economic goods and services is defined by the prices paid to sellers by willing buyers in arms-length transactions. The following chapter examines the evolution of price and value theories and theories of metropolitan development in other disciplines, particularly economics, urban studies, and planning. Special attention is given to urban neighborhood research in these fields which offer empirical insight on the historical validity of real estate appraisal principles of neighborhood conformity and inevitable decline.

NOTES to Chapter 1

¹For example, in one bank appraisal of a home in a predominantly black middle-income neighborhood in Boston where recent sales of comparable properties, identical in type and age of construction, ranged from \$25,000 to \$32,000, an estimate of value of \$12,000 was justified on the basis of (1) necessary repairs, such as gutter work and painting, which would amount to a few thousand dollars, and (2) an adverse assessment of the neighborhood. Notwithstanding the fact that according to the market comparable sales method, home prices had steadily increased in the neighborhood, the bank appraiser maintained that price was not necessarily value and that his charge was to assess future value, not to predict prices on the basis of present market trends (Parkman Center, 1977).

²Many residential neighborhoods remain in the core urban areas and commercial and industrial uses have often leapfrogged to suburban areas today. However, if the appraiser operates on the assumption that there are inexorable laws of metropolitan growth under which each residential neighborhood exhibits a life cycle which must be equal to or less than its physical life, it is not improbable that the appraiser may consider structurally sound inner city housing as having outlived its "economic life" and hence, "functionally obsolete" with no "market value", regardless of the fact that there is still identifiable buyer demand through transacted sales and prices indicating marketability.

³As stated in the Sixth Edition of American Institute of Real Estate Appraiser's textbook entitled The Appraisal of Real Estate:

"The characteristic of permanence complicates the estimation of the value of real estate.... Land and its improvements have a useful life extending over decades. The value of real property, consequently, is equal to the present value of the future benefits forthcoming from the property. Estimating the market value for the highest and best use is the paramount problem in the valuation of real estate. Any such estimate must take into consideration social and economic trends which may influence the value for its highest and best use. It is essential to have a clear understanding of current conditions and the perception to recognize the forces that modify and change these conditions." (Emphasis added) (A.I.R.E.A., 1974: 22)

⁴Both A.I.R.E.A. and S.R.E.A. also maintained professional journals. The articles published in these periodicals are attributable to individual authors, many of whom subscribed steadfastly to principles of neighborhood conformity, including those of race and ethnicity, and inevitable decline even after civil rights laws had been enacted. (Opelka, 1978.) The Appraisal Journal, first issued in 1932, has published articles not only by

some of the patriarchs of metropolitan determinism and applied appraisal theorists (Babcock, 1935 and 1952; Fisher, 19 ; Hoyt, 19) but also by latter-day critics of these principles which will be discussed in greater detail in the next section (Abrams, 1951; Firey, 1950, Rodwin, 1950a and 1950b).

⁵Frederick M. Babcock, who had practiced as an appraisal consultant in the firm of his father, Henry Babcock, in Chicago. Subsequently, he went to study under Ernest M. Fisher at the University of Michigan. During this period, Frederick Babcock produced a theoretical tome on appraisal, The Valuation of Real Estate (1932). Fisher went to Washington, D.C. to work on a real property inventory undertaken by the Commerce Department and in 1934 joined the newly created Federal Housing Administration (FHA). Babcock was brought in to the FHA by his mentor as chief appraiser and later became Assistant Administrator in charge of underwriting. (F.H.A., 1960: 11)

⁶For example, under the 1974 Housing and Community Development Act the FHA is mandated to foster "the reduction of the isolation of income groups within communities and geographical areas and the promotion of the increase in the diversity and vitality of neighborhoods through the spatial deconcentration of housing opportunities for persons of lower income and the revitalization of deteriorating neighborhoods to attract persons of higher income".

⁷"Within a housing market area, dwelling units are linked in various patterns on the basis of aggregates of individual scales of preferences as to the type, quality, location, etc. of the dwelling unit desired. Submarkets are distinguished by specific characteristics, e.g., tenure (sales and rental housing), price, rent, size in terms of bedrooms, high-rise, special purpose (e.g., elderly, military) and location. Many more segmentations are conceivable, but those identified above are the most commonly used in current market analysis practice." (FHA, 1970: 10)

⁸The works cited by the FHA textbook for further reference include:

Weimer, Arthur M. and Homer Hoyt. Principles of Real Estate, 4th Edition, N.Y.: The Ronald Press Co., 1960.

Hurd, Richard M. Principles of City Land Values, 1924.

Burgess, E. W. "Urban Areas" in Chicago: An Experiment in Social Science Research. T. V. Smith and L. D. White, eds., Univ. of Chicago Press, 1929. pp. 114-123.

Fisher, Ernest M. Advanced Principles of Real Estate Practice. N.Y.: The MacMillan Co., 1930, Chapter VII. "Types of Real Estate and Their Uses", pp. 125-128.

Hoyt, Homer. The Structure and Growth of Residential Neighborhoods in American Cities. FHA, Washington, D.C., 1939.

⁹Refers reader to Homer Hoyt's "Recent Distortions of the Classical Models of Urban Structure". Land Economics (Madison, WI, Univ. of Wisconsin, May 1964). pp. 199-212.

¹⁰FHA's "high risk" mortgage program 223 (e) was premised on risk factors associated with the neighborhood in which the subject property was located where:

"economic soundness and economic life requirements with respect to location and term of the mortgage are waived", presumably because FHA personnel, using standard appraisal techniques have predicted that the property value will not be sustained over the term of the mortgage (HUD Handbook 4260.1, Sec. 3-1-e)

"the substitution of physical life for economic life is justified because the Section 223(e) special risk provisions compensate for those environmental factors which adversely affect the property (Ibid., 4-8).

¹¹As summarized by Henry Aaron in Shelter and Subsidies: Who Benefits from Federal Housing Policies? (1972):

Typical home mortgage terms have changed radically since loss protection offered by FHA and VA was introduced. VA and FHA loans any higher loan-to-value ratios than does conventional credit. In addition, terms on conventional mortgages have become more liberal. Terms on conventional mortgages may have changed because the government's ability and willingness to present severe economic slowdown have made home mortgages safer. On the other hand, conventional terms may have been liberalized because, the FHA and VA programs revealed that more liberal terms increased risk only slightly...." (80-81).

CHAPTER 2

PERSPECTIVES ON URBAN DEVELOPMENT OFFERED BY OTHER DISCIPLINES

INTRODUCTION

The traditional emphasis placed by mortgage lenders on location and prediction of neighborhood trends discussed in Chapter 1 has not been substantiated by analyses of their experience to date. It is curious, given the real estate industry adage about the three rules by which an investment decision should be made, "location, location and location," that locational characteristics have seldom been tested in mortgage risk research. Perhaps locational factors have been considered too obvious to warrant research efforts and, hence, the emphasis on problems associated with types of loans, lenders, or borrowers. Lenders may also have so consistently screened out and rejected applications for properties in "adverse locations" that the loans in their mortgage loan portfolios could not be tested for these considerations. Or, the data for the individual borrower, lender, property, and terms of the loan may have been readily available from the mortgagees' files, while locational data (as developed and interpreted by the mortgage lender) were too difficult to obtain.

Given the absence of empirical analyses in the mortgage risk literature, it may be worthwhile to examine relevant urban neighborhood literature, particularly those works which have examined the role of mortgage lenders in neighborhood housing markets. Most of these studies view the lending function from one of three perspectives:

- 1) Disinvestment on the part of mortgage lenders is in response to neighborhood decline. It is an effect, not a cause, as mortgage suppliers are passively responding to dwindling mortgage demand. Reinvestment is money down the drain, good money after bad.
- 2) Disinvestment on the part of mortgage lenders occurs prior to manifestations of decline. It is a cause, but one among many, of further decline. Analysts differ as to whether (a) reinvestment is sufficient to prevent and even reverse decline or (b) insufficient, at least as the only source of reinvestment.
- 3) Disinvestment on the part of mortgage suppliers, particularly conventional lending by depository institutions, is a primary cause of neighborhood decline. Reinvestment could arrest decline and revitalize the neighborhood.

Each of these perspectives is formulated on the basis of a distinct set of theoretical assumptions about economic development generally and housing markets specifically. This chapter examines relevant urban neighborhood literature developed from each of these perspectives and then examines the implications for residential appraisal and underwriting practices and related professions such as urban planning.

URBAN NEIGHBORHOOD LITERATURE RELATED TO ISSUES OF MORTGAGE RISK

Neoclassical Paradigm and Neighborhood Decline

The first perspective corresponds to the orthodox or neoclassical paradigm. Neighborhood decline is inevitable given shifts in household demand within metropolitan regions for newer and better housing and access to jobs in suburban areas (e.g., Berry, 1975; Downs, 197 ; Hoover and Vernon, 1960) and even between metropolitan regions, as newer growth regions attract households from older industrial regions (e.g., Birch, 197). These analysts subscribe to the tenets of spatial determinism and would argue that neighborhood housing markets must be analyzed in the context of known housing choices of households. Given the availability of newer housing, older housing will "filter" down to lower socioeconomic groups. This process is perceived as inevitable, not because of decisions made by mortgage suppliers, but rather choices made by households of economic means and the financial inability of succeeding households to support mortgage financing, insurance, taxes, property maintenance and any capital improvements required (e.g., Muth, 1969; Sternlieb, 1970; Sternlieb and Burchell, 1973).

However, the empirical housing market literature has modified the theoretical premises on which this perspective was originally based. As discussed in Chapter 1, it was assumed that after older housing stock had filtered through the lowest socioeconomic groups, residential land uses would then be supplanted by higher and better uses. In this respect, an investor would never lose out. Even if property owners defaulted, land values would increase such that the speculative value of the property would

preclude any risk. These theoretical premises did not correspond to market realities. Empirical studies based on data drawn from this era and subsequent decades indicated that outright property abandonment was evident or on the horizon in many urban areas and the private market did not appear capable of redevelopment without some form of public intervention (e.g., Grebler, 1952; Linton, Miels, and Coston, 1971).¹ Also, while some analysts have adhered to the age-determined life cycle philosophy (Hoover and Vernon, 1962), others have departed from theoretical tradition and offered empirical evidence that filtering and, in turn, mortgage risk is not determined by "the relentless passage of time" but to "human agency" (Lowry, 1970:370).

Liberal Theories of Neighborhood Decline

Another perspective in neighborhood literature corresponds to the paradigm used by liberal economists. In this analytical framework, the housing market is perceived as generally functioning well, but with flaws which require remedial alteration. To date, much of this literature related to mortgage lending has focused on racial discrimination and the extent to which it is based on perceived rather than actual risks. Some of this literature has focused on the inability of white landlords to obtain financing, particularly on properties with black tenants, notwithstanding the fact that discriminatory barriers allow for higher rentals than those for comparable units in white neighborhoods (Sternlieb and Burchell, 1973; Kain and Quigley, 1975; Rapkin, 1959). Recent literature has also examined the inability of urban homebuyers, black or white, particularly in racially mixed neighborhoods, to obtain mortgage financing (e.g., Stegman, 1972).

These studies document the succession of types of mortgage lenders from traditional depository institutions to mortgage companies to land contract sales. Some question, in part based on this institutional succession, whether inner-city borrowers are such poor risks:

How can a black buyer who pays from \$130 to \$165 a month to a speculator be a poor credit risk at \$90 to \$100 a month for a house with a legitimate mortgage at a fair market price? A substantial number of lower income and moderate-income families participating in land installment transactions are successfully coping with higher monthly carrying charges than would be necessary under more traditional forms of mortgage financing. That is to say ...overestimation of mortgage risks of both borrower and property have caused traditional lenders and the FHA to withdraw their support from the inner-city market. (Stegman, 1972:207)

These neighborhood analysts have also maintained that high foreclosure rates by neighborhood are not bonafide measures of risks associated with location. These foreclosures may be attributable to "the abnormal financial situation often associated with redlining, such as lending to speculators" or to other individual loan factors which would not warrant dismissing the neighborhood as categorically high risk (Urban-Suburban Investment Study Group, 1977:84).

Neighborhood analysts have generally not had access to general loan portfolio data. However, their critical analyses of housing price trends, particularly of racially mixed areas, and case studies of individual lenders offer some extremely useful insights applicable to evaluating mortgage risk experience of private institutions generally

Price Trend Studies. Price trend studies are particularly relevant, as they offer empirical tests to the theoretical assumptions about property

values in traditional appraisal and underwriting practices. Contrary to conventional wisdoms about the negative impact of minorities on housing price trends, most of the major studies "conclude that home value trends either remain unchanged or increase" (Urban-Suburban Investment Study Group, 1977:Part III, 42). Many of these studies found that blacks generally had higher income levels than previous white residents and thus could better support the mortgages required for purchasing homes in these neighborhoods (Chicago Urban League, 1977; Gillette, 1957; Hunt, 1959; Laurenti, 1952; Laurenti, 1960; Palmore, 1966; Palmore and Hoave, 1962). Only one concluded that blacks had a pronounced negative impact on property values (Berry, 1976). This study, which observed that prices drop when blacks move in, then rise for a short time and finally decline again, was subsequently challenged by another study "using many of the same techniques, covering the same area during roughly the same period, and concluded that values do not decline" (Chicago Urban League in Urban-Suburban Investment Study Group, 1977:Part III, 42). In the only other study where prices did not rise after black entry, the author found that values were declining prior to black entry (Schietinger, 1964).

These studies of price trends have seldom been juxtaposed with institutional lending patterns and perceptions of risk. In two instances, a symposium of bankers, public officials, and neighborhood leaders in Boston and an extensive tri-city study funded by HUD, lenders, appraisers, and real estate brokers, perceptions of declining property values were contradicted by actual market data (Parkman Center, 1977; Hammer, Siler, George Associates, 1979). The HUD study found that only two-thirds of the

responses were within the range of tolerance (plus or minus 10 percent) of actual property value trends (Exhibit 2-1). More importantly, over one-fourth of real estate industry representatives underestimated the five-year trends. The analysts concluded that these distorted perceptions of property value trends had a pronounced effect on lending patterns:

- In Neighborhood B, "understated property value trends may have contributed to the decision on the part of depository institutions to originate more mortgages with FHA insurance or VA guarantee: with equivalent property value appreciation over a five-year period, there was a 20 percent differential between Neighborhood B and its control neighborhood in the proportion of depository institution mortgages originated on an FHA/VA basis. Though this link cannot be clearly established, any greater risk associated with perceptions of weakened property value appreciation would be assigned by the federal government rather than the institution itself." Conventional loans granted were not affected as they were made on terms comparable to the control neighborhood.
- In Neighborhood D, "not only were more depository institution mortgages originated on an FHA/VA basis, but the terms on conventional mortgages were more stringent than the control neighborhood."
- For the other neighborhoods in which 17 to 25 percent of the actors misjudged the strength of value appreciation, it is difficult to ascribe broader meaning: there is no standard of comparable perceptual accuracy in healthy neighborhoods against which to judge this rate of error. Nonetheless, for these specific actors, erroneous property value trend perceptions formed one facet of their neighborhood perspective." (Hammer, Siler, George Associates, 1979:282)

Exhibit 2-1

Real Estate Actor Accuracy in Five-Year
Property Value Trends by Neighborhood

	Change in Mean Value 1970-1974	Response Distribution			Number of Responses
		Over- estimated Trends	Within Range of Tolerance ^a	Under- estimated Trends	
Norfolk, VA					
Neighborhood A	50.4%	0.0%	75.0%	25.0%	8
Neighborhood B	47.7%	0.0%	58.3%	41.7%	12
Rochester, NY					
Neighborhood C	21.8%	3.5%	79.3%	17.2%	29
Neighborhood D	7.8%	3.5%	55.1%	41.4%	29
Dayton, OH					
Neighborhood E	5.1%	0.0%	82.4%	17.6%	17
Neighborhood F	-1.1%	16.7%	61.1%	22.2%	18
TOTAL	-	4.4%	68.2%	27.4%	113

^aRange of tolerance represented a 20 percentage point band bracketing the actual percentage rate change. For example, if property values increased 10 percent over the five-year period, any response between zero and plus 20 percent was included. Specific ranges of tolerance are as follows: (1) Neighborhoods A and B, where property values appreciated roughly 50 percent, those responding that values increased 30 percent or more were included in the range of tolerance; (2) Neighborhood C, where property values appreciated by 20 percent, those responding that values increased 10 to 19 percent or 20 to 29 percent were included in the range of tolerance; (3) Neighborhoods D and E, where values increased less than 10 percent over a five-year period, those responding that values had not changed at all or had increased as much as 20 percent were included in the range of tolerance, and (4) Neighborhood F, where dollar values actually declined, responses indicating no change or an increase or decrease of 10 percent in either direction were included.

Source: Hammer, Siler, George Associates, 1979:280-281.

As might be expected, given the traditional distinction made by appraisers between market price and market value, at the Boston symposium the "dean of real estate appraisal in New England" responded that price trend analyses were not analogous to an appraisal of market value which is based on prediction of future returns, "not past trends (Parkman Center, 1977). However, the social scientist counterargument, as presented in the HUD study is that "future expectations are...rooted in extrapolations of past trends" and "from this point of view, future expectations of those misjudging the past" may be most important where underestimates contribute to withdrawal of conventional credit, where institutional disinvestment leads to decline (Hammer, Siler, George Associates, 1979:285). The HUD analysts would argue that future expectations should be based on past trends within the particular neighborhood. The veteran New England appraiser would argue that appraisers should have license to extrapolate from past trends of other neighborhoods he or she considers analogous; in other words, to make predictions not yet manifest in trend data of the neighborhood itself.

Professional appraisal manuals revised in accordance with an out-of-court settlement with the U.S. Department of Justice now warn the professional appraiser that after he or she "delineates the neighborhood and obtains an indication of value based on recent prices received for similar properties in the same neighborhood", it is then incorrect to adjust value for neighborhood influences, because these influences can be assumed to be reflected in the observed market prices" (A.I.R.E.A., 1978:85). Thus, in some recently revised professional appraisal texts, price is defined as value. However, the appraiser retains considerable latitude in defining

the relevant "neighborhood" from which to obtain price data.

Alternative Lending Policies: Case Studies of Individual Lenders.

There is some evidence to suggest that sound loans can be made by alternative lending policies of individual institutions. These experiences suggest that (1) individual institutions are not in a "prisoner's dilemma" wherein they individually can reinvest only if other institutions do, and (2) capital disinvestment from urban neighborhoods is not a spatial pattern inherent in present financial structures.

In testimony at Congressional and HUD administrative hearings, witnesses from San Francisco and Washington, D.C. presented evidence that areas redlined by many institutions were served by individual savings and loan associations which had delinquency and default rates in these neighborhoods that were negligible. Under the Philadelphia Mortgage Plan (PMP), commercial and mutual savings banks in that city substantially revised their appraisal and underwriting standards to permit conventional lending in any city block, even those with as many as 10 percent of the properties abandoned. Where abandonment rates were higher, organized neighborhood revitalization efforts have been taken into consideration in evaluation of conventional loan applications. While most lenders would consider these excessively liberal definitions of a sound neighborhood, "the delinquency rate for the Philadelphia Plan has been as low or lower than for mortgages in the newer suburban areas around Philadelphia" (Urban-Suburban Investment Study Group, 1977:86-87).

In Chicago, the South Shore National Bank petitioned its primary federal regulator, the U.S. Comptroller of the Currency, to relocate its

main and only office from the racially and economically mixed neighborhood of South Shore to a suburban Chicago location. The deposit base of the bank had steadily declined and the bank officials argued that the neighborhood was no longer economically viable, it was "unbankable". The bank's petition evoked considerable community protest. Several community-oriented officers of a neighboring bank, the Hyde Park Bank and Trust, initiated a drive to raise the capital necessary to acquire the bank. When the Comptroller denied the petition to relocate, this group purchased the bank and began to radically revamp both its customer services and its lending policies in the neighborhood. Apart from general reinvestment activities, the new bank managers also decided that vehicles for revitalization of the residential and commercial properties needed to be created, capitalized, and provided with working capital and debt financing. South Shore National ultimately created such vehicles as subsidiaries of its parent holding company. This "born again" bank has grown rapidly and invested heavily in a neighborhood which had been written off by previous management as one where inevitable decline had set in and, in terms of both deposit base and lending risks, was no longer bankable. Moreover, the bank has done so without gentrification, i.e., displacement of lower income and minority households.

Thus, unlike "urban renaissance" areas such as Society Hill in Philadelphia which professional appraisal manuals condone as beginning a renewed life cycle with growing proportions of upper middle class residents, South Shore National Bank management argue that racially and economically heterogeneous neighborhoods do not have to turnover to become

bankable. Finally, South Shore's financial success has been contrary to the expectations not only of other banking institutions but also of federal regulatory agencies. South Shore National Bank's reinvestment efforts were expected to result in an inherently riskier investment portfolio. Yet, the bank's delinquency and default rate experience has been lower than it was under prior management and well below national averages. When the new management took over, the federal bank regulatory agency examiners scrutinized the bank's records with considerable skepticism. Now, the federal examiners appear to audit South Shore as they would any other financially sound bank.

These individual bank experiences may be exceptional. However, they offer alternative evidence in support of the liberal assumptions of imperfections and avenues for reform within present structures of capital accumulation vested with investment decision-making powers. These case histories also highlight the extent to which institutional policies and bank management practices apparently influence lending patterns (versus the consumer sovereignty assumptions of the neoclassical analysts) and risk outcomes.

Most lending institutions maintain that some urban areas warrant exclusion from their portfolio investment for either "risk-related" or "cost-related" reasons. The risk-related reasons include "(1) poor credit risk of inner-city families, particularly minority and female-headed households, (2) low and declining values of inner city property, and (3) limited mortgage money, occurring in credit crunch periods, forces a choice made by "comparison of perceived risks between competing prop-

erties. Cost-related reasons include "high cost of originating and servicing inner city mortgages; and "less cost effective to originate lower value mortgages, such as those that dominate inner-city areas, than higher value mortgages" (Vandell, Hodas, and Bratt, 1974:71-72).

Alternative lenders and empirical studies of liberal analysts argue that risk-related reasons and the first cost-related reason are based on perceptions rather than fact, and that these perceptions are applied too categorically to urban areas and minority homebuyers. The second cost-related reason, while generally true, may be mitigated somewhat by restructuring the loan origination and servicing fee structure. In addition, many of these analysts would also argue that public charters and deposit insurance protection of these institutions warrants further consideration of social needs, equity and distribution of consumer credit capital.

Radical Perspective on Capital Investment in Urban Neighborhoods

Analysts from this perspective view urban disinvestment and any subsequent reinvestment as a rational response of capital suppliers. Urban decline stems from withdrawal of capital and profit maximization through investment elsewhere. Decline is rational, but not "natural", as the market itself is a social product (Smith, 1979:543). Rather than an organic process of inevitable decline, these analysts maintain that neighborhood decline is

...the result of identifiable private and public investment decisions... While there is no Napoleon who sits in a position of control over the fate of a neighborhood, there is enough control by, and integration of, the investment and development actors of the real estate industry that their decisions go beyond a response and actually shape the market (Bradford and Rubinowitz, 1975:79).

Urban disinvestment is a by-product of capital investment and institutional marketing decisions.

Urban reinvestment may occur where there is a significant gap between the potential and actual ground rent. Early empirical studies, beginning with one done by organic theorist Homer Hoyt (1933), indicated troughs in metropolitan property value patterns. Radical theorists would argue that while Hoyt aptly observed these patterns, his determinist interpretation assumed an organic process of spatial development rather than institutional determinism attributable to capital stock and flows. More recent studies (Yeates, 1965; Edel and Sclar, 1975) have indicated that "the once steep rent gradient" observed by Hoyt "is flattening out; and if this is the case, potential ground rent in inner city neighborhoods may actually have decreased" (Smith, 1979:547).*

Empirical studies of gentrification assume that this process

occurs when the gap is wide enough that developers can purchase skills cheaply, can pay builders' costs and profit for rehabilitation, can pay interest on mortgage and construction loans, and can then sell the end product for a sale price that leaves a satisfactory return to the developer. The entire ground rent, or a portion of it, is now capitalized; the neighborhood has been "recycled" and begins a new cycle of use. (Smith, 1979:545)

While "the fragmented structure of property ownership" in this process has made "the occupier developer, who is generally an inefficient operator in the construction industry, into an appropriate vehicle" in residential rehabilitation, "professional and landlord developers are important -- contrary to the public image, they were by far the majority in Society Hill" (Smith, 1979:546). Similar patterns have been observed elsewhere

(e.g., Capitol Hill, Washington, D.C.; South End, Boston).

In sum, these analysts maintain that "empirical evidence suggests strongly that the process [of investment or disinvestment] is initiated not by the exercise of those individual consumer preferences much beloved of neoclassical economists", but by collective action of either private institutional investors or these investors in conjunction with public agencies under programs such as urban renewal (Smith, 1979:545). Reinvestment may occur only when

one or more financial institutions will reverse a long-standing redlining policy and actively target a neighborhood as a market for construction loans and mortgages. All the consumer preference in the world will amount to naught unless this long absent source of funding reappears: mortgage capital is a prerequisite. Of course, this mortgage capital must be borrowed by willing consumers exercising some preferences. But these preferences are not prerequisites since they can be socially created (Smith, 1979:545-546).

Given that investment in the built environment is a major vehicle for capital accumulation, reinvestment on any significant scale may be an early manifestation (an effect, not a cause) of a larger restructuring of at least residential space. In terms of risks associated with individual mortgage loans, from this perspective, institutional lenders are not risk adverse. They are keen to lend to sectors of the real estate industry where there are opportunities for substantial speculative gain, e.g., new construction in outlying suburbs or substantial rehabilitation where there is a significant spread between original acquisition and resale value. Yet, as documented in some of the portfolio analyses discussed in the following chapter, these speculative loans have often been the riskier mortgages. Any locational risks are largely created by the collective

decisions of institutional investors, partially as a result of deliberate disinvestment decisions and partially as a by-product of investment decisions to channel capital resources elsewhere. While there must be property owners and tenants as well as prospective buyers and renters with sufficient financial resources to support capital investment, real estate is a capital intensive social product the market for which is largely directed by institutions which have successfully accumulated capital resources, including not only those financial intermediaries which serve as mortgage suppliers but also corporate investors, large-scale industrial employers, and similar institutions whose capital investments shape metropolitan space(e.g. Gordon, 1977; Harvey, 1976). Thus, this perspective would argue that locational risk patterns, to the extent they exist, are largely determined by, and thus can be deliberately changed by, the overall investment patterns of capital suppliers.

Conclusions From Empirical Neighborhood Literature

Much of the neighborhood literature related to mortgage risk issues to date has attempted to isolate causes and effects in the process of neighborhood decline. In neoclassical analyses, it is assumed that bank disinvestment is not a cause but a prudent response to neighborhood decline. Liberal analysts maintain that there are discrepancies in actual risks and those perceived by lending institutions in urban neighborhoods generally and minority areas specifically. Lending institutions, as illustrated by several minority savings and loan associations and banks such as South Shore National in Chicago, can make sound loans without undue risk in areas generally perceived by the lending industry as too risky. These liberal

analyses essentially argue that, unlike the physical sciences, there are not "natural" causes and effects -- "ceteris" is not "paribus". Radical literature maintains further that the housing market is essentially structured by capital providers. Spatial patterns of investment, or capital accumulation, and disinvestment are not organic processes. The market is dominated by institutional capital suppliers which generate housing demand through various "marketing" techniques. This in turn enhances or diminishes real estate values which are a by-product of capital investment or disinvestment, a manifestation (not a cause) of withdrawal of capital.

Literature reviews which have attempted to synthesize empirical findings based on these different analytical perspectives have generally found that (1) the causes of neighborhood decline are still empirically unknown, and (2) the portrayed sequence of causes and effects depends in large part on the analytical perspective of the researcher. In one recent literature review, the authors concluded that the empirical findings in this research could be summarized in terms of eight basic themes:

- 1) Lack of demand for the units because of rising incomes, jobs, and so on (obsolescence image)
- 2) Lack of demand because the neighborhood is a bad place to live (social fabric image)
- 3) Insufficient rents to support normal operating costs (low-income image)
- 4) Excessively high costs and vandalism (problem tenant image)
- 5) Treatment of property as a wasting asset in expectation of the above problems even though cash flow is currently positive (greedy investor image)

- 6) Market disorganization caused by racial transition (racial image)
- 7) Public policies such as enforcement of the housing code without accompanying subsidies necessary to support the costs associated with these improvements (bungling public sector image)
- 8) Withdrawal of debt capital that is needed to finance major repairs or property transfers to new owners (exploitative system image).
(Grigsby and Rosenberg, 1975:)

Thus, in the neighborhood literature, there appears to be neither sufficient theory nor sufficient empirical evidence related to mortgage risks. There only appears to be some consensus in these analyses that mortgage lenders play a role by withdrawing capital at some point. The debate remains whether this is a cause or an effect.

URBAN PLANNING: (RE)DEVELOPMENT AND (RE)INVESTMENT PROGRAMS

Urban planning developed as a profession in the 1920's, the same time period as the appraisal profession. The stimuli for the development and acceptance of these professions were very similar. Both were efforts to develop an applied science of real estate in a decade of rapid growth in many metropolitan areas of the United States. However, planning, unlike appraising, was founded on the assumption that the evolution of metropolitan land use patterns was not inevitable. Both growth and types of development could be directed and controlled by governmental institutions.

Physical Planning and the "City Beautiful" Movement

Urban planning gained widespread recognition in the 1920's through the "City Beautiful" movement. It was this aspect of planning, the physical design of the overall layout of transportation systems, parks, commercial/

industrial and residential areas, which garnered the support of local citizenry and resulted in the creation of planning commissions as local governmental agencies throughout the country.

Zoning, the handmaiden of physical planning, embodied many of the principles of human ecology which had also served as the conceptual foundation for residential appraisal theory and practice. To this day, state enabling statutes and local zoning ordinances and by-laws are predicated on the concepts of

..."highest and best use" of the land given its location within the metropolitan area, i.e., lower density residential development should be supplanted with more valuable commercial and industrial development as the core city grows and expands.

..."conformity and compatibility" of adjacent land uses, i.e., incompatible uses such as residential and industrial manufacturing should not be located in proximity to one another.

Thus, the terminology and analytical framework of physical planners were akin to those of residential appraisers. The major difference was the role of human agency.

Social Planning and the "Progressive" Movement

Social planning was rooted in "progressive" social reform movements initiated in the mid-nineteenth century. Progressive organizations such as the Association for Improving the Condition of the Poor (AICP) in New York City subscribed to an environmental interpretation of poverty (Lubove, 1963). They reviled the slums for pernicious influences upon the health and morals of the inhabitants, they also saw the physical blight and overcrowded conditions of the slums as a public health menace: -

"Unless conditions improved, it was certain that the poor would overrun the city as thieves and beggars, endanger public peace and the security." (Lubove, 1963)

Thus, the dual objectives of these organizations were to improve the social behavior and well-being of slum inhabitants and to minimize their threat to public health and safety.

Social planning did not develop a widespread locally institutionalized base as physical planning did. However, public housing legislation, first enacted in the late 1930's, created federal programs designed to clear existing slums and build new housing for the slum residents. These programs, which resembled the "model tenement" efforts of progressives in earlier decades, were directed not only at improving the condition of the slum dweller but also at creating job opportunities for unemployed tradesmen.

Urban renewal programs evolved from low-income public housing programs implemented by local housing authorities to central business district revitalization programs administered by local redevelopment authorities. By the 1950's, urban renewal had been taken over by the local Chambers of Commerce. These programs had been adapted to physical planning objectives comparable to the City Beautiful movement several decades earlier. Planners and redevelopment officials maintained that governmental intervention was necessary as the ecological processes had not reached fruition in these areas through the market mechanism alone. (Grebler, 1952). Public powers of condemnation and eminent domain were essential to clear existing residential or mixed land uses and to assemble parcels of land to create sites large enough for redevelopment.

Apart from commercial development objectives, many redevelopment authority programs also were designed to attract middleclass residents back into the city from the suburbs. Initially, these efforts were manifest primarily in newly constructed apartment buildings. By the mid-1960's, substantial rehabilitation programs "recycling" existing buildings from low-rent apartment buildings and boarding houses to refurbished homes for middle and upper income households were underway, e.g., Society Hill in Philadelphia and the South End in Boston. It is these efforts that revisions in appraisal textbooks acknowledged over a decade later as testimony to the possibilities for revitalization over and above the classical theories of decline leading to demolition and reconstruction.

Advocacy planning arose as an offshoot of earlier social planning efforts. However, advocacy planners maintained that efforts of their predecessors were too paternalistic and shortsighted in their vision that physical improvements would foster improvement in the social conditions of low-income residents (Davidoff, 1966). Advocacy planners argued that the needs of low-income residents could best be met through organizing and creating community-controlled institutions through which they could exercise greater direct control, ownership and management, of their physical environment.

Planners and the Principles of Neighborhood Decline and Conformity

Physical planners and traditional social planners subscribed to the principle of neighborhood life cycles in which housing stock filtered from occupants of higher to lower socio-economic status and deteriorated as lower rents were inadequate to support the maintenance and capital improve-

ments required to keep the building in a decent and sanitary condition. Social planners further maintained that bad housing did not result from bad people, but rather poor physical environment resulted in antisocial behavior. This stands in stark contrast to the early appraisal literature in which physical deterioration was seen as inevitable with the infiltration of lower user groups.

Neither physical nor social planners perceived urban development patterns as subject to inexorable laws. Rather, development and redevelopment were determined by human decision-making. Individual behavior in the real estate market could be circumscribed by intervention on the part of governmental institutions. In this respect, physical and traditional social planners subscribe to the liberal perspective on urban development and the potential for change through public intervention. Advocacy planners who argue that restructuring of ownership and management control is required to effectuate significant change view urban development and renewal from a radical perspective.

Regarding the neighborhood conformity principle, physical planners effectively implemented this principle for several decades through local zoning ordinances which mandated and enforced homogeneous land uses. However, the socio-economic aspects of the conformity principle applied by appraisers were directly criticized and challenged by leading urban planning scholars as early as the 1950's. Charles Abrams (1951) and Lloyd Rodwin (1950a) submitted articles to the Appraisal Journal published by the American Institute of Real Estate Appraisers (A.I.R.E.A.) in which they questioned the theoretical validity of neighborhood life cycle and confor-

mity principles. Both argued that the espousal and application of these principles, particularly the social conformity principle, was so inaccurate and societally detrimental that it should be dropped.

In a book entitled Housing and Economic Progress: The Study of Housing Experiences of Middle-Income Families (1961), Rodwin expanded on the material presented in his earlier article and devoted an entire chapter to critique Burgess' concentric circle analysis and Hoyt's subsequent sectoral analysis of metropolitan growth commissioned by the FHA (1939). Rodwin argued that such rigid structural analyses can become self-fulfilling prophecies in that

Financial institutions and zoning agencies were expected to apply the conclusions of the sector thesis. Presumably 'good' expanding areas were to be identified for investment and other 'good' areas in which investments were made were to be guarded. Perhaps Hoyt may not have had such an intention, but there is strong emphasis in the study in favor of preserving the better neighborhoods rather than improving the poor ones. Certainly at least until 1954 the Federal Housing Administration, which financed this study, acted on this basis and resisted attempts to change this approach. (Rodwin, 1961: 121)

While Rodwin did not categorically state that institutions, private financial and governmental, play a role in precipitating neighborhood decline, he did conclude that the unfortunate "end result of limiting investments to good areas was to accelerate the problems of blight and obsolescence, not to solve them."

Rodwin challenged the underlying assumptions of ecological behavior, the motivational characteristics ascribed by Hoyt in Social Darwinist tradition to lower income groups:

The sector thesis, as formulated and applied, also tends to encourage the exclusion of certain groups from the better neighborhoods because of their alleged 'inharmonious' characteristics. That they want to 'get in' is generally taken for granted by the simple assumption of upper-class attraction. The exaggerated emphasis on this desire could be corrected, however, by recognizing their equally important interest in decent housing and salutary neighborhoods. (Rodwin, 1961: 122)

Rodwin also observed that analyses such as Hoyt's tended not only to sanction but also to "fuel the hysteria" among investors regarding "racial mixtures" and "inharmonious groups." (Rodwin, 1961: 122)

Thus, as a public sector profession formulated in the same time period on the same theoretical principles as residential appraisal, planning offers some alternative interpretations of urban development to those instituted and maintained by residential appraisers. Nonetheless, the issue from the perspective of the lending institution is which theoretical framework and which of a series of borrower, loan, property, and neighborhood characteristics, if any, offer the best information on the probabilities of mortgage delinquency and default. The following chapter reviews the empirical mortgage risk literature available to date and assesses study results and the extent to which the institutional context in which it was authored may influence the type of data obtained as well as the interpretation of the results.

CHAPTER 3

ANALYSIS OF MORTGAGE RISK: EMPIRICAL BASES FOR APPRAISAL AND UNDERWRITING PRACTICES

INTRODUCTION

Residential mortgage institutions, loan instruments, and lending standards in effect today were largely formulated during the 1930's. Since that decade, there have been three critical historical periods in the development of metropolitan lending patterns and practices. First, from 1940 to 1965, most of the private and public sector emphasis was on provision of funds for new construction in suburbia. Second, with the enactment of the 1968 Housing Act and Title VIII of the Civil Rights Act, there was considerable pressure on public sector institutions to revise their portfolio objectives to extend their holdings on existing housing, particularly loans to minorities in urban areas. And third, from 1975 on, public legislative and regulatory action focused on reforms in private lending practices to increase urban investment on the part of these institutions on their own initiative, with or without public protections such as mortgage insurance coverage. These historical developments have played a critical role in shaping the questions addressed by mortgage risk research in any given period.

Institutional authorship or sponsorship of research in each of these three historical periods has also been a key determinant of (1) the loan data available for analysis, (2) the types of analyses conducted, and (3) the interpretation of results. For example, most of the industry-sponsored

research has been devoted to evaluation of whether underwriting criteria have been sufficiently exclusionary so as to eliminate holdings of any substantial number of loans prone to delinquency or default. Little or no effort was made to assess whether these standards were sufficiently inclusionary, so as to assure equal access to credit for those of comparable risk, until the late 1970's, after traditional underwriting criteria had undergone repeated public challenge. This chapter reviews the mortgage risk research to date along these two axes -- historical period and institutional sponsor.

In the first period from 1940 to 1965, much of the published research was authored or commissioned by federal agencies on federal insurance or guarantee programs (Kaplan, 1941; Federal Housing Administration, 1963; and, Housing and Home Finance Agency, 1963). In addition, when mortgage delinquency rates reached an all time high since those during the Depression, several national trade associations undertook research to assess the factors underlying these national trends (Mortgage Bankers Association, 1971; Herzog and Early for the National Bureau of Economic Research, 1970; and, Kendall for the United States Savings and Loan League, 1964). Of these, only the Housing and Home Finance Agency (HHFA) study, in which delinquent borrowers were interviewed, introduced additional risk considerations beyond those of developing underwriting criteria to minimize or eliminate risk prone loans. The HHFA study introduced borrower-oriented considerations such as (1) servicing procedures by the lender which would minimize probabilities of a delinquent borrower going into default, and (2)

insurance programs which might protect the borrower against loss of home and/or equity investment in the event of default.

In the second period from 1968 through 1974, three sets of studies were undertaken. Two of these were on federally insured loans. One set under FHA sponsorship (Von Furstenberg, 1971; Shaw, 1977) focused on underwriting criteria and/or credit scoring methods which might assist the agency in prudently meeting its urban investment requirements. Another set consisted of investigative critiques of FHA's management of its lending programs in urban neighborhoods with particular emphasis on the need for FHA to regulate abuses of its "approved mortgagees" both origination procedures and servicing practices. (Bachman, 1977; Boyer, 1973; Downie, 1974; FNMA, 1975; Lefcoe and Toten, 1975; Orren, 1973; U.S. Senate, 1971) A third set were on private mortgage insurance programs which had begun to "cream" the suburban loans as federal loan programs were directed to meet quotas in the inner city. In the face of declining volume of suburban FHA loans, federally sponsored secondary mortgage market agencies were interested in purchasing privately insured mortgages and commissioned a study to ascertain whether the underwriting criteria of these firms were sufficiently stringent and the insurance funds solvent.

The third period, beginning in 1975, extended concerns of urban community-based organizations and public regulatory agencies to conventional loans and private lending practices apart from public insurance programs. Emphasis on consumerism and corporate social responsibility resulted in new statutory and regulatory initiatives. With prior legislation directed at civil rights and general consumer credit protection (Truth

in Lending, Fair Credit Reporting, and the Equal Credit Opportunity Act), the federal Home Mortgage Disclosure Act of 1975 (HMDA) and Community Reinvestment Act of 1977 (CRA) introduced new considerations specifically directed at urban lending performance. The impetus for these initiatives came from urban neighborhood organizations, many of which had developed a substantial amount of documentation on bank disinvestment based on case histories and statistics compiled from property transfer records at county registries of deeds. These efforts comprise the first generation of studies of this period (Home Ownership Development Program, 1973; Bradford et al., 1975; Feins, 1976; McKee, 1974; Center for New Corporate Priorities, 1975; Devine, Winston and Sims, 1973; Northwest Community Association, 1973; and, Public Interest Research Group, 1975). A second generation of studies, based on bank disclosed data under HMDA or more extensive state directive, were undertaken by a national coalition of community organizations (Przbyliski, 1978) and several state regulatory agencies. Both the first and second generation studies were directed at documentation of the geographic distribution of mortgage loan investments. While some of these studies developed measures of demand against which the supply of mortgages could be assessed, none could address the question that, if institutional mortgage suppliers were not meeting estimated mortgage demand, why not? To what extent did perceptions of risk and/or actual risk experience affect these investment patterns? In response to these questions, a third generation of studies developed. Thus far, these studies have offered evaluations of mortgage risk from three perspectives. One is the cumulative portfolio risk experience method in which overall delinquency and foreclo-

sure rates and loan losses are compared between minority-held and white-held institutions to ascertain whether minority mortgagees and mortgagees in minority areas are higher risk (Brimmer and Company, 1977). This approach based on highly aggregated data has some severe statistical limitations. A second perspective on risk evaluation by the lender is offered by analyses of loan application data (Benston, Horsky, and Weingartner, 1978; Sandor and Sosin, 1975; Schafer, 1978; Schafer and Ladd, 1980). A third perspective in this generation of studies is offered by analyses of delinquency and default experience (von Furstenberg and Green, 1977; Morton, 1974; Schafer, 1978; Williams et al., 1973).

In sum, initial analyses of mortgage risk evolved from actuarial studies of public insurance programs concerned with whether underwriting criteria were adequately exclusionary so as to minimize risk to analyses directed at minimizing the requirements of federal mortgage insurance programs to those required as a matter of business necessity, i.e., solvency of the insurance fund. Most recently, risk studies devoted to private and public lenders alike have been directed at appraisal of the screening, loan origination and servicing procedures, and individual loan factors associated with delinquency and default so as to evaluate risk perceptions against risk experience.

RISK STUDIES PUBLISHED FROM THE SUBURBAN BOOM TO THE URBAN CRISIS (1940 TO 1965)

These studies were sponsored by two types of organizations: one, the federal mortgage insurance and guarantee agencies; the other, national trade associations of private mortgage lending institutions. The federal

agency studies, largely done by inhouse staff, were actuarial in nature. The objectives of these studies were to assess the adequacy of (1) the underwriting criteria in screening out higher risk loans, and (2) the mortgage insurance premium revenues relative to loan losses covered by these revenues.¹ The national association studies were prompted by a rapid increase in mortgage delinquency rates during the early 1960's. Both federally insured or guaranteed loans and conventional loans experienced an extraordinarily high incidence of delinquencies in 1962, the highest for many institutions since the Depression. These trade association studies, done either in-house or by outside academic researchers on contract, focused on those factors known to the lender at the time of origination and the extent to which any were statistically correlated with the probabilities of delinquency or default.

Mortgage Insurance Program Studies -- Federal Insurance:
Federal Housing Administration (FHA) and Veterans Administration (VA)

Early FHA Actuarial Studies (1940's). Within a decade after the agency had been established, the first analyses of FHA risk experience were performed by Mortimer Kaplan, on staff as chief actuary. These were confidential reports primarily concerned with (1) the soundness of the insurance funds, (2) the adequacy of the initial assumptions regarding premium calculations, and (3) policy considerations for future underwriting procedures (Kaplan, 1940, Kaplan, 1941) Kaplan and Miller, 1945). While these reports also examined various loan characteristics of borrowers and of properties, these sections were "essentially theoretical rather than empirical in nature," i.e., based on assumptions about the risks associated

with borrowers of lower incomes and properties with lower purchase prices. With only five years of portfolio experience, FHA did not have a sufficient data base for meaningful empirical studies (Shaw, 1977: 31, 33).

However, the theoretical framework developed and conclusions reached in these studies strongly influenced FHA practices and risk analyses in subsequent decades. First, regarding soundness of insuring funds and adequacy of premiums, Kaplan and his colleagues concluded that the premium income would be sufficient to sustain anticipated losses from claims as a result of default. It was also concluded that the "Rating of Mortgage Pattern" (see Exhibit 1-1 in Chapter 1) was an accurate indicator of risk, i.e., the lower the rating, the more prone a mortgage was to default.

Second, these Kaplan reports applied principles used in life insurance to mortgage insurance and, in doing so, formulated what might best be described as an ex post, or actuarial, orientation premised on the assumption that the ex ante criteria specified in the "Rating of Mortgage Pattern" used in origination to accept or reject loans, sufficiently predicted and thus screened out bad risks. Thus, FHA personnel continued to monitor overall portfolio default rates and to construct actuarial devices such as decrement tables which indicated probable duration of loans and periods over the life of the loan when delinquency and default were most probable. After the initial honeymoon period of two years, it was determined that there was a high probability of a loan going into default from the second to the fifth year, and subsequently probability of default decreased. Much of this orientation was one of risk aversion, particularly since this fund was mandated to operate without public subsidy. As a

result, for several decades no consideration was given to the fact that creditworthy applicants may have been inappropriately rejected on the basis of Babcock's "Rating of Mortgage Pattern."

Thirdly, Kaplan and Miller formulated a macroeconomic perspective of FHA's loan insurance experience which has been sustained empirically and adhered to by FHA analysts decades later (Armstrong, 1971; Armstrong, 1977; and, von Furstenberg, 1971). In brief, this theory focused on homeowners' equity as partially dependent on the phase of the business cycle when the home is purchased, as "equity is built up not only through initial investment and scheduled payments on the mortgage, but also by property appreciation accruing from desirable neighborhood location and favorable economic conditions" (Shaw, 1977:33). Under this formulation, homes purchased in a depression period were less likely to default than those purchased in a boom period. Given that the first five years of a mortgage's exposure are the most vulnerable period for the borrower, during this critical period, based on cycle theory, if economic conditions improve, a homeowner receives a windfall increase in equity which serves as a cushion if he or she needs to bail out of the property. According to Kaplan and Miller

...the impact of title transfers during a bad phase is greatest on insurance written in the final years of a good phase...insurance written prior to this bad period is based primarily upon some inflation of values and high levels of mortgager's income, both of which can be expected to decline in the ensuing period (Kaplan and Miller, 1945:3).

Thus, the cycle theory concludes, the net result can be a forced sale situation in which the borrower actually has negative equity, i.e., the

anticipated sales price of the house is less than the amount required to pay off the mortgage and related sales costs.

FHA and VA Studies in the Early 1960's: Administrative Response to Congressional Hearings on Extraordinarily High Default Rates. Early in the 1960's, both FHA and VA began to experience defaults at considerably higher rates than those experienced in the previous decades of their existence. These events corresponded to the macroeconomic cycle theories of Kaplan and Miller. Many of the delinquent loans had been originated in a boom construction period several years earlier, 1957 to 1959. In response to this public scrutiny and concern regarding the actuarial soundness of these insurance programs, FHA and VA undertook "in-house" evaluations of their underwriting system, both origination and servicing policies, as to whether there were basic deficiencies or poor implementation (FHA, 1963; VA, 1962).

FHA developed an extensive data base through "an underwriting reprocessing of 20 percent of the properties acquired through foreclosure between July 1, 1961 and March 31, 1962" (FHA, 1963:3). Comparisons of the "Rating of Mortgage Pattern" at origination and the re-ratings on this grid system were then made. This study made several major findings:

The halcyon post-World War II period for housing production appeared to be coming to a close. Until the late 1950's, the housing market in the United States had been a 'sellers' market. There had been tremendous pent-up housing demand as a result of very low rates of housing production during the war. The only effective limits on the volume of home production during post-war years were the capacity of the building industry to produce and, more importantly, the available supply of mortgage funds (FHA, 1963:18). This relationship of supply to demand was now changing and easing the inflationary pressures on the housing market. Thus, "the heavy insulation provided by rapidly rising values and

the ready salability of properties, which had protected the lender against the normal hazards of mortgage lending appraising the property or the borrower," had now diminished; these same factors of an "abnormal post-war housing market also protected the FHA" (FHA, 1963: 20).

Banks serving as FHA-approved mortgagee from 1948 to 1962 had become more likely to declare the borrower in default and collect the insured amount of the mortgage from FHA. Increasingly, lenders holding FHA loans appear to "have found it more profitable to turn the property over to FHA and receive debentures than to hold the property as an investment or sell it themselves to cover their loan" (FHA, 1963: 11).

"The acquisition ratio of FHA insured loans originated by mortgage companies was somewhat higher than for loans originated by all classes of banks and insurance companies. This was true for both new and existing construction. From 1958 to 1960, slightly over three-fifths of new home mortgages were originated by mortgage companies, but acquisitions from these mortgages exceeded three-fourths of the total acquisitions." (FHA, 1963:44)

Acquisition ratios were higher for applications processed by builders for buyers of homes in newly constructed subdivisions than they were for buyers who applied directly to the lender on newly constructed or existing homes.

Review of the Rating Grid results indicated that defaults generally had fairly high property and location ratings. Borrower ratings for acquired properties were relatively low and credit information often incomplete and inaccurate. Overall, the general upward bias of property and location ratings may have had a tendency to encourage acceptance of cases which were marginal with respect to the borrower.

In these findings, two distinct themes emerge. One, according to the second, third, and fourth findings, institutions do appear to matter. These patterns are particularly interesting as they support the concept that the determinants of mortgage risk may include (1) the institutional structure of mortgage suppliers, and (2) the "balance sheet" incentives or disincentives to adequately service loans originated, particularly those

which are 100 percent federally insured. The other important theme is that underwriting based on Babcock's Rating Grid resulted in approval of loans where high ratings on property and location offset low ratings of the borrower. As stated by the FHA analysts, the results of this study "suggest that borrower characteristics were considerably more important than property and location characteristics in contributing to mortgage mortality" (FHA, 1963:55).

Housing and Home Finance Agency (1963). This study marked a departure from previously published mortgage risk studies for several reasons. The research was:

- Conducted by a federal agency which was not responsible for the administration of the mortgage lending programs under scrutiny;
- Included data not only from federal agency loan files but also from survey interviews with federally insured borrowers in default; and,
- Based on a broader sample of loans from conventional mortgage portfolios of private lenders as well as both FHA and VA loans.⁴

The impetus for the study was the same as the FHA study (1963) discussed above -- the extraordinarily high default rates experienced in 1961 and 1962. HHFA analysts also concurred with the FHA researchers that the problem was not simply a short term default crisis period resulting from a minor economic recession but rather a long term secular trend. As stated by the authors, "given the upward trend in annual volume of foreclosures since 1947, a better understanding of the reasons leading to foreclosure is essential in devising ways to combat rising trends" (HHFA, 1963:1). However, HHFA analysts determined that to understand the reasons for

default, one needed to assess the problem from the perspective of the borrower as well as the institutional lender or insurer.

For federally insured loans, the researchers were able to match the reasons for default given by the lender with those given by the borrower for each loan. Overall, the perceptions of the lenders differed from those of the borrower. The leading reasons given by lenders was "improper regard for obligations" and, to a lesser extent, "curtailment of income". The leading reasons cited by borrowers were "curtailment of income", "death or illness in the family", and "marital difficulties".⁵ On further examination of each loan, the authors concluded that "detailed information tended to confirm the validity of the primary reasons cited by the borrowers" (HHFA, 1963: 2). In each of the metropolitan areas studied:

"...30 to 50 percent of the borrowers reported income declines of over 30 percent. There was a markedly different distribution of dollar income at the time of origination and at the time of foreclosure for all borrowers who were interviewed or filled out questionnaires.... As a result of curtailed incomes and rising housing expenses, the proportion of respondent borrowers with housing expense-to-income ratios of 40 percent or more increased from 12 percent at the time of loan origination to 49 percent at the time of foreclosure among FHA cases, and from 13 percent to 40 percent among VA cases." (emphasis added) (HHFA, 1963:2,3)⁶

The authors concluded that a program of mortgage unemployment insurance in which interest, insurance, and taxes could be covered and principal payment deferred should be seriously examined as a means to "prevent foreclosures resulting from a high incidence of temporary unemployment in an economy of rapid technological change" (HHFA, 1963:6).

In essence, these conclusions questioned the efficacy of mortgage

insurance and guarantee programs administered by the FHA and VA in which the borrower-paid insurance premiums protected the lender from any loan losses associated with default but provided no assurances to the borrower. The HHFA study findings indicate that more consumer-oriented insurance programs to cover temporary inability to meet mortgage payments would (1) address the primary reason for default (i.e., curtailed income) and (2) benefit both borrower and lender in limiting foreclosures to those loans where the household could not support the mortgage on a long-term basis.

Studies Commissioned by Trade Associations of Mortgage Lenders
in Response to Extraordinarily High Default Rates

The catalyst for these studies was the same as that for the federal agency studies discussed in the previous section. It is interesting that these were the first systematic studies of mortgage experience published by financial institutions which had been actively engaged in residential lending for decades. Apart from any unpublished evaluations that individual institutions may have done on their own portfolios, virtually no analytical work had been done on the underwriting criteria generally used by the industry.

United States Savings and Loan League (1964). The first study published from data compiled by the associations from their member lending institutions was done by a staff economist at the United States Savings and Loan League (Kendall, 1964). Based on loans sampled from member savings and loan associations nationally, the stated purposes of this study were:

- To develop factual data on the characteristics of loans made by and held in the portfolio of savings and loan associations...;
- To contrast loan delinquents with loan borrowers whose accounts are current;
- To test existing beliefs regarding the status and composition of current and delinquent loans;
- To make a beginning toward the development of underwriting rules and guidelines for loan officers appropriate to today's markets. (Kendall, 1964:12)

The study data were not rigorously analyzed statistically. However, the descriptive information is useful as a preliminary comparative analysis of current and delinquent loans. Previous studies had focused exclusively on defaults.

These analyses corroborated the federal agency study findings on disproportionate emphasis on property and location and higher risks associated with loans made indirectly to homebuyers through builders (Exhibit 3-1). Overall, of the loans on city properties sampled, a greater percentage were current (49 percent) than delinquent (45 percent). Unlike suburban areas, this held true even among types of loans (for builders, refinancing, and junior financing) which had a propensity towards delinquency in suburban areas. In the "built-up suburbs", refinancings had the highest incidence of delinquency. In the "new suburban developments", builder loans and junior financing for new homebuyers without sufficient funds for the required downpayment exhibited tendencies toward delinquency. In sum, these data indicated that the savings and loan associations may have been overly conservative in urban areas and too liberal on some types of loans in suburban areas. Evidently, no recommendations for further

EXHIBIT 3-1

PROPERTY LOCATION
PERCENTAGE DISTRIBUTION

LOCATION	All Loans		Type of Loan Builder		Loan Purpose Refinance		Junior Financing Yes	
	Cur.	Del.	Cur.	Del.	Cur.	Del.	Cur.	Del.
In City	49%	45%	27%	18%	59%	51%	48%	38%
Built-up Suburbs	33	37	31	33	32	41	30	32
New Suburban Developments	18	18	42	49	9	8	22	30
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%

Source: Table 7 (Kendall, 1964:62).

evaluation or modification of loan origination policies were made by either the author or by the trade association which sponsored the study.

National Bureau of Economic Research (1970). Two economists, Herzog and Earley, at the National Bureau of Economic Research (NBER) authored a second study based on data compiled in the early 1960's. This information was voluntarily provided to NBER by three trade associations -- the United States Savings and Loan League (USSLL), the Mortgage Bankers Association (MBA), and the National Association of Mutual Savings Banks (NAMSB). This study was a distinct departure from previous mortgage risk studies as it used multivariate statistical techniques (1) to test the significance of each borrower and loan characteristic while controlling for the effects of others, and (2) to differentiate current, delinquent, and foreclosed loans based on these characteristics. The study was also more comprehensive than its predecessors as it was national in scope, based on a total of 12,581 loans, over 7,000 conventional as well as approximately 5,000 federally insured loans, from 291 institutions.

In the final results, none of the regression equations explained more than 13 percent of the variation between characteristics of loans of different status (Exhibit 3-2). Of the characteristics used in these analyses, loan and borrower characteristics were selected over property characteristics as "records used provided little meaningful data" on property or location.

EXHIBIT 3-2

STATISTICAL RESULTS OF ANALYSES
BY HERZOG AND EARLEY (1970)

Pairwise Regression (by Data Source)	R ²	F Ratio	S _e	N
Current vs. Noncurrent				
USSLL ^a	.1148	20.35*	.0117	6472
MBA ^b	.0381	3.29*	.01624	3690
NAMSB ^c	.0495	3.77*	.01996	2419
Delinquent vs. Foreclosed				
USSLL	.1299	5.57*	.02385	1570
MBA	.0667	5.97*	.0160	1817
NAMSB	.10043	3.99*	.02760	1215
Current vs. Foreclosed				
USSLL	.0505	6.53*	.0138	5011
MBA	N.A.	N.A.	N.A.	N.A.
NAMSB	N.A.	N.A.	N.A.	N.A.

*Significant at .01 level.

^aUSSLL (United States Savings and Loan League) sample data from 38 savings banks and loan associations.

^bMBA (Mortgage Bankers Association of Mutual Savings Banks) sample data from 36 mutual savings banks, 41 commercial banks, and 105 mortgage companies.

^cNAMSB (National Association of Mutual Savings Banks) sample data from 73 mutual savings banks.

Mortgage Bankers Association (1971). After the Herzog and Earley study was published, the Mortgage Bankers Association decided:

"The findings of the NBER [Herzog and Earley] study, though generally useful, are too broad to be of significance to the operating mortgage banker. Accordingly, the statistical information collected by MBA and provided as part of the data used in the NBER study has been tabulated in a series of tables that provide more specific insights into the problem of underwriting mortgage loans". (MBA, 1971:1)

In essence, the multivariate statistical analyses performed by Herzog and Earley had little meaning to the average mortgage officer. Herzog and Earley did not present information which could be readily understood and applied by MBA members to their originating and servicing procedures. Also, analyses based exclusively on rigorous quantitative data overlooked potentially useful qualitative information in differentials in institutional lending patterns and servicing practices.

From simpler two-way tables, the MBA concluded:

- . The loan with a high ratio of loan-to-value is more likely to become a defaulted loan, regardless of the factor that generated the default;
- . Forces leading to default tend to be unpredictable at the time the loan is closed as they are related to income, health and marital problems of the borrower. Accordingly, the loan-to-value ratio and the property itself are properly given greater weight in loan underwriting; and,
- . Forbearance, either directly or through prolonged and repeated collection efforts, is widely practiced.... The results go a long way toward changing the image of the mortgage lender from a flintheaded shylock to an understanding individual who has a stake in saving the loan as well as a desire to be of assistance to troubled borrowers. (MBA, 1971:1, 2, and 14)

The first finding corresponded to the use of the loan-to-value ratio as a significant variable by Herzog and Earley. This finding also supported FHA studies in which a seasoned loan of four or five years less risky than the same loan at origination as the loan-to-value ratio decreased as the borrower made payments and increased the equity invested. The second finding upheld the traditional underwriting emphasis on the property as collateral security and the borrower's equity as the lender's safety margin for depreciation and any costs associated with processing foreclosures. However,

"...contrary to the belief held by some mortgage lenders, the risk of default was not materially affected by the age of the property.... Proportionately more loans on properties between 2 years and 10 years of age were in serious default than current. But the reverse experience was evident on properties more than 10 years old at the time of closing...." (MBA, 1971:31)

Moreover, among loans of properties 10 years or older, "a larger portion of these properties carried larger downpayments" thus making the probability of losses to the lender in the event of default even lower than that for loans on newer properties (MBA, 1971:31).

Finally, the third finding regarding forbearance appears to be more applicable to other lenders, as "the commercial banks and savings banks were somewhat more prone to practice forbearance than mortgage bankers" (MBA, 1971:14). Moreover, the mortgage banker generally began "the collection procedure 10 days after the loan was due", while "collection practices among commercial and savings banks varied widely, but a delay of 60 days" was not uncommon (MBA, 1971:40). These findings corroborated those of FHA

(1963) that the ratio of loans acquired to total loans originated with FHA insurance were consistently higher for mortgage bankers than for other types of lenders. MBA attributes these patterns to differences in institutional structure. Depository institutions were not subject to the extensive external pressures faced by mortgage bankers. The mortgage portfolio held by a commercial or savings institution were (1) predominantly loans serviced for their own accounts (rather than outside investors), and (2) generally not subject to stringent FHA servicing regulations (as were most loans originated by mortgage bankers). From the final table presented in the study, "Collection Activities by Type of Investor", the MBA concluded that the "large number of contacts made" on any delinquent mortgages were "obviously a major cost of servicing loans" (MBA, 1971:50):

"Inasmuch as loans in serious default are a small part of loan servicing portfolios, typically less than 1%, a relatively small change can generate significant increases in collection activity and related costs. It would be worthwhile, therefore, to examine collection activities not only from the view of their productivity in saving loans from foreclosure, but from the view of costs vs. returns." (MBA, 1971:50)

Thus, the final judgment on more extensive servicing to delinquent and defaulted loans should be made by private lenders on the basis of balance sheet returns. This is particularly important to mortgage bankers and mortgage companies which tend to have narrow profitability margins.

After these three analyses, which were prompted by exceptionally high delinquency rates during 1962 and 1963, there was little work on mortgage risk sponsored by trade associations beyond overall monitoring of delinquency rates by type of institution (e.g., MBA, 1971 to date).

However, a few years hence, considerable public focus on civil rights and consumer issues related to mortgage lending would require further industry research in response.

RISK STUDIES PUBLISHED ON FHA'S URBAN LOAN PROGRAMS AND CONSEQUENT INSTITUTIONAL CHANGES IN THE MORTGAGE MARKET (1968 TO 1974)

In November of 1965, the FHA Commissioner issued a general policy statement which mandated:

FHA must stimulate and assist Residential rehabilitation and financing of property transfers in all neighborhoods where property values are sufficiently stable and long range prospects sufficiently promising to make insurance of long term loans a reasonable risk. Freedoms should not be excluded from FHA-insured loans because they are old and located in the central part of the city. (Letter from Commissioner of FHA U.S. Department of Housing and Urban Development, to All Approved Mortgages, November 8, 1965).

This policy statement was issued by the FHA Commissioner to approve mortgages on July 31, 1967. In 1968, Congressional action on Title VIII of the Civil Rights Act and a Housing Act with major program emphasis on subsidized housing in urban neighborhoods gave statutory clout to what had previously been matters of FHA administrative policy. These events led to a series of research studies and institutional reactions with some pronounced effects on traditional lending criteria.

FHA-Sponsored Research

The von Furstenberg Studies (1971). This series of studies, based on FHA and VA loan experience during the decade 1957 to 1966, was designed to research past risk experience with federally insured loans in order to address two provisions in the 1968 Housing and Urban Development Act which

mandated significant departures from FHA's traditional loan insurance policies. One was the mandate to provide homeownership opportunities for lower income families under Section 235 of the Act. The other was to eliminate FHA "redlining" policies and provide mortgage insurance to previously redlined areas through a Special Risk Insurance Fund established under Section 223(e) of the Act.

In one study, von Furstenberg examined original loan terms, the seasoning effects over the life of the loan, and various borrower characteristics including income. He concluded that lower income families per se are not inherently riskier. Rather, high loan-to-value ratios associated with low downpayment loans are the more significant determinant of risk.⁷ As a matter of public policy, von Furstenberg's apparent objective was to convince FHA administrators that implementation of the Congressionally mandated "235" program for low-income households would not bankrupt the insurance fund (von Furstenberg, 1971:39). Nonetheless, the author expresses reservations without any empirical analysis about the urban investment component of the program:

"It is conceivable that FHA has hitherto been very selective in accepting low-income applicants under its regular 203(b) program.... Before 1966, for instance, properties located in decaying areas of the center cities were frequently excluded from coverage through the practice of redlining entire districts. To the extent that such selectivity is incompatible with new programs aiming at broad amelioration of homeownership opportunities for disadvantaged families, the link between income deficiencies and default risk may become stronger in the future." (von Furstenberg, 1971:39)

However, risk indices developed by the author on income class and housing type, offer some empirical evidence to the contrary (Exhibit 3-3). First, both the simple and weighted risk indices are consistently higher for new construction than for existing homes for all income groups. Second, regarding the findings in the first study, it appears that loan-to-value ratio is not always the better predictor of default, but rather the best predictor of actuarial losses in the event of default. Among lower income borrowers, income is higher than the loan-to-value ratio as an indicator of default; it is only when these initial risk indices are weighted by the expected dollar losses in the event of foreclosure that the loan-to-value ratio takes precedence as the higher risk indicator for all income groups.

In another study in the series entitled "Risk Structures and the Distribution of Benefits Within the FHA Home Mortgage Program", von Furstenberg presents data to support the thesis that "progressive redistribution remains an important feature of the FHA program" (von Furstenberg, 1971:42). Contrary to critical analyses of FHA programs, von Furstenberg argues that historically FHA has subsidized lower income borrowers with premiums from higher income borrowers. To support this argument, the author presents a sample distribution of premium benefits (Exhibit 3-4). Assuming that the year 1961 is representative, these data indicate that FHA mortgagors with incomes below \$7,500 are subsidized by the premiums paid by higher income borrowers. Von Furstenberg states the policy issues raised by these data thus:

EXHIBIT 3-3

SIMPLE AND WEIGHTED RISK INDICES
FOR SELECTED INCOME CLASSES WITH
INCIDENCE EFFECTS DUE TO INCOME
AND LOAN-TO-VALUE RATIO

<u>Income Class</u>			<u>"New" Home</u>			<u>"Existing" Home</u>		
<u>Dollars</u>	<u>Y Value</u>		<u>Mortgages</u>			<u>Mortgages</u>		
<u>INDEX OF DEFAULTED RISK</u>								
			<u>L/V</u>	<u>Y</u>	<u>Combined^a</u>	<u>L/V</u>	<u>Y</u>	<u>Combined^a</u>
Below \$4000	3.5		197	320	630	173	250	433
5,000 - 6,000	5.5		187	219	410	163	185	302
7,000 - 8,000	7.5		172	169	291	151	151	228
10,000-11,000	10.5		142	127	180	130	121	157
13,000-15,000	14.0		100	100	100	100	100	100
<u>INDEX OF DEFAULTED RISK</u> <u>WEIGHTED BY EXPECTED LOSSES</u> <u>PER FORECLOSURE TO FHA</u>								
			<u>L/V</u>	<u>Y</u>	<u>Combined^a</u>	<u>L/V</u>	<u>Y</u>	<u>Combined^a</u>
Below \$4,000	3.5		215	173	372	187	113	211
5,000 - 6,000	5.5		201	151	304	175	115	201
7,000 - 8,000	7.5		183	137	251	159	113	180
10,000-11,000	10.5		150	117	176	135	108	146
13,000-15,000	14.0		100	100	100	100	100	100

^aLog-Linear specification: the combined default index is derived by multiplication of the partial indices.

Source: von Furstenberg, 1971:41.

EXHIBIT 3-4

THE INCOME DISTRIBUTION OF MORTGAGORS
RECEIVING FHA INSURANCE IN 1961 AND
THE DISTRIBUTION OF INSURANCE BENEFITS

Annual Effective Income	Income Distribution ^a	Weighted by Size of Default Risk	Weighted by Default Risk Losses per Foreclosure
Below \$4,000 ^b	2.3%	4.2% (+1.9)	2.9% (+0.6)
4,000 - 4,999	9.3	13.6 (+4.3)	10.7 (+1.4)
5,000 - 5,999	17.3	21.8 (+4.5)	20.0 (+2.7)
6,000 - 6,999	19.4	21.5 (+2.1)	21.5 (+2.1)
7,000 - 7,999	15.7	14.9 (-0.8)	16.0 (+0.3)
8,000 - 8,999	12.0	10.0 (-2.0)	11.5 (-0.5)
9,000 - 9,999	8.7	6.3 (-2.4)	7.6 (-1.1)
10,000 - 10,999	5.6	3.5 (-2.1)	4.4 (-1.2)
11,000 - 11,999	3.5	1.9 (-1.6)	2.4 (-1.1)
12,000 - 12,999	2.5	1.2 (-1.3)	1.5 (-1.0)
13,000 - 14,999 ^c	1.9	0.7 (-1.2)	1.0 (-0.9)
15,000 and over ^d	1.8	0.4 (-1.4)	0.5 (-1.3)
TOTAL	100%	100% (0)	100% (0)
Median:	\$7,108	\$6,484	\$6,763
Average	\$7,611	\$6,824	\$7,125

^aSource: Housing and Home Finance Agency, Fifteenth Annual Report (Washington, D.C., 1963), pp. 120-21.

^bFor the graph in Figure 2, this class is taken to extend from \$3,000 to \$3,999 with midpoint \$3,500.

^cBecause the class interval is here \$2,000 rather than \$1,000, one-half the value reported for this class is plotted at \$14,000.

^dThe upper class boundary is taken to be \$19,000 so that one-quarter of the values reported in this class is plotted at \$17,000.

Source: von Furstenberg, 1971:44.

"In a society reluctant to undertake cash transfers or outright 'handouts', this is not always undesirable, nor is it necessarily dishonest. It is merely inconsistent with the maximization of efficiency afforded by a strict user charge system in which all actuarially separable groups are charged a price to match their risks. As it is, the lowest [income] group pays about two-thirds its actuarial cost, but the highest income group...pays more than twice its cost, at least in the 'new' home category, if the program as a whole is expected to break even in the median income range of \$7,000-\$7,999.... In other words, the lower 50 percent of the families account for 63 percent of expected defaults but certainly no more than 50 percent of total premium income since lower incomes are connected with smaller average mortgage balances.... Disregard of the progressive intraprogram redistribution of insurance benefits can therefore cause one to underestimate the social significance of the regular FHA program." (von Furstenberg, 1971:42, 45, 46)

Regarding future underwriting policies of the FHA, von Furstenberg expresses concern that the FHA non-subsidized insurance fund programs may be forced to serve fewer lower-income households. One inadvertent effect of FHA's recent statutory and administrative emphasis on lower-income households in urban areas had been to foster rapid growth of private mortgage insurance companies (PMI's). As PMI's bid for the higher income households with lower loan-to-value ratios, FHA is "subject to adverse selectivity and the scope of its market operations as well as its ability to conduct intraprogram transfers are progressively reduced.... The agency has to drop bad risks as it loses good risks who might have supported them, or else the requirement of actuarial soundness will have to be modified" (von Furstenberg, 1971:46).

The Shaw Study (1977). This analysis, done as a doctoral thesis by the Chief Statistician at HUD, endeavors to develop a credit scoring model for the 203(b) program. The objectives of developing such a model are to

(1) reduce "the number of mortgages insured that go into default, as well as the number rejected that could have proven to be good risks," (2) minimize "the cost of examination" of mortgage loan applications, as "junior employees could handle more initially," and (3) "improve ability to justify rejections, i.e., loan denials," at least on the basis of quantitative risk considerations if not social policy considerations (Shaw, 1977:26).

Shaw's effort, in the aftermath of FHA's subsidized urban lending initiatives, focused on a limited number of factors including "borrower, financial, and mortgage characteristics commonly used in the credit-granting decision process" (Shaw, 1977:28). However, any risks associated with urban lending under these reformed programs were not addressed as "neither neighborhood characteristics, location factors, nor physical attributes of the property were considered in this analysis" (Shaw, 1977: 28-29). Thus, while Shaw's data base covered post-1968 delinquency and default experience under the non-subsidized "203(b)" program, it does not address the policy questions raised by the 1968 reforms.

Shaw's emphasis was pre-1968 in that his major focus was the development of a risk rating model, comparable to Babcock's Rating Grid in use up to 1963. He maintained that his ability to correctly classify 60 percent or more of the loans sampled as either "paid up" or "in default" indicated that

"...there was some weakness in the risk-rating system currently in use, since it had been possible for the model to detect a significant number of bad risk mortgages that had been insured as good risks under the Section 203(b) program. By using a computerized model, similar to the one developed in this study, it might be possible to strengthen the underwriting process to more

nearly approach the level of accuracy of the former successful (but cumbersome) system, which was abandoned by FHA in 1963, at a time when there was need for speedier processing."

However, Shaw acknowledges the inadequacies of credit scoring models in identification of underwriting standards which lead to rejection of credit-worthy borrowers (Type II statistical error) and which were the primary concern of the 1968 reforms.⁸

External Critiques of Federally Insured Loan Policies and Management Practices

Critiques of federally insured loan programs prior to 1968 focused on either (1) the poor quality of newly constructed homes financed with federally insured loans during the post World War II single-family construction boom, or (2) the absence of social policy objectives in these publicly administered programs. The second set of critiques was directed at FHA's service to the middle bracket of homeowners while private lenders through conventional loans continued to mortgage the lower as well as higher priced homes. Why should a public institution serve the middle of the market? The fact that lenders would issue uninsured loans on even lower priced homes to lower income households was tangible evidence that these loans were not high risk and should not require a publicly administered insurance fund. This set of critiques, however, is premised on the liberal paradigm in which the purpose of public intervention is to serve the objectives of promoting greater equity and access to resources. From the conservative or neoclassical perspectives, FHA's macroeconomic emphasis on stimulating housing construction, i.e., creation of new assets and thereby contributing to national productivity rather than financing

existing assets, and thus on geographic redistribution of capital intraregionally from cities to suburbs and interregionally from the Northeast to the South and the West was an even more valid public purpose.

After 1968, critics focused on the effort to overlay socially oriented programs on what had traditionally been a business-oriented agency. Apart from Congressional mandates to make minority homebuyers and minority neighborhoods beneficiaries of the traditional 203(b) program, new programs were directed at low income homebuyers who required public subsidies, Section 235, and at urban neighborhoods, particularly minority areas, which FHA had traditionally redlined and still perceived as too risky for mutual mortgage fund insurance, Section 223(e). These works exposed the abuses of federal funds and full insurance provisions by private lenders, real estate brokers, and FHA personnel. There were three types of investigations done in the early 1970's, a few years after this departure in program orientation.

First, there were a series of Congressional hearings (U.S. Senate, Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, 1971 and 1972; U.S. House of Representatives, Subcommittee of the Committee on the Judiciary, 1971), media exposes, and several books (Boyer, 1973; D wnie, 1974) devoted to the process by which (1) neighborhoods were targeted by the real estate industry as ripe for racial turnover; (2) home sales accelerated through blockbusting, i.e., racial scare tactics used by real estate brokers to trigger rapid turnover where the brokers themselves would often buy low and within a matter of days turn around and sell high to a new homebuyer; (3) FHA loans approved for the new, usually black,

homebuyers at appraised values inflated by FHA personnel, who were either in collusion with the real estate brokers or simply trying to meet the "affirmative minority marketing" quotas established in the Washington, D.C. office, and (4) little underwriting done by the private institutions originating the loans as the mortgages were not only 100 percent insured but often yielded, as a result of points charged, a higher rate of return in the first few years (and thus the private originator had no long-term interest in whether the loans were paid up or in default). This muckraking work led to criminal investigations and indictments served on individuals involved. Threats of anti-trust suits against groups of lending institutions were levied where there were collective decisions about FHA minority loan promotion. More extensive regulations were promulgated both for FHA personnel and FHA-approved lenders regarding loan origination and servicing with sanctions subsequently exercised against violators.

Second, several technical studies were performed by outside researchers under contracts with FHA. Under one by Lefcoe and Toten (1975), the primary purpose was to explore the causes of defaults (defined as loans where payment was 30 days or more overdue) and possible foreclosure in three of the single-family insurance programs (203, 221d3, and 235) administered by HUD-FHA. A related purpose was "to develop a statistically based predictor index by which HUD-FHA can identify prospective mortgagors most likely to default and, of those mortgagors in default, those likely to reinstate versus those likely to go into foreclosure" (Lefcoe and Toten, 1974:1). Most of the findings in this research pointed to lender servicing as a key determinant of default and, particularly, foreclosure. Of the two

basic methods by which a servicer can accommodate reinstatement of a delinquent borrower, "lump sum payment" plans (where the "defaulter pays at one time all delinquent amounts plus any late charges and additional costs advanced by the mortgage servicer") have a "greater chance of redefault than do reinstatements effected under repayment plans... where the defaulter pays, in addition to regular monthly payment, an amount sufficient to eradicate the delinquency, usually over a period of not more than six months" (Lefcoe and Toten, 1975: 42, 44, 77). Of the three types of servicers studied, mortgage companies relied upon lump sum payments in 89 percent of their cases while savings and loan associations and banks relied on this method much less frequently. In multivariate analyses, the researchers tried to differentiate defaults, foreclosures, loans reinstated, and recidivist loans and found "the regression runs produced no equations which could have been used for predicting a particular status subsequent to the occurrence of default" based on the characteristics of the borrower, property, or loan itself (Lefcoe and Toten, 1975:49). In sum, the authors concluded that lender servicing, particularly adherence to special forbearance regulations, and more rigorous HUD-FHA enforcement would decrease the number of defaults which ultimately went into foreclosure. In another HUD-FHA contract, Bachman (1977) commended Lefcoe and support staff for their application of meaningful institutional servicer analyses to their evaluation of mortgage risk:

"...almost all previous studies of the problem seemed to imply by their design that the key to understanding the causes of delinquency and foreclosure could be found by examination of characteristics of the property, the mortgage, or the borrower, while little

attention, if any, was given to what impact the actions of the mortgagees and their policies on mortgage servicing and origination had on alleviating or contributing to the problem of mortgage defaults." (Bachman, 1977:66-67)

Bachman's own analyses of FHA default loan data offered some interesting methodological insights on the use of factor and cluster analysis, but his strictly quantitative efforts did not offer either an applicable predictive risk multivariate model or any further insights on institutional servicing factors relative to the incidence of risk.

The third type of study addressed concerns of institutional investors relative to the departure of FHA from traditional underwriting practices and its effect on their decisions to purchase FHA loans for their portfolio. Prior to the late 1960's, life insurance companies had been a major purchaser of one-to-four family federally insured loans. The "widespread withdrawal of life insurance companies from single-family financing commitments evident since 1967", has been attributed primarily to tight money conditions in which competing sectors such as real estate financing of apartment houses and commercial properties offered higher rates of return on mortgage financing through "equity kickers" (von Furstenberg, 1971:62). However, some analysts have noted the coincidence of this with the urban reinvestment policy initiatives of the federal government and subsequent changes in FHA program administration during this period (Orren, 1974:136). At this juncture, federally sponsored credit agencies such as FNMA and, after 1971, FHLMC began to serve the growing secondary mortgage market. In 1975, two FNMA staff economists performed a study to identify "the socio-economic determinants of foreclosures on par-

ticular types of government assisted mortgages -- specifically mortgages insured under Sections 221 and 235 of the National Housing Act" (FNMA 1975:1). The study "focused on area or neighborhood effects as they relate to foreclosures as opposed to microeconomic influences such as the characteristics of the individual mortgagor or the mortgage contract itself" FNMA, (FNMA, 1975:1). Among the "neighborhood effects" examined were the number of indictments by metropolitan area for violations of federal law under these housing programs, most of which involved bribery of FHA appraisers and falsification of credit reports referred to in the discussion of Congressional hearings and investigations described above. This variable, as a "non-economic determinant of foreclosure", proved to be "the most important variable" in their statistical analyses FNMA, 1975:12, 16).⁹ These results indicate that from the perspective of an investor such as FNMA, institutional factors may critically affect loan origination and servicing and, thus, serve as determinants of the quality of their mortgage portfolio.

Private Mortgage Insurance Companies: Rapid Expansion in Suburban Markets as FHA Mandated to Reinvest in Cities.

After 1968, private mortgage insurance companies (PMI's) began to grow very rapidly. Much of this market expansion, particularly in suburban areas, was attributed to FHA scandals and indictments which followed poorly administered FHA efforts to serve previously redlined urban areas and lower income households. Subsequent expansion of regulatory and paper work requirements in an effort to avoid such scandals served as further disincentive for private lenders to use FHA unless there were no other

alternative.

PMI's offered mortgage lenders a means to provide low down-payment mortgages to primarily suburban customers with little more than a day required in processing time for insurance approval. Most of these PMI offerings operated as co-insurance programs in which the company insured that amount of the mortgage over 80 percent of the appraised value of the property, i.e., the amount extended over conventional statutory maximums. Insurance coverage was issued on either a short-term basis, over the initial period until the loan amount outstanding was reduced to 80 percent or less of the initial appraised value, or on a longer term basis as a percentage coverage of the outstanding loan amount through maturity.

As a result of the rapid growth of these programs and the extent to which rapid appreciation in real estate had outpaced many middle-income homebuyers' ability to put the full 20 percent down required for conventional loans, FNMA and FHLMC commissioned a private consultant study (Arthur D. Little, 1975) to evaluate (1) the financial soundness of the companies themselves and (2) the performance of their underwriting practices in screening loans submitted to them for insurance. The major concern regarding the companies themselves was the extent to which their predecessors had folded during the Depression, largely as a result of reserves invested almost exclusively in unliquid real estate investments. ADL investigated this issue through simulated models and concluded that "the private mortgage insurance industry is solid with widespread insolvencies very unlikely under foreseeable conditions" with some recommendations for improved underwriting and loss management (ADL, 1975-b:51). Regarding

the second concern, the research team found that PMI rejection rates on loans submitted to them by private lenders "are typically twice as high for rural resort properties as urban properties, and rejection rates for urban properties are typically ten times higher than rejection rates for suburban properties." (ADL, 1975a:41) While it appears from ADL's subsequent risk analyses that rural/resort properties are above average risk, in two out of three policy types, the loss incidence associated with urban based properties was actually less than that of suburban properties, as shown in Exhibit 3-5. Each of the major PMI companies were interviewed by ADL on their property underwriting principles. About half the companies interviewed placed their primary emphasis on one or more of the following neighborhood variables:

- . Conformity with neighborhood style
- . Location within neighborhood
- . Quality and trend of neighborhood

The other half placed their primary emphasis on the condition of the property (ADL, 1975a:27). In sum, the private mortgage insurance industry appeared to have adopted traditional appraisal and underwriting standards with little modification based on their own risk experience.

ADVENT OF CONSUMER PROTECTION: REDLINING AND REINVESTMENT INITIATIVES (1975 TO 1980)

Traditional Emphasis in Public Regulation of Mortgage Lending Institutions on "Safe and Sound" Business Practices

Much of the present statutory framework for bank regulation was formulated in response to the bankruptcy of many financial institutions during the Depression in the 1930's. Under these circumstances, many household

depositors lost their life savings. As a result, each institution's charter to meet "public convenience and needs" was defined largely in terms of ensuring that depositors' savings were protected through prudent investment. Little or no consideration was given to the public's access to capital, types of borrowers or creditworthy needs not served by the institution in the geographic area it was publicly chartered. The concern was not with exclusion of good risks (i.e., how many mortgages were not made as a result of overly restrictive underwriting criteria) but rather with inclusion of any bad risks (i.e., how many mortgage loans might be made with lax underwriting criteria).

Annual examinations, or audits, conducted by bank regulatory agencies were consequently designed to evaluate whether the loan origination and underwriting policies were sufficiently exclusionary. Mortgage loan performance of an institution has generally been assessed by the regulator in terms of:

- . the number of delinquent loans, i.e., those with payments overdue for 30 days or more;
- . the dollar amounts outstanding;
- . the probability of repayment; and,
- . for loans where no payments have been made for 90 days or more, the probability of recouping the unpaid loan amount through foreclosure and resale of the property or, if the loan is insured, through collection from a federal or private insurance fund.

Overall, the regulatory examination of mortgage loan performance has focused on the delinquencies and defaults, the loans which have gone bad.

EXHIBIT 3-5

EFFECT OF LOCATION OF PROPERTY ON THE
RELATIVE RISK OF LOSS INCIDENCE,
BY POLICY TYPE

Policy Type ^a	<u>Location of Property</u>		
	Urban	Suburban	Rural
80-90	.95	.98	1.32
95(20)	.72	1.07	1.84
95(25)	1.08	.93	2.72

^aPolicy type refers to the loan-to-value ratio and, parenthetically, the maturity of the loan.

^b1.00 = Average risk for policy type.

Source: Table II-16 (ADL, 1975a:43).

Private industry emphasis on property and location has been fostered by public statutory and regulatory focus. Statutory requirements include:

- limitations on the maximum loan amounts that can be made relative to the appraised value of the property;
- geographic restrictions on the distance over which an institution could originate mortgages (on the assumption that property appraisals were best done by institutions in housing market areas with which they were most familiar);
- requirements that, in the event of a prolonged delinquency of 60 days or more, to reappraise the property in anticipation of foreclosure.

What is most striking about these property appraisal provisions is the extent to which comparable underwriting requirements for other aspects of mortgage risk, e.g., borrower's ability to repay or creditworthiness, are generally not addressed in federal and state banking statutes or regulations.

Consumer Credit Legislation and Regulation

During the 1970's, major legislative reforms were introduced which have significantly modified the statutory mandate of the banking industry, and in turn, banking regulatory agencies. Reforms directed at residential mortgage lending included:

- the Equal Credit Opportunity Act (ECOA), enacted in 1972 and substantially strengthened several years later, which prohibited differential treatment on the basis of applicant characteristics and source or type of income not directly related to the applicant's ability or willingness to pay;
- the Home Mortgage Disclosure Act (HMDA), enacted in 1975 and reauthorized in 1980, which required federally chartered or insured institutions to publicly disclose the geographic distribution of their mortgage loan portfolios; and

- the Community Reinvestment Act (CRA) of 1977, which stipulated that an institution's charter to serve "public convenience and needs" was predicated not only on deposit needs but credit needs served, "particularly in low and moderate income areas" of the charter territory.

Cumulatively, the enactment of these laws and consequent regulatory requirements have had a pronounced effect on traditional banking regulation. CRA required federal regulators to extend both their annual examinations and their periodic review in conjunction with any application for institutional expansion through branching or mergers to include an evaluation of the credit needs served. Regulators were encouraged to use the information required under ECOA and HMDA in their CRA evaluations. The extensive documentation on mortgage lending patterns and practices which preceded or supported these legislative and regulatory changes is summarized in the following section.

Studies on Urban Mortgage Lending Patterns and Practices

The literature on redlining evolved through three generations of studies. The first generation was based on data obtained through property transfer records at local registries of deeds, census data, annual financial reports of individual banks, and case histories of mortgage application experiences of local residents. The second generation of studies have been based on geographic breakdowns of mortgage loan activity, data publicly disclosed by individual lending institutions under legal requirements of federal or state governments. In some cases, state regulators or a regional office of federal regulator also required corresponding deposit data. The third generation is distinctly different from the first two. Rather than analyses of loan data aggregated by geographic area, this

generation of studies generally used data from individual loan files and, thus, for the most part avoided the problems of statistical interpretation and potential "ecological fallacies" inherent in aggregated data. Moreover, this generation of studies has been able to focus beyond general documentation of mortgage investment patterns to issues of risk perceptions and portfolio experience with mortgage delinquencies and defaults.

First Generation Studies. The more extensive studies in this series were analyses done on Baltimore (Home Ownership Development Program, 1973), Chicago (Bradford, et. al., 1975; Feins, 1976), Cincinnati (McKee, 1974), Los Angeles (Center for New Corporate Priorities, 1975), New York (Devine, Winston, and Sims, 1973), Philadelphia (Northwest Community Association, 1973) and Washington, D.C. (Public Interest Research Group, 1975). These studies were performed largely by or for community organizations. Generally, analyses indicated that there were fewer mortgages and fewer mortgage dollars, particularly conventional as opposed to federally insured loans, invested in urban areas as compared with suburban areas. In some instances, loan volume was assessed against census tract data on housing and population characteristics. These preliminary study results were used by neighborhood groups and public interest organizations to persuade legislators and regulators that measures such as the Home Mortgage Disclosure Act (HMDA) were needed so that mortgage data could be compiled and analyzed more systematically (U.S. Senate Committee on Banking, Housing, and Urban Affairs, 1975).

Second Generation Studies. Analyses of the mortgage data required under HMDA were sponsored by three types of institutions -- community

organizations, state bank regulators, and federal bank regulatory agencies. Many of the community organizations which had undertaken the initial studies compiled the data disclosed by financial institutions under HMDA. The most extensive of these, based on bank data from eight metropolitan areas, reaffirmed findings of the first generation studies using essentially the same research methodologies (Przybysky, 1978).

Several state regulatory agencies also assumed responsibility for compiling and analyzing this second generation data. In California, an analysis of several cities was performed under the California Department of Savings and Loans (1978); in Connecticut, the banking department commissioned a study of each of the metropolitan areas in that state (Gold, 1977); in Massachusetts, the research staff of the Banking Department performed an analysis of mortgage and deposit disclosure data for metropolitan Boston (Taggart, Smith, and Phenix, 1977); in Michigan, a report on disclosure data analysis performed by the state Financial Institutions Bureau and results of enforcement activities under a state anti-redlining law (Michigan Financial Institutions Bureau, 1980); and, in New York, a preliminary report on each metropolitan area based on in-house and consultant research was published by the New York Banking Department (1977). Most of these studies attempted to develop measures of demand, either statistical models of expected mortgage investment or other such measures, against which the disclosed data on applications received and mortgages supplied could be assessed. The findings of these second generation studies by state regulators generally indicated that on the basis of aggregate data at the census tract or zip code level, there appeared to be shortfalls in bank

mortgage investment in many urban neighborhoods. However, the aggregate data on which these studies were based only offered observations on cumulative lending patterns. Without data on the individual loans, researchers could not isolate the associated borrower, property, or loan factors. Research efforts were limited to analyses of volume and types of loans (conventional or federally insured) by general demographic characteristics of a neighborhood. Most importantly, one could not control for individual loan factors and test whether these neighborhood characteristics offered any further explanation of bank (1) loan origination practices, and (2) subsequent risk experience with delinquencies and defaults.

Third Generation Studies. These analyses were directed at evaluation of the urban risk concerns of lenders. There have been three basic analytical approaches in this generation of studies. One is a cumulative mortgage portfolio risk experience approach (Brimmer and Company, 1977). Another set is directed at underwriting criteria introduced at the stage of mortgage application and either rejection or approval with terms and conditions which the lender views as appropriately matched to risk considerations (Benston in New York Banking Department, 1977; Benston, Horsky, and Weingartner, 1978; Benston and Horsky, 1979; Sandor and Sosin, 1975; Schafer, 1978; and Schafer and Ladd, 1980). And finally, several studies have analyzed loans delinquent and in default to assess which borrower, property, loan, and urban neighborhood characteristics, if any, were most strongly associated with these riskier loans (von Furstenberg, and Green, 1974; Morton, 1974; and, Schafer, 1978).

In 1977, the United States League of Savings Associations commissioned

a study from the consulting firm of a former member of the Board of Governors of the Federal Reserve System, Andrew F. Brimmer (Brimmer and Company, 1977). In the preface, Brimmer stated the study purpose thus:

"We were asked to appraise '...the risks inherent in socially-oriented lending'. The assignment was interpreted by us as requiring an assessment of the extra risk -- if any -- which lenders would face if they were to expand appreciably the volume of loans extended to inner-city borrowers."

In making this assessment, Brimmer chose to extrapolate from a study done by a member of the FHLBB research staff on minority-controlled savings and loan associations in which 31 of these institutions were compared with 31 white owned institutions established prior to 1964 of comparable asset size in the same SMSA or county (Brimmer and Company, 1977:29). In doing so, Brimmer assumed that "although the study provided no data on loan losses (which would relate directly to risk), one can infer a great deal from the institutions' combined balance sheets" (Brimmer and Company, 1977:39). Specifically, given "the fraction of assets represented by foreclosed real estate" was somewhat higher for the minority-owned than white-owned institutions, the study concluded that inner-city lending was inherently riskier (Brimmer and Company, 1977:43). These findings, based on cumulative portfolio experience of a select set of savings and loan associations, face some of the same problems of analytical interpretation as the second generation of studies. Without an analysis of the individual loan factors and institutional factors, particularly structural problems such as the age of the institutions and the relative seasoning of their portfolios, no firm conclusions on risk could be drawn from these analyses. Moreover, this

study does not even examine the geographic distribution of these foreclosures and analyze the associated neighborhood demographics as was done in the second generation studies. The authors assumed that the loans in default held by minority institutions represented urban risk while those held by non-minority institutions were proportionately lower representing lower ratios of investment in urban areas. Finally, the fundamental purpose of the study appears to have been to provide the League of Savings Associations with an empirical rationale for promoting a series a new federal mortgage insurance programs. The proposed programs were unquestionably predicated on the assumption that loans in urban areas inherently offered higher risk exposure to the lender. They included (1) a coinsurance program in which 80 percent of the loan would be insured with only 20 percent at risk by the lender,¹⁰ (2) adjustment of interest rates to reflect differential risks, (3) higher downpayments, homeowner counseling, variable user charges directly related to transaction costs, and (4) risk pooling through multi-bank service corporations (Brimmer and Company, 1977:70; 80-88). In sum, "rising public demand favoring the expansion of mortgage lending in urban areas" would require new means of risk reduction to enable savings institutions to prudently respond.

A second series in this generation of studies examined risk assessments made by lenders at the time of application or loan origination. These studies provide some insight into the underwriting standards actually used by the lending institutions from which these loan data were obtained. Two major studies of this type were conducted with data from savings institutions in New York and California where state regulations required record-

keeping on rejected as well as approved loan applications. Some minor studies were also conducted elsewhere with more limited data bases.

In 1978, one of these major studies was commissioned by the New York Savings Bank Association as a part of a research project on "redlining" in response to first and second generation studies, many of which had been done on New York banks (Schafer, 1978). The study covered state-chartered savings banks in the six metropolitan areas in that state. The primary research question in this phase of the study was whether black mortgage applicants were treated more adversely than whites. For five of the six metropolitan areas, the results indicated that blacks had significantly higher probabilities of denial than their white counterparts even after controlling for key socioeconomic variables such as household income (Exhibit 3-6).

In a subsequent study, Schafer co-authored an expanded analysis of the New York data in conjunction with loan application data of state-chartered savings and loan associations in sixteen metropolitan areas in California (Schafer and Ladd, 1980). This study found some evidence of adverse treatment, both approvals with less advantageous terms and outright denials for classes of borrowers such as minorities nominally protected by civil rights and equal credit statutes. Key findings specifically related to perceptions of urban risks included:

- In California, "there is some strong evidence that certain types of applicants are discriminated against...." Specifically, "Spanish applicants are as much as 2.5 times as likely to be denied than similarly situated whites; other minorities are as much as 5.9 times as likely to be denied." Also, "applications for mortgages in black or Spanish neighborhoods have a

EXHIBIT 3-6

Probability of Denial by Race of Applicant
(Controlling for Pertinent Socioeconomic Characteristics)

Race of Applicant	Metropolitan Area				
	Albany-Schenectady-Troy	Buffalo	Syracuse	Rochester	New York & Nassau-Suffolk (2)
Black	N/A ^a	24%	15%	14%	21%
White	N/A ^a	12%	7%	4%	11%

^aStatistical analyses indicated that applicants of different races treated equally at institutions sampled in this metropolitan area.

Source: Schafer, 1978.

higher chance of denial or downward modification than similar applications in neighborhoods with average concentrations of minorities." (Ibid:3-80, 3-82, 3-83, and 3-84).

- . In New York, the loan denial results were comparable to those summarized above as the data were analyzed in a similar fashion in Schafer's first study (1978). The results on adverse loan modifications "indicate that blacks are more likely to be modified by mutual savings banks and savings and loan associations. The latter are also more likely to modify applications from Hispanics." (Ibid:6-63). Results on denials or modifications on the basis of neighborhood characteristics held true in some types of banks in some of the metropolitan areas, but generally were not strong.

In sum, risk differentiation by race of applicant has been a statistically significant determinant of a lender's decision to deny or adversely modify the terms of the loan requested in both states. In California, racial composition of the neighborhood also appears to influence these loan decisions.

Two minor studies in this third generation of studies analyzed differences in terms and conditions on loans originated. One, based on a sample of approved mortgages from one California savings and loan association tried to evaluate the determinants of mortgage risk premiums -- that is, the difference between the effective interest rate on the loan and the effective prime rate on the date the loan was originated (Sandor and Sosin, 1975). This study is formulated on the basis of neoclassical assumptions that mortgages should be available to riskier borrowers or on properties in riskier neighborhoods at a price -- that is, an interest rate premium. With relatively weak results from a limited data base, this study only serves to question whether neoclassical theories of pricing by interest rates in fact

hold true, in the home mortgage market. The more extensive studies on California and New York described above and below indicate that variation is in other loan terms, with effectively higher costs assumed by the borrower, or outright denial of access to mortgage credit at any price.

Several other minor studies were based on approved loan data offered voluntarily by savings institutions in Rochester, New York, and some survey data developed by the researchers (Benston in New York Banking Department, 1977; Benston, Horsky, and Weingarten, 1978; Benston and Horsky, 1979). These studies corroborated the existence of differential lending patterns, but interpreted these results as either (1) indicative of the higher risks involved for the lender, or (2) weaker effective demand on the part of urban borrowers, either in terms of stated preferences or in terms of financial resources to exercise a broader range of loan alternatives. One example of the first set of interpretations arose where study results indicated shorter maturities offered on urban than suburban homes. The authors attributed this to the fact that urban homes are older, likely to have a shorter "useful life," and, hence, shorter maturities accurately reflect risk. The second set of interpretations is illustrated by study results which indicated suburban borrowers were more likely to receive conventional loans; urban borrowers, federally insured loans. These patterns were attributed to suburban borrowers' preference for lower interest rates and both their willingness and financial ability to make higher initial down-payments to qualify for a conventional loan.

In sum, this series of studies based on application and loan origination data indicates generally concludes that there are differential pat-

terms of investment. Those based on initial application data which included rejected as well as approved applications, concluded that racial and other non-economic attributes of the borrower and neighborhood did appear to influence lenders' perceptions of risk and, hence, disposition of loan applications (Schafer, 1978; Schafer and Ladd, 1980). Those developed from data limited to approved applications generally concluded that differential terms indicate differential treatment of urban and suburban borrowers. However, interpretation of these findings vary considerably. Researchers whose analyses are predicated on neoclassical market theory assumptions interpret these results as indicative of risks, differentials in effective demand. (Benston, et. al. 1978; Sandor and Sosin 1975). Findings of other studies indicate that these differential terms do not stem from financial factors (Schafer, 1978; Schafer and Ladd, 1980). These studies indicate that empirical evidence supports liberal or structuralist assumptions that differential lending patterns are not only the result of weaker demand in urban areas, but also of differential treatment of non-financial factors on the part of institutional suppliers. However, these studies of risk perceptions at origination would require analyses of subsequent risk experience with delinquencies and defaults in order to assess the accuracy of the lender's original perceptions.

The final series in this third generation of studies analyzed loans delinquent and in default in terms of urban borrower attributes and neighborhood characteristics associated with these riskier status categories (von Furstenberg and Green, 1974; Morton, 1974; Schafer, 1978; and, Williams, et. al., 1973). The only published precedents for these analyses

were the earlier FHA and VA studies focused on portfolio risk, i.e., were underwriting standards sufficiently stringent so as to exclude numerous delinquencies and defaults. One exception in that series was the study done by von Furstenberg which concluded that loans to lower income households were not inherently riskier such that FHA could liberalize its loan origination criteria to include more lower income households. This final set of analyses, based on conventional as well as federally insured loans, was generally directed at assessing whether lending institutions could prudently liberalize their loan origination criteria to extend more loans in urban areas, particularly in minority communities.

Several of these early studies (von Furstenberg and Green, 1974; Ibid., 1975; Williams, et. al., 1973) were based on limited data voluntarily provided by one or more savings and loan associations from Pittsburgh. The research conducted by Green and von Furstenberg was specifically designed to assess the mortgage risks associated with minority residents on the basis of over 7,000 current and delinquent loans from one Pittsburgh savings and loan association. On the basis of statistical analyses which examined "the extent to which low incomes and a high and rising percentage of blacks are indeed associated with an increase in lending risk on single-family home mortgages: -

Since the association with race is quite dispersed and since there are several characteristics other than race exerting a significant influence on delinquency rates, redlining of all areas with more than 25 percent blacks would be entirely too crude. It would condemn all such areas alike by the single criterion of race, while they are, in fact, diverse from the standpoint of mortgage quality.... [I]f mortgage quality is not closely related to the income levels of mortgagors or to

the racial makeup of neighborhoods, wholesale exclusion of entire areas is an excessively crude method of screening out high risks, even by the normal standards of private business. (von Furstenberg and Green, 1974: 165, 176)"

The research done by Williams and his coauthors indicated little correlation between any of the 18 factors used and delinquency or foreclosure.

The two other studies were based on more extensive data. Morton (1974) examined the delinquency and default experience of 24 Connecticut banks. Schafer (1978) examined the loan experience of mutual savings banks in seven metropolitan areas in New York state.

The Morton study, unlike the others in this group, did not explicitly examine the risks associated with lending in urban neighborhoods. However, implicitly these public concerns had generated a growing interest on the part of both the lending industry and public regulatory agencies in the development of objective credit scoring models which should be used in the evaluation of mortgage loan applications. This study introduced statistical techniques to home mortgage credit which had previously been applied to other types of credit such as business and personal loans. Using 12 factors related to the individual loan, borrower or property characteristics, Morton was able to correctly classify most of the loans in his sample as either current, delinquent or in default.¹² While Morton did not examine the relevance of neighborhood factors, in addition to the individual borrower and property characteristics, he also analyzed differences in loan type (conventional and federally insured) and loan terms by size and type of institution (mutual savings bank, savings and loan association, or commercial bank). He concluded that, "in general, savings and loan asso-

ciations tended to be the most aggressive lenders" with more loans with higher risk characteristics than commercial banks which "appeared to be the most conservative" (Morton, 1974:53). Also, larger institutions, particularly among the savings and commercial banks, invest proportionately more of their mortgage portfolio in federally insured loans than smaller institutions (Morton, 1974:48). These observations indicate the extent to which loan origination criteria, appraisal and underwriting standards, may vary by institution type and size. These results support the structuralist paradigm that risk evaluations are influenced not only by the effective applicant demand but by institutional agendas such as the expansion of mortgage loan portfolios (by savings and loan associations) or extension of federally insured loans (by larger institutions).

Finally, as a sequel to the analyses of New York loan application data discussed earlier, Schafer evaluated the mortgage risk experience of the savings banks in these same six metropolitan areas. Data were obtained directly from the loan files of the institutions which had commissioned the study in four status categories: active and current; active and delinquent; foreclosed loans; satisfied loans, i.e., paid off. Schafer used these data to address "redlining" issues by (1) controlling for borrower characteristics, loan characteristics, and "objective" geographic characteristics such as population decline, and (2) entering several urban neighborhood factors such as age of housing stock commonly assumed by lenders to be associated with higher risk. Of the four defined risk outcomes (probability of delinquency, duration of delinquency, frequency of delinquency, and probability of foreclosure), only those on the probability

of foreclosure explained 40 percent or more of the likelihood of higher risk. The incremental effects of the neighborhood characteristics, after controlling for individual loan data, were generally weak or equivocal.¹³

CONCLUSIONS

Mortgage lending criteria have been predicted both on property and location standards formulated in the 1920's, and household financial standards developed by the Federal Housing Administration in 1930's. For the most part, analyses of mortgage risk have focused exclusively on borrower economic information. Those studies which have examined urban property and neighborhood characteristics have generally found that while these characteristics may be used by lenders to differentiate loan applications at origination, they are generally insignificant in subsequent analyses of delinquency and default experience. The following chapter provides a series of analyses which further develop these earlier mortgage risk analyses. One series of analyses which further develop these earlier mortgage risk analyses. One series is designed to identify those characteristics which lenders in metropolitan Boston have used to differentiate conventional and federally insured borrowers. Given the paucity of information on rejected loan applications and the fact that subsequent delinquency and default experience cannot be analyzed on loans which were not made, these analyses of the lenders' decision-making on loan type offer considerable insight on risk assessment at origination. The second series, as a sequel to the first identifies those borrower and loan characteristics which are statistically associated with delinquency and default and which generally

overshadow the property and neighborhood characteristics which Boston area lenders appear to have traditionally perceived as higher risk.

NOTES FOR CHAPTER 3

¹Today, the Federal Housing Administration, which is within the U.S. Department of Housing and Urban Development, administers four different insurance funds: the Mutual Mortgage Insurance Fund, created in 1934 and since 1938 used only to provide mortgage insurance on one-to-four family homes under the "203" programs; the Cooperative Management Fund created in 1950 to insure loans on cooperatively owned residences; the General Insurance Fund established in 1965 as a means of consolidating "a wide variety of programs of varying risks" (Armstrong, 1977:6); and, a Special Risk Insurance Fund created by Congress in 1968 for subsidy programs, both homeowner ("235") and multi-unit rent ("236") programs, and for "the 223(e) program, which was designed to provide insurance in older declining inner city areas" (Armstrong, 1977:8). The first two funds were established as mutual funds, that is, it was anticipated that they would be self-sustaining with sufficient reserves from premium payments to cover any losses. Thus, the risk exposure on these loans was envisioned as being minimal, without requiring public subsidy. The third and fourth funds, however, were not so structured as it was anticipated that claims might well exceed revenue from premiums, thus requiring public subsidy.

For purposes of this discussion and analyses of federally insured loan data in Chapter 4, only those programs under which one-to-four family homes are insured will be addressed and, within these programs, primary emphasis will be given to those where neither individual loans nor the fund are subsidized (Mutual Fund, Section "203" loans) and secondary emphasis to those where the individual loan is not subsidized but the insurance fund may require some subsidy (Special Risk Insurance Fund, 223(e)). The reasons for this emphasis are threefold. First, in terms of both volume of loans and focus of what FHA risk literature is available, the "203" one-to-four family loan program has been the "bread and butter" program of the FHA and thus is most representative of FHA's experience. Second, since both the "203" and "223(e)" programs are unsubsidized loans to owner-occupants of one-to-four unit houses, there is solid basis for comparison of these loans with the predominant form of residential mortgage: the conventional loan on a one-to-four family home. And third, there is only one significant difference between the "203" and "223(e)" program -- the FHA inspector's appraisal of location, that is, is the subject property in a "high risk" urban neighborhood? A bank, or other type of mortgage lender, submit one set of forms for FHA approval; it is FHA personnel who either reject or approve the loan, classifying it as eligible under the 203(b) or 223(e) program.

²The mortgage rating grid still in use at that time was a "collective or summary judgment" of "the degree of overall mortgage insurance risk resulting from the relationships between the mortgage, the property securing the mortgage, and the borrower". In this grid system, so long as the overall rating for a loan and the rating for each set of characteristics was 50 points or more, it could be approved as a sufficiently sound and insurable risk. A rating of over 70 on any set of characteristics or overall was considered to be very sound. The table displayed below summarizes the frequency of ratings between 50 and 70

points by the year for loans acquired and type of construction on which they were issued during the four year period in question (1958 to 1961). While virtually all of the overall ratings for these loans and most of the borrower ratings were less than 70 points, generally, location ratings were higher than 70 points for 50 to 75 percent of the acquired loans; 70 to 95 percent of property ratings exceeded 70 points. (See the table on the following page.)

³These results indicate a disproportionate emphasis on location and property ratings not only by FHA personnel but perhaps also by private lenders originating FHA loans. The private lender initially compiles the required information and refers those applications recommended for approval to FHA for final processing. Thus, given that much of the information for the Rating Grid was obtained from FHA-approved mortgagees, these results may reflect location and property biases of participating private lenders as much as those of the FHA.

⁴The data base used was owner occupied one-to-four family home loans foreclosed during a twelve-month period between March, 1961 and March, 1962. Loans from six metropolitan areas -Chicago, Dallas, Detroit, Los Angeles, New York, and Philadelphia -- were included.

⁵The table on the following page summarizes the overall discrepancies in reasons given by lenders and borrowers for mortgage defaults

⁶These patterns, based on private lenders' files, were also observed on conventional loans.

⁷"The multiple regression analysis of FHA's default experience can help correct misleading impressions derived from simple cross-classifications.... For instance, in cross-tabulations, default rates are found to rise rather significantly as mortgagor income falls. This is true to a lesser extent also for the age of the principal mortgagor since the youngest families appear to be the worse risks. We have shown, however, that the concentration of insured loans in the highest L/V [loan-to-value ratio] classes rises as the income of mortgagors falls. Similarly, young families tend to demand more low downpayment loans than older families.... [However, it is neither age nor income but rather the financing characteristics of the mortgage correlated therewith, which account for much of the observed variation. Income definitely cannot compete with L/V as the principal variable explaining higher default rates for lower income groups."]

[Emphasis added] (von Furstenberg, 1971:27)

⁸For example, Shaw notes the surprising insignificance of housing expense to income ratio in his analysis:

"Any characteristic of the applicant extensively used by loan officers in choosing loan customers will not show up as a statistically significant factor." (Quoted from Hettenhouse and Wentworth, 1971:30)

EXHIBIT FOR NOTE 2

Frequency Distributions of Ratings at
Time of Insurance for Mortgage Pattern,
Location, Property, and Borrower by
Year of Issue and Type of Construction*

RATING (less than 70)	PERCENTAGE DISTRIBUTION			
	1958	1959	1960	1961
<u>Mortgage Pattern</u> (Overall Rating)				
New Construction =	100.0%	99.2%	97.6%	86.0%
Existing Construction =	98.4	97.7	98.1	94.3
<u>Location</u>				
New Construction =	45.4	29.3	21.6	43.6
Existing Construction =	32.9	22.1	22.0	22.2
<u>Property</u>				
New Construction =	15.7	5.2	4.2	7.5
Existing Construction =	32.1	26.9	25.6	29.5
<u>Morgagor</u>				
New Construction =	87.9	89.0	90.7	90.3
Existing Construction =	72.8	82.2	88.3	87.9

*Source: Data summarized from Tables 23, 24, 25, 26 in FHA,
1963:51-54

EXHIBIT FOR NOTE 5

REASONS FOR DEFAULT:
 PERCENTAGE DISTRIBUTION OF LENDER AND BORROWER
 REASONS BY TYPE OF FEDERALLY INSURED LOAN

(Summary Data for all 6 SMSA's)

<u>Reason for Foreclosure per Lender</u>	<u>FHA</u>	<u>VA</u>
Death of Owner	0.7%	0.8%
Illness of Owner	2.2	6.3
Marital Difficulty	9.5	14.3
Curtailment of Income	22.1	30.0
Excessive Obligations	3.8	14.3
Improper Regard for Obligations	47.1	26.5
Property Unsatisfactory	0.7	0.5
Distort Employment Transfer	1.9	.6
Inability to Sell or Rent Property	3.1	2.2
Other	<u>8.8</u>	<u>4.4</u>
Percent of Total Reporting	100.0%	100.0%
Total Number Reporting	807	4593

<u>Reason for Foreclosure per Borrower</u>	<u>FHA</u>	<u>VA</u>
Death of Owner	1.9%	0.2%
Illness of Owner	0.9	1.3
Death or Illness in Family	21.8	19.8
Marital Difficulty	11.0	11.6
Curtailment of Income	35.3	39.9
Increase in Homeowner Costs	7.2	5.2
Increase in Non-Housing Costs	1.2	2.9
Unsatisfactory Property	5.0	4.0
Inability to Sell or Rent Property	4.5	6.4
Overextension	8.9	6.7
Other	<u>2.4</u>	<u>2.0</u>
Percent of Total Reporting	100.0%	100.0%
Total Number Reporting	1050	2251

Source: HHFA, 1963:18-19

⁹It should be noted that multiple regression analyses based on data aggregated by geocode are not as statistically sound as

¹⁰This coinsurance concept was identical to the programs offered by the private mortgage insurance companies (PMI's). The reasons for the League promoting such a program for public sponsorship at this time may have been:

- (1) PMI's had generally adopted suburban-oriented underwriting policies which discouraged or excluded urban properties. A comparable program was perceived as necessary for urban areas, one which would cover not only the lower downpayment loans, but offer general insurance against "urban risk".
- (2) FHA, in part as a result of lender abuses of urban reinvestment programs in the late 1960's and early 1970's, had imposed origination and servicing requirements which served as disincentive for the League's member associations to participate in FHA insurance programs.

Underlying both these rationales is the assumption that for urban loans, regardless of the loan-to-value ratio, insurance would be necessary to permit prudent lending on the part of the originating institutions.

¹¹This study was published again in slightly different form in journal articles : "The Effects of Race and Age of Housing on Mortgage Delinquency Risks" Urban Studies (February, 1975) and "Estimated of Delinquency Risk for Home Mortgage Portfolios" AREUEJ and Vol. II (Spring, 1974): 5-37.

¹²Morton introduced the use of linear discriminant function analysis, a multivariate statistical technique which had been previously applied in risk analyses of business credit and personal loans (e.g., Altman, 1968; Bates, 1973; Myers and Forgy, 1963; Orgler, 1970). His results are summarized in a table on the following page. These results were reasonably strong for two-way breakdowns (current versus "bad", i.e., delinquent or default and not foreclosed, i.e., current or delinquent, versus foreclosed). In these equations, using 12 of the original 43 independent variables, Morton was able to correctly classify as many as 70 percent of the loans in his sample.

¹³See table on following page.

EXHIBIT FOR NOTE 12

Results of Discriminant Function Analyses
in Morton's Study Based on 24 Connecticut Banks

<u>Discriminant Function Analyses^a</u>	<u>Percentage of Loans Correctly Classified^b</u>	
	<u>Original Sample^c</u>	<u>Holdout Sample^c</u>
A. "2-Way"		
1. Good (current) versus bad (delinquent and default)	70.2%	65.1%
2. Not foreclosed (current) versus foreclosed (delin- quent and defaulted)	73.6%	71.6%
B. "3-Way"		
Current versus delinquent versus defaulted	55.2%	44.9%

^aTwelve of the 43 original independent variables used in these equations: 5 or more dependents; junior financing; 3- family property; employed as a professional; borrower with non-real estate debt; self-employed; loan amount to appraisal; employed unskilled occupation; borrower's age, 25 to 29; borrower's age, 50-59; employed as salesman.

^bF Test significant at .05 level for each of these equations.

^cLoans sampled from 24 banks on one-to-three family properties with the following status distribution:

	Current	90+ Days Delinquent	Foreclosure
Original Sample	224	126	66
Holdout Sample	55	32	22
Total	279	158	108

Source: Morton, 1974 Table 3-3.

EXHIBIT FOR NOTE 13

Results of Mortgage Risk
Analyses: Summary Statistics
for Each of Four Equations
by Metropolitan Area

Metropolitan Area(s) ^a		Measure of Risk			
		Probability of Delinquency	Duration of Delinquency	Frequency of Delinquency	Probability of Foreclosure
New York/ Nassau-Suffolk	R ² N	0.273 274	0.225 271	0.229 246	0.401 113
Albany - Schnectady- Troy	R ² N	0.388 144	0.328 144	0.345 128	0.538 117
Buffalo/Rochester/ Syracuse	R ² N	0.195 198	0.194 187	0.284 171	0.190 150

^aSix metropolitan areas grouped so as to have a sufficient number of cases with data.

CHAPTER 4

MORTGAGE RISK IN METROPOLITAN BOSTON:

AN ANALYSIS OF CONVENTIONAL AND FEDERALLY INSURED LOAN EXPERIENCE

INTRODUCTION

Mortgage risk analyses presented in this chapter were designed to augment previous research. As discussed in Chapter 3, most earlier studies did not focus on risk issues pertinent to urban investment questions. For example, many of these earlier studies were based exclusively on federally insured loan data, while most residential mortgages have been conventional loans. This distinction between conventional and federally insured mortgages has become a critical one for urban homebuyers. Since 1968,

...with the expansion of FHA insurance [which had previously been virtually unavailable] in the inner city, conventional financing was withdrawn more rapidly.... This resulted in the reinforcement of the dual housing market by making separate types of home financing available to different neighborhoods....
(Urban-Suburban Investment Study Group, 1977:Part II, 67-68)

Thus, the decision to award a conventional or federally insured loan in itself may be indicative of the lender's perception of urban neighborhood risks.

Most mortgage risk studies have not assessed the statistical effects of neighborhood factors. Analyses limited to borrower, property, and loan characteristics have not tested mortgage industry assumptions that urban neighborhoods are inherently riskier than their suburban counterparts.

The analyses of metropolitan Boston presented in this chapter are based on two loan samples of roughly equal size, one of conventional mortgages and the other of federally insured so as to assess the determinants of a lender's decision to award one loan type or the other. Subsequently, the determinants of delinquency and default risk are evaluated, separately for each loan type. In both sets of analyses, urban neighborhood characteristics are examined to assess any statistical effects they may have after controlling for individual borrower, property, and loan factors.

These analyses assess aspects of mortgage risk, particularly with reference to urban lending, which have not been examined in prior research. However, it is important to note gaps in the data base available. Crucial aspects of screening applicants as well as originating and servicing approved loans could not be evaluated for lack of essential data in this as most other risk research. Key risk evaluation stages in mortgage lending are summarized on the following page with heavy lines highlighting those few subcategories of loans for which the available data on loan origination and subsequent delinquency and default experience are representative (Exhibit 4-1). Given that the vast majority of loans are in good standing, a stratified sampling procedure was used to obtain an adequate number of delinquencies and defaults for analysis. Details of the sampling methodology and collection procedures used to obtain the data are summarized in Appendix B.

Risk assessment by the lender often begins with oral inquiries, either by phone or in person, by the prospective applicant. In the course

EXHIBIT 4-1

RISK EVALUATION STAGES IN THE MORTGAGE LOAN PROCESS

MORTGAGE LOAN INQUIRY MADE BY PROSPECTIVE APPLICANT (orally or in person)	WRITTEN APPLICATION SUBMITTED FOR A CONVENTIONAL LOAN	APPROVED (as applied for or with modifications in bank terms)	ACTIVE	CURRENT, i.e., loan payments up to date	At Point in Time Data Sampled
					Throughout History Since Origination
				MINOR DELINQUENCY i.e., less than 90 days overdue	At Point in Time Data Sampled
					Ever Since Origination
				MAJOR DELINQUENCY i.e., 90 days or more overdue	At Point in Time Data Sampled
					Ever Since Origination
			CLOSED	PAID OFF satisfactorily	
				DEFAULT	
				CURRENT, i.e., loan payments up to date	At Point in Time Data Sampled
					Throughout History Since Origination
			ACTIVE	MINOR DELINQUENCY i.e., less than 90 days overdue	At Point in Time Data Sampled
					Ever Since Origination
				MAJOR DELINQUENCY i.e., 90 days or more overdue	At Point in Time Data Sampled
					Ever Since Origination
			CLOSED	PAID OFF satisfactorily	
				DEFAULT	
	NO WRITTEN APPLICATION SUBMITTED				

of this informal exchange, the prospective applicant may be discouraged from submitting a written application either because of a preliminary judgment made by the loan officer or information about bank underwriting policies (e.g., no loans on non-single family homes) which would preclude approval of an application. In both cases, the prospective applicant is discouraged on the basis of risk perceptions of the lender, either an assessment of the individual situation or general loan policies. There is seldom any record of the risk decision-making process which occurs at this stage. One exception may be, for those who go on to file a written application, the determination of whether an application should be submitted for a conventional or insured loan is often made at this stage.

Once a prospective borrower completes a written application, recorded data is more likely to be available to the researcher. However, much of the critical information is often available only for those loans which are fully processed by lender and approved. Even where applications rejected by the bank are retained, metropolitan Boston bank data on these applications were generally found to be incomplete as the decision to reject preceded completion of credit check, property appraisal, and so on. Thus, a complete analysis of the factors which differentiate approved and rejected applications within each loan type could not be adequately performed with the data available for analysis.¹

An application is approved subject to certain terms such as required downpayment, interest rate, and maturity. For the most part, it is difficult for the researcher to reconstruct what the lender's standard practice was at the time of loan origination and, thus, to assess whether more

stringent loan terms were levied by the lender to compensate for perceived risks.

After approval, each loan has a history of remaining current, lapsing into a minor or major delinquency or even default. The factors associated with loans in each of these categories can be readily assembled at a point in time. However, longitudinal history of a loan is more difficult to obtain. Minimal information on frequency and duration of past delinquency experience were available for loans sampled in the metropolitan Boston data. Moreover, to obtain adequate loan data for major delinquencies and defaults, (which occur relatively infrequently) for purposes of comparison with the vast majority of loans in good standing requires stratification and sampling techniques which necessarily introduce biases in the data.

In sum, the metropolitan Boston analyses offer some insight into determinants of loan type at origination and determinants of loan status over the life of the loan. Data limitations result in an analysis of several key aspects, albeit not a complete picture, of the risk perceptions and experience of savings institutions in this area over several decades.

DEVELOPMENT OF ANALYSES BY LOAN TYPE AND STATUS

Two basic types of risk analyses are presented in the following sections. One is based on risk assessment at the time of the mortgage application, that is, the decision of the mortgage officer to grant a conventional or federally insured loan. The second is a series of analyses devoted to the determinants of loan status, that is, one's ability to predict whether a loan will stay current, become a minor or major delinquency,

have a history of serious delinquency, or go into default.

A federally insured loan traditionally has been issued by a mortgage lender for any one of three reasons:

- Household's Ability to Make the Downpayment Required for a Conventional Loan
For the past several decades, if a homebuyer did not have sufficient funds accumulated to make the downpayment required for a conventional mortgage, i.e., 20 percent or more of the purchase price of the house, a lender could offer an FHA insured mortgage for a downpayment as low as 3 percent and, for veterans, a VA guaranteed mortgage for 1 percent down.

- Lender's Ability to Sell Mortgages in the Secondary Market
Federally insured loans have commonly been used where the lending institution needed to sell loans to outside investors in order to obtain funds to make more mortgages. Thus, federally insured mortgages were actively issued by mortgage companies and mortgage brokers. Without their own sources of capital growth, such as the deposit base of a banking institution, these lenders needed to sell loans to make loans. Among the major purchasers were private institutional investors such as insurance companies. Insurance companies were willing to purchase many of these loan packages on the grounds that, since they were federally insured, they were virtually equivalent to purchases of U.S. Treasury securities. Federally insured mortgages were heavily used by both the mortgage brokerage segment of the lending industry and by lenders in rapidly growing areas of the country, such as the West Coast, where local capital resources were insufficient to meet demand and sale of federally insured loans in a national investment market provided an effective means to import more capital from "capital rich" regions such as the Northeast. As a result, prior to the late 1960's, federally insured mortgages were not as common in metropolitan Boston as in less developed areas of the country.²

- FHA as a "High Risk" Neighborhood Program
Under the Housing Act of 1968, the Federal Housing Administration was mandated to actively encourage mortgage lending to minority homebuyers and generally to homebuyers in minority neighborhoods. Thus, a third

criterion for promoting FHA insured loans was introduced. This metropolitan Boston analysis will assess, after controlling for borrower and property characteristics, the extent to which neighborhood characteristics appear to contribute to local banks' decisions as to whether to grant a conventional or federally insured loan.

The second series of analyses on loan status will use several different measures of "good" versus "bad" loans. The first of the series is devoted to testing the probability of a loan being "bad" at the time data were collected, based on the information available to the lender at origination. The outcomes used in this series are:

- Probability of Any Delinquency, i.e., Minor and major delinquencies and defaults versus current loans.
- Probability of Serious Delinquency or Default, i.e., Major delinquencies and defaults versus current loans and minor delinquencies.
- Probability of Default, i.e., Defaults versus minor and major delinquencies and current loans.

The runs in this series are devoted to evaluating one's ability to predict, whether a loan, since origination, has ever been subject to a serious delinquency notice or issued a default warning by the lender servicing the loan. The outcomes used in this series are:

- Probability that a loan was ever issued a serious delinquency notice
- Probability that a loan was ever issued a default warning.

The advantage of these loan servicing contact variables is that they present a historical perspective on delinquency rather than the more limited definition of status at the time of loan data collection used in

the first series. There are two possible limitations of this servicing information. One is that these data are only available where the lender has maintained records of oral or written contact with the borrower. A bank by bank review of contact patterns, however, did not reveal any systematic lack of contact information for individual banks. Another is that lending institution procedures and practices regarding servicing contacts may differ considerably. For example, one savings institution in the Boston area several years ago adopted a policy of issuing a default warning to any borrower who had failed to make two consecutive payments (60 days overdue) and forwarding the loan file to outside attorneys to institute foreclosure proceedings. Thus, while a borrower in this bank would be recorded as having received a default notice, a borrower from another bank might be overdue twice as long (120 days) before receiving any default warning notices. Nonetheless, each of these five definitions of status outcomes is useful in providing a somewhat different perspective on the issue of risk exposure to the lender through delinquency and default.

FORMULATION OF ANALYSES OF LOAN TYPE DECISIONS AND RISK OUTCOMES

Once the major outcomes had been defined, two models were formulated -- one for loan type decisions and the other for loan status outcomes. These basic models consisted of a number of financial measures related to the household and property purchased. These measures were developed through extensive examination of the factors for which data were available and their statistical strength relative to the defined outcomes (see Appendix C). Of these factors, those for which adequate information was

available were selected and incorporated in the basic models summarized in Exhibit 4-2. Controlling for each of these financial factors, the effect of each individual factor on loan type and status outcomes was examined.³

In addition to the financial variables which comprised the basic models, a number of other factors were also examined to determine whether they too were influential in loan type decision-making or in predicting a loan's status. The purpose of this phase of the analysis was to find out whether non-financial, and in some cases discriminatory, factors were related to the loan outcomes.

Given the large number of additional explanatory variables under consideration, three major variable classifications were developed. One set pertains to specific characteristics associated with an individual loan. These included attributes of the borrower(s), property, and the bank. Another is a set of general neighborhood characteristics describing the geographic area where the property was located. Also included were two general location variables indicating whether or not the property or the lending institution were in urban or suburban areas. A hierarchy was then established among these variables to determine the order in which the contribution of a particular variable should be considered. This hierarchy was as follows:

Loan-Specific Variables

- (1) Number of units (single-family versus two-to-four unit dwelling)
- (2) More than one wage earner on loan application (Yes or No)
- (3) Primary wage earner self-employed (Yes or No)

EXHIBIT 4-2

FINANCIAL FACTORS IN THE
BASIC LOAN TYPE AND DELINQUENCY
RISK MODELS

LOAN TYPE ^a	DELINQUENCY RISK ^b
REGULAR EARNINGS PER CAPITA INSTALLMENT DEBT TO INCOME RATIO BANK APPRAISED VALUE AS A PERCENTAGE OF PURCHASE PRICE BANK APPRAISED VALUE	REGULAR EARNINGS PER CAPITA INSTALLMENT DEBT TO INCOME RATIO MORTGAGE DEBT TO INCOME RATIO LOAN TO VALUE RATIO REFINANCED LOAN

^aA time-related variable, defined as months originated prior to 1979, was included in this basic model to control for any changes in underwriting policies and to minimize the effects of inflation on the variables defined in terms of dollars.

^bA time-related variable defined as age of loan (that is, the number of monthly payments made after the loan origination) was included to control for the seasoning effect.

- (4) Occupational prestige of primary wage earner's occupation⁴
- (5) Age of primary wage earner (in years)
- (6) Marital status of primary wage earners (married/single/widowed or divorced)
- (7) Sex of primary wage earner
- (8) Size of lending institution (in millions of dollars in deposits)

Neighborhood Variables

- (9) Mean 1970 household income in census tract or zip code where property was located
- (10) Percent of two-to-four unit structures built prior to 1939 in census tract or zip code where property was located
- (11) Percent minority population in 1970 in census tract or zip code where property was located.

General Location Variables

- (12) Property location (urban/suburban)
- (13) Location of bank's main office (urban/suburban)

To assess the importance of these factors, variables were added to the basic model one at a time in the order specified. Only those factors which were significant in addition to the variables previously entered in the model have been identified as determinants of delinquency risk or loan type decision.⁵

TESTS FOR MODEL DIFFERENCES

One of the assumptions implicit in any statistical analysis is that the underlying model applies equally well to each of the members of the population for which it is to be estimated. This means that any variable

in a linear model should have approximately the same effect for each population member, regardless of the specific attributes of that person. If, for example, refinanced loans are hypothesized to increase the probability of default, then the risk associated with refinanced loans should be the same for borrowers in suburban areas as for those in urban areas, the same for persons financing single-family homes as those buying multiple-unit dwellings, and so on. To the extent that certain explanatory variables have differential effects for different types of borrowers or loans, an attempt to estimate a single model for the entire population will produce biased estimates of the influence of these variables and result in misleading conclusions regarding their importance, unless these differences are incorporated into the statistical model. When confronted with the possibility of behavioral differences among different subpopulations of the same sample, there are two basic alternatives: stratify the sample into different subsamples relating to each group or specific behavioral differences within one overall model through a dummy constant term or a slope dummy variable. A series of tests was conducted to investigate the possibility that the basic conceptual models that had been developed would need to be estimated separately for specific types of borrowers or loans.

On the basis of these tests, two major revisions were made prior to conducting the final analyses. First of all, the influence of certain factors in determining whether a borrower was originally granted a conventional or federally insured loan tended to change over time. These differences appear to be related to changes in the Federal Housing Administration's mortgage lending mandate. With the passage of the Housing

Act of 1968, the FHA began to actively encourage lending to minority homebuyers and in minority neighborhoods. As a result, the loan type model has been estimated separately for mortgages made prior to 1969 (the year the impact of the Housing Act would presumably first take effect) and loans issued in the decade from 1969-1978.

In addition, an examination of bank appraised property values revealed that conventional loans were rarely granted for properties valued at less than \$10,000 while federally insured loans were almost never made for homes appraised at \$40,000 or more. Therefore, the loan type analysis has been restricted to properties valued at between \$10,000 and \$40,000, the range within which lenders must decide which type of loan a homebuyer should be granted.

Second, in loan status models of the probabilities that a loan would become delinquent or default, the impact of certain risk factors differed depending on the type of loan a borrower had received. Therefore, models predicting loan status have been estimated separately for conventional and federally insured loans. Because this distinction between the two types of loans was anticipated at the inception of this study, the sampling methodology was designed to obtain a sufficiently large number of loans of each type to permit such a stratification.

A number of other potential qualitative model differences were also tested, but no indication of any serious model misspecification problems were found for any of these factors. These included:

- Single versus multiple (2-4 family) unit dwellings;
Suburban versus urban properties (urban properties were defined as those in the cities in the metropolitan

area with population densities of more than 10,000 persons per square mile);

- Suburban versus urban-based banks (urban-based banks were defined as those with main offices in the most densely populated urban communities);
- Properties located in areas with minority populations of 10 percent or less versus dwellings in areas where minorities constitute more than 10 percent of the population;
- Large versus smaller banks (large institutions were defined as those with \$299 million or more in deposits).

In addition, the loan type model was also tested to determine whether the probability of receiving a federally insured loan differed depending on whether the loan was insured by the Federal Housing Administration or the Veterans Administration. No significant distinctions were detected, however, and FHA and VA loans have been merged for the purposes of this analysis.

Thus, tests for model differences resulted in two major modifications in the analysis: (1) the probability of being granted a conventional as opposed to a federally insured loan has been examined for two different time periods, for a restricted range of appraised values, and (2) the effects of risk factors on the delinquency status of a loan have been estimated separately for federally insured and conventional loans.

LOAN TYPE: PROBABILITY OF RECEIVING A CONVENTIONAL OR FEDERALLY INSURED MORTGAGE

Overview

A risk evaluation of mortgage application by a banker may lead to one of several alternatives:

- approved
 - ...as a conventional loan
 - ...as a conventional loan with private mortgage insurance
 - ...as a federally insured FHA or guaranteed VA loan;
- approval of any one of the above loan types but with modifications in the terms originally requested by the borrower;
- rejected by the banker; or,
- withdrawn by the applicant.

Of these, the data most readily available from mortgage lenders are those on the first alternative, approved loans. As discussed at the outset of this chapter, risk-related reasons for approval of a federally insured rather than a conventional loan are threefold: a household's ability to make the downpayment required for a conventional loan; the lender's ability to sell mortgages in the secondary market; and, the use of FHA 100 percent loan insurance as a "high risk" property or neighborhood program. Conventional loans with private mortgage insurance were developed as alternative means of financing loans which qualified for insurance coverage for one of the first two reasons when FHA was applied to "high neighborhood risk" evaluations after 1965. Private mortgage insurance has not been commonly used in metropolitan Boston until very recently. As a result, analyses of the loan approval process will focus on the decision to grant conventional versus federally insured loans both prior to and since 1969.

Regarding the second alternative, approval with modifications, little data has been consistently available on the loan terms which the borrower(s) originally applied for. Until federal regulations were adopted in 1977 which required federally chartered and insured institutions to keep

written records of original inquiries, in most states, including Massachusetts, there were no recordkeeping requirements on these applications. For purposes of these risk analyses, one variable has been specifically created to proxy lender-borrower differences: the ratio of the appraised value of the bank to the purchase price paid by the borrower.⁶

Formulation of the Basic Loan Type Model

The probability that an applicant would be granted a conventional rather than a federally insured loan, as an outcome of the bank's risk evaluation of the application, was assessed on the basis of a model comprised of a number of household financial characteristics and factors related to purchase price and bank appraisal of the property to serve as collateral security for the mortgage. Each of the factors used in the model was developed from information known to the bank prior to the final decision on loan amount or terms to be offered to the applicant. Two aspects of a household's finances have been included: monthly earnings per capita (based on the total number of household members) and the percentage of that income required to meet payments on outstanding installment debt unrelated to housing costs. Two additional factors considered by the bank prior to loan approval are an appraisal of the value of the property and the ratio of the appraised value to the purchase price of the home.

One other variable -- the number of months prior to 1979 the loan was originated -- has also been incorporated in the model. This variable was not anticipated to have an important influence in and of itself but is

required primarily to adjust for any differences in loan origination dates and to correct dollar values for the effects of inflation over time.

Thus, the basic loan type model was specified as follows:

$$p(\text{CONV}) = b_1 \text{ TIME} + b_2 \text{ REGCAP} + b_3 \text{ INSTREG} + b_4 \text{ APPUR} + b_5 \text{ APVAL} + a$$

where

$p(\text{CONV})$ = the probability that an applicant was granted a conventional as opposed to a federally insured loan,

CONV = a dummy variable representing loan type, coded 1 if the applicant received a conventional loan and 0 if an FHA or VA loan was granted,

TIME = the number of months prior to January 1, 1979 the loan originated,

REGCAP = monthly regular earnings per capita (i.e., per household member),

INSTREG = monthly installment debt as a percentage of regular monthly earnings,

APPUR = bank appraised value as a percentage of purchase price,

APVAL = bank appraised value of the property (in dollars),

b_1 - b_5 = a vector of regression coefficients, and

a = a constant.

Analysis of Basic Loan Type Model

The effects of the variables in the model on the probability of receiving a conventional loan were first assessed for the period from

1969-1978, following the change in FHA mortgage insurance policies. Over 70 percent of the loans in the study were made during this period.

Of the four factors of primary interest, during the period from 1969-1978, the appraised value of the property was the most strongly correlated with the probability of receiving a conventional loan ($r=.40$). That is, the higher the bank appraised value the better the chance that the loan was conventional. This was followed by installment debt ratio ($r=-.15$), the appraised value to purchase price ratio ($r=.12$), and regular earnings per capita ($r=.09$). Similar correlations were found for the period prior to 1969.⁷

The basic model results were as follows:

1969 to 1978

$$\begin{aligned} p(\text{CONV}) = & .00064 (\text{TIME}) + .00005 (\text{REGCAP}) \\ & - .01057 (\text{INSTREG}) + .00290 \text{ APPUR} \\ & + .00003 \text{ APVAL} - .60506 \end{aligned}$$

When each of these variables were controlled for simultaneously, the results suggested that the strongest impact on loan type was attributable to appraised value -- the higher the bank's assessment of the property value, the more likely the applicant was to receive a conventional loan (See Exhibit 4-3). Significant effects were also found for the appraised value as a percentage of purchase price (higher ratios increasing the probability of a conventional loan) and installment debt levels (which decreased this probability). Regular earnings per capita had almost no unique effect on loan type probabilities, but this was due in part to the fact that borrowers with high monthly earnings were also those seeking to

EXHIBIT 4-3

LOAN TYPE DECISION SUMMARY

<u>Basic Model Variables^a</u>	<u>Loans Originated From 1951-1968</u>	<u>Loans Originated 1969-1978</u>
Months originated prior to 1979	ns	ns
Regular earnings/household size	ns	ns
Installment debt/regular earnings		
Appraised value to purchase price	ns	+
Appraised value	+	+

Other Variables With Significant Effects^b

Deposit Size	-	-
Single-family home	+	ns
Widowed/divorced	+	ns
Self-Employed	ns	+

^aBasic model variables were included on the basis of theoretical specification. None were dropped on the basis of insignificant results. Significance test used for these variables was the F Ratio result in the equation: "+" indicates statistically significant with a positive coefficient; "-" indicates statistically significant with a negative coefficient; and, "ns" indicates that the F Ratio was below a .05 level of significance.

^bOther variables were included on the basis of any significant contribution (.03 or more) to increase goodness of fit of the equation. A "+" indicates statistically significant with a positive coefficient; a "-" indicates a statistically significant with a negative coefficient; and, "ns" indicates that the variable was not statistically significant (i.e. contribution to r^2 of less than .02).

Other variables with insignificant effects: Borrower Attributes: Age; Sex; Multiple Wage Earners; Occupational Prestige; Self-Employed.
Property and Neighborhood Characteristics: Single/Multi-Family Dwelling; Property Location; Older 2 to 4 Unit Structures; Mean Household Income, 1970; Percent Minority Population, 1970.
Lender Characteristics: Bank Location.

finance homes with higher appraised values. For loans made prior to 1969, the results were similar with one exception -- no appraised value to purchase price ratio effect was detected during this period. While neither regular earnings per capita nor the control variable for time period of origination were statistically significant, they were retained in the basic model as correctly specified as factors which should be key determinants of loan risk evaluation at origination (See Appendix D, Exhibits D-7 and D-8).

Finally, the strength of any statistical results from this model were affected by the stratified sampling methodology. Analyses were based on comparable numbers of each type of loan, despite the fact that conventional loans are the more prevalent type of mortgage. As a result, the overall goodness of fit for these equations was (adjusted $r^2 = .18$) for the period 1969 to 1978 and slightly stronger (adjusted $r^2 = .22$) for the earlier period. These results are indicative of the roughly equal numbers of each type of loan. The probability of a conventional mortgage in this equation will be closer to .5 than to 0 or 1. An alternative method of multivariate analysis particularly well designed to test discrete outcomes such as loan type did not modify the results of the model originally tested under ordinary least squares regression analysis, (See Note 3 and Appendix D, Exhibits D-7 and D-8). Thus, the stratified data base necessary to obtain an adequate sample of loans of each type limited the results of subsequent analyses designed to predict which type of loan would be offered to an applicant.

Effects of Other Factors

In addition to the financial and economic variables comprising the

basic loan type model, a number of other more subjective and, therefore, potentially discriminatory variables were also examined to determine whether or not they were also influential in the decision to grant an applicant a particular type of loan. The analyses of these variables are based on a somewhat smaller number of cases than the basic model due to missing data. For example, one variable that could not be included for this reason, but which had appeared in preliminary analyses to be of importance in the loan type decision, was whether or not a borrower was financing a home for the first time.⁸

After accounting for the financial variables related to the household and property purchased which were set in basic model, only one other factor -- the size of the lending institution -- proved to be a significant predictor of the loan type decision before and particularly after 1969. The larger the institution in terms of dollars on deposit, the less likely a borrower was to receive a conventional loan. In other words, if the same borrower were to apply for a mortgage at two different banks, he or she would be more likely to be granted a conventional loan at the smaller bank.

For loans originated in the 1950's and 1960's, both the number of units in a dwelling and whether or not the primary wage earner was widowed or divorced also appeared to have some influence on the type of loan received. During this period, lenders were somewhat less likely to grant conventional mortgages on multiple-unit dwellings, and more inclined to provide widowed or divorced borrowers with conventional loans than single persons who had not been married previously. By the 1970's, there was no longer any statistical evidence that lenders continued to differentiate on

the basis of these two variables. Only self-employment of the primary wage earner appeared to have any marginally significant effect on the probability of receiving a conventional loan in this later period.

The introduction of these other significant factors did not substantially affect the coefficients of the variables in the basic model for either period, thus indicating that the basic models were relatively stable equations (See Appendix D, Exhibits D-7 and D-8). In the later period, deposit size had a pronounced effect on the predictive strength of the equation (adjusted r^2 with deposit size = .43).

LOAN STATUS: PROBABILITY OF DELINQUENCY OR DEFAULT

Overview

Mortgage risk can best be assessed through an analysis of actual loan experience. What factors known to the mortgage officer at the time of loan origination are significant determinants of loan risk? Can one reliably predict the probabilities of delinquency or default based on information collected in the mortgage application? A series of analyses devoted to the identification of factors associated with mortgage risk were prepared to address these questions. Given the results of earlier tests indicating differences in the determinants of risk of conventional compared with federally insured loans, each of these loan status analyses was performed separately for these two loan types.

One phase of this analysis focuses on loan status at the time of data collection for this study and evaluates one's ability to predict:

- the probability of any delinquency, i.e., major and minor delinquencies and defaults versus "current" loans;

- the probability of serious delinquency or default, i.e., major delinquencies and defaults versus current loans and minor delinquencies; and,
- the probability of defaults, i.e., defaults versus minor and major delinquencies and current loans.

Each of these probabilities has been expressed as a function of borrower, property, loan, and possible neighborhood characteristics.

The second phase is based on the status history of the loans based on any previous delinquencies, minor and major, which the bank may have even considered serious enough to warrant warning notices regarding foreclosure. If the loan data had been collected in a different month or year, loans which are classified as current might have been delinquent and vice-versa. Thus, these analyses were developed on the basis of loan servicing information through which each loan is classified according to its previous payment record as well as its present status. Based on contact records, each loan was screened for any evidence of:

- serious delinquency of more than 90 days; or,
- default notice.

These analyses have been structured in a manner similar to the earlier equations on loan type. First, a basic equation was constructed using financial factors which relate to the economics of the loan. These analyses were formulated on the basis of household financial characteristics and loan characteristics which reflect the terms on which the bank initially extended the loan. Thus, in contrast to the loan type analysis in which the factors considered were those existing prior to a bank's decision on loan amount or terms, these loan status analyses were predicated on factors such as mortgage debt to income ratios and loan to value ratios which were

established only after the bank formulated an offer to the applicant.

Subsequently, additional analyses were carried out for each of these sets of outcomes. Controlling for the financial factors in the basic equation, evaluations were made as to any additional characteristics which further contribute to one's ability to predict loan risk. These factors included various attributes of the property, wage earner characteristics, and any differential in lender characteristics. Again these analyses are based on data which lenders have screened through their own evaluation of the likelihood of repayment in making the original loan commitment. (Exhibit 4-1). In this initial evaluation, three or more sets of underwriting risks may have been taken into consideration. Default has been a primary, if not the major, underwriting concern of mortgage lenders traditionally as recouping the outstanding mortgage amount requires instituting foreclosure proceedings or collection in full on mortgage insurance. Delinquency has been of concern, even where it does not result in default, as either prolonged or chronic delinquency may impose significant servicing costs in contacting and counseling the borrower. Finally, while these analyses are directed exclusively at evaluating individual loan risks in any period, general economic trends may also have a pronounced effect on the likelihood of delinquency or default and may have factored in a lender's decision at the time of origination of any of these loans.

Formulation of Basic Loan Status Model

The principal objective of this analysis is to determine which factors known to a mortgage officer at the time a loan is made can be used to predict the probability that a loan will become delinquent or default at

some point in time. To fully explore this question, the status of a loan has been defined in several ways. First, the most serious and conclusive evidence of risk is default. Thus, the first definition of status was to simply classify loans as defaults or nondefaults. A second approach is to assess a loan's status at a given point in time, in this case, in 1978 when the sample of loans used in this analysis was drawn. At this time, for sampling purposes, a loan was categorized as either current, a minor delinquency (30-90 days in arrears), a major delinquency (more than 90 days in arrears), or a default. Third, some historical perspective is offered by classifying loans according to their prior delinquency records. Over time, status may be defined as (1) whether a particular loan had ever been seriously delinquent (more than 90 days overdue), and (2) whether a borrower had ever been officially notified that foreclosure proceedings would be undertaken unless loan payments were made.

Thus, the status of a loan may be assessed on the basis of data available for metropolitan Boston in terms of five different probabilities of interest to lenders:

- . the probability that a loan will default
- . the probability that a loan will ever become seriously delinquent
- . the probability that a loan will receive a foreclosure warning
- . the probability that a loan will be delinquent for 30 days or more at a given point in time
- . the probability that a loan will be delinquent for 90 days or more at a given point in time.

As in the loan type analyses, a basic model was constructed to

explain each of these five loan status outcomes. Comprised of a similar set of household financial and loan characteristics, this model has been formulated on the basis of common mortgage lending practices and previous empirical research. Six factors constitute the basic loan status model. Two of these, monthly regular earnings per capita and monthly installment debt as a percentage of income, are indicators of a borrower's financial status at the time a loan was made. Two other factors in the model reflect the terms of the loan. These are the monthly housing costs (including loan principal, interest, and property taxes) as a percentage of regular earnings and the ratio of the amount of the loan to the appraised value of the home. Since previous studies have suggested that refinanced loans increase default risk, a variable indicating whether or not a particular mortgage was refinanced has also been added. Completing the model is the age of the loan. This variable was included to adjust for the fact that the loans in our sample were originated at different points in the time as well as to correct dollar values for inflation. Also, as discussed previously, a loan's "seasoning" plays an important role in the determining risk, with loans being especially susceptible to default and delinquency during the first few years after origination.

The basic loan status model is thus specified as:

$$p(\text{status outcome } i) =$$
$$b_1 \text{ LOANAGE} + b_2 \text{ REGCAP} + b_3 \text{ INSTREG} + b_4 \text{ PITREG} +$$
$$b_5 \text{ LOANVAL} + b_6 \text{ REFIN} + a$$

where:

$p(\text{status outcome } i) = \text{the probability that a loan will be of status } i, \text{ where } i \text{ refers to one of the five status outcomes above.}$

LOANAGE = the age of the loan (in months),

REGCAP = monthly regular earnings per capita (i.e., per household member),

INSTREG = monthly installment debt as a percentage of monthly regular earnings,

PITREG = monthly mortgage-related payments (including principal, interest and taxes) as a percentage of monthly regular earnings;

LOANVAL = the loan amount as a percentage of the appraised value of the property,

REFIN = a dummy variable, coded 1 if the loan was refinanced and 0 if it was not,

b_1 - b_5 = a vector of regression coefficients, and

a = a constant.

Once it was ascertained that the effects of the variables in this model differed by loan type, the model was estimated separately for conventional and federally insured loans for each status outcome.

Analysis of Basic Loan Status Model Results

Conventional Loans

When the basic status model was applied to the five status probabilities outlined above for conventional loans, a number of consistent patterns emerged. The correlations between the explanatory variables in the model

and the dummy variable outcomes were generally low, between zero and .25, and the overall explained variation in the five dependent variables was also small, ranging from .089 to .135 (Appendix D, Exhibits D-13 and D-9, respectively). Explained variation was highest for the default/nondefault dichotomy and lowest for the probability of a delinquency of more than 30 days at a given point in time. Delinquencies, particularly minor delinquencies, tend to be a transient status that is especially difficult to predict.⁹

Certain variables in the model exhibited strong and statistically significant effects on the probability of each of the default or delinquency status outcomes (Exhibit 4-4). Chief among these were the household's monthly earnings per capita, and loan-to-value ratios. The higher the household income relative to household size, the less likely the loan was to become delinquent at any point in time. It should be noted that this does not refer to total household income, but to total income divided by the number of persons supported by that income. Mortgages with lower loan-to-value ratios, and therefore higher equity investment on the part of the borrower, were less risky than those with lower equity and commensurately higher loan-to-value ratios. Loan age had a pronounced effect on the probabilities of default, a serious delinquency at the time of data collection, or receipt of a default warning notice. The older the loan, the less likely each of these three outcomes were.

The remaining variables tended to have important effects only for specific outcomes. Borrowers with installment debt in addition to housing debt were a somewhat greater risk, but only for delinquency at a given

EXHIBIT 4-4

LOAN STATUS SUMMARY
CONVENTIONAL LOANS

Probability of:

<u>Basic Model Variables</u> ^a	Probability of:				
	<u>Default</u>	<u>Receiving default notices</u>	<u>Ever seriously delinquent</u>	<u>90 days or more delinquent at sampling</u>	<u>30 days or more delinquent at sampling</u>
Age of Loan	-	-	ns	-	ns
Regular earnings per capita	-	-	-	-	-
Installment debt/regular earnings	ns	ns	ns	+	+
Mortgage debt/regular earnings	ns	ns	ns	ns	ns
Refinanced loan	ns	+	+	+	+
Loan amount/appraised value	+	+	+	+	+
<u>Other variables with significant effects</u> ^b					
Occupational prestige	ns	-	ns	ns	ns

^aBasic model variables were included on the basis of theoretical specification. None were dropped on the basis of insignificant results. Significance test used for these variables was the F Ratio result in the equation: "+" indicates statistically significant with a positive coefficient; "-" indicates statistically significant with a negative coefficient; and, "ns" indicates that the F Ratio was below a .05 level of significance.

^bOther variables were included on the basis of any significant contribution ($r^2 = .02$ or more) to increase the goodness of fit of the equation. A "+" indicates a statistically significant positive coefficient; a "-" indicates a statistically significant negative coefficient; and, "ns" indicates that the variable was not statistically significant (i.e. contribution to r^2 of less than .02).

Other variables with insignificant effects:

Borrower Attributes: Age; Sex; Multiple Wage Earners; Self-Employed; Marital Status.

Property and Neighborhood Characteristics: Single/Multi-Unit Dwelling; Property Location; Older 2 - 4 Unit Structures; Mean Household Income, 1970; Percent Minority Population, 1970.

Lender Characteristics: Bank Location; Deposit Size.

point in time rather than over time. Refinanced loans were more likely to result in both minor and major delinquencies, but refinancing had no detectable influence on default risk. Somewhat surprisingly, mortgage debt was not an important predictor of any of the five status probabilities. This may simply reflect systematic application by banks in metropolitan Boston of the .25 mortgage debt to income underwriting standard. As discussed in the preliminary analyses, the proportion of family income devoted to housing costs tends to be quite similar, ranging between 20 percent and 30 percent, for most of the conventional loan sample.

Federally Insured Loans

Compared to conventional loans, the factors in the basic model were poorer predictors of the probability that an FHA or VA loan would become delinquent or be foreclosed. Simple correlations between risk factors and status outcomes were very low and little of the variation in risk outcomes could be explained by the model. In fact, for one outcome, the probability that at a specific point in time a loan would be 30 days or more delinquent, none of the variables in the model had statistically significant effects.¹⁰

Loan-to-value ratios, which had strong effects on each measure of status for conventional loans, were unimportant in predicting the status of federally insured loans. The likely reason for this is that federally insured loans require smaller downpayments, so that loan-to-value ratios are higher and more uniform for loans insured under FHA or VA. These ratios averaged over 93 percent for borrowers receiving federally insured loans, as opposed to 74 percent for the conventional loan group.

Installment debt was a significant predictor of the probability that a loan had ever been a serious delinquency, but was unrelated to default risk. Once again, mortgage debt ratios tended to vary little from borrower to borrower and were unimportant in explaining risk when other factors were simultaneously taken into account. Refinancing also was not associated with any of the risk probabilities, although less than 2 percent of all federally insured loans in this sample involved refinancing.

Of the variables in the basic model, only two proved to have any statistically significant effects (Exhibit 4-5). Regular earnings per capita was significant vis-a-vis default risk, but generally unrelated to delinquency outcomes. Loan age proved to be a significant predictor of all status outcomes except for the probability of a delinquency of 30 days or more at the time of data collection. For each of the other outcomes, the more seasoned the loan, the lower the risk of delinquency or default.

Effects of Other Factors

As in the loan type model, the same set of additional borrower, property, lender and neighborhood characteristics was tested in order to identify other factors that might be important determinants of delinquency and default risk. The variables considered and the testing procedure have been described in the introduction to this chapter.

Conventional

Testing for the effects of other, non-financial factors on risk for conventional loans indicated that none of the borrower attributes and neighborhood characteristics for which data were available were important determinants of loan risk. Of the borrower attributes, age, multiple wage

EXHIBIT 4-5

LOAN STATUS SUMMARY
FEDERALLY-INSURED LOANS

Probability of:

<u>Basic Model Variables^a</u>	<u>Default</u>	<u>Receiving default notices</u>	<u>Ever seriously delinquent</u>	<u>90 days or more delinquent at sampling</u>	<u>30 days or more delinquent at sampling</u>
Age of Loan	-	-	-	-	ns
Regular earnings per capita	-	-	ns	-	ns
Installment debt/regular earnings	ns	ns	+	ns	ns
Mortgage debt/regular earnings	ns	ns	ns	ns	ns
Refinanced loan	ns	ns	ns	ns	ns
Loan amount/appraised value	ns	ns	ns	ns	ns
 <u>Other variables with significant effects^b</u>					
Single-Family Home	-	-	ns	-	ns
Deposit Size	-	-	ns	ns	ns
Percent Minority Population	+	+	+	ns	+
Age (of borrower)	ns	ns	ns	ns	-

^aBasic model variables were included on the basis of theoretical specification. None were dropped on the basis of insignificant results. Significance test used for these variables was the F Ratio result in the equation: "+" indicates statistically significant with a positive coefficient; "-" indicates statistically significant with a negative coefficient; and, "ns", indicates that the F ratio was below a .05 level of significance.

^bOther variables were included on the basis of any significant contribution ($r^2 = .02$ or more) to increase the goodness of fit of the equation. A "+" indicates a statistically significant positive coefficient; a "-" indicates a statistically significant negative coefficient; and, a "ns" indicates that the variable was not statistically significant (i.e. contribution to r^2 of less than .02).

Other variables with insignificant effects:

Borrower Attributes: Sex; Multiple Wage Earners; Self-Employed; Occupational Prestige; Marital Status.

Property and Neighborhood Characteristics: Property Location; Older 2 to 4 Unit Structures; Mean Household Income, 1970.

Lender Characteristics: Bank Location.

earners, self-employed persons, sex and marital status, none were significantly associated with the probability of delinquency or default. Only ratings of occupational prestige as a proximate measure of employment stability showed any marginal effects on the runs testing the probability of receiving a default notice.¹¹

The neighborhood characteristics for which there were data and, based on preliminary analyses, indicated strong correlations with the default status categories included average household income, proportion of minority residents, and proportion of older 2 to 4 family units. However, none of these neighborhood factors were strongly related to any of the status outcomes after controlling for household financial status and loan terms. Property characteristics, including property location (urban or suburban) and number of units were also insignificant.

Federally Insured Loans

Borrower attributes, property and neighborhood characteristics, and lender characteristics tested in the conventional loan status model were also tested in the status model for federally insured loans. However, given that the financial and economic factors in the basic status model fail to explain much of the variation in risk outcomes for federally insured loans, it is not surprising that other factors appear to be related to risk for this type of loan.

Of the borrower attributes, occupational prestige, self-employment, sex, and widowed or divorced are not significant for any of the loan status outcomes. Age of borrower is significant only for delinquencies of 30 days or more, indicating that older borrowers may have less propensity to minor

arrears than younger borrowers.

Among the property, neighborhood and lending institution characteristics, there were three factors that appear to be linked to risk experience for federally insured loans. First of all, greater default risk was found for 2 to 4 family dwellings than single family homes. However, as stated by one senior mortgage loan officer at a Boston-based savings institution:

It is not the property that makes mortgage payments on schedule, becomes delinquent, pays up or goes into default. One needs to identify the financial root causes which are either directly related to the property, such as rental income stream or abnormally high vacancy rates or only indirectly related to the property. (October, 1978)

Data were generally not available for factors such as rental income or vacancy rate history for these properties. The absence of adequate rental income information distorted other variables such as mortgage debt and installment debt, since rental income could not be taken into account in any income measures. Given the substantial amount of missing information with respect to this variable, it would appear that at least some institutions in metropolitan Boston have not regarded rental income as an integral component of their income calculations. Any accurate assessment of risk differentials would require more complete information on these loans.

Delinquency and default risk also appear to increase the greater the proportion of minorities in a neighborhood where the property was located. Given that this relationship was not found for conventional loans, these combined results may indicate that minority neighborhoods are not inherently riskier. As for any risks associated with federally insured loans in these

areas, there are several possible explanations which could not be adequately tested with the available data. There is some empirical research from other metropolitan areas on differential servicing patterns for federally insured loans, that is, a tendency on the part of the bank officials to take action more quickly on delinquent federally insured loans in these areas, as the lender has little or no risk exposure through foreclosure on these loans which are fully insured or guaranteed by the federal government.¹² Moreover, this variable may also be serving as a proxy for other financially based factors related to the economics of the loan for which information was not obtained. It should be noted that this factor reflects the racial composition of the neighborhood and not the race of the borrower.

Finally, of the lender characteristics, deposit size was a significant predictor of risk while main office location was not. In this case, unlike decisions regarding loan type where larger banks were more likely to grant a federally insured loan than a conventional loan to an applicant, federally insured loans granted by smaller banks were more likely to default. This may be a result of the loan type decision itself. Where large banks tend to grant federally insured loans to a broad range of risk borrowers, small banks may grant them more systematically to higher risk borrowers. It may also be the case that during the period of relatively high federally insured loan activity, 1969 to 1973, large savings banks were actively engaged in the Boston Banks Urban Renewal Group Program (BBURG) during those years. If smaller banks met the demand for increased federally insured loans through their regular portfolio while larger banks

allocated a significant portion of these loans to their BBURG files, the effects of the institutional deposit size variable could be distorted.

CONCLUSIONS

The multivariate analyses reported in this chapter indicate that (1) of the many factors for which data were obtained, most outcomes are best predicted by only six or seven variables, (2) both loan type and status outcomes are relatively difficult to predict. The loan type equations predict only about 20 percent of the probability that a loan will be conventional rather than federally insured. In other words, eighty percent of the variation is unexplained. The loan status equations are considerably weaker. For conventional loans, the variation explained by loan status equations ranges from a low of 9 percent to a high of 12 percent; for federally insured loans, from 1 percent to 9 percent. These latter results indicate that, based on data known to the lender at the time of origination, delinquencies and defaults are to a large extent relatively random and, therefore, unpredictable events. Those variables which do offer some explanatory value for these risk outcomes are summarized in the final subsections below.

Loan Type

The decision to grant a mortgage applicant a conventional rather than a federally insured loan was found to be influenced primarily by the appraised value of the property, the level of installment debt carried by the borrower and, for loans issued after 1968, the ratio of the appraised value to the purchase price. Appraised values were found to be par-

ticularly important -- the probability of receiving a conventional loan increased steadily as appraised values rose. The only non-financial factor studied that affected the loan type decision was the deposit size of the institution making the loan. Larger banks were more likely to grant federally insured loans than smaller lending institutions. There was some evidence that divorced or widowed borrowers or those purchasing single-family homes were favored for conventional mortgages, but these effects appeared only for loans made before 1969 (Exhibit 4-3).

Loan Status

Based on the status of individual loans, a number of different measures of delinquency and default risk, both over time and at a given point in time, were analyzed. For conventional loans, regular earnings per capita and loan-to-appraised value ratios were the two financial factors that were consistently associated with the probability of delinquency or default. Both installment debt and refinancing tended to increase delinquency risk, but were unrelated to the threat of default. Mortgage debt as a percentage of regular earnings was not an important determinant of risk. The probability of default was closely tied to the age of the loan, with risk decreasing steadily as loans became more seasoned. Only one non-financial factor -- ratings of occupational prestige -- exhibited any association with status outcomes, and this occurred only in terms of the likelihood of receiving a notice of default (Exhibit 4-4).

Predicting mortgage risk for federally insured loans proved to be difficult to accomplish with any degree of accuracy. Regular earnings per capita was the only financial measure associated with more than one of the

risk outcomes studied. Three nonfinancial factors were found to be risk-related. Multiple unit dwellings and properties in areas with higher percentages of minority group residents appeared to be more prone to delinquency and default but these results may be questionable based on institutional factors and the extent to which key financial information such as rental income and vacancy rate history was not available. In addition, larger banks (based on deposit sizes) were less likely to experience defaults for the federally insured loans in their portfolios than smaller banks (Exhibit 4-5). This may stem from the fact that larger institutions have tended to grant federally insured loans to a broader spectrum of borrowers while smaller institutions used this loan type more exclusively for higher risk borrowers.¹³

Comparison of Loan Type Decision and Risk Analyses

In theory, a lender's decision to grant a mortgage applicant either a conventional or a federally insured loan should be based only on those factors related to the likelihood of serious delinquency and default. In practice, there are institutional factors associated with overall portfolio risk, e.g., secondary mortgage market sales to achieve greater liquidity and institutional perceptions of risk associated with factors such as appraised value.

A comparison of the two major analyses conducted in this study indicates that among conventional loans two factors -- regular earnings per capita and ability to make a substantial downpayment (measured as the loan-to-appraised value ratio) -- appear to be the major determinants of risk. These factors should clearly be taken into consideration in the decision to

grant a conventional loan. Mortgage debt, installment debt and refinancing should also be considered.

In analyzing actual loan type decisions, however, it was found that lenders tend to emphasize installment debt, appraised values, and the ratio of appraised value to purchase price in making these decisions. Regular earnings per capita seem to be generally overshadowed by the lender's consideration of the appraised value of the property. In sum, appraised values seem to have been historically overemphasized to the exclusion of more basic household financial factors.

NOTES TO CHAPTER 4

¹Two studies (Schafer, 1978; Schafer and Ladd, 1980) have been able to analyze this phase of risk evaluation with data obtained through state regulatory agencies in New York and California where these agencies have required recordkeeping on rejected written mortgage applications for some years. Rejected loan information in Massachusetts, as most other states, was limited to requirements under relatively new FDIC Equal Credit Opportunity Act regulations.

²After several bouts with "disintermediation" (i.e., depositors' withdrawal from financial intermediaries to invest their savings directly in market securities for better rates of return) savings institutions in metropolitan Boston became more concerned about saleability of their long term mortgages nationally in the secondary market. However, by the early 1970's, several of the federally sponsored mortgage credit agencies (FNMA, FHLMC, and GNMA) had stimulated sufficient investor interest and credibility that sale of conventional loans made under FNMA or FHLMC's appraisal and underwriting (and, in some cases, with private mortgage insurance) criteria became increasingly straightforward. Thus, these nascent concerns of Boston area banks with secondary market resale did not necessitate emphasis on federally insured loan activity, as opposed to conventional loans.

³The initial statistical procedure used in this analysis was the ordinary least squares (OLS) technique. Because of the dichotomous nature of each of the outcomes in this study, however, one of the important assumptions underlying OLS is violated, which might produce biased estimates of the effects of some risk factors. To check on this possibility, a non-linear estimation technique, logit analysis, was also applied to each equation. Results of the logit analyses closely paralleled those of the OLS technique, yielding similar interpretations of the effects of all variables in the basic models. The fact that two different estimation methods produced nearly equivalent results serves to increase confidence in the accuracy of our findings. Correlation matrices, coefficient estimates and their associated standard errors, and other summary statistics for these multivariate analyses may be found in Appendix D.

⁴Prestige ratings have been assigned based on a scale developed at the National Opinion Research Center. See Paul S. Siegel, Peter H. Rossi and Robert W. Hodge, Social Standings of Occupations (N.Y.: Seminar Press), 1976.

⁵Significant was defined as increases in explained variation of .02 or more.

⁶If bank appraisal is lower than the purchase price, the conventional loan amount that can be granted is proportionately less. For example, if a homebuyer has signed a purchase and sale agreement on a home for \$50,000 and the bank appraised value is \$50,000 or more, the homebuyer can obtain a

conventional loan of at least 80 percent of \$50,000, or \$40,000. However, if the bank appraised value is only \$45,000, the maximum conventional loan amount for which the homebuyer is eligible is \$36,000. Unless the homebuyer has an additional \$4,000 (the difference between a loan amount of \$40,000 and \$36,000) to put down, the options are (1) obtain an insured mortgage as, of the \$10,000 paid out on \$50,000, the bank will only credit the amount below \$45,000 or \$5,000, which from the bank's perspective is an 11 percent downpayment, (2) renegotiate the purchase price of the house with the seller down to the bank appraisal value, or (3) withdraw from the transaction.

⁷See Appendix D, Exhibits D-1, D-2, D-5 and D-6 for detailed information on these statistical results.

⁸See Appendix C.

⁹See Appendix D, Exhibits D-3 and 4, D-6, D-9, D-10, D-11, D-12, and D-13.

¹⁰See Appendix D, Exhibits D-5 and 6, D-14, D-15, D-16, D-17, and D-18.

¹¹A far better measure of this variable would be an individual's employment and occupational history per se. While the data collection forms provided for compilation of this information on a case by case basis, apparently most of the banks sampled have generally not maintained records on this. Secondary mortgage market agencies now request applicant information not only on occupation, but also (1) number of "years employed in this line of work or profession" and (2) employment history over the two years prior to making the application.¹¹ Since many Boston area banks are now using these application forms developed by FNMA and FHLMC, a clearer assessment of employment prospects as a factor in loan risk could be made by these institutions, individually or collectively, in several years.

¹²See Chapter 3.

¹³Data by deposit size of lender were checked so as to assure that this effect was not observed as a result of smaller institutions not holding federally insured loans. Institutions of all sizes in the sample held federally insured loans.

CHAPTER 5

TOWARDS ALTERNATIVE LENDING POLICIES: REFORM AMIDST UPHEAVAL IN RESIDENTIAL MORTGAGE MARKETS

INTRODUCTION

Risk analyses of mortgage loan data in Chapter 4 have significant implications for the thrift institutions, as the traditional mortgage lenders, and for newer institutional investors. From an investor's perspective, there are two different risk considerations. One concerns the mortgage instrument, the terms of repayment measured against the borrower's ability to meet these terms and any collateral security in the event of the borrower's default. The other set of risks is associated with portfolio considerations of each institutional investor. Since the mid-1960's, much of the formulation of regulatory reform has been in response to institutional needs of the thrift industry for shorter term or variable rate assets to better match the short term deposits held by these institutions. These changes, many of which are directed at modifications in the mortgage instrument, have potentially significant risk implications and have received minimal attention.

From a consumer perspective, there has been considerable concern that the changes in types of mortgages promoted by the thrift industry will negate efforts over the past two decades to broaden and equalize access to credit, particularly classes of borrowers including minorities, women, and urban borrowers. While these consumer concerns have been given considerable weight in Congress, pressures for new mortgage instruments have continued to increase as the financial viability of the thrifts has been threatened. To some extent, within years of enactment of consumer-oriented

legislation and regulatory initiatives to expand access to credit, changes in mortgage credit instruments promoted by the industry in response to financial market pressures may undermine many of these reforms. Moreover, as other less regulated institutions enter the market either as originators or purchasers in the secondary market, their underwriting criteria may reinstate the anti-urban and de facto discriminatory biases which have been the subject of consumer criticism and reform directed at their more publicly regulated predecessors.

This chapter will assess changes in mortgage instruments and institutional sources of capital and the implication of these changes for reforms in traditional perceptions of loan risk. Most of the chapter is devoted to the thrift industry, which has been the major source of one-to-four family residential mortgage funds since the 1930's.¹ Regulatory reforms, both those instituted and proposed, are discussed in terms of their implications for mortgage capital in the housing market. Structural changes in these institutional sources of mortgage funds and in the mortgage instrument itself are critically examined. Finally, the future of consumer-oriented reforms is evaluated in view of these developments.

THRIFT INSTITUTIONS AND THE RESIDENTIAL MORTGAGE INDUSTRY

Historical Perspective

Thrift institutions in the United States have historically been specialized financial institutions. Since the early nineteenth century, when the first mutual savings bank was chartered in Philadelphia by the state of Pennsylvania, thrift institutions have been created to serve the small saver. Building and loan societies, forerunners of the savings and loan

industry, were associations in which groups of families would pool their savings to serve as a revolving fund from which a home was built for each family. In both cases, the capital resources, or liabilities, of these institutions were the deposits of wage-earning households. Savings and loan associations were also chartered to specialize in investments or assets, by devoting these resources to one-to-four family home mortgages. Thus, "specialized" meant serving a segment of investors and investments that were not, at least at the time these institutions were created, part of the economic mainstream. These institutions were not chartered to serve "commerce", but a set of "social needs".

As discussed in Chapter 3, much of the federal and state regulatory apparatus for thrift institutions was set up in the 1930's. Most of this was directed at protecting small depositors from any financial losses through (1) prudent investments on the part of each regulated institution, and (2) various forms of government support, including deposit insurance systems and loans from a central bank (the Federal Home Loan Bank) to member institutions, as needed. Thus, historically, banking regulation of assets held by thrift institutions has been done in the name of ensuring that the institutions will be able to honor their liabilities to small savers.² Home mortgage investments specifically have been strongly encouraged indirectly by banking regulations which limited the investment alternatives of thrift institutions essentially to other types of real estate or government securities.

Up through the mid-1950's, most thrift institutions were mutually held, i.e., owned by depositors or shareholders as opposed to stockholders. As such, thrifts were considered nonprofit and exempt from income taxes.

However, as these institutions thrived in a post-World War II booming housing market, political pressure increased, particularly from the commercial banks, to have thrift institutions taxed so as to remove some of their competitive advantage in attracting deposits. Ultimately, thrift institutions were subject to federal income taxes, but granted special tax shelters through provisions labeled "bad debt reserve" requirements. These provisions granted thrift institutions with 60 percent or more of their assets invested in one-to-four family mortgages special tax breaks. Thus, the thrift industry's specialization in the residential segment of financial markets was sanctioned by federal regulatory and tax policies.

This portfolio composition based on long-term assets (home mortgages with contract maturities of as long as 30 years) supported by short-term liabilities (regular savings accounts from which withdrawals could be made without advance notice) was supportable during a decade of relatively stable interest rates. However, when interest rates rose rapidly in 1966 and, again, in 1969, thrift institutions found themselves with overall rates of return on their portfolios far below market rates. Higher interest rates levied on new mortgages were insufficient to raise the portfolio earnings to pay market rates of interest on deposits.

Prior to this period, deposit rates paid by commercial banks had been federally regulated, but the thrift institutions had not been. In 1966, ostensibly as a temporary measure to address short term problems of the thrifts, Congress enacted legislative provisions. This legislation was implemented under Regulation Q of the Federal Reserve Board. To preclude commercial banks from luring depositors away from the thrifts, thrifts were permitted to pay a slightly higher rate than commercial banks. These

interest rate provisions, extended by Congress several times since their initial statutory expiration date, was still in effect until the Depository Institutions Deregulation Act of 1980 instituted phase out provisions.

In retrospect, these stop-gap measures appear to have perpetuated what was an increasingly untenable portfolio situation. The mismatch in the thrift industry between long-term assets and shorter term liabilities is pronounced, as indicated in Exhibit 5-1. The poorly "hedged" asset liability structure of savings and loan associations and mutual savings banks is best illustrated in this exhibit by comparing them to two other major types of financial institutions. Commercial banks generally hold short term assets well-matched to their short term liabilities. Life insurance companies make longer term investments based on their longer term liabilities through term and whole life insurance policies. After 1966, while there was much analytical discussion and debate directed at modifications of thrift institutions' portfolios, little change actually occurred.

Political Pressure for Financial Institution Reform

Much attention has been focused on Regulation Q, as both a cause and a symptom, of changes in capital markets. The issues associated with the solvency of the thrift industry and social consequences of making these institutions more competitive through reducing their portfolio emphasis on home mortgages, have been deliberated in a series of Presidential, Congressional, and privately commissioned studies. There have also been perennial public hearings, debates, and in 1980, major legislation on financial institution reform (Exhibit 5-2).

In the 1930's, many major federal initiatives were directed at

Exhibit 5-1

ESTIMATED MATURITY OF ASSET AND LIABILITY HOLDINGS OF REPRESENTATIVE
FINANCIAL INSTITUTIONS (IN PERCENTAGES)

Financial Institution	Total Assets/ Liabilities (in billions of dollars) 12/31/72	Maturity Structure Based on Initial Holding Period		
			Less than Five Years (percentage)	Greater than Five Years (percentage)
Commercial banks	\$835.4	Assets	92	8
		Liabilities	88	12
Life Insurance companies	\$252.4	Assets	5	95
		Liabilities	10	90
Savings and Loan associations	\$272.4	Assets	8	92
		Liabilities	92	8
Mutual savings banks	\$106.7	Assets	5	95
		Liabilities	91	9

Sources: Federal Reserve Bulletin Tables 3-3, 4-3, 4-7, 5-1.

^aThis table obtained from Dougall, 1975 (p.23).

Exhibit 5-2

Studies and Legislative Events
Directed at Financial Institution Reform

<u>Date</u>	<u>Author (and Sponsor, if different)</u>	<u>Title of Document</u>	<u>Major Recommendations</u>
1958	Commission on Money and Credit (Committee for Economic Development)	<u>Money and Credit: Their Influence on Jobs, Prices and Growth</u> (Englewood Cliffs, N.J.: Prentice-Hall, Inc. 1961)	<ol style="list-style-type: none"> 1. Standardize regulations versus differentiation between financial institutions. 2. Greater portfolio flexibility for thrift institutions. 3. Use direct subsidies to sustain level of residential finance as more efficient means of allocating resources than regulation of portfolio powers of financial institutions.
1966	Friend, Irwin A. ed. (Federal Home Loan Bank Board directed by Congress to undertake study in conjunction with enactment)	<u>A Study of the Savings and Loan Industry</u> (Washington D.C.: FHLBB, 1969)	<ol style="list-style-type: none"> 1. Again, liberalization of asset and liability restrictions on thrifts. 2. Modification of FHLBB advance (loan) system: <ol style="list-style-type: none"> a. loans available to thrifts on request b. long-term advances available to finance mortgages in capital-short areas, regardless of housing industry conditions nationwide. 3. Elimination of points by raising state usury ceilings and regulated rates of federally insured mortgages.
1969	U.S. President's Commission on Financial Structure and Regulation (Hunt Commission)	<u>Report</u> Washington, D.C., 1972	<ol style="list-style-type: none"> 1. Reiterated most of recommendations made by Commission and Money and Credit including <ol style="list-style-type: none"> a. broadening investment powers of thrift institutions b. extension of demand deposit authority 2. Removal of interest rate ceilings on deposit

Exhibit 5-2 (continued)

<u>Date</u>	<u>Author (and Sponsor, if different)</u>	<u>Title of Document</u>	<u>Major Recommendations</u>
1969	Federal Reserve Staff Study (Federal Reserve Board)	<u>Ways to Moderate Fluctuations in Housing, 1972</u>	<ol style="list-style-type: none"> 3. Direct subsidies for housing; addressed criticisms of Commission's recommendation by outlining a temporary tax credit for lenders who invested in home mortgages during the transitional period.
			<ol style="list-style-type: none"> 1. Focused primarily on sustained availability of housing credit (versus viability of thrifts) 2. Recommended lengthening liabilities, but only minor changes in asset structure: variable rate mortgages were <u>not</u> endorsed on the grounds that these instruments transferred interest rate risk to household borrowers that the thrifts as financial intermediaries should assume. 3. Supported gradual removal of rate ceilings on mortgages and deposits, but only as thrift industry became more viable through long-term mortgages as assets. 4. Also, concluded that mortgage credit could be stabilized by smoothing the flow of business investment: "variable business-investment tax credit to stabilize expenditures for residential construction as well as for plant and equipment." (Henderschott and Villani, 1977:9)
1973	U.S. Treasury	<u>Report on the Financial Institutions Act of 1973: A Section by Section Analysis.</u> October 11, 1973 also U.S. Congress Senate Subcommittee on Financial Institutions of the Committee on Banking, Housing, and Urban Affairs. <u>Hearings on the Financial Institutions Act of 1973</u> November, 1973	<ol style="list-style-type: none"> 1. Essentially recommendations of Hunt Commission in legislative form 2. Homogenization of thrift and commercial bank investment power <ol style="list-style-type: none"> a. Thrifts unlimited in consumer credit investment and limited options to invest in corporate debt b. Demand deposits

Exhibit 5-2 (continued)

<u>Date</u>	<u>Author (and Sponsor, if different)</u>	<u>Title of Document</u>	<u>Major Recommendations</u>
1973-1976	U.S. Congress, House of Representatives (Committee on Banking, Currency, and Housing) Subcommittee on Financial Institutions Supervision, Regulation, and Insurance.	<u>Hearings on Financial Institutions and the Nation's Economy "Discussion Principles" 93rd Congress, 1st Session, November, 1973</u>	<ol style="list-style-type: none"> 3. Interest rate ceilings <ol style="list-style-type: none"> a. on deposits, removed overtime b. on FHA and VA, eliminated c. mortgage lending encouraged through a tax credit up to 3 1/2 percent of income received by lender on residential mortgages. 1. Premise that "housing goals could be more effectively achieved outside the financial system, and that housing, like all other sectors of the economy, would benefit from a more efficient and equitable financial structure" rejected by the House committee members (Henderschott and Villani, 1977 11) 2. Counterproposals to recommendations made by above study commissions and legislation filed by the Administration and approved by the Senate: 3. Financial Reform Act (FRA) of the House developed in response to the Financial Institutions Act (FIA) filed by Treasury and favorably received in Senate. Specifically, provisions of FRA: <ol style="list-style-type: none"> a. Retention of deposit rate ceilings and differentials between commercial banks and thrifts to protect housing. b. FHLBB empowered to make 30-year advances so as to provide below-market interest-rate loans (vs. original liquidity back-up function)
		<u>Hearings on the Financial Reform Act of 1976, 94th Congress, 2nd Session, March, 1976</u>	
		<u>Hearings on the Variable Rate Mortgage Proposal and Regulation Q 94th Congress, 1st session, April, 1975</u>	

Exhibit 5-2 (continued)

<u>Date</u>	<u>Author (and Sponsor, if different)</u>	<u>Title of Document</u>	<u>Major Recommendations</u>
1975	Federal Home Loan Bank Board	<u>A Financial Institution for the Future</u> Washington D.C., 1975	<ol style="list-style-type: none"> 1. Legislative proposals based on FHLBB's 1969 study 2. Promoted concept of thrifts as family Financial Services Center (FSC), in part to mitigate opposition based on fears of less mortgage money. Also, in part to address the issue of thrifts' established strength in the household sector and relative weakness in other investment or savings sectors.
1980	U.S. Congress	<u>Depository Institutions Deregulation and Monetary Control Act</u> (Enacted March 31, 1980)	<ol style="list-style-type: none"> 1. <u>Title I: Monetary Control Act</u> Establishes a universal reserve requirement applicable to non-members as well as members of the Federal Reserve system. 2. <u>Title II: Depository Institutions Deregulation Act.</u> Elimination of restrictions on the amount thrifts and commercial banks can pay for savings deposits "as rapidly as economic conditions warrant" within the next six years. Deregulation Committee comprised of federal bank regulators, created to oversee this phasing out of Regulation Q. 3. <u>Title III: Consumer Checking Account Equity Act.</u> Authorizes nationwide NOW (Interest-bearing checking) accounts. 4. <u>Title IV: Powers of Thrift Institutions</u> ... Expands the investment powers of thrift institutions including ability to issue credit cards. 5. <u>Title V: State Usury Laws.</u> Pre-empts, pending further state action, existing state mortgage usury ceilings.

assisting the housing industry through creation of specialized financial institutions (federally chartered savings and loan associations) and regulatory agency (the Federal Home Loan Bank Board), as well as a series of residential mortgage instruments such as the federally insured mortgage programs administered by the Federal Housing Administration (FHA) and a secondary market mortgage-purchase program under the Federal National Mortgage Association (FNMA). These measures were novel in that federal regulation of financial institutions had previously been devoted almost exclusively to commercial banking. Up to that time, only the states had chartered specialized institutions such as mutual savings banks and cooperative banks.

In 1957, the Committee for Economic Development, a privately funded industry organization, convened the Commission on Money and Credit. The 27 Commission members were primarily of Chairmen of the Boards or Presidents of major corporations. The Commission was chaired by Frazier Wilde, Chairman of the Board of Connecticut General Life Insurance Company. The membership included David Rockefeller as President of the Chase Manhattan Bank, the Chairman of the Board of Bank of America, and so on. There were a few labor representatives and one or two academics on the Commission. Further academic input was structured through a thirteen member Advisory Board comprised exclusively of university faculty. (Commission on Money and Credit, 1961). The focus of the Commission and their final report was standardization in the regulation of financial institutions, both assets and liabilities. With regard to assets, the Commission recommended greater portfolio flexibility for thrift institutions. To compensate for any reduction in home mortgages, the Commission suggested that direct federal

subsidies should be used to sustain the level of residential finance as a more efficient means of allocating resources than the regulation of portfolio powers of financial institutions.

Little attention was generally given to the Commission's report or recommendations. Some analysts have attributed this to the fact that it was not done during a "crisis period". Subsequently, interest rates led to substantial withdrawal of deposits from financial intermediaries. The most significant periods of disintermediation occurred in 1966, 1969, 1973-1974 and 1979-1980. A series of federally sponsored commissions convened intermittently from the mid-1960's to the mid-1970's arrived at many of the same conclusions as the Commission.

In 1966, with the onset of soaring interest rates, thrift institutions were threatened with market rates for funds considerably higher than the average rate of return on their portfolios. These portfolios were comprised of long term mortgage investments. There was no possibility of the thrifts making any substantial short term changes in earnings. As a result, Congress mandated deposit interest rate ceilings on accounts held by thrift institutions which were to be set somewhat higher than those permitted commercial banks so as to give the thrift institutions and, hence, home mortgage borrowers, a competitive edge.

In conjunction with the enactment of this legislation, Congress directed the Federal Home Loan Bank Board to undertake a study to address longer term solutions to the problem, as the imposition of deposit rate ceilings on the thrifts was considered only a temporary, emergency measure. The Board commissioned this study in 1966. Completed in 1969, the conclusions of the contributing authors were similar to those of the Commission's

on liberalization of the asset and liability restrictions on thrift institutions (Friend, 1969). However, this report was significantly different in that measures were recommended to ensure that savings and loan associations would be able to continue to make mortgages capital available to the homebuilding industry. One contributor concluded that long-term loans should be made by the FHLBB to member institutions on request. This proposal differed considerably from the operating policy of short term advances to address liquidity problems. Moreover, these advances were granted not automatically but at the discretion of the Board. Another contributor recommended the retention of state imposed and federally insured mortgage interest rate ceilings, if these ceilings were raised sufficiently so as to eliminate "points". Points charged by lenders at origination make the effective rate of the mortgage the same as the unregulated market rate. Thus, while the stated rate complies with the regulated rate, the borrower pays more by paying additional interest in points charged in advance.

In 1969, another period of disintermediation set in. The deposit rate ceilings imposed by Regulation Q appeared to exacerbate rather than alleviate the financial situation of the thrifts. At this time, a Presidential Commission on Financial Structure and Regulation, commonly known as the Hunt Commission, was appointed. Once again, the report of this Commission issued in 1972 reiterated many of the recommendations made by the 1961 report. These included broader investment powers and extension of demand deposit authority to the thrift institutions. The Hunt Commission also recommended removal of interest rate ceilings on deposits imposed under Regulation Q. In the long term, the Hunt Commission recommended direct subsidies for housing. In the short term, the Commission proposed a tax

credit for lenders who invested in home mortgages during a transitional period.

The practical outcome of the Hunt Commission was the Financial Institutions Act filed in the Senate by the U.S. Treasury in 1973. Exhibit 5-2 summarizes the bill's provisions. These legislative recommendations were reasonably well-received in the Senate. However, the House Banking Committee began to formulate counterproposals in an effort to better protect the home mortgage borrower and the homebuilding industry. In 1973, hearings were held on the House study on Financial Institutions in the Nation's Economy (FINE). Three years later, a formal legislative counterproposal was filed entitled the Financial Reform Act (FRA). This legislation rejected the premise of earlier works that "housing goals could be more effectively achieved outside the financial system and that housing, like all other sectors of the economy, would benefit from a more efficient and equitable financial structure" (Henderschott and Villani, 1977:11). For example, the FRA proposed to retain deposit interest rate ceilings and the rate differential favoring thrifts over commercial banks. The proposal of the FHLBB 1969 study to enable the Board to make 30-year loans to its member institutions to provide for below market rate mortgages was also incorporated. Thus, the House Committee took the position that housing was a sufficient matter of public concern such that a laissez-faire policy toward availability of mortgage funds was politically unacceptable.

The Senate and House versions of financial reform legislation were essentially irreconcilable. Congressional action remained at a stalemate for several years. In the meantime, financial reform was undertaken by the federal regulatory agencies, usually with the informal sanction of one or more Congressional committee chairpersons.

Recent Changes in Liability Structure

Since 1966, an array of deposit-related regulations have been promulgated in response to the thrift industry need both to hold longer term deposits better matched to their mortgage loans and to offer higher rates to maintain and attract more deposit funds. A series of time deposit instruments were developed which, unlike regular savings accounts, required minimum deposit amounts of as much as one thousand dollars and which, on a graduated rate scale, paid higher rates on longer term deposits.

Throughout these developments, the perceived threats to the thrifts deposit base were the commercial banks, notes issued by the U.S. Treasury, and securities issued by other federal agencies. What these three investments had in common was either a federal government guarantee or federal deposit insurance which made them relatively risk free and hence more attractive to small savers than other types of investments. To address the threat of commercial banks, the thrift industry lobbied for interest rate differentials on accounts of less than \$100,000. Over that amount, however, the commercial banks could issue certificates of deposit paying market rates to wealthier individual and institutional investors who could afford to buy them. To address the threat of Treasury notes, the thrifts successfully argued that minimum denominations should be \$10,000 or more, thus keeping these market rate instruments out of the reach of small savers. Federally sponsored credit agencies such as the Federal National Mortgage Association (FNMA) did the same (Exhibit 5-3).

In the late 1960's, the U.S. Treasury ventured to issue notes in denominations as low as \$1,000. The net result was substantial deposit withdrawals from financial institutions, particularly the thrifts. The

Exhibit 5-3

Differential Rates of
Return by Type of Investment
and Minimum Denomination^a

Type of Investment	Minimum Denomination	Interest Rate
<u>Thrift Institutions</u>		
NOW	-	5.0%
Regular Savings	-	5.50%
Time	\$500/\$1000	5-7.75%
Money Market Certificate	\$10,000	-
<u>Commercial Banks</u>		
Demand	-	5.0%
Regular Savings	-	5.25%
Time	\$500/\$1000	5-7.75%
Certificates of Deposit	\$100,000	MARKET RATE
<u>Treasury</u>		
Savings Bonds	\$25	BELOW MARKET RATE
Notes/Bonds	\$5000/\$10,000	MARKET RATE
<u>Secondary Mortgage Market</u>		
FNMA Securities	\$10,000	MARKET RATE
GNMA-Guaranteed pass through Certificates	\$25,000	MARKET RATE
<u>Corporate Issues</u>		
Stock		MARKET RATE
Notes/Bonds		MARKET RATE
Investment Funds - Stocks and Bonds		(less Fund Fee)
<u>State and Local Government Issues</u>		
Notes	\$5,000 or more	TAX EXEMPT MARKET RATE
Bonds	\$5,000 or more	TAX EXEMPT MARKET RATE

^aAs of 1977

Treasury subsequently retreated to issuing notes with higher denominations. In a prominent article entitled "Short Changing the Small Saver," the author, Edward Kane (1973), presented substantial data on the inequities and regressive effects of the federal government fostering policies which protected the thrift institutions at the expense of lower income households. He argued that a large proportion of thrift institution funds come from households with incomes of less than \$15,000. The primary beneficiaries of the thrifts access to below market interest rate funds were middle and upper income households with incomes of \$15,000 or more.

By the mid-1970's, it was clear that neither term deposits with graduated rates nor sustained efforts to keep the minimum denominations of alternative investments beyond the reach of the small saver were workable solutions to the thrifts' financial problems. None of these had been intended as long term solutions. Moreover, as the thrift industry continued to offer below market interest rates on deposits, money market funds were formed which offered small savers close to market rates of return. These funds gave savers with smaller sums of money to invest a means to pool their funds and simply purchased some of the very securities which the thrifts had tried to keep out of the reach of the small saver, i.e., commercial bank certificates of deposit and U.S. Treasury notes.

Prior to 1973-1974, money market funds were negligible in terms of national capital markets. However, in the years that followed, these funds became an important institutional force in the competition for funds from small savers. The growth and portfolio composition of these funds is summarized in Exhibit 5-4. Overall, these funds appear to have grown rapidly during periods of rising interest rates (1974-1975 and 1978-1979) and pla-

Exhibit 5-4

Money Market Funds:
Growth Trends and Composition
of Assets
(Millions of Dollars)

	1973	1974	1975	1976	1977	1978
Total Assets	-	2.4	3.7	3.7	3.9	10.8
Demand Deposits and Currency	-	-	-	-	-	.1
Time Deposits	-	1.6	2.1	1.5	1.8	5.3
Credit Market Instruments	-	.8	1.5	2.1	1.9	5.1
U.S. Gov't Securities	-	.1	.9	1.1	.9	1.5
Open-Market Paper	-	.7	.5	.9	1.0	3.7
Miscellaneous	-	-	.1	.1	.1	.3
Share Outstandings	-	2.4	3.7	3.7	3.9	10.8

Sources: Federal Reserve Board, Flow of Funds Accounts, 1949-1978:
Annual Total Flows and Year-End Assets and Liabilities,
Washington D.C.
12/79: 128.

teamed as interest rates subsided (1976-1977). Moreover, their growth coincides with reduced flow of funds to thrift institutions (Exhibit 5-5).

As the thrifts entered a second major period of disintermediation in 1978, they were granted authority to issue 6 month certificates. Pegged to the Treasury bill rate, these certificates were designed to be competitive market rate instruments. Again, the minimum denomination for purchase of these money market certificates (MMC's) was initially set at \$10,000. When MMC's were first introduced, it appeared that they would generally sustain the thrifts' deposit base. However, over time several problems arose. For some institutions, it appeared that they were cannibalizing their below market rate deposit funds as transfers were made from these to MMC's. For thrifts generally, sustaining the high and variable rate interest payments due certificate holders with relatively low average rates of return from their portfolios was becoming more burdensome. Finally, with minimum entry levels of \$10,000 and term requirements of six months, these certificates were not as available or attractive as many of the money market funds where entry level deposits were as low as \$1,000 and without term requirements.

The net result of these efforts to extend the term and rates of return paid on deposits by savings institutions may be summarized as follows:

During the 1950's and early 1960's, when the variability of interest rates was relatively mild and long term rates consistently exceeded short-term rates, the maturity imbalance of major mortgage lenders was of little importance. However, with the acceleration of inflation in the mid-1960's, the average level and variability of short term interest rates rose much more than long-term rates. This increased the risk of borrowing short to lend long, and thrift institutions sought to reduce this risk by lengthening the maturities of their deposits. For example, in the period from 1969 to 1978 savings and loan associations (S&L's) reduced the share of their total deposits accounted for by passbook accounts, which

Exhibit 5-5

Net Increases/Decreased in
Liabilities of Thrift Institutions
(Mutual Savings Banks and Savings and
Loan Associations) Compared with
Net Share Issues of Money Market Funds
(Billions of Dollars)

	<u>MSB's</u>	<u>S&L's</u>	<u>MMF's</u>
1970	4.5	13.3	-
1971	9.8	29.0	-
1972	10.4	35.5	-
1973	5.3	26.9	-
1974	3.4	22.3	2.4
1975	11.1	41.4	1.3
1976	13.1	51.5	*
1977	11.5	64.2	.2
1978	10.0	60.6	6.9
1979	5.5	52.0	34.4

are effectively payable on demand, from 69 percent to 32 percent. Mutual savings banks reduced their passbook share from 99 percent to 51 percent. Nevertheless, the average maturity of thrift institutions' assets still far exceeds that of their liabilities. (Melton and Heidt, 1979:23-24)

Changes in Asset Structure: Alternative Mortgage Instruments (AMI's)

Alternative mortgage instrument proposals vary considerably.

However, as a common denominator, each proposes modifications in one or more of four basic characteristics of the fixed rate mortgage (FRM). These four characteristics are:

- . fixed interest rate from loan origination to maturity
- . periodic (usually monthly) level payments comprised of principal and interest
- . repayment term established at origination
- . amount of principal established by initial loan commitment.

Under a fixed rate mortgage, the first three factors remain unchanged over the life of the mortgage and the last steadily declines with amortization of the loan.³

The arguments presented to the general public and prospective borrowers in favor of the variable term alternative mortgage instruments (VRM's, RM's and PLAM's) may be summarized as follows:

- . Better to have some mortgage money under less advantageous terms than none at all. Fixed rate long-term mortgages financed with variable rate and short-term deposits are an instrument which works only in a stable economic environment with minimal changes in interest rates and virtually no inflation. Fixed rate long-term instruments in an era of volatile interest rates and rampant inflation have threatened many thrift institutions with insolvency. No other private investors will consider these instruments viable in such times

and the thrift institutions cannot afford to, particularly in their present financial situation.

- Stabilize the flow of mortgage funds available. Counter the cyclical nature of the housing market by minimizing disintermediation from the financial institutions supporting the mortgage market.⁴
- AMI's will be more equitable to small savers. As the thrift institutions bring their return on assets closer to market rate, they will be able to pay depositors a market rate of return.
- Variable interest rate instruments (VRM's and RM's) will mean lower interest charges.⁵ The lender will not need to set mortgage rates higher than present market to offset any anticipated future increases. Also, mortgage lenders will not have to charge new borrowers disproportionately higher interest rates to offset any unanticipated increases which are not reflected in their outstanding loans at below market rates of return. (For example, fixed rate mortgages offered by some institutions in the California experiment had effectively higher rates of interest, as a result of points charged, than variable rate options assuming the maximum increases over the life of the loan. As a result, variable rate mortgages may be preferable to borrowers, particularly those who only intend to hold their properties on a short term basis (Colton, et.al. in FHLBB, 1977)).

Alternative mortgage instrument proposals can be classified in two categories. One set addresses the portfolio risk considerations of an institutional mortgage lender. These are generally less advantageous to the borrower. In many respects, they may present the institutional lender with reduced risk in terms of asset-liability match but increased portfolio risk by increasing probabilities of delinquencies or defaults of any individual loan. The other set of proposals addresses borrower concerns, particularly those of first time homebuyers and those of older homeowners. These instruments generally increase the lender's risk exposure. The "variable rate" mortgage (VRM) and the short term "roll-over" or

"renegotiable" mortgage (RM) are the most commonly discussed forms of alternative mortgage instruments. Both of these fall primarily in the first set of "good for the lender and household saver" proposals. A third, "price level adjusted" mortgage (PLAM) has received more discussion among academic economists than in the industry. In the "greater borrower access" category, there are two instruments, the graduate payment mortgage (GPM) for the young upwardly mobile homebuyers and the reverse annuity mortgage (RAM) for elderly homeowners. The shared equity (SE) mortgage has also been proposed by the Federal Home Loan Bank Board.

Investor - Oriented AMI's: VRM's, RM's and PLAM's

The variable rate mortgage is generally characterized by a flexible interest rate charged to the borrower on the outstanding balance of the loan. Variable rate mortgage designs can differ considerably in several ways:

- selection of an index rate which determines the rate adjustments permitted on the mortgage in a given time period;
- frequency of rate adjustments allowed and advanced notice to borrower required before any upward adjustment;
- magnitude of rate change permitted during any specified time period or over the life of the mortgage; and
- methods of computing the borrower's monthly payment, including a constant payment with a variable maturity. (FHLBB, 1977:XII-11, 12)

On most counts, the "lending institution is the primary beneficiary of the variable rate mortgage (VRM) because this mortgage partially resolves the problem of unmatched rates in its borrowed and loaned funds" (FHLBB,

1977:XII-11). Specific consumer concerns have focused on the index determining the rate change and limitations on any rate variation, so as to make VRM's as comparable to FRM's as possible.

Consumer concerns about the rate index have been twofold. One is the extent to which the rate may not be a market rate, but a rate controlled by individual institutions, a regional group of institutions, or the thrift industry nationally through their own average cost of funds. Consumer representatives have argued that indices such as that used in the 1970's California variable rate mortgage experiment are illustrative. This index was based on the average cost of funds rate for the savings and loan industry as measured by the regional FHLBB. As such, the index was so influenced by the institutions' financial performance as to subject borrowers to bear the risks of institutional management. The institutions' cost of funds rate was not, in their opinion, a rate sufficiently representative of capital markets. The other major consumer concern has been development of an index which better represented a weighted average of short-term and long-term rates. Given that mortgages were intermediate to long term mortgage instruments, borrowers should not be subject to indices based exclusively on short term rates which were considerably more volatile and in recent years had often exceeded long term rates.

The other major consumer concern has been provisions in the mortgage on variation in terms. These have generally focused on minimizing the frequency of adjustments, maximizing the notice required prior to any adjustment, ensuring the borrower's ability to refinance the loan with another lender without prepayment penalty on receipt of such a notice,

limiting the amount of rate increase which occurs over the life of the loan, and allowing the borrower to extend the maturity of the loan so as to keep monthly payments constant whenever there were substantial rate increases. Some of the research on the California experiment with variable rate mortgages concluded that borrower acceptance of VRM's appears to have been largely contingent on their ability to extend loan maturities from 30 to as long as 40 years, thus maintaining constant monthly payments. Apparently, in August of 1978 following "the first rate increase implemented by a significant number of large lenders" in California, 67 percent of the variable rate mortgages who were subject to rate increases exercised their ability to extend their maturities and maintain constant mortgage payments (Melton and Heidt, 1979:27).

Apart from consumer concerns, the mortgage lending industry has had some reservations as to the net benefits of VRM's. One issue has been governmental control over the index by which rates on variable mortgages would be set. Given the history of the regulated rates on federally insured mortgages (FHA's and VA's) consistently set at below market rates, these concerns may not be unwarranted. Industry spokespersons have also stated concerns that their cash flows with variable rate mortgages, if they truly decreased in accordance with market rates, might be the same or less and administrative expenses in bookkeeping for variable term loans is likely to be considerably more. A related industry concern seems to be that, in periods when funds are readily available and interest rates relatively low, competing lenders are likely to offer fixed rate mortgages to attract borrowers; in times of tight money when rates were high, lenders would offer variable term loans. Thus, the argument goes, "lenders would

be in the worst of all possible worlds, originating VRM's in high-rate periods when rates may be expected to fall and fixed rate mortgages in periods when future money rates are apt to be rising" (Schaaf, 1976:78). The renegotiable mortgage would appear to address many of the industry's concerns in this regard, but does not address most of the consumer concerns.

Roll-over or renegotiable mortgages simply present the borrower with an intermediate term loan to finance a long term capital investment. The loan period is typically for five years with a payment schedule comparable to that on a longer term mortgage, except that at the end of the fifth year, the outstanding principal is due in full as a "balloon" payment. The mortgage may be renewed, subject to new terms required by the lender. The thrift industry has advocated this type of mortgage, particularly as the shift to time deposits has meant that the term of their liabilities are roughly comparable to these intermediate-term mortgage investments. Consumer concerns have been essentially the same as those for variable rate mortgages.

A third type of variable term mortgage in the lender-oriented category is the price level adjusted mortgage (PLAM).

...account for inflation by providing for periodic increases or decreases in the principal amount of the mortgage based upon a predetermined price level index. A constant real rate of interest is charged to a loan which is constant in real dollars, the constancy being achieved by varying the amount by a reference percentage such as the consumer price index. The PLAM is desirable for the lender because it resolves the problem of a downward tilted payment stream and eliminates the capricious effects of inflation on the payment level. (FHLBB, 1977:XII-21)

Under this instrument, the lender keeps pace with inflation. With each

price level adjusted mortgage, the institution now holds an indirect investment in a real asset which appreciates rather than a financial asset with a fixed, or even variable, rate of interest and a declining rate of return as the borrower repays in actual rather than constant dollars.

Among those who maintain that the borrower also benefits from the price level adjusted mortgage, the central argument seems to be that the index used to increase (or decrease) mortgage payments is not simply tied to short term money markets or longer term capital markets, but is a more comprehensive index. Thus, the index is equitable, as it would be based on a more general cost of living index such as the CPI. However, this argument is premised on two assumptions about the borrower. First, that the household income, and hence ability to repay the loan in "real dollars", is closely indexed to the CPI, or whatever index is used. Second, that the household should be indifferent to sharing its inflation hedge, the capital appreciation of the real property serving as collateral security for the loan, with the lending institution. Given these drawbacks, it is not clear why a borrower should prefer a price level adjusted mortgage to a fixed rate mortgage. However, it may be more advantageous to the borrower than variable interest rate mortgages which are indexed exclusively to costs of borrowing rather than more general costs of living.

Borrower-Oriented AMI's: GPM's, RAM's and SE's. A fundamentally different series of alternative mortgage instrument proposals has been developed to address borrower issues of affordability of homeownership. These proposals generally address either first time homebuyer issues of access to homeownership or elderly homeowner issues of maintaining their residence but leveraging some of their capital investment so as to be able to afford

rising costs.

Graduated payment mortgages (GPM's) are the most common form of alternative mortgages directed at first time homeowners. The key difference between this type of mortgage and the fixed rate instrument is "the reduction in the level of initial payments in exchange for higher payments later in the life of the mortgage" (Follain and Struyk, 1977:7). This instrument also differs from the lender-oriented instruments outlined above in that while the level of mortgage payments does increase over time, it is in accordance with a schedule that the borrower and lender agree to in advance. There are clear limitations to this instrument, as it is "most appropriate for younger, upwardly mobile homebuyers who expect future increases in income levels" (FHLBB, 1977:XII-16). Thus, the incidence of borrowers who have access to these loans is likely to be comparable to the socio-economic class of homebuyers assisted by FHA and VA loan programs in the 1950's and early 1960's. This instrument clearly does not address the issue of those households who will be priced out on the basis of their expected earnings, the rate at which their income can be expected to increase. It may, however, be the 1980's version of the lower downpayment programs which served younger and upwardly mobile households in earlier decades.⁶

The shared equity mortgage (SE) involves joint ownership of the property by the occupant and the lender. Under a traditional mortgage, the legal relationship between the borrower and lender is such that lender exercises ownership interest only when payments are delinquent or there is evidence of serious abuse of the property serving as collateral security for the loan by the borrower. In contrast, under the shared equity

mortgage, the lender has a proprietary interest in the dwelling.

Mechanically,

...the lender (either a financial or governmental institution) holds title to a share of the dwelling which it obtains by contributing the same share of the purchase price of the dwelling. In exchange for participation, the lender is entitled to the same share of the net proceeds at the time of the sale. The lender's share presumably would be kept minor, say a maximum of 30 percent, so that the majority of the reward for proper maintenance and improvement would accrue to the occupant. If the lender believed that the rate of appreciation were going to be less than the opportunity cost of funds, he could charge the borrower interest on the borrower's share equivalent to the difference. The occupant's equity is then the value of the dwelling less the accumulated interest and the institution's share. (Follain and Struyk, 1977:10)

Thus, the possible advantage to the borrower is that the shared equity mortgage is tantamount to a fixed rate mortgage on a lower priced home. Through such an arrangement with a public or private investor, the borrower puts down only say 70 percent of the equity required and, at least initially, carries a mortgage payment of only 70 percent of what it would ordinarily take to purchase such a home. As a quid pro quo with the investors, the homeowner shares any capital gain at the time of sale with the lender. In the specific SE proposal outlined in the above quotation, one major disadvantage to borrowers is the extent to which they bear the risk of their property not appreciating as rapidly as other real estate or other types of investments foregone by the lender in making the loan. Hence, they may unexpectedly have to pay the lender the interest differential.

Finally, the reversed annuity mortgage (RAM) has been advocated as a means for those homeowners who have fully amortized the loan used to purchase their home, to capitalize on their investment. Under the reversed

annuity mortgage,

...the borrower receives a monthly payment (from the lender) based upon the value of the home. The amount of the 'loan' (i.e., funds disbursed plus accumulated interest) would be repaid at the time of the demise of the borrower or at the maturity of the mortgage. (FHLBB, 1977: XII-25)

From the borrower's perspective, the attractions of such a mortgage instrument would appear to be predicated on whether they expected to die prior to the loan maturity, and simply have the property sold and the reverse annuity repaid as a part of their estate.

In sum, while all of these alternative instruments are generally presented in the literature as advantageous to the household saver, the lender, and the consumer, the consumer benefits are unclear. Under the terms of most of these instruments, except possibly RAM, borrowers would appear to be assuming greater risks with no clear indication that their ability to support greater debt will be matched to the rate of increases in mortgage payments.

Implementation of AMI's on an Experimental Basis. Beginning in 1976, several of the alternative mortgage instruments were put into effect on an experimental basis under the Federal Housing Administration (FHA) in the U.S. Department of Housing and Urban Development (HUD) and the Federal Home Loan Bank Board (FHLBB). HUD's initiatives were pursuant to a Congressional mandate in the Housing and Community Development Act of 1974 to establish a mortgage insurance program for graduated payment loans on an experimental basis. In September of 1976, HUD issued final regulations for a one-year trial period in which GPM's would be originated with FHA on the following terms:

Five specific plans are authorized. Three plans will permit five years of increasing payments at 2-1/2, 5 and 7-1/2 percent annually at the outset and two plans will permit ten years of increasing payments at 2 and 3 percent annually. Payment amounts will be level each year and adjusted annually for the first 5 or 10 years as the plan may call for.

Starting in the 6th year for the 5-year plans and in the 11th year for the 10-year plans the payments will be level in the amount for the remaining term of the mortgage.

The minimum downpayment required under this program will be somewhat greater than required under the standard level payment mortgage. This is required because the outstanding principal due on a mortgage under this program will increase during the initial years. The additional downpayment will ensure that the outstanding mortgage balance at no time exceeds the maximum mortgage limit for the section 203(b) or 234(c) Program, as the case may be.

The underwriting will be the same as those specified for the Section 203(b) and 234(c) Programs, except each borrower must certify that he or she fully understands the obligation undertaken. Mortgage credit review for the purpose of determining eligibility will consider first year income and expense data for evaluation purposes. (Federal Register, vol. 41, no. 190, September 26, 1976:42948)

Under these parameters, a GPM might extend homeownership possibilities to households who had sufficient savings to make higher downpayments than those ordinarily required under HUD-FHA mortgage insurance programs, but whose current monthly income and future earnings expectations were such that they might opt for lower monthly mortgage payments in the initial five to ten years and somewhat higher payments over the remaining life of the mortgage. It is interesting to note that ostensibly the traditional underwriting requirements regarding debt to income ratios were not changed, as the data base for the originating lender and FHA was to be the debt to income ratio at the time of the mortgage application with no attempt to

predict the future income stream of the applicant.

On December 20, 1978, the Federal Home Loan Bank Board issued final regulations for three types of alternative mortgage instruments: GPM's, RAM's, and VRM's. Of the two "borrower-oriented" instruments, the GPM provisions were similar to those of HUD-FHA with a limited graduation period of ten years and implicitly, borrower equity requirements such that the loan-to-value ratio never exceeded those allowed under fixed payment instruments (Code of Federal Regulations, Title 12, Section 545.6-2:498).

The RAM's provided for a mortgage instrument in which

"periodic payments to homeowners based on accumulated equity; the payments are made directly by the lender or through purchase of an annuity from an insurance company. The loan becomes due on a specific date or when a specific event occurs, such as sale of the property or death of the borrower." (CFR, Title 12, Sec. 545.6-2:500)

Rather than specify permissible terms for these instruments, the Board provided that any institution interested in making reverse annuity mortgages should submit a mortgage plan to the Board for review. If the Board did not respond with objections within 60 days, "the association may proceed to offer mortgages pursuant to such a plan."

After the successive defeats of VRM proposals in Congress, federal regulatory policy on VRM's evolved in response to state policy. State chartered thrift institutions in several states such as California, Ohio, Wisconsin, and most New England states including Massachusetts, Connecticut, Maine, and New Hampshire were permitted to issue variable rate and, in some cases, five-year renegotiable mortgages (Melton and Heidt, 1979:28). Up through 1978, the bulk of the VRM activity was concentrated in California. In December of that year, the FHLBB authorized VRM lending by federally chartered savings and loans in areas where these institutions

faced a "complete disadvantage" in the market, namely California. In doing so, the chairmen of the FHLBB emphasized the extent to which this measure, and others permitting GPM's and RAM's nationally, would increase the consumer's "freedom to choose" among alternative types of mortgage instruments (FHLBB, 1979:3). To assure that fixed payment mortgages would continue to be available in reasonable terms, VRM acquisitions of each institution were restricted to 50 percent of their total mortgage originations and purchases in any given year (12 CFR 545.6-2(b)(ii)). However, in VRM regulations revised in a credit crunch a little over one year later, federally chartered savings and loans nationally were permitted to issue VRM's exclusively. Thus, while Congress had refused to statutorily endorse variable rate mortgages in the mid-1970's, by 1979, the FHLBB had instituted VRM's under its general administrative authority with only "clear indications of approval from two important congressional committees on authorizing AMI's (FHLBB, 1979:3). In 1980, the Senate Chairman of the Banking, Housing and Urban Affairs Committee addressed the new Chairman of the FHLBB on his proposed renegotiable mortgage as follows:

In testifying before our Committee in August of 1978 on the Board's then proposed regulations on variable rate mortgages and roll-over mortgages, Chairman McKinney emphasized that documented choice was the 'centerpiece' of the Board's entire proposal. In summarizing the argument in favor of the Board's authorizing these new instruments, Chairman McKinney stated that 'the question basically boils down to one of choice, a choice that will enable borrowers to fit their financing needs to their mortgage.' In the home financing field, I believe a choice of different products is long overdue. What has been needed is to design a regulatory framework which ensures that borrowers can select the instrument of preference. As presently structured, the Board's new proposal regulations would fail this test of ensuring consumer choice. (Letter from U.S. Sen-

ator William Proxmire to FHLBB Chairman Jay Janis
dated January 31, 1980)

Thus, while much of the literature on introducing variable rate and roll-over mortgages in the United States has been presented in terms of consumer sovereignty and expanding the choice among the mortgage instruments offered, it appears that household saver sovereignty is evidenced in institutional portfolio reforms. Household borrower concerns are subordinate.

Risk Issues Associated with AMI's

Most of the research on mortgage alternatives has addressed one set of portfolio risk issues, the asset-liability match of the lender. Few have addressed the risks associated with the proposed modifications and the extent to which more variable terms may increase the probabilities of delinquency of default on any particular loan.

Of the four fundamental mortgage variables -- principal, interest rate, maturity, and downpayment -- the only one which has been subject to much variation in the past several decades is the downpayment, or equity to value ratio. Lower downpayment requirements for federally insured and, subsequently, privately insured mortgages have been the major alternatives to conventional fixed rate mortgages. Much of the risk literature during this period found that lower downpayment loans were higher risk, with higher probabilities of delinquency and default (Chapter 3). In practice, these findings simply reinforced the statutory requirements that the lender require the borrower to carry some form of mortgage insurance for mortgages with downpayments less than 20 percent of the appraised value of the property.

Some analysts have argued that many of the few forms of variable term

mortgages are not new at all. They maintain that some of the proposed alternatives such as the roll-over, or renegotiable mortgage, parallel instruments used prior to the depression such as the balloon mortgage. Analysts critical of AMI's generally argue that the risk issues presented by these "new" instruments are twofold. One, related to portfolio risk, is the argument that "variable-rate residential mortgages transfer the risk of interest rate changes from the mortgagee to the household mortgagor, who may be expected to be poorly prepared to accept it" (Kaufman, 1973:50). These analysts maintain that the perceived need for variable term loans has arisen as a result of incorrect interest rate forecasts on the part of the financial intermediaries, particularly the thrifts:

In the absence of incorrect rate forecasts, variable-rate mortgages cannot improve the actual performance of thrift institutions. They can improve only the apparent performance. To the extent the longer term nature of their assets increases the probability of thrift institutions' misestimating distant short-term interest rates relative to shorter-term maturity intermediators, the introduction of variable-rate mortgages can contribute to improved performance by shortening the prediction horizon and reducing the likelihood of forecast error. However, this would eliminate both the gains and the losses of erroneous forecasts and any profits from selling interest rate insurance to mortgagors. Moreover, if activated through changes in the size of monthly payments, variable rate mortgages may intensify the countercyclical savings patterns and thereby also the countercyclical pattern in both deposit inflows and mortgage extensions. (Kaufman, 1973:50).

The other risk issue addressed by critical analysts is the extent to which this portfolio risk shift from lender to borrower will mean either inherently riskier individual loans (as incorrect forecasts have mattered to the industry only as rates increased, and hence, variable rate mortgages are most likely to be offered when it is expected that rates will increase) or: --

Increased expectations by lenders of default among certain borrower groups could possibly result in revised rules-of-thumb for lending -- specifically higher downpayments, lower payment burdens, more attention to income expectations and/or stricter credit standards -- which would ration many of these households, now barely capable of sustaining homeownership, out of the mortgage and homeownership markets. In addition, risk of future interest rate increases could be shifted to the borrower in the form of greater uncertainty in future payment levels and rates of equity accumulation making budget planning more difficult, and resulting in lowered demand for housing mortgage credit, and homeownership. (Vandell, 1978a:129-130).

Of those few who have tried to assess the probable incidence of the risk effects introduced by variable term mortgage (assuming underwriting standards remained essentially the same) not surprisingly the consensus is that those forms which may vary a little but have a cap on the amount of variation upwards in any given time period and over the life of the loan are likely to have little impact on risk. However, any considerable variation is estimated to have substantial effects on the incidence of delinquencies and defaults (Swan in FHLBB, vol. 2, 1977:IX; Vandell, 1978b:1279-1296).

There are additional risk issues which generally have not been addressed in the alternative mortgage instrument literature, but which are implicit in risk research on fixed payment mortgages discussed in Chapter 3. One is the implication of effectively very short term mortgages vis-a-vis the stability offered by a seasoned mortgage portfolio. As discussed in Chapter 3 and 4, after an initial honeymoon of approximately two years, the highest probability of default is before the fifth year with probabilities declining substantially thereafter. If rates and, in turn, monthly mortgage payments increase considerably, this seasoning effect may diminish

somewhat as, on a cumulative basis, the loan is essentially reissued. Second, some analyses (FHA, 1963; VA, 1963; Herzog and Early, 1970; MBA, 1971) identified secular trends related to macroeconomic conditions that affect the incidence of mortgage risk. It appears that these are not simply linked to trends such as unemployment, but effects of business cycle on real estate prices. For example, the high rate of delinquencies in 1963 was attributed to the fact that many of these borrowers had purchased their homes in 1957-1958 at a price and interest rate peak and subsequently, when the general market declined, they were locked into the finance structure of the time of purchase. They had not experienced much appreciation in the rate of return on their equity and, when faced with household finance problems such as unemployment, their ability to sell and recoup their down-payment was limited. In this regard, variable rate mortgages should reduce risk if the monthly carrying costs were reduced accordingly. Price level adjusted mortgages, which would reduce the principal basis as well might theoretically extend the household's ability to sustain the debt even further. However, graduated payment mortgages, predicated on increased household income and rapidly appreciating real estate values would put an even greater burden on the household. A shared equity mortgage in which the lender shared the downturns as well as the upturns would probably essentially be the same as the fixed rate instrument; however, the proposal to date has been for the borrower to bear the full burden of the downturns, thus making the shared equity instrument considerably riskier.

Finally, there are some questions in terms of overall portfolio management, about managing assets and liabilities which are not, strictly speaking, short term. Not only does portfolio management necessarily

become costlier with frequent rate changes, but anticipation of time and magnitude of changes so as to minimize any lags in the rate changes on assets becomes critical.

PRELIMINARY ASSESSMENT OF COST IMPACT ON BORROWER UNDER AMI'S
BASED ON METROPOLITAN BOSTON DATA 1963-1979

Hindsight on mortgage interest rates is 20-20. The future of these rates is unknown. Thus, one way to gauge carrying costs to the homeowner under a variable rate mortgage in the future is to review what would have occurred to a homebuyer in the immediate past.

Mortgage interest rate data were obtained for metropolitan Boston from 1963 through 1979. Calculations were made on the basis of a \$25,000 mortgage made in January of 1963 for 25 years under three different rate instruments: a fixed rate mortgage, a variable rate mortgage, under which payment levels could change as often as every six months, and a renegotiable mortgage under which monthly payment levels could change every five years (Exhibit 5-6).

Under this example, the interest rate went from 5.44 percent in January of 1963 to 8.5 percent in January of 1978. This was not a period of particularly rapid interest rate increases, yet a household with a renegotiable mortgage would have experienced a 21 percent increase in monthly mortgage payments (\$152.03 to \$184.20). Another with a variable rate mortgage, subject to rate changes unlimited in number or amount, would have mortgage payments 26 percent higher at the end of this fifteen year period. Corresponding increases in household income from \$608 required for the initial period was to have amounted to \$737 for the renegotiable loan and \$767

EXHIBIT 5-6

COMPARATIVE SUMMARY OF MORTGAGE PAYMENTS
 UNDER FIXED RATE, VARIABLE RATE,
 AND RENEGOTIABLE MORTGAGE

<u>Date</u>	<u>Interest Rate^a</u>	<u>Monthly FPM</u>	<u>Mortgage VRM</u>	<u>Payment^b RM</u>	<u>Household FPM</u>	<u>Income VRM</u>	<u>Required RM</u>
1/1/63	5.44	152.03	152.03	152.03	608.12	608.12	608.12
1/1/68	6.48	152.03	166.28	165.88	608.12	665.12	663.52
1/1/73	7.30	152.03	178.00	174.81	608.12	712.00	699.24
1/1/78	8.50	152.03	191.73	184.20	608.12	766.92	736.80

^aBased on Mortgage Interest Rate Survey compiled by the Federal Home Loan Bank Board.

^bCalculated on \$25,000 mortgage with a 25 year maturity.

^cCalculated using the debt to income ratio of .25, or an income four times the monthly payment. These calculations cover principal and interest (not property taxes and insurance) only.

for the variable rate.

Apart from the increased monthly income stream which may be required to meet mortgage obligations under these instruments, as finance charges increased, the amortization schedule decelerates. Thus, the increase in finance charges is attributable not only to the rise in interest rates but also to the fact that one pays more for longer outstanding loan dollars.

In sum, as recently observed by the president of the largest private mortgage insurance company in the United States:

The consumer is going to have to be a miniforecaster when it comes to selecting what type of mortgage he wants. It will be like picking stocks and bonds. (WSJ 8/18/80:32)

Under these alternative instruments, the lender will no longer bear the burden of unanticipated increases in mortgage interest rates. Thus, the reduced portfolio risk of the institution transfers risk to the individual mortgage holder. In the final analysis, however, any increased risks associated with these individual loans will cumulatively increase the portfolio risks of the lending institution.

Further Public Policy Considerations Re: AMI's

Apart from consumer concerns with the particulars of these instruments, a more basic argument presented by representative organizations addresses the fundamental issue of the roles appropriate to borrowers and lenders in the mortgage market. Mortgage lenders, specifically the thrift institutions, were chartered to provide five types of financial intermediation services:

- (1) basic intermediation (joining of surplus and deficit household units);

- (2) denomination intermediation (joining mostly small deposits with large mortgages);
- (3) default risk intermediation (joining less risky deposits with more risky mortgages);
- (4) maturity intermediation (joining short-term deposits with fixed rate mortgages);
- (5) interest rate intermediation (joining variable rate deposits with fixed rate mortgages);
(Findley and Capozza, 1977:356)

Variable term instruments permit the thrifts to abdicate two of these five services (Kaufman, 1973:50). A lender is

...the professional in judging future monetary conditions and they should bear the risk of interest rate changes rather than the borrowers. Bearing of this risk is one of the major functions of the mortgage lenders, and in determining the rate that they will charge in a fixed rate mortgage, they are attempting to forecast what future mortgage rates are likely to be. This is their job and they should not shift the risk-bearing function to unsophisticated borrowers. (Schaaf, 1976:79)

One central issue, even among the series of instruments (GPM's, SE's, and RAM's), which are generally perceived as more borrower-oriented, is the extent to which all of these are tied to the lender's predictions of increases in household income and indirectly, or directly in the case of shared equity and reverse annuity mortgages, predictions of property value trends. Under a fixed payment mortgage, the lender assesses the mortgage related debt to current income and, assuming that the borrower will be able to sustain at least this level of earnings, approves the loan on the basis of current income. Predicting the rate at which current income will increase requires analytical assumptions and interpretations which, by definition, are not as objective as actual data. The underwriting criteria are likely to create classes of borrowers. Those who have traditionally

had difficulty in obtaining credit may have even more difficulty in doing so. Moreover, unlike credit institutions such as life insurance and casualty companies which have formalized a statistical basis for their underwriting standards, the residential mortgage lending industry has generally not developed a data base and analysis which can be systematically evaluated in terms of its discriminatory effects. For example, in one federally funded research effort entitled Women in the Mortgage Market, data was developed by HUD researchers on mortgage lenders' predictions in 1965 of the future income stream of female applicants and compared with their actual income four years later in 1969. On average, the lenders underpredicted the earnings of these women by 50 percent. Such prediction biases will become extremely important with any mortgage instrument which is predicated on the borrower's income increasing commensurately with any anticipated increases in monthly carrying costs.

In one of the few articles of the many on new forms of mortgages in the past decade which addresses the "Distributional Consequences of Alternative Mortgage Instruments", the author concluded:

"The results derived in this study tend to support the theoretical arguments of opponents of the VRM, and indicate that the introduction of a standard variable rate instrument with adjustable payments made annually, especially one tied to a short-term interest rate index, may impact negatively on all households, and especially upon lower-middle income, young, elderly, and black households." (Vandell, 1978:147)

These findings substantiated the consumer concerns articulated at Congressional hearings (Rohde in Subcommittee on Financial Institutions, 1975:368-386) which ultimately led to the defeat of any legislative mandate for federal regulators to implement these instruments.

Contrary to much of the neoclassical literature on the subject, Vandell tested and upheld two hypotheses:

...first, that mortgage-related characteristics can have a significant impact on the demand for homeownership, housing, and mortgage-credit; and, secondly, that different instruments can have very different consequences for different classes of households, depending on the way in which these mortgage characteristics interact with individual household incomes and income expectations and conditions in the economy in general. (Vandell, 1978:130)

In other words, the mortgage market is largely shaped by institutional suppliers and the types of instruments and terms on which they are offered. Any changes in the types of loan instruments offered by these institutions may fundamentally alter the distribution of households which may have access to mortgage credit.

Implicit in many of these AMI proposals (PLAN's, SE, and RAM's), generally billed as borrower-oriented, is the argument that a mortgage instrument which is transformed from a financial asset to a real asset will be more attractive to financial institutions as an investment. During particularly inflationary periods, real assets tend to appreciate far more rapidly than financial assets and thus are more attractive forms of capital investment. Apart from the apparent problems of joint ownership or shared capital gain with the investor, these instruments would inevitably reinforce the lender's emphasis on property and location and prediction of rates of appreciation would become an essential factor in mortgage lending decisions. Under the fixed rate, term, and principal instrument, the lender presumably needed only to be assured that the value of the property serving as collateral security, in the event of default, would be sufficient to recoup the outstanding balance of the mortgage and any foreclosure

costs. Under these several alternative instruments, however, the lender has a vested interest in the rate of appreciation, as it affects the institution's future rate of return. Thus, the geographic distribution of mortgage capital is even more likely to be channeled to (1) rapidly developing regions where values have skyrocketed as a result of changes in land uses from agricultural non-metropolitan areas to more densely developed residential in conjunction with commercial and industrial uses, (2) rapidly changing urban neighborhoods where dramatic increases in property values have occurred as a result of institutional expansion or desire to expand their physical facilities (e.g., city-based service industries such as universities, hospitals, insurance companies, etc.), (3) in-migration of upper and middle income residents willing to pay suburban prices for urban houses, or (4) radically different re-use of existing structures (e.g., apartment buildings converted to condominiums).

MORTGAGE-RELATED SECURITIES: LONGER TERM FIXED RATE LIABILITIES TO MATCH MORTGAGE ASSETS

Background

In some respects, the issuance of intermediate or longer term market securities to finance mortgages is new wine in old bottles. An article on mortgage banking published in 1894 reports on investment houses that issued bonds against portfolios of farm mortgages in the 1880's (Frederiksen, 1894). A century later, federally sponsored credit agencies including FNMA, FHLMC, and GNMA have issued market securities, such as mortgage-backed bonds and/or passthrough certificates to finance mortgage loans. State housing finance agencies, which have mushroomed over the past decade, finance housing construction loans and mortgages by issuing tax-exempt

notes and bonds. Thus, obtaining longer term funds to finance mortgages or serving as an intermediary passthrough selling mortgages as longer term securities to investors, are not novel means of mortgage financing, but a novel means for thrift institutions to obtain funds.

The impetus for thrift institutions to consider mortgage-related securities grew out of the growing inadequacy of their household deposit base to finance residential mortgage demand.⁷ Beginning in the late 1960's, a financial management strategy which relied exclusively on short term savings from individual households could not assure coverage of outstanding mortgage investments, particularly in periods of soaring interest rates. Moreover, new mortgage commitments from savings institutions went to a virtual standstill under these conditions. As summarized in one analysis:

The growth in the (mortgage) securities market has sharply accelerated the trend towards an 'unbundling' of services offered by the traditional mortgage lender. The traditional method of profit generation in the thrift industry had been characterized by spread management -- that is, the institution would take in deposits at an average cost of 6.50% and originate and hold mortgage loans at 9.50%, with profit being earned on the loan rate -- deposit cost spread. However, spread management is no longer a sufficient technique for profit generation. The mortgage market has become increasingly integrated with the overall capital market with a substantial portion of liability cost tied directly to weekly fluctuations in short-term interest rates. This means that 'spread profitability' has become an increasingly risky and difficult proposition. As a result, it is likely that traditional mortgage lenders will have to rely increasingly on origination and servicing income as sources of profitability. It has been aptly stated that the industry has moved from a 'make them and hold them' to a 'make them and move them' environment. (Jaffee and Rosen, 1979:1-2)

Thus, the prospects for the savings industry in mortgage finance appear to

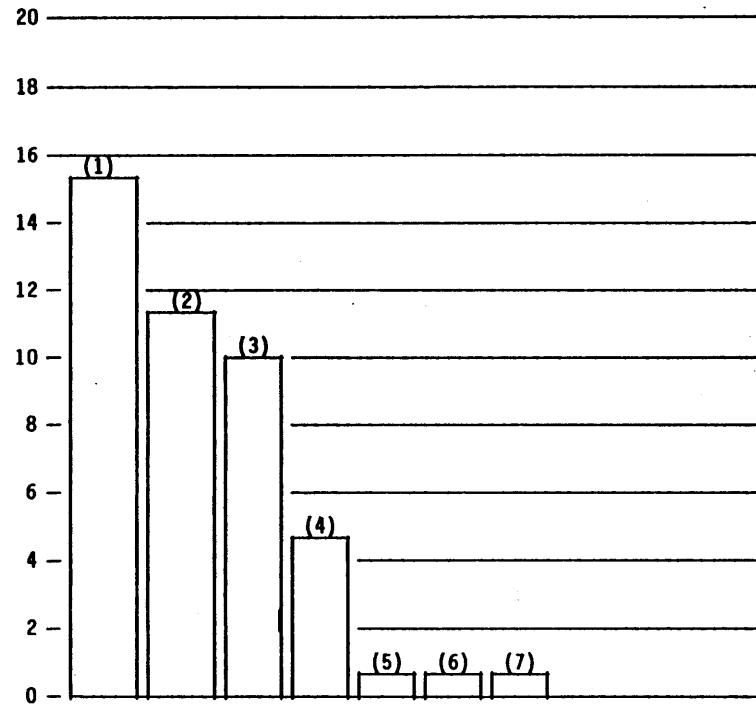
be roles previously played by mortgage bankers, mortgage brokers, and mortgage companies. That is, without a substantial and growing capital base of their own, their role as long-term investors in residential mortgages may subside. Expertise in residential mortgages may be applied primarily to origination, servicing, and warehousing functions.⁸

There are two basic types of mortgage-related securities which have been introduced and experienced phenomenal growth over the past five to ten years. One is the mortgage-backed bond (MBB), which is a debt obligation of the issuing institution with scheduled principal payments that are secured by mortgage collateral. The other is the mortgage-backed passthrough certificate (PTC), which provides ownership interest in the monthly payments from a pool of mortgages. Both MBB's and PTC's grew significantly in the 1970's. In 1978 alone, "the \$40 billion of mortgage-backed securities issued in the national market financed nearly one-quarter of all home loan originations" (Sivesind, 1979:1). The proportionate share of mortgage-backed securities of each issuer in 1978 is indicated in Exhibit 5-7. The annual volume of mortgage-backed bonds since 1975 when FHLBB regulations were adopted to permit savings institutions to issue such bonds is summarized in Exhibit 5-8. A market summary of passthrough securities by issuer since 1972 is given in Exhibit 5-9. The most notable trends in the late 1970's are the extent to which (1) conventional, as opposed to federally backed, loans now serve as the collateral security for MBB's and (2) non-governmental issuers entered the passthrough market. While FNMA paved the way for the first federally-insured and then conventional mortgage-backed bonds, GNMA for federally guaranteed passthrough

EXHIBIT 5-7

Mortgage Backed Securities issued in 1978

Billions of dollars



- (1) GNMA pass-through securities
- (2) FNMA Notes and debentures
- (3) FHLMC participation certificates
- (4) Tax-exempt mortgage-backed bonds
- (5) Publicly issued pass-throughs
- (6) FHLMC-guaranteed mortgage certificates
- (7) Publicly issued mortgage-backed bonds

Source: FRBNY Quarterly Review/Autumn 1979

EXHIBIT 5-8

MARKET SUMMARY OF MORTGAGE-BACKED BONDS ISSUED BY THRIFT INSTITUTIONS

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>Total</u>
	(In Millions of Dollars)					
PUBLIC MARKET						
<u>Type of Collateral</u>						
GMNA Securities	-	-	40	40	-	80
FHA-Insured or VA-Guaranteed Mortgage Loans	50	75	450	-	-	575
Conventional Mortgage Loans	-	-	<u>625</u>	<u>425</u>	<u>1,110</u>	<u>2,160</u>
Subtotal	50	75	1,115	465	1,110	2,815
PRIVATE MARKET						
<u>Type of Collateral</u>						
GMNA Securities	-	-	-	-	10	10
FHA-Insured or VA-Guaranteed Mortgage Loans	15	-	6	14	20	55
Conventional Mortgage Loans	-	-	<u>73</u>	<u>135</u>	<u>192</u>	<u>400</u>
Subtotal	15	-	79	149	222	465
Total	65	75	1,194	614	1,332	3,280

SOURCE: Blyth Eastman Paine Webber Incorporated
Corporate Finance Department

EXHIBIT 5- 9

MARKET SUMMARY OF MORTGAGE-BACKED PASS-THROUGH SECURITIES

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
	(In Millions of Dollars)							
Government National Mortgage Association	2,662	2,953	4,553	7,447	13,764	17,440	15,358	24,900
Federal Home Loan Mortgage Corporation - P.C.	494	317	52	526	1,456	4,834	5,630	3,878
Non-Governmental Issuers	-	-	-	-	-	226	728	445

SOURCE: Blyth Eastman Paine Webber Incorporated
Corporate Finance Department

securities, and FHLMC for conventional mortgage passthrough securities, non-governmental issuers were now major participants in the market.

In the following subsections, the development of both mortgage-backed bonds and passthroughs are examined. Materials from rating agencies and other analyses are used to assess the investment terms and magnitude of these securities in mortgage finance throughout the United States.

Mortgage-Backed Bonds (MBB's): Experience Under FHLBB-FSLIC
MBB Regulations Issued in 1975

The Federal Home Loan Bank Board in conjunction with the Federal Savings and Loan Insurance Corporation permitted member institutions to issue mortgage-backed bonds beginning in 1975. This permission was quite limited, as an institution could not issue bonds on more than "2.5 percent of its specified assets" (CFR Title 12, Section 563.8-2).⁸ These limitations may have been instituted either because FHLBB and FSLIC officials (1) perceived MBB's primarily as a timely means by which savings institutions could sell their below current mortgage rate loans at somewhat lower corporate bond rates (Kaplan, 1975) or, (2) wanted to monitor MBB issues on an experimental basis to assess their longer term viability as a liability management technique for savings institutions (Tucker in Buckley et. al., 1977).

These regulations sought to establish minimum threshold criteria in terms of the financial soundness of the issuing institution.⁹ Moreover, before issuing a MBB, an institution was required to file a note of intent to issue mortgage-backed bonds with a brief description of the amount and terms of the offering. The FSLIC reserved the right to prevent an institution from issuing a mortgage-backed bond if, in the opinion of the

Corporation, there were problems either with "the policies, condition, or operation of the insured institution" or with the terms of the proposed bond indenture, particularly where they appeared to be unnecessarily onerous to the issuing institution. These regulatory provisions appear to be designed to protect (1) individual institutions entering the mortgage-backed bond market from succumbing to terms imposed by underwriters and their bondbuyers, (2) savings institutions collectively, as a default on a mortgage-backed bond issue by one institution would subsequently limit the ability of others to issue and increase the rates on future bond issues, and (3) the FSLIC, as this agency would be encumbered with bailing out any institution which became insolvent over the life of an outstanding bond issue.

Finally, in keeping with regulations on market rate liability instruments under Regulation Q, the minimum denominations and marketing of these obligations were designed to preclude the ability of the institution's ongoing depositors from transferring their funds into the purchase of these bonds. As with market rate certificates of deposit designed to attract institutional investors, the minimum denominations in which these bonds could originally be purchased was \$100,000. This denomination could be lowered to \$10,000 as long as the bonds were "sold only through brokers and dealers registered with the Securities and Exchange Commission", without any solicitations or sales made by the issuer or any of its affiliates (CFR Title 12, 563-8.2(d)(2)(ii) and (iii)).

The first MBB issue made was by the First Federal Savings and Loan Association of Rochester, New York. The bond issue was for \$15 million and privately placed through an investment house rather than publicly marketed.

As stated by First Federal's President:

This...was the Bank Board's desire as it would effectively preclude individual investor's participation... By our choice of the private placement method, the offer was limited to institutional investors. Also, we avoided sales to other savings institutions. (Scheu, 1975:27)

Prior to placement, the investment house had to work "closely with Standard and Poor's rating agency in developing rationale for rating such bonds." (Scheu, 1975:25) Historically, Standard and Poor had had a policy of not rating any issue of a savings association. Given the extent to which this rating agency influenced interest rates offered on corporate bond issues generally, this institutional breakthrough was considered essential. Ultimately, the issue received a very high rating ("AAA") and commensurately low interest cost by (1) pledging only 100 percent federally insured FHA and VA mortgages as collateral and (2) maintaining the collateral balance at a minimum of 150 percent of the outstanding principal borrowed.

Subsequently, over the next five years, the MBB issues by thrift institutions followed similar patterns. As of May, 1980, a total of 77 issues had been made by 57 institutions for a total dollar amount of \$3,380,000,000. Thirty-five of these issues were public offerings of \$30 million to \$200 million. These offerings totaled \$2,865,000, or 85 percent of the MBB's sold. Of these, only 8 offerings were secured with GNMA securities or FHA-insured and VA-guaranteed mortgage loans; the remaining 27 offerings were secured by conventional mortgages (Exhibit 5-10). The other 32 of these issues were private placements with institutional investors between \$6 million and \$62 million (Exhibit 5-11).

EXHIBIT 5-10

MARKET DATA FOR PUBLIC OFFERINGS OF MORTGAGE BACKED BONDS LISTED BY TYPE OF COLLATERAL AND REMAINING LIFE TO MATURITY

AS OF MAY 15, 1980

Ratings (1)			Issuer	Amount of Offering (\$MM)	Date of Offering	Date of Maturity	Coupon Rate	Initial Price	Offering Yield	Remaining Life to Maturity (Yrs/Mo.)	Current Market Date 05/13/80			Date of Initial Redemption at Par	Yield to Date of Initial Redemption at Par
Fiteen	Moody's	S&P's									05/13/80 Price	Yield to Maturity	Premium Over Comparable U.S. Treasury Yield (3)		
<u>Collateral Consists of GNMA Securities</u>															
NR	NR	AAA	Talman Federal S&L Assoc. of Chicago	40	4/13/78	4/15/83	8.375	100.00	8.38	2/11	93.88	10.87%	1.27%	10/15/82	11.33%
NR	NR	AAA	Broadview S&L Company	40	11/03/77	11/01/84	8.000	99.84	8.03	4/6	89.25	11.12	1.27	11/01/83	11.87
<u>Collateral Consists of FHA-Insured or VA-Guaranteed Mortgage Loans</u>															
AAA	NR	AAA	American S&L Assoc. (California)	200	5/26/77	6/01/82	7.250	100.00	7.25	2/1	93.25	11.01	1.41	6/01/82	11.01
AAA	NR	AAA	Coast Federal S&L Assoc. (California)	50	10/05/77	10/01/82	7.500	99.88	7.53	2/5	92.75	11.03	1.43	10/01/82	11.03
AAA	NR	AAA	Home S&L Assoc. (California)	100	11/22/77	11/15/83	7.750	99.70	7.81	3/6	90.75	11.00	1.40	11/15/82	12.14
NR	NR	AAA	California Federal S&L Assoc.	75	10/15/76	6/15/84	7.625	99.45	7.72	4/1	88.63	11.16	1.31	12/15/82	12.92
NR	NR	AAA	California Federal S&L Assoc.	50	9/25/75	7/15/85	9.125	100.00	9.13	5/2	91.75	11.27	1.27	7/15/82	13.62
AAA	NR	AAA	Home S&L Assoc. (California)	100	11/22/77	11/15/85	7.875	99.63	7.94	5/6	86.38	11.26	1.26	11/15/83	12.82
<u>Collateral Consists of Conventional Mortgage Loans</u>															
NR	NR	AAA	Home S&L Assoc. (California)	200	6/23/77	6/15/82	7.250	99.90	7.27	2/1	93.00	11.09	1.49	12/15/81	12.21
NR	NR	AAA	California Federal S&L Assoc.	100	9/21/77	10/01/82	7.375	99.50	7.50	2/5	92.38	11.09	1.49	4/01/82	12.00
NR	NR	AAA	San Diego Federal S&L Assoc.	35	10/26/77	10/15/82	8.000	99.60	8.10	2/5	93.25	11.25	1.65	4/15/82	12.03
NR	NR	AAA	World S&L Assoc. (California)	50	12/13/77	12/15/82	7.950	100.00	7.95	2/7	92.75	11.25	1.65	6/15/82	11.96
NR	NR	AAA	First Federal S&L Assoc. of Wisconsin	35	5/23/78	8/15/83	8.750	100.00	8.75	3/3	93.25	11.27	1.67	2/15/83	11.67
AAA	NR	AAA	Valley Federal S&L Assoc.	40	10/27/77	11/01/83	8.125	99.74	8.18	3/6	91.25	11.24	1.64	11/01/82	12.34
AAA	NR	AAA	Guarantee S&L Assoc. (California)	50	3/07/78	3/01/84	8.450	100.00	8.45	3/10	91.38	11.29	1.44	3/01/83	12.16
AAA	NR	AAA	American S&L Assoc. (California)	200	4/13/78	4/15/84	8.500	99.77	8.55	3/11	91.50	11.23	1.38	4/15/83	12.03
NR	Aaa	AAA	Houston First Savings Association	50	8/02/78	8/01/84	8.875	99.88	8.90	4/3	91.88	11.34	1.49	8/01/83	11.98
NR	Aaa	AAA	Gibraltar Savings Assoc.	125	8/21/79	8/15/84	9.750	100.00	9.75	4/3	95.00	11.25	1.40	8/15/83	11.62
NR	Aaa	AAA	Northern California S&L Assoc.	50	2/01/80	2/01/85	12.500	100.00	12.50	4/9	103.88	11.40	1.55	8/01/84	11.31
AAA	NR	AAA	American S&L Assoc. (Utah)	50	4/27/78	4/15/85	8.625	99.60	8.70	4/11	89.75	11.40	1.55	4/15/84	11.97
AAA	Aaa	AAA	American S&L Assoc. (California)	200	6/21/79	6/30/85	9.500	100.00	9.50	5/2	93.50	11.19	1.19	6/30/84	11.51
NR	NR	AAA	First Federal S&L Assoc. of Chicago	40	5/11/78	5/01/86	8.700	100.00	8.70	6/0	88.88	11.31	1.31	5/01/86	11.31
NR	Aaa	AAA	Eureka Federal S&L Assoc.-San Francisco	45	8/02/79	8/01/86	9.850	100.00	9.85	6/3	93.25	11.39	1.39	8/01/85	11.60
NR	NR	AAA	Midland Federal S&L Assoc. (Colorado)	30	12/18/79	12/15/86	11.500	99.85	11.53	6/7	100.00	11.49	1.49	12/15/84	11.49
NR	NR	AAA	Imperial S&L Assoc. (California)	100	6/16/77	6/15/87	7.700	100.00	7.70	7/1	81.88	11.50	1.35	6/15/84	13.62
NR	NR	AAA	First Federal S&L Assoc. of Miami	50	7/25/79	7/15/87	9.750	99.72	9.80	7/2	90.88	11.66	1.51	7/15/85	12.17
NR	NR	AAA	Monterey S&L Assoc.	30	8/16/79	6/30/89 (2)	9.650	100.00	9.65	9/2 (2)	92.38	10.99 (2)	0.84	6/30/89 (2)	10.99 (2)
NR	Aaa	AAA	Great Western S&L Assoc. (California)	200	6/28/79	7/01/89	9.500	99.75	9.54	9/2	89.88	11.30	1.15	7/01/86	11.86
NR	Aaa	AAA	Citizens S&L Assoc. (4)	75	7/03/79	7/01/89	9.500	99.75	9.54	9/2	89.38	11.40	1.25	7/01/89	11.40
NR	Aaa	AAA	Glendale Federal S&L Assoc.	100	7/03/79	7/01/89 (5)	9.350	100.00	9.35	9/2 (5)	91.50	10.84 (5)	0.69	7/01/89 (5)	10.84 (5)
NR	Aaa	AAA	Washington Mutual Savings Bank	50	8/16/79	7/31/89	9.700	100.00	9.70	9/3	89.13	11.65	1.50	7/31/86	12.24
NR	Aaa	AAA	Gibraltar S&L Assoc. (6)	100	8/02/79	8/01/89 (7)	9.500	100.00	9.50	9/3 (7)	92.13	10.87 (7)	0.72	8/01/89 (7)	10.87 (7)
NR	Aaa	AAA	Community Federal S&L Assoc.	65	9/06/79	9/01/89	10.000	100.00	10.00	9/4	92.13	11.39	1.24	9/01/86	11.80
AAA	NR	AAA	Great Western S&L Assoc. (California)	100	10/18/77	10/01/89 (8)	7.800	100.00	7.80	9/5 (8)	88.25	9.74 (8)	(0.41)	10/01/89 (8)	9.74 (8)
NR	Aaa	AAA	Commercial Federal S&L (Nebraska)	40	12/07/79	12/15/89	11.200	100.00	11.20	9/7	98.88	11.39	1.24	12/15/86	11.44

- (1) Prior to June 1979 Moody's Investors Services had not rated any publicly offered mortgage-backed bond. The American Savings & Loan Association (California) 9 1/2's due 1985 was the first public issue to be rated Aaa by this service.
- (2) Each holder may put all or part of its holdings to Monterey at par on June 30, 1986, 1987 or June 30, 1988. The yield to the first put date (June 30, 1986) is 11.41% (6 years, 2 months remaining life to the first put date).
- (3) Represents the premium by which the yield to maturity on each mortgage-backed bond exceeds the yield to maturity on U.S. Treasury issues with the same remaining life to maturity.
- (4) Collateral consists initially of Conventional, FHA-Insured and VA-Guaranteed Mortgages.
- (5) Each holder may put all or part of its holding to Glendale at par on July 1, 1986, 1987 or July 1, 1988. The yield on the first put date (July 1, 1986) is 11.30% (6 years, 2 months remaining life to the first put date).
- (6) The initial collateral includes \$20,000,000 of GNMA securities.
- (7) Each holder may put all or part of its holdings to Gibraltar at par on August 1, 1986, 1987, or August 1, 1988. The yield to the first put date (August 1, 1986) is 11.29% (6 years, 3 months remaining life to the first put date).
- (8) Each holder may put all or part of its holdings to Great Western at par on October 1, 1984 or any October 1 thereafter through October 1, 1988. The yield to the first put date (October 1, 1984) is 11.26% (4 years, 5 months remaining life to the first put job).

Source: Blyth Eastman Paine Webber Incorporated
Corporate Finance Department

EXHIBIT 5-10
 MARKET DATA FOR PUBLIC OFFERINGS OF MORTGAGE BACKED BONDS
 LISTED BY TYPE OF COLLATERAL AND REMAINING LIFE TO MATURITY

Ratings (1)			Issuer	Amount of Offering (\$MM)	Date of Offering	Date of Maturity	Coupon Rate	Initial Price	Offering Yield	Current Market Date 05/13/80			Date of Initial Redemption	Yield to Date of Initial Redemption	
Fitch	Moody's	S&P's								Remaining Life to Maturity	05/13/80	Yield to			Premium Over Comparable U.S.
<u>AS OF MAY 15, 1980</u>															
<u>Collateral Consists of GNMA Securities</u>															
NR	NR	AAA	Talman Federal S&L Assoc. of Chicago	40	4/13/78	4/15/83	8.375	100.00	8.38	2/11	93.88	10.87%	1.27%	10/15/82	11.33%
NR	NR	AAA	Boradview S&L Company	40	11/03/77	11/01/84	8.000	99.84	8.03	4/6	89.25	11.12	1.27	11/01/83	11.87
<u>Collateral Consists of FHA-Insured or VA-Guaranteed Mortgage Loans</u>															
AAA	NR	AAA	American S&L Assoc. (California)	200	5/26/77	6/01/82	7.250	100.00	7.25	2/1	93.25	11.01	1.41	6/01/82	11.01
AAA	NR	AAA	Coast Federal S&L Assoc. (California)	50	10/05/77	10/01/82	7.500	99.88	7.53	2/5	92.75	11.03	1.43	10/01/82	11.03
AAA	NR	AAA	Home S&L Assoc. (California)	100	11/22/77	11/15/83	7.750	99.70	7.81	3/6	90.75	11.00	1.40	11/15/82	12.14
NR	NR	AAA	California Federal S&L Assoc.	75	10/15/76	6/15/84	7.625	99.45	7.72	4/1	88.63	11.16	1.31	12/15/82	12.92
NR	NR	AAA	California Federal S&L Assoc.	50	9/25/75	7/15/85	9.125	100.00	9.13	5/2	91.75	11.27	1.27	7/15/82	13.62
AAA	NR	AAA	Home S&L Asso												

EXHIBIT 5-11

PRIVATE PLACEMENTS OF MORTGAGE-BACKED BONDS EXCEEDING
\$5 MILLION BY THRIFT INSTITUTIONS

Date of Loan Agreement	Issuer	Amount of Offering (000,000)	Coupon Rate	Date of Maturity	Date of Initial Redemption At Par	Mandatory Sinking Fund				Type of Mortgage Loans as Collateral	Collateral as a Percent of Principal Amount Outstanding	
						Initial Date	Annual Amount (As a Percent of Amount of Offering) (000)	Percent Retired Prior to Maturity	Average Life		Initial	Maintenance
04/15/75	First Federal S&L Assoc of Rochester	\$15	9.00%	03/31/90	03/31/85	03/31/85	\$ 1,667 (11.1%)	88.9%	11.0 yrs.	FHA-VA	254%	150%
08/15/77	State S&L Assoc.	6	7.375	08/15/81	08/15/81	-----None-----	-----None-----	-----None-----	-----None-----	FHA-VA	175	135
10/01/77	Washington Mutual Savings Bank	50	7.75	09/15/82	09/15/82	-----None-----	-----None-----	-----None-----	-----None-----	Conventional	175	150
10/31/77	State Mutual S&L Assoc.	14	8.125	10/31/82	10/31/82	-----None-----	-----None-----	-----None-----	-----None-----	Conventional	175	150
10/31/77	State Mutual S&L Assoc.	9	8.375	10/31/87	10/31/87	10/31/84	2,200 (24.4)	73.3	8.6 yrs.	Conventional	175	150
04/20/78	First S&L Assoc. (Fresno)	14	8.60	04/20/84	04/20/84	04/20/82	4,000 (28.6)	64.3	5.1 yrs.	Conventional	185	
04/20/78	Texas Federal S&L Assoc.	15	8.625	04/20/85	04/20/85	04/20/83	5,000 (33.3)	66.6	6.0 yrs.	Conventional	200	160
06/30/78	United Savings Assoc. of Texas	14	8.80	06/30/83	06/30/83	-----None-----	-----None-----	-----None-----	-----None-----	FHA-VA	150	150
07/01/78	Far West Federal S&L Assoc.	20	9.15	11/01/86	11/01/86	11/01/82	4,000 (20.0)	80.0	7.0 yrs.	Conventional	180	125
07/01/78	Fidelity Federal S&L Assoc. (Series A)	16	9.10	06/30/84	06/30/84	06/30/83	8,000 (50.0)	50.0	5.5 yrs.	Conventional	175	150
10/24/78	Provident Federal S&L Assoc.	10	9.20	11/01/83	05/01/83	-----None-----	-----None-----	-----None-----	-----None-----	Conventional	175	150
10/30/78	Santa Fe Federal S&L Assoc.	12	9.125	10/31/83	10/31/83	-----None-----	-----None-----	-----None-----	-----None-----	Conventional	175	150
11/22/78	Fidelity Federal S&L Assoc. (Series B)	19	9.35	10/31/86	10/31/86	10/31/85	9,500 (50.0)	50.0	7.5 yrs.	Conventional	187.5	150
11/22/78	First Federal S&L Assoc. of San Diego	10	9.20	12/01/83	06/01/83	-----None-----	-----None-----	-----None-----	-----None-----	Conventional	175	150
12/21/78	Pacific Federal S&L Assoc.	9	9.55	01/31/87	07/31/86	01/31/86	5,000 (55.6)	55.6	7.6 yrs.	Conventional	180	150
12/28/78	Western Federal S&L Assoc.	10	9.625	12/28/88	12/28/86	-----None-----	-----None-----	-----None-----	-----None-----	Conventional	200	175
05/16/79	Santa Barbara S&L Assoc. (Series A)	62	10.00	05/15/89	05/15/89	-----None-----	-----None-----	-----None-----	-----None-----	Conventional	200	175
06/21/79	American Federal S&L Assoc. (Wash., D.C.)	11	10.125	06/20/89	06/20/89	-----None-----	-----None-----	-----None-----	-----None-----	Conventional	200	150

08/14/79	Union Federal S&L of Los Angeles	12	10.00	06/30/86	06/30/84	-----None-----				Conventional	181	150	
08/23/79	First Federal S&L Assoc. of Santa Monica (g)	15	10.00	07/31/89	07/31/89	07/31/84	6,000	(40.0)(h)	73.3	7.0 yrs.	Conventional	182	150
09/79	Charlestown Savings Bank (Boston)	10	9.90	09/86	09/86	-----5.0 yrs.				GNMA-Collat. Bonds	150	125	
10/01/79	Buckeye Federal S&L	27	N/A	09/01/89	09/01/87	-----None-----				Conventional	200	150	
10/01/79	Dade S&L Assoc. of Miami (i)	20	10.00	09/30/86	09/30/86	09/30/85	10,000	(50.0)	50.0	6.5 yrs.	FHA-YA	152.5	135
10/11/79	First Federal S&L Assoc. of Cleveland	10	10.00	10/01/89	10/01/88	-----None-----				Conventional	220	150	
10/15/79	First Federal S&L Assoc. of Philadelphia	14	10.25	10/15/91	10/14/89	-----None-----				Conventional	210	130	
10/79	Provident Federal S&L Assoc. of Casper, WY.	10	10.50	06/30/86	06/30/92	-----None-----				Conventional	220	150	
11/79	First Federal of Detroit	11	10.375	11/01/84	05/01/84	-----None-----				Conventional	175	150	
11/02/79	Republic Federal S&L Assoc. of Wisconsin (j)	10	10.25	11/30/89	11/30/89	11/30/84	N/A	N/A	N/A	7.5 yrs.	Conventional	190	150
11/16/79	Santa Barbara S&L Assoc. (Series B)	20	10.00	11/01/99	11/01/99	11/01/85	1,300	(6.5)	91.0	13.2 yrs.	Conventional	215	150
12/21/79	Houston First American Svgs. Assoc. (Series B) (k)	10	12.875	05/01/82	05/01/82	-----None-----				Conventional	162.5	150	
12/21/79	Houston First American Svgs. Assoc. (Series C) (k)	10	12.125	01/01/84	01/01/84	-----None-----				Conventional	170	150	
1/80	Dade S&L Assoc. of Miami (l)	20	12.10	03/30/90	03/30/90	N/A	N/A	N/A	N/A	7.5 yrs.	Conventional	185	170

Mortgage Passthrough Securities: Experience With Governmental and Non-Governmental Issuers

In 1970, GNMA introduced a passthrough program under which private mortgage lenders could sell, or "pass through", their federally insured loans to private investors. This program is structured such that

...any qualified FHA mortgagee who is judged to have adequate experience and facilities to issue mortgage-backed securities and who is approved for a guarantee by GNMA can issue a passthrough security. The individual mortgages in the pool collateralizing the security are collected by the issuer and are deposited with a custodian, usually a bank; GNMA grants to the pool its guarantee. The issuer of the pool may then sell fractional participations in the pool to investors or may, alternatively, sell the entire pool to a securities' broker or mortgage broker who, in turn, sells the issue to the final investor. The issuer is responsible for servicing the pool of mortgages.... All collections of interest and principal are passed on to the investors on the basis of their pro rata shares [as are] any prepayments [of an outstanding loan].... (Marcis, 1975:173)

In the event of delinquencies, the issuer may have to advance his own funds in order to meet scheduled payments. GNMA, as guarantor with the pledge of the full faith and credit of the U.S. Government, is required to assume responsibility for the monthly payments if the issuer defaults on these obligations.

By 1973, the demand for GNMA passthrough securities exceeded the availability of newly originated federally insured mortgages available for inclusion in such securities. This was partially attributable to the development of a futures market with GNMA passthrough securities being sold (in August-October of 1973 when rates were high) on a forward commitment basis for delivery in January of 1974 or later (when rates were expected to be low). This sort of interest rate speculation on GNMA-guaranteed

EXHIBIT 5-12

Comparative Summary of Issuer and Investor Considerations in
Mortgage-Backed Bonds and Passthrough Certificates

ISSUER

MORTGAGE-BACKED BONDS

- Debt obligation of the issuer, providing means to borrow additional funds using existing assets as collateral.
- AAA ratings to date given (1) institutional obligation and (2) overcollateralization of 150 percent; relatively low rates.
- Useful to put low yield assets acquired in prior low interest rate periods to work without having to sell in secondary market or as passthroughs, either of which would require taking a loss.
- Institution's ability to issue MBB's limited by regulation to 50 percent of total assets with a maximum of 25 percent of its assets pledged as security for outside borrowing (FHLBB Reg's. Federal Register 5/30/80).
- Cash obtained from prepayments and foreclosures must be reinvested rather than "passed-through" in order to keep up the coupon payment to bond holders. Thus, issuers of bond-type securities must be large enough to withstand the risks of changes in market rates of interest.
- Potentially more attractive than at least GNMA's passthrough program which requires uniform maturities and loan types in any package.

PASSTHROUGH CERTIFICATES

- Sale of assets, thus permitting off-the-balance sheet financing.
- AA ratings to date, since these are not institutional obligations and considered higher risk ergo higher rate charges to issuer (lower spread between mortgage rate and yield at sale).
- Earnings based on origination and servicing fees versus interest rate spread between assets and liabilities of traditional savings institutions.

INVESTOR

- Fixed and certain cash flow characteristics of a corporate bond as opposed to the variability and uncertain cash flow characteristics of a pass-through type of security.
- Interest paid semiannually; principal paid at maturity.
- Investment of uncertain maturity, as depends when and if payment(s) of outstanding loans made in which case principal repayment passed directly on a pro rata basis to investors.
- Payments of principal and interest, fixed or variable depending on type of mortgage.

passthrough securities became a modus operandi in the years that followed. The volume of mortgages financed through passthrough certificates increased significantly between 1970 and 1979. Thus, passthroughs as a mortgage instrument were fostered through federally sponsored credit agencies, first on federally insured loans through GNMA and then on conventional mortgages through FHLMC.

In 1977, the Bank of America made a public offering of \$150.5 million in passthrough certificates underwritten by a New York investment house and issued without a GNMA guarantee. In lieu of a government guarantee, a private mortgage insurance policy was carried to cover 5 percent of the total amount of the issue. In the event of defaults, this insurance policy would pay investors up to \$7.5 million (5 percent of \$150.5 million). If delinquencies occurred, Bank of America as the originator had put forward cash advances to assure investors prompt payment, even on overdue loans.

The market data for mortgage-backed passthrough certificates issued by non-governmental issuers beginning with Bank of America's first successful issue through mid-May of 1980 is summarized in Exhibit 5-13. Of the 24 public offerings to date, ten of these have been issues by the Bank of America. Of the total \$1.4 billion, \$839.4 million or 60 percent of the dollar volume has been issued by BoA. Only one issue of \$27 million by Private Mortgage Insurance Corporation offers a precedent for a consortium of smaller lenders to successfully market a consolidated series of passthrough certificates. Thus, the public market for passthroughs issued by smaller institutions may be more limited. Private placements with large institutional investors may provide a viable means for these smaller institutions to issue mortgage-backed passthroughs. However, this market is

EXHIBIT 5-13

Corporate Finance Department

MARKET DATA FOR MORTGAGE-BACKED PASS-THROUGH CERTIFICATES
AS OF MAY 13, 1980

S&P's Rating	Originator & Service	Initial Offering Amount (000,000)	Date of Offering	Pass- Through Rate	Price	Mortgage Yield (1)	Bond Yield Equivalent(2)	Current Market Data 5/13/80		
								5/13/80 Price	Mortgage Yield (1)	Bond Yield Equivalent(2)
-	Bank of America NT&SA (Series A)	\$150.55	09/21/77	8.375%	100.00	8.38%	8.44%	80.00	11.51%	11.79%
-	First Federal S&L Assoc. of Chicago (Series A)	75.1	10/20/77	8.750	100.00	8.75	8.83	82.50	11.47	11.75
AA	Home S&L Assoc. (California) (5)(4) (First Series)	100.00	03/29/78	9.637	99.25	9.02	9.19	86.00	11.80	12.09
AA	Bank of America NT&SA (Series B)	201.2	04/19/78	9.000	99.25	9.02	9.19	84.00	11.47	11.75
AA	Glendale Federal S&L Assoc. (Series A)	100.0	05/03/78	9.125	98.19	9.30	9.48	84.00	11.60	11.88
AA	Washington Mutual Savings Bank (Series A)	50.4	06/23/78	9.000	95.50	9.57	9.76	85.00	11.29	11.56
AA	Bank of America NT&SA (Series 1978-1)	25.3	10/02/78	9.000	96.00	9.50	9.69	84.00	11.47	11.75
AA	Home S&L Assoc. (California)(3)(5) (Second Series)	103.1	10/04/78	9.540	97.50	9.53	9.72	86.00	11.65	11.94
AA	Bank of America NT&SA (Series 1978 -2)	25.3	10/20/78	9.000	95.38	9.59	9.78	84.00	11.47	11.75
AA	Bank of America NT&SA (Series 1978 -3)	28.7	11/17/78	9.000	93.38	9.90	10.11	84.00	11.47	11.75
AA	Bank of America NT&SA (Series 1978 -4)	65.5	11/28/78	9.000	93.00	9.96	10.17	84.00	11.47	11.75
AA	Bank of America NT&SA (Series 1978 -5)	28.6	12/14/78	9.500	96.00	10.00	10.21	86.00	11.65	11.94
AA	Bank of America NT&SA (Series 1979 -1)	26.3	01/12/79	9.500	94.50	10.23	10.45	86.00	11.65	11.94
AA	Bank of America NT&SA (Series 1979 -2)	28.0	01/31/79	9.500	95.75	10.04	10.25	86.00	11.65	11.94

EXHIBIT 5-13 (continued)

Corporate Finance Department

MARKET DATA FOR MORTGAGE-BACKED PASS-THROUGH CERTIFICATES
AS OF MAY 13, 1980

S&P's Rating	Originator & Service	Initial Offering Amount (000,000)	Date of Offering	Pass- Through Rate	Mortgage		Bond Yield Equivalent(2)	Current Market Data 5/13/80		
					Price	Yield (1)		5/13/80 Price	Mortgage Yield (1)	Bond Yield Equivalent(2)
AA	Bank of America NT&SA (Series 1979 -3)	26.2	03/21/79	9.500	94.75	10.20	10.42	86.00	11.65	11.94
AA	Bank of America NT&SA (Series 1979 -4)	60.5	04/04/79	9.500	94.50	10.23	10.45	86.00	11.65	11.94
AA	Bank of America NT&SA (Series 1979 -5)	36.1	04/18/79	9.500	95.00	10.31	10.53	86.00	11.65	11.94
AA	Bank of America NT&SA (Series 1979 -6)	27.9	05/02/79	9.500	93.00	10.47	10.70	86.00	11.65	11.94
AA	Bank of America NT&SA (Series 1979 -7)	25.5	05/16/79	9.500	92.50	10.55	10.78	86.00	11.65	11.94
AA	Bank of America NT&SA (Series 1979 -8)	31.5	06/20/79	9.500	94.25	10.27	10.49	86.00	11.65	11.94
AA	Bank of America NT&SA (Series 1979-9)	25.5	07/11/79	9.500	94.75	10.20	10.42	86.00	11.65	11.94
AA	PMI Mortgage Corporation (Series 1979 -A)	27.0	08/02/79	10.250	98.75	10.34	10.57	90.00	11.75	12.04
AA	Home S&L Assoc. (California) (Fourth Series)	104.1	08/16/79	10.000	96.50	10.43	10.66	89.00	11.66	11.95
AA	Bank of America (Series 1979 -10)	26.8	08/29/79	10.500	98.50	10.62	10.86	91.00	11.84	12.14
-	Government National Mortgage	-	-	8.500	-	-	-	87.00	10.43	10.66
-	Government National Mortgage	-	-	9.000	-	-	-	88.00	10.80	11.05
-	Government National Mortgage	-	-	9.500	-	-	-	90.00	11.00	11.26
-	Government National Mortgage	-	-	10.000	-	-	-	92.00	11.19	11.45
-	Government National Mortgage	-	-	11.000	-	-	-	97.00	11.40	11.67
-	Government National Mortgage	-	-	12.500	-	-	-	105.75	11.52	11.80
-	Government National Mortgage	-	-	13.500	-	-	-	111.00	11.63E	11.92E

EXHIBIT 5-13 (continued)

Corporate Finance Department

MARKET DATA FOR MORTGAGE-BACKED PASS-THROUGH CERTIFICATES
AS OF MAY 13, 1980

S&P's Rating	Originator & Service	Initial Offering Amount	Date of Offering	Pass- Through Rate	Price	Mortgage Yield (1)	Bond Yield Equivalent(2)	Current Market Data 5/13/80		
								5/13/80 Price	Mortgage Yield (1)	Bond Yield Equivalent(2)
-	Federal Home Loan Mortgage Corp. P.C.	-	-	10.750	-	-	-	95.75	11.21	11.48
-	Federal Home Loan Mortgage Corp. P.C.	-	-	11.250	-	-	-	97.00	11.51	11.79
-	Federal Home Loan Mortgage Corp. P.C.	-	-	11.750	-	-	-	98.00	11.84	12.14
-	Federal Home Loan Mortgage Corp. P.C.	-	-	12.000	-	-	-	99.63	11.83	12.13
-	Federal Home Loan Mortgage Corp. P.C.	-	-	12.500	-	-	-	101.00	12.09	12.40
-	Federal Home Loan Mortgage Corp. P.C.	-	-	13.500	-	-	-	104.50	12.50	12.83

- (1) For purposes of trading this yield is calculated as if the pool of underlying mortgages were a single 30 year mortgage prepaying in full after 12 years with an adjustment in yield for the lag in the first payment of interest.
- (2) Mortgage-Backed Pass-Through Certificates pay interest monthly. Over the course of six monthly payments the effective rate from this monthly compounding will make the yield on the security paying interest monthly higher than a security with the same nominal yield paying interest on a semi-annual basis. When comparing these securities to bonds paying interest on a semi-annual basis the mortgage yield has to be revised to reflect this difference in interest payout. The Bond Yield Equivalent takes the frequency of interest payment into consideration and is the standard by which corporate bond yields should be compared with pass-through yields.
- (3) The Mortgage Pool consists of variable rate conventional mortgage loans. Any change in the nominal interest rate on these mortgage loans will be passed through to certificateholders.
- (4) The pass-through rate for Home Savings and Loan Association (First Series) was 9.00%. In August 1978 and May 1979, the Federal Home Loan Bank of San Francisco variable rate index increased, permitting a rise in the nominal rate charged on selected mortgage notes in this pool. As a result the current pass-through rate is 9.637%.
- (5) The pass-through rate for Home Savings and Loan Association (Second Series) was 9.25%. In May 1979 the Federal Home Loan Bank of San Francisco variable rate index increased, permitting a rise in the nominal rate charged on selected mortgage notes in the pool. As a result the current pass-through rate is 9.54%.



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(p. 246)

difficult to evaluate from publicly available information as passthroughs are indistinguishable on these balance sheets from other types of financing such as participation loans (Rilander, 1980).

Since the mid-1970's, the FHLBB has steadily liberalized its regulations to permit greater use of mortgage-backed securities, both MBB's and passthroughs. On May 3, 1980, the Bank Board adopted rules which allow savings institutions to self-insure mortgage pools for mortgage-backed securities. By retaining a subordinate interest of up to 10 percent of the original amount of the mortgage pool, the institution may offer its subordinated position as an alternative to private mortgage insurance coverage which has been a requirement on the publicly offered passthroughs to date.¹⁰

Prognosis for Mortgage-Backed Securities Based on Experience to Date

These securities appear to be a potentially significant means of obtaining home mortgage funds. For savings institutions, these securities provide a viable means through which to raise funds from investors outside their traditional deposit bases. Passthrough securities have also provided savings institutions with mortgage investments which qualify as income tax shelters under the "bad debt" provisions of the IRS Code. The savings industry may develop not only as originators and servicers of passthroughs but also major investors. Originally, both MBB's and passthroughs were

...designed to appeal to investors who previously have not channeled their investment funds into the mortgage market...for example, the tremendous pool of capital held by private pension funds and state and local retirement funds. To the extent that [mortgage securities] provide a means for associations to tap this pool of capital, we will not, for a change, be robbing Peter to pay Paul (i.e., transfer individual household funds from lower to higher interest bearing accounts)... Thus, [mortgage

securities] will be attractive to and will trade in the very broad financial markets which are currently the sole domain of corporate bonds. (Kaplan, 1975:14)

As of 1978, while there is not considerable evidence that the institutional holdings have changed, 10 percent of the outstanding home mortgage dollars were held through pools of passthrough securities.

Mortgage-backed securities have been heralded as a means of making a better asset-liability match, i.e., substitution of longer term liabilities for short term savings to match longer maturity mortgage needs. However, while the nascent development of MBB's and passthrough certificates (PTC) for conventional as well as federally insured mortgages may have accelerated the integration of the mortgage markets and the bond markets, it may be at a point when "there has emerged a widespread consensus that something must replace the long-term fixed rate debt market (Seligman, 1980:59). An article published in Fortune in March of 1980 entitled "The Revolt of the Lenders" began

The convulsions in the bond markets during the past several months looked more and more like a watershed in the U.S. financial history. There is an emerging sense that the shattering price declines and soaring interest rates that began last fall signify the end of an era for bonds and, indeed, for long-term fixed-rate financing in general. After being clobbered for years in the debt markets, the big bond holders have, in effect, revolted. For a variety of reasons, it now seems unlikely that they will again be willing to buy those traditional long-term bonds, even with still higher yields. (Seligman, 1980:57)

Among the lenders identified as withdrawing their funds from the bond market are (1) household sector, in part because "it has more options in the short-term markets" such as money market funds and MMC's offered by the thrifts and (2) pension funds, as "fixed-rate assets like bonds cannot be used to finance variable rate pension benefits" wherein payments to pen-

sioners are tied to a cost of living index.

The solution posed to this problem to "which most bond-market veterans seem to be partial is a not-so-long-term variable rate instrument -- something approximating what already exists in Canada and Europe" (Seligman, 1980:59). Thus, it would appear that neither MBB's or PTC's present an alternative to the shorter term mortgage instruments and that to issue MBB's or PTC's, a mortgage lender may be able to offer an attractive package only with such variable rate instruments.

STRUCTURAL CHANGES IN THE MORTGAGE MARKET: IMPLICATIONS FOR THE FUTURE

Over the past several decades, household savings institutions have been the major single source of mortgage funds. Prior to the National Housing Act of 1968, federal mortgage assistance was primarily in the form of FHA or VA mortgage insurance which (1) established residential appraisal and underwriting standards and (2) government guarantees which facilitated mortgage purchases by secondary investors such as life insurance companies as these loans were essentially risk-free investments. Since 1968, a secondary market for conventional loan securities backed by these loans without FHA or VA mortgage insurance has been fostered first by two federally sponsored credit agencies which purchase mortgages by issuing mortgage-related FNMA and FHLMC securities, and subsequently through public offerings and private placements by non-governmental financial industries. GNMA has also fostered a market for mortgage-backed passthroughs. While GNMA's securities are tantamount to U.S. Treasury securities, the issues by private financial institutions to private investors are not federally sponsored. Major issues presented by these structural changes include both

the institutional implications for the thrift industry and implications for the consumer in the home mortgage market and consequently federal and state consumer protection laws and regulations.

The key issues here depend to some extent on one's perception of the marketplace. Again, the three paradigms of economic behavior discussed in Chapter 2 may be helpful.

From a neoclassical perspective, mortgage-backed securities may contribute to a more perfectly competitive market for financial capital. Traditionally, savings institutions have culled their funds from individual households which had few alternative vehicles for investment of their savings. Reinforced by government regulation designed to assure homebuyers mortgage capital through special tax treatment of savings institutions and interest rate regulation favoring the thrifts over the commercial banks, such an artificially segmented market leads to inefficiencies and misallocation of capital resources in society.

From a liberal perspective, many inequities developed as a result of the thrifts holding the small savers virtually captive until challenged by other financial intermediaries such as commercial banks and money market funds. Moreover, present developments such as MBB's and PTC's issued by the thrifts competing in the market with corporate bonds issued by Fortune 500 multinationals may produce results which are no more equitable in terms of increasing access to market rates of return. First, in terms of investment possibilities for the small saver, while MBB's and PTC's may offer competitive rates, it is unclear that the small saver would be able to purchase them. Minimum denominations in the market have traditionally been \$5,000 to \$10,000. Thus, the issue of small savers' direct access to

market rates of return still remain. However, access might be provided through financial intermediaries which purchased these securities. Second, savings institutions were originally created to (1) serve small savers and (2) in the case of savings and loan associations, specifically chartered to make home mortgages. These institutions were created in the absence of private firms to adequately meet these social needs. Government intervention may be necessary to ensure that these two social objectives are addressed as the liabilities and assets of thrift institutions are subject to fundamental change.

Finally, from a structural perspective, there are institutional dynamics that make it improbable that mortgage-related securities will be more than a marginal source of funds for thrift institutions, particularly the medium-sized and smaller institutions. For example, as a general rule, given the costs associated with a public bond offering, \$50 million is considered the minimum worth issuing. Institutions of less than half a billion dollars are not likely to issue MBB's individually, although they may be able to do so collectively. Only the very largest institutions are likely to have national investor recognition such that they can issue mortgage-related securities through a public offering, particularly on conventional loans without federal or private mortgage insurance. Smaller institutions are likely to only have the option of private placement with large institutional investors such as life insurance companies, pension funds, and major commercial banks. Under private placements, rates are negotiable for the issuer by an underwriting firm. These rates are never really tested in the financial markets. Only under public offerings, where the bonds may be subsequently traded between buyers and sellers in a second-

dary market, i.e., sales other than those to original buyers who purchase at a rate stipulated by the issuer's underwriters, are the rates ever challenged in the marketplace. Thus, from the structuralist perspective, the securities market is segmented with limited access for smaller institutions.

The Future of Thrift Institutions in the Home Mortgage Market:
Retailers, Wholesalers or Investors

Through 1979, thrift institutions continued to supply approximately 50 percent or more of the funds invested in home mortgages in any given year (see Exhibit 5-14). These funds overshadowed mortgage funds supplied by other sectors. There is no clear secular trend for other investors in the near future to assume a dominant role. The questions confronting thrift institutions at this point are

- (1) To what extent will deposit growth continue? What types of accounts will attract depositors (i.e., no term, short term, intermediate or long term)? What rates will be required to attract depositors? Should their clientele continue to be limited (by regulation) to households as opposed to institutional or corporate investors?
- (2) To what extent will it be necessary to obtain non-deposit sources of funds to sustain their role as institutional investors? Apart from the mortgage-related securities that they now issue, what are the alternative debt instruments they should consider? In addition, are there means other than household deposits by which they can expand their liability base (debt instruments, unless there are provisions for equity kickers, at best sustain a portfolio at status quo)?
- (3) What should be their market strategies?
 - (a) Should they focus on the household sector and extend their assets to a broader range of consumer loans (e.g., personal loans, automobile loans, etc.) in an effort to become "full household credit service

EXHIBIT 14

CAPITAL AND CREDIT MARKETS
HOME MORTGAGES - FUNDS SUPPLIED
(Dollar Amounts in Billions)

	1973		1974		1975		1976		1977		1978		1979(est.)	
Insurance Companies and Pension Funds														
Life Insurance Companies	\$ (1.8)	(4.0%)	\$ (1.4)	(4.2%)	\$ (1.4)	(3.4%)	\$ (1.5)	(2.3%)	\$ (1.4)	(1.4%)	\$ (.3)	(1.3%)	\$.8	.8%
Private Noninsured Pension Funds	.7	1.6	.7	2.1	1.5	3.6	1.8	2.8	2.7	2.7	2.1	2.0	1.3	1.2
State and Local Retirement Funds	-	-	-	-	-	-	-	-	.2	.2	.5	.5	.3	.3
Total	<u>(1.1)</u>	<u>(2.4)</u>	<u>(.7)</u>	<u>(2.1)</u>	<u>.1</u>	<u>.2</u>	<u>.3</u>	<u>.5</u>	<u>1.6</u>	<u>1.6</u>	<u>2.3</u>	<u>2.2</u>	<u>2.4</u>	<u>2.3</u>
Thrift Institutions														
Savings and Loan Associations	21.4	47.7	15.0	45.0	25.6	61.8	39.5	60.3	51.9	52.2	49.1	46.6	43.3	40.8
Mutual Savings Banks	3.0	6.7	1.1	3.3	1.9	4.6	5.5	8.3	7.2	7.2	6.3	6.0	4.3	4.1
Credit Unions	.5	1.1	.5	1.5	.1	.2	.9	1.3	2.0	2.0	1.7	1.6	1.4	1.3
Total	<u>25.0</u>	<u>55.7</u>	<u>16.6</u>	<u>49.8</u>	<u>27.6</u>	<u>66.7</u>	<u>45.8</u>	<u>69.9</u>	<u>61.1</u>	<u>61.4</u>	<u>57.1</u>	<u>54.2</u>	<u>49.0</u>	<u>46.2</u>
Other Financial Intermediaries														
Mortgage Brokers	1.5	3.3	(.7)	(2.1)	2.0	4.8	3.5	5.4	3.9	3.9	2.7	2.6	1.5	1.4
Real Estate Investment Trusts	.7	1.6	(.2)	(.6)	(.5)	(1.2)	(.2)	(.3)	(.2)	(.2)	(.1)	(.1)	(.1)	(.1)
Total	<u>2.2</u>	<u>4.9</u>	<u>.9</u>	<u>2.7</u>	<u>1.5</u>	<u>3.6</u>	<u>3.3</u>	<u>5.1</u>	<u>3.7</u>	<u>3.7</u>	<u>2.6</u>	<u>2.5</u>	<u>1.4</u>	<u>1.3</u>
Commercial Banks	11.2	24.9	6.9	20.7	2.3	5.6	9.7	14.8	20.6	20.7	23.3	22.1	21.5	20.3
Government														
U.S. Government	(.8)	(1.8)	2.6	7.8	4.3	10.4	(1.8)	(2.8)	.9	.9	1.0	.9	1.8	1.7
Nonbudget Agencies	3.5	7.8	5.5	16.5	2.5	6.0	.5	.8	.5	.5	9.0	8.6	8.7	8.2
State and Local General Funds	.6	1.3	.7	2.1	.8	1.9	.8	1.2	.6	.6	2.0	1.9	2.8	2.6
Total	<u>3.3</u>	<u>7.5</u>	<u>8.8</u>	<u>26.4</u>	<u>7.7</u>	<u>18.6</u>	<u>(.5)</u>	<u>(.8)</u>	<u>2.0</u>	<u>2.0</u>	<u>12.0</u>	<u>11.4</u>	<u>13.3</u>	<u>12.5</u>
Individuals and Others	4.3	7.3	2.6	7.8	2.3	5.6	6.9	10.6	10.5	10.6	7.9	7.5	18.4	17.4
Total	<u>\$ 44.9</u>	<u>100.0</u>	<u>\$ 33.3</u>	<u>100.0</u>	<u>\$ 41.4</u>	<u>100.0</u>	<u>\$ 65.4</u>	<u>100.0</u>	<u>\$ 99.5</u>	<u>100.0</u>	<u>\$105.3</u>	<u>100.0</u>	<u>\$106.0</u>	<u>100.0</u>

Components may not add due to rounding
Source: Bankers Trust Company

stations" (as recommended in several of the national studies summarized at the beginning of this chapter)?

(b) Or, should they capitalize on their home mortgage expertise and continue to invest most of their capital resources in this market? If so, should they serve as retailers, i.e., originate loans to individual homebuyers, package and sell them to institutional investors, and retain servicing fees over the life of each loan, thus providing a mortgage market function comparable to that served by a mortgage broker or a mortgage company? Or, should they function as intermediate wholesalers by creating subsidiary service corporations to provide the retail mortgage services, acquiring loans originated by the mortgage retailers and packaging these loans as either loan sales in the secondary market, passthroughs, or to the extent possible with overcollateralization requirements retain the loans and finance the purchases from retailers with MBB's? A related question is the extent to which "full homebuyer service stations" (i.e., real estate broker, home mortgage, homeowner insurance such as those in development under the auspices of Merrill Lynch and Coldwell Banker may become major competitors of the thrifts or their service corporations in providing mortgage retail services?

Thus, the strategic alternatives for the savings institutions appear to be either (1) to try to maintain a dominant role in one of two market segments (general household credit services or continued specialization in home mortgages) or (2) to accept recommendations such as those of the Hunt Commission and become general financial institutions, undifferentiated from commercial banks in terms of liability or asset requirements.

Consumer Protection, Public Policy and Regulatory Perspectives on Mortgage Market Developments

Structural changes in the institutional mortgage market may have pronounced effects on the consumer, both the home mortgage borrower and the household depositor. Given that changes introduced to date have been somewhat limited, their impact has not been widespread and thus cannot be readily evaluated empirically. The potential issues discussed in the

literature to date include:

- (1) To what extent do consumers need specialized institutions to serve their credit needs, particularly home mortgage loans? If financial institutions are homogenized such that they can all serve the corporate business as well as the household sector, will households face perennial problems in obtaining credit as they can readily be outbid by competing corporate customers? As a matter of public policy, should there be some forms of governmental intervention to assure some "equitable" distribution of credit between consumer and corporate borrowers? Or, is this sort of market interference inefficient and ultimately penalizes both consumer and corporate sectors through a costly misallocation of resources?
- (2) To what extent will the household sector lose its leverage, vis-a-vis the thrift institutions if increasing proportions of their funds are obtained not from household depositors but from institutional investors which may impose their own priorities or underwriting criteria in terms of the use of their funds?

The first series of issues are those generally raised by the thrift institutions advocating that public policy regulation maintain market segmentation in the banking industry as "either the consumers' bid for mortgage and other types of credit nor the thrift institutions themselves will survive in an open market. The second set of issues has seldom been addressed, possibly because it is only recently that depositors themselves, specifically urban depositors in conjunction with anti-redlining and community reinvestment campaigns, have tried to exercise any influence over investment policies, particularly mortgage investment policies of local savings institutions.¹¹

Urban neighborhood organizations and national coalitions of these organizations have pursued a number of strategies premised on the savings institutions obtaining their investment funds from households in geographic

proximity to their main and branch offices and maintaining in many cases a charter obligation to make home mortgage loans. These strategies have included

- Organized deposit withdrawals from savings institutions which refused to make mortgage loans in the areas they represented, or did so only on less favorable terms than other areas (e.g., Milwaukee, Boston-Jamaica Plain).
- Lobbied successfully for disclosure by savings institutions and commercial banks as to the geographic distribution (by census tract or zip code) of their home mortgage loan commitments. At the federal level, the Home Mortgage Disclosure Act discussed in some detail in Chapter 3 was enacted in 1975. Some states adopted more stringent disclosure provisions, including disclosure of deposits by geographic area in which the depositors resided.
- Enactment of the Community Reinvestment Act which stipulated that depository institutions are chartered to serve public convenience and needs not only through deposit services but also through credit services, particularly in low and moderate income areas, in the communities in which they were chartered. Under this Act, as a condition for expanding their services area through new branch offices, acquisitions or mergers with other financial institutions, federal regulatory agencies are mandated to scrutinize how well an applicant institution has served in its present area. These agencies are also required to take these considerations into account in their annual examination or audit of each institution.

The structural changes discussed in this chapter undermine each of these consumer-oriented and, in some cases, household saver reforms to the extent that publicly regulated financial institutions are not the household savings depositories nor the major institutional mortgage investors of the future. With particular regard to home mortgage loans, new investors have purchased mortgage-related securities on conventional loans which conform with a set of federally sanctioned appraisal and underwriting standards

such as those of FNMA and FHLMC or nationally recognized standards such as those of major private mortgage insurance companies such as MGIC or PMI. These, along with those of FHA and VA, have been directly subject to criticism and challenge by local household organizations where they were voluntarily applied by the savings institutions. If, however, the local savings institution must follow loan standards which preclude serving portions of its chartered community in order to obtain funds to make mortgages at all, the investment leverage of local depositors is considerably diminished. Requirements, for example, of Standard and Poor in their high quality securities ratings for the issue to be comprised exclusively of loans on single-family as opposed to two-to-four family mean for many urban banks that their suburban loans are marketable, while loans made in their immediate service area are not. Local savings institutions may evolve into mortgage brokers wherein the financial incentives are (1) to make as many new loans to obtain front end fees and maximum number of points as possible, (2) to terminate outstanding loans as early as possible, possibly through fast foreclosure, to maximize return on investment, and (3) to avoid smaller mortgages and, as a result, financing in many urban neighborhoods where home purchase prices may be below those of suburban areas, so as to maximize fees which are calculated on the basis of percentages of the original amount.

Thus, many reforms instituted over the past decade have assisted various consumer organizations in obtaining the information necessary to challenge risk perceptions and investment decisions, particularly in mortgage lending. One inadvertent outcome of pending structural changes in the mortgage market may be diminished accountability to household depositors and to households seeking mortgage credit.

NOTES TO CHAPTER 5

¹As local institutions limited to household, rather than corporate customers, they have been more accountable to the borrower, particularly in the wake of consumer protection reforms discussed in Chapter 3.

²In Massachusetts, the state-chartered thrift institutions (savings banks, cooperative banks, and credit unions) each formed their own deposit insurance funds just prior to the creation of federal deposit insurance funds. As a result, these institutions have historically not been members of a federal regulatory system with a central bank as a lender of last resort to meet short term liquidity problems. Only recently have any of these banks, which provided the empirical data base studied in Chapter 4, enrolled as a member of either the Federal Deposit Insurance Corporation (FDIC) or the Federal Home Loan Bank Board (FHLBB) for one of two reasons, both related to liquidity problems. First, these institutions could not sell their mortgages to a federally sponsored secondary mortgage market agency without subscribing to federal deposit insurance. Second, during periods of substantial disintermediation wherein small depositors collectively withdraw significant funds, these institutions had to honor these liabilities, despite most of their funds were in long-term mortgage assets, without the back-up of a central bank. As a result, over the past decade, most of the large and medium-sized savings banks and the larger cooperative banks have become members of either the FDIC or the FHLBB.

³It is interesting to note that variation in a fifth characteristic, the downpayment or loan-to-value ratio, is not among the factors addressed by alternative mortgage instrument proposals. This is probably attributable to the fact that this factor has been the subject of considerable variation in the special loan programs to date. The mortgage insurance programs administered by FHA, VA, and now private mortgage insurance companies, have all focused on variation of this factor, i.e., downpayments of less than 20 percent of the appraised value of the property. Note: that it is variation in this characteristic that many studies (Chapter 2) have concluded is a major determinant of risk. Is this likely to be the case because it is the only loan term which has varied since standardization of mortgage terms in the 1930's?

⁴According to one author:

Several studies have found that the use of VRM in Great Britain and other countries have not mitigated feast-and-famine conditions in the mortgage market. The VRM has long been the sole type of mortgage originated in England. Many of the operational problems of the VRM have been overcome by the British. For example, no type of government peg or control is used. British lenders are entirely free to change rates at whatever time and to whatever level they choose. Uniform industry practice is apparently assured by tradition; the VRM is the sole and time-honored type of mortgage that is made. However, British lenders have suffered disintermediation and associated problems in tight-money periods despite the presence of a varying yield on their

portfolios. (Schaaf, A. H. "Reforming the Residential Mortgage Market", California Management Review, Vol. XVIII, No. 3, Spring 1976:76).

⁵ Experience was to the contrary in California: "From mid-1975 through 1977, the volume of VRM's increased rapidly, as large California VRM lenders had about 60 to 80 percent of their new loan originations in VRM's (see Exhibit 5-3). However, during 1978, as mortgage interest rates rose sharply, the VRM percentage declined to about 40 to 50 percent and VRM growth has slowed. The reason apparently is that lenders are offering VRM's on less attractive terms relative to FPM's in anticipation of declining interest rates. Other things being equal, an FPM with prepayment penalties is more attractive to the lender in these circumstances since it locks in high interest rates." (Melton and Heidt, 1979:26)

⁶ Two aspects of low downpayment loans in present mortgage market. One, as PMI's have absorbed greater share of market, less room for expansion at public sector initiative. Two, monthly payments under these instruments are greater as financing proportionately more. Thus, while these instruments address households without accumulated capital for downpayment, they do not address issue of monthly carrying costs relative to income.

⁷ The reasons for the shrinking capital base of savings institutions have been stated by Jaffee and Rosen (1979) as follows:

While the present economic environment and the introduction of the MMC has shifted the strategic profit opportunities for traditional mortgage lenders, there are also three fundamental imbalances which are forcing a number of institutions to seek additional sources of credit. The first imbalance concerns the extraordinary increase in demand for new and existing single family homes which is accompanying the maturation of the post-World War II baby boom generation. This demographic surge has produced record levels of home purchase and sharply higher relative housing prices. This combination has in turn generated record demands for mortgage credit by first time buyers, households trading up to higher quality units, and households using some of their increased housing equity for non-housing purposes.

This sharply higher aggregate demand for credit is juxtaposed against record low personal savings rates and fairly modest inflows of funds to traditional mortgage lenders. This has produced a "mortgage credit gap" even in years of seemingly good deposit flows.

In addition to this aggregate "mortgage credit gap", there has also developed an increasing regional imbalance in the supply and demand for mortgage credit. While the West, and in particular California, has traditionally been a capital deficit region, the sharp acceleration of migration to California and the West starting in 1974 has accerbated the problem. Net migration to California in 1977 and 1978 was nearly 250,000 people a year. This new population growth, the "baby boom demand", and the uncoupling (divorce) of Western families has greatly increased the demand for housing units. This demand surge combined with housing prices that have doubled in four years (caused in part by this increment in demand) has accelerated the

demand for mortgage credit in California relative to the rest of the country. On the other hand, the young migrants and households in California have only added modestly to the supply of funds in California -- thus creating a substantial "regional mortgage credit gap".

The final imbalance concerns the credit gap facing a number of individual institutions. A substantial number of traditional mortgage lenders are finding their lending and borrowing power restricted by statutory capital requirements and restrictions on regulations restricting their borrowings. As a result in order to continue providing mortgage credit, they are forced into an "asset selling posture."

⁸As of May 30, 1980, revised FHLBB regulations on MBB's published in the Federal Register were summarized in the Housing and Development Reporter as follows: -

The new regulations on borrowing raise the limit on overall borrowing from 50 percent of an association's total savings accounts to 50 percent of its assets and eliminate the separate 15 percent limit on outside borrowing. Richard G. Marcis, chief economist for the Bank Board, said the changes increase the potential volume of outside borrowing from about \$70 billion (15 percent of \$478 billion in savings) to \$290 billion (50 percent of \$580 billion in assets).

⁹The FSLIC MBB requirements vis-a-vis the solvency of the issuing institution included several threshold criteria in terms of both earnings and losses:

...(3) All appraised losses have been offset by specified loss reserves to the extent required by (the Federal Savings and Loan Insurance) Corporation." (CFR Title 12, Sec. 563.8-2, subsection (a))

(4) The insured institutions average income (before income taxes and extraordinary items and after payment of interest and dividends on savings accounts) for its last three fiscal years and is at least two times the annual amount required for interest and amortization of the related expenses of all mortgage-backed bonds issued pursuant to this section (excluding any such bonds to be refunded out of the proceeds of any issue).

¹⁰Specifically, on self-insured passthrough securities:

The selling institution must designate a specific reserve from its net worth equal to half of its subordinated interest up to 5 percent of the pool and 100 percent of its interest exceeding 5 percent. Thus, an institution taking the maximum subordinated position of 10 percent would have to set aside a reserve of 7.5 percent of the original amount of the mortgage pool.

¹¹Many thrift savings institutions are mutual institutions which means that the depositors are, at least on paper, shareholders; in contrast, the commercial banks are owned by stockholders who have made an equity investment in the institution.

CHAPTER 6

EPILOGUE

The foregoing chapters have presented analyses of institutional development and empirical research on residential mortgage risk experience over the past several decades in the United States. The results of these analyses suggest that (1) changes in mortgage underwriting policies through greater emphasis on household financial resources and de-emphasis of property appraisal, are in order, (2) these changes may not be readily adopted by the institutions engaged in mortgage lending and, thus, any significant change may require externally generated "carrots" or "sticks", and (3) changes in the general economy, particularly in the markets for mortgage funds, may introduce further impetus for modification in underwriting policies and practices.

PRESENT MORTGAGE UNDERWRITING POLICIES: CHANGES RECOMMENDED BY PAST RISK EXPERIENCE

Mortgage lending decisions require an evaluation of the likelihood of repayment on an agreed upon schedule. Delinquencies and defaults present at least two types of risk to the lender. Delinquency, either for an extended period of time or on a repeated basis, may impose significant servicing costs in contacting and counseling the borrower. Default, which requires either foreclosure proceedings and resale of the property serving as collateral security or collection from the mortgage insurer, may result in a net profit or loss to the lender. Apart from the risks associated with the particulars of an individual loan, the probabilities of delinquency or default and related profits or losses to the lender are also

affected by more general economic trends, such as unemployment, the rate of inflation and its impact on household income and housing prices.

Underwriting criteria thus should reflect perceptions of general market conditions as well as individual loan risks.

To underwrite individual loans, the most reliable information available to the lender in assessing likelihood of delinquency or default is the household financial resources and income stream relative to the mortgage and other debt burdens which are to be supported. The findings of the metropolitan Boston analyses supported those of previous studies in this regard. Those factors most closely related to the probability of default included regular earnings per capita and the amount of down-payment relative to the property purchased. In addition, installment debt relative to household earnings and loans made for purposes of refinancing were positively associated with the probability of delinquency.

This research indicates that lenders would be well advised to abandon emphasis on property appraisal, particularly value defined as purchase price discounted by neighborhood factors, as a determinant of risk. Overemphasis on this information is misleading and in the past has resulted in loans made to higher risk borrowers in what are regarded as lower risk locations and loans denied to lower risk borrowers in perceived higher risk neighborhoods. This conclusion is also supported by previous risk studies. While those prior studies generally have not focussed on the use of property appraisals and neighborhood characteristics in loan origination, several did report results which indicated undue emphasis on location and underemphasis on household financial resources. For example,

one FHA study published in 1963 concluded that "the general upward bias of property and location ratings may have had a tendency to encourage acceptance of cases which were marginal with respect to the borrower", while the study results indicated that "borrower characteristics were considerably more important than property and location characteristics in contributing to mortgage mortality" (FHA, 1963: 55). Similar studies on conventional mortgages indicated that the incidence of mortgage delinquency and default was higher on properties in suburban than urban locations (e.g., Kendall, 1964; ADL, 1975). In spite of these conclusions, the study of lending criteria in metropolitan Boston indicates that property appraisal has remained paramount. The metropolitan Boston analyses indicated that the higher bank appraised value, the lower the bank perceived risk. Bank appraised value overshadowed household financial factors such as regular earnings per capita as a determinant of a conventional or federally insured loan. Moreover, in instances where the purchase price discounted for neighborhood factors resulted in an appraised value less than the purchase price, the greater the likelihood of a federally insured loan. Yet, the study of Boston data corroborated that neither of these factors were determinants of subsequent delinquency or default. In the final analysis, household financial factors at the time of origination, not property or location, were the best risk indicators.

Possible Implications of Revised Underwriting Policies

If lenders were to adopt underwriting criteria which reflected these analytical results, neighborhood trends, and, in turn, appraised value would no longer be generally used as a critical factor in risk evaluation

of mortgage applications. Only in two cases might consideration of price trends (as opposed to prediction of property values) be warranted.

One case is where the lender has a direct interest in the rate of appreciation. Under instruments such as the shared equity mortgage described in Chapter 5, the lender's rate of return is determined not only by the interest rate on the mortgage but also by the increase in purchase price at resale, as the lender's shares any capital gain with the borrower. It is interesting to note that in metropolitan areas such as Boston, price trend data over the past decade indicate that lenders would have realized a higher rate of return in urban neighborhoods undergoing gentrification than in suburban communities.

The other case is in metropolitan areas where there are neighborhoods where prices have actually decreased. If the lender considers the property as collateral security in evaluating risk at origination, then it may be important in the event of default that the resale price is greater than the outstanding mortgage. In these cases, a lender could not make a collateralized loan. However, since the loan request in these areas is likely to be relatively small, lenders might consider uncollateralized personal loans based on their evaluation of the borrowers.

Based on delinquency and default experience, it appears that not only should underwriting emphasis on property value decrease but evaluation of the household's financial resources with respect to the mortgage and other debt to be supported should increase commensurately. In this event, it should become easier for households in urban neighborhoods, particularly those with substantial resources, to obtain mortgage funds; conversely,

households in suburban areas with more marginal financial resources would have more difficulty. Finally, some possible side effects of greater emphasis on financial resources may be that urban and suburban households with modest financial resources, previously considered adequate risks, are now viewed as too risky.

Additional Research Useful to Lenders Interested in Promoting Revisions in Underwriting Policies

Apart from further research on mortgage delinquency and default experience, further research in three other areas might assist in convincing mortgage lending institutions to relinquish the traditional emphasis on location and property appraisal. One area is price trend studies on urban neighborhoods. Research which has juxtaposed lenders' predictions of property values with actual price trends has generally indicated that lenders' estimates are considerably below actual prices in urban neighborhoods (e.g., Hammer, Siler, George, and Associates, 1979; Parkman Center, 1977). While price trend information is not indicative of delinquency or default risks, lenders do need assurances that prices will not actually decline such that the outstanding mortgage amount is more than the resale price of the property serving as collateral security.

A second useful area of study is an assessment of (1) the actual costs of originating and servicing loans, (2) the profits or losses associated with foreclosure and resale, and (3) the extent to which smaller mortgages, which offer less risk exposure but are more costly in terms of return, might be made on a more streamlined basis. In this type of inquiry, the primary traditional lenders, the thrift institutions, have done little. Most of this research has been done by the mortgage bankers which may or

may not be representative of the industry. In the second, little systematic research has been done. Efforts to analyze these data in the metropolitan Boston study were thwarted by the fact that this information was not maintained by the thrift institutions. In the third, one senior mortgage officer in a Boston area savings institution suggested that property appraisals, which are a labor intensive and costly aspect of loan origination, ought to be eliminated altogether for mortgages of less than \$20,000 or \$30,000. He would recommend that, given the minimal portfolio risk exposure to a lender on these loans, they should simply be originated as personal loans with the major emphasis on financial resources and capacity to support debt service.

A third area of study useful to mortgage lending institutions interested in modification of their present underwriting standards would be evaluation of their rejected loan files against their actual delinquency and default experience. While limited data has been maintained on rejected loans in the past, lenders should find monitoring this information on an ongoing basis useful in assessing what good business risks they may be excluding.

TECHNIQUES TO INTRODUCE CHANGE IN MORTGAGE UNDERWRITING POLICIES

Apart from research designed to evaluate underwriting practices, more active organizational effort may be required to introduce changes in institutional perceptions of individual loan risks and, in turn, underwriting policies and practices. Selection of techniques depends on one's theoretical assumptions about the market for home mortgages.

Neoclassical Perspective

If one subscribes to the neoclassical assumptions discussed in Chapter 2, one assumes that underwriting policies will change by demonstrating to lending institutions that there are profitable loans to be made. If more complete information made available through research on individual loan risks does not precipitate general industry changes in underwriting policies, then perhaps demonstration programs would be more convincing to other lenders that they were overlooking profitable business opportunities.

History has not borne out these marketplace assumptions. For example, for many years, mortgage bankers and mortgage companies have offered loans in urban neighborhoods where savings institutions were not actively lending. In cases such as Malmart in Boston, federally insured loans made by the mortgage company were often purchased by the savings institutions. The fact that Malmart's loans appeared to be profitable, particularly given the effectively higher rates charged to cover the company expenses as an intermediary and still sell loans at market rates of interest, did not appear to precipitate direct investment on the part of the savings institutions. It also should be noted that, in neoclassical terms, higher rates of interest are warranted on the basis of higher risk. If the effectively higher rates of interest of a mortgage company, result in higher costs to urban borrowers who were no riskier, then the costs to the urban borrower are unjustified from a strictly market perspective. The justification for these higher costs to the borrower is the higher costs of the mortgage company as a lender. However, this justification still raises the question -- why should borrowers in a metropolitan area have differential

costs of mortgage funds based on the location of the property they are purchasing?

Liberal and Structuralist Perspectives

The assumptions of liberal analysts that some types of public intervention in the marketplace may be required to ensure more equitable distribution of funds appear to have some basis in fact in the mortgage lending. Intervention techniques include legislative and regulatory initiatives such as the Community Reinvestment Act which requires federally chartered or insured depository institutions to serve the credit needs as well as deposit services required, particularly in low and moderate income areas of the area they are chartered to serve. The fact that many depository institutions, after the CRA was enacted, became interested in the underwriting practices of progressive institutions such as the South Shore National Bank in Chicago described in Chapter 3 would seem to support the argument that public intervention may be required to catalyze interest and institutional action on research results or demonstrations of alternative lending practices.

A structural analyst would maintain that significant changes in underwriting practices are contingent on changes in institutional structure. One should not belittle the extent to which changes in any social structure challenge traditional belief systems and vested economic interests. For example, the *raison d'etre* of the residential appraiser is property appraisal. To the extent that the importance of this function is diminished or, perhaps for smaller mortgages, eliminated altogether presents a direct threat to the individual appraisers and to institutions such

as the professional residential appraisal societies. Such change is not likely to be met without resistance.

Structuralists also maintain that institutional change may also render some previous forms of intervention relatively ineffective. For example, changes in the institutional investors in home mortgages discussed in Chapter 5 may have significant implications for the effectiveness of the Community Reinvestment Act which may be applied across the board to depository institutions but which does not affect the insurance companies, pension funds, or many of the other institutional or individual investors purchasing mortgage related securities. Thus, reforms may often extend to a limited sphere of institutions unless they are redesigned for new applications.

Reform Amidst Upheaval: Changes Introduced With New Institutional Investors and Low Mortgage Instruments

New mortgage instruments and new institutional investors may offer avenues for change in traditional mortgage underwriting practices. For example, key institutions such as Standard and Poor as the lead rating agency for mortgage backed bonds or passthrough securities do not have several decades of practice, long standing training manuals and personnel committed to decades of appraisal and underwriting traditions. Thus, one might be able to introduce changes in Standard and Poor's rating manual first published in 1978 more easily than the FHA Underwriting Manual first published in 1938.

On the other hand, as national and less publicly accessible institutions enter and take hold in the mortgage market, changes in underwriting practices may become more difficult to effectuate. For example, the extent

to which local savings institutions have perceived their deposit base as dependent on a public image as good citizens in their community has made them sensitive to public criticism of mortgage lending practices. Non-depository national institutions are likely to be more immune to local neighborhood organizing for modifications in underwriting policies which adversely affect local investment.

MORTGAGE UNDERWRITING POLICIES: CHANGES RECOMMENDED FOR THE FUTURE BY PRESENT TRENDS AND PAST EXPERIENCE

Past mortgage delinquency and default experience indicates that place does not predict risk, household income does. Moreover, under present economic trends, household earnings potential in the future may be different from what it has been before.

Present developments in the utilization of variable rate and renegotiable mortgages suggest that these new instruments may introduce new risk considerations. Will the seasoning effects observed on fixed-rate long-term mortgages, wherein the frequency of delinquency and default decrease over the life of the loan, hold true for these alternative instruments? Will household incomes increase sufficiently to sustain any changes in debt service under these variable mortgages?

Given that the importance of income becomes all the more paramount under instruments predicated on household earnings potential, some major home mortgage lending institutions have begun to develop underwriting systems which would incorporate calculations on the household's earning potential. A major national bank has indicated interest in introducing underwriting criteria which take into account the sectors of the economy in which the borrowers are employed. These developments would undoubtedly

have significant effects on which households had access to home mortgage credit. Of two households with identical earnings at the time of application, one employed in the primary labor market with wages indexed to increases in the cost of living and the other in the secondary labor market without such financial safeguards, the first would be more likely to obtain a mortgage under this new set of underwriting criteria. Thus, what has commonly been referred to in economics literature as a dual labor market, would be extended to the home mortgage market. Homeownership as a means to secure shelter and procure a real estate asset which is more likely to appreciate at the rate of inflation than financial assets would thus be more accessible to those employed by major employers in the stronger sectors of the economy.

Future development of mortgage instruments, and the underwriting criteria applied by institutions issuing them, reflect past experience. Underwriting policies should not be developed and applied for years without empirical research and feedback on whether information at origination is taken into consideration and weighted properly in the decision to accept, reject, or impose differential terms on an application. Lenders should be alert not only to who has been accepted who may be a bad risk, but also who has been rejected who is likely to have been a good risk. Finally, it will be important to critically evaluate institutional structures, the extent to which their portfolio considerations affect availability and types of mortgages available and whether, in the markets for capital resources, alternative structures should be created to increase access to funds.

APPENDIX A

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APPENDIX B

MORTGAGE DATA USED IN METROPOLITAN BOSTON ANALYSES

OVERVIEW

This Appendix describes the sources and types of information on mortgage loans in metropolitan Boston. While it may be most easily read by those with some background in housing finance and statistical research methods, the general reader may find it useful as an orientation to the terminology and concepts used in mortgage lending.

DATA BASE¹

Data Collection

Given the large number of savings institutions and extensive volume of mortgage loans made in metropolitan Boston, it was necessary to design a means by which information on a small but representative group of loans could be obtained. In doing so, there were four key objectives.

First, the scope of analysis was defined as one-to-four family existing homes.² This definition covered loans obtained by owner-occupants or absentee landlords to purchase or refinance a mortgage on a one-to-four family existing dwelling.³ Loans originally obtained by one borrower and assumed by another were also included.

A second consideration was to obtain a sufficient number of both conventional and federally insured loans so as to have the capability of conducting separate analyses of each loan type.⁴ Many earlier studies had concluded that lower downpayment loans, where the borrower's equity was less than 20 percent of the bank appraised value of the property, were considerably riskier than those with downpayments of 20 percent or more.

Federal mortgage insurance and guarantee programs under the Federal Housing Administration (FHA) and Veterans Administration (VA) were established to insure these lower downpayment loans, and hence, mortgage risk determinants might be different for these federally insured loans compared to conventional loans. Also, recent studies on the administration of federally insured mortgage insurance programs indicated that the fact that these loans are 100 percent federally insured or guaranteed may influence the behavior of private lenders, as they bear little investment risk (Bachman, 1978; Lefcoe, 1977). Under these circumstances, the origination criteria and servicing patterns for these loans might differ from that of conventional loans. Thus, the data collection was designed to obtain roughly equal numbers of conventional and federally insured loans.

A third objective was to obtain, within each of these two loan types, a comparable number of loans in different status categories at the time data were collected. Given that the vast majority of loans outstanding are "current," i.e., paid up to date, special attention would be necessary to obtain sufficient data on loans which were not current. After a review of statutory and regulatory requirements and general bank mortgage lending practices, three non-current loan status categories were identified. The most serious of these were defaults, that is, those mortgages on which the lender has determined that there is little or no chance that the loan will be paid back.⁵ The next most serious are loans on which no payments have been made for three months (90 days) or more. At this point, bank personnel must appraise the property serving as collateral security. They must also evaluate whether the delinquency is attributable to temporary

circumstances and, thus, may be brought back up to date; or whether default proceedings should be initiated, if they are not in process already.

Finally, data were obtained on minor delinquencies, i.e., those loans overdue less than 90 days. Of these three "bad" loan status categories, minor delinquencies would occur most commonly, serious delinquencies next, and defaults would be the rarest occurrences and, hence, the most difficult category in which to obtain an adequate number of loans.

A final objective was to obtain a data base which included a sufficient number of loans in urban and suburban areas so as to be able to evaluate any differential risk considerations. For example, some urban neighborhood organizations locally and nationally had maintained that homebuyers in their communities tended to receive federally insured loans regardless of their ability to pay or other financial considerations. From the perspective of these organizations, federally insured loans were issued based on the lender's perceptions of neighborhood risk rather than financial characteristics of the borrower(s) and the condition of the subject property. While sampling procedures could not be developed on the basis of property location per se, one could design the data collection so as to obtain information from a sufficient number of urban and suburban banks such that loan data would be secured on a representative number of urban and suburban properties.

Data Collection Procedures

Based on these four objectives, data collection procedures were designed to obtain representative information from the Boston area state-chartered savings institutions responsible for most of the loan activity on

one-to-four family homes. These procedures may be summarized as follows:

- 1) Estimates were made of the number of serious delinquencies which, as relatively rare occurrences, would be the more difficult loan status categories on which to obtain data. These estimates were based on computerized overdue reports. (Comparable information for defaults, as even rarer events, was not available.) Based on these estimates, it was determined that data should be collected from approximately one-third of the 97 eligible lending institutions to insure an adequate data base.⁶
- 2) Eligible savings institutions were rank-ordered by deposit size (total dollars on deposit) and every third bank on the list was drawn for the sample. In addition, a supplementary random sample of eight urban-based banks was added to insure that there would be an adequate number of loans on urban properties. Thus, the final sample consisted of 41, or nearly half, of the 97 eligible institutions in the metropolitan area.
- 3) Data was collected, in most cases, on every loan delinquent for 90 days or more at the date of collection. Current loans were selected by matching each serious delinquency with a paid-up loan of the same type and approximately the same origination date, so as to control for any variations in loan conditions or underwriting practices over time. Minor delinquencies were sampled on the basis of a predetermined interval so as to obtain roughly the same number of these as current loans and serious delinquencies. Information was compiled on all defaults at each of these institutions over the past ten years so as to insure that there would be a comparable number of loans in this status category.

Data collection was undertaken over a period of almost 10 months during 1978. The data base is "cross-sectional," i.e., the loan status categories are determined at one point in time, the date of the overdue reports used to identify delinquencies.

While cross-sectional data was the only means for currents and delinquencies of initially identifying loans in different status

categories, information on the status history of each of these loans was also obtained through review of servicing contacts regarding prior minor or major delinquencies and, in some cases, default contacts. The importance of this "contact log" information is the longitudinal perspective that it provides for any given loan. For example, have "current" loans ever been delinquent? Do delinquencies or defaults tend to be first time payment problems or are they more likely to be chronically overdue? Thus, by combining longitudinal and cross-sectional information, loan status could be evaluated over time as well as at a given point in time.

Additional Data Compiled on Special Program FHA Loans

In addition to the primary data base, a sample of FHA loans made under a special urban lending program administered by the Boston Banks Urban Renewal Group (BBURG) were also collected. The BBURG-FHA loans were made from approximately 1969 to 1971 by a group of large Boston-based savings banks in one neighborhood in Boston, Mattapan. There were a considerable number of delinquencies and defaults on loans made under this program. Subsequently, many Boston area banks were reluctant to participate in urban reinvestment programs on the grounds that, even though the BBURG loans were 100 percent federally insured, the risk experience and the attendant bad publicity was such that they did not want to repeat the BBURG experience. While more recent reinvestment efforts such as Neighborhood Housing Services (NHS), various city and state-sponsored housing rehabilitation programs, and lending activities related to the Community Reinvestment Act may have provided an antidote to the BBURG experience, the legacy of this program may still cloud reinvestment efforts in moderate income and

minority neighborhoods.

The response from public officials and neighborhood organizations has been that they do not want to repeat the BBURG experience either. Frequent foreclosures and insufficient household resources to maintain properties can both physically destroy a neighborhood and undermine residents' confidence in the community. However, they argue that much of the delinquency and default risk under this program may be attributable to the administration of the program rather than the lending risks in urban neighborhoods per se. Comparisons have been made between the characteristics of these special FHA loans and federally insured loans in general.

Data on Neighborhood Characteristics

Data on population and housing characteristics were obtained primarily from 1970 Census data by zip code for most of the communities in the region. For two cities, Boston and Lynn, these data were compiled by census tract. Census data were supplemented with additional information obtained from the state Building Commission, registry of deeds information on home sales, and public mortgage disclosure data from the state Banking Department. The neighborhood factors for which data were selected included

- average household income, 1970;
- proportion of existing 2 to 4 family homes built before 1939; and,
- proportion of minority residents, 1970.

The basis for selection of these variables was to obtain the best measures of neighborhood housing markets possible. Other data such as trends in property values and general physical condition of the housing stock would be extremely useful but are not available on any consistent basis for a sufficient number of communities in the region.

DATA COLLECTION RESULTS AND PREPARATION FOR ANALYSIS

Data Collection Results

Data collection forms were designed to obtain virtually all pertinent information for which written records are likely to be maintained by the mortgage lender. This information can be generally categorized as

- Identification Information
These data include loan type, loan status, loan origination date and so on. Most of these data items were essential in order to properly classify the loan. Hence, loans for which these data items were not available were generally dropped.
- Borrower(s) Information
This information includes financial characteristics such as income (regular earnings, additional earnings, and actual or expected rental income), liquid assets, installment debt and credit history. It also includes attributes of the borrower(s) such as race, age, sex, marital status, or first time homeowner. Finally, attributes of the wage earner(s) which may have some financial bearing on their ability to repay the loan include occupational prestige, number of years employed at current or previous job, number of wage earners in the household and their relative contribution to household earnings.
- Property Characteristics
These include the age of the property, the number of units (single, two, three or four family), the purchase price, and property taxes (both at the time of the mortgage origination and subsequently at the time of data collection).
- Mortgage Loan Characteristics
These data items included the loan amount applied for, the bank appraised value of the property serving as collateral security, the original loan amount received, and the loan amount outstanding. Other terms of the loan granted included stated and effective interest rate, points charged, mortgage insurance program and maturity, premium, where applicable, and finally the monthly mortgage debt (principal and interest) required to repay the loan. Additional information included purpose of the loan (purchase or refinancing), whether any junior financing by another

lender was involved to assist the borrower in making the required downpayment, and the hazard insurance premium.

- Servicing Characteristics

In addition to the above information available from mortgage application files, considerable data was compiled from records of any contacts the bank had with the borrower regarding minor delinquencies or prolonged delinquencies that had prompted default warning notices. This information was compiled separately for (1) contacts made since the most recent mortgage payment and, thus, applied to the present delinquent or default status of the loan, and (2) contacts made on prior delinquencies.

Data Editing

After loan information had been computerized, a series of editing routines were performed to check on the accuracy and completeness of the variables in the data base. Major editing tasks included the following:

- Missing data

Each variable was reviewed to determine how often the required information was missing or unknown, usually because it had not been recorded in bank files. Certain variables were subsequently eliminated for analytical purposes because they were missing for the majority of loans in the sample.

- Out-of-range responses

Variables for which the recorded information was out-of-range (i.e., unacceptably high or low values) were flagged, and either corrected or treated as missing.

- Logical inconsistencies

For each loan, the values of two or more variables were compared to insure that they were consistent with one another. For example, by law, the amount of the loan approved by the bank cannot be greater than the final appraised value (as is, or with improvements specified as a condition of loan approval). Such inconsistencies were treated as missing data for that particular loan.

Once the variables comprising the data base had been fully edited, the

quality of the data for individual loans was reviewed. Loans were dropped from the sample if any of the following items were missing:

- loan age (the number of months between the time the first mortgage payment was made and the date in 1978 when the loan data was collected);
- combined household size (the number of borrowers and their dependents);
- regular earnings of all borrowers; and,
- monthly mortgage principal, interest and property tax payments.

Cases which involved absentee landlords, of which there were few, were also eliminated. Out of a primary sample of nearly 3,800 approved loans (excluding BBURGs), approximately one-third contained sufficiently complete and accurate information to be retained for analysis. The distribution of these loans by loan type and status at the time of sampling is given in Exhibit B-1. The configuration of variables and combinations of variables which most commonly eliminated cases collected in the original data sample are summarized in Exhibit B-2.

An examination of where the data losses occurred in this editing process indicated that (1) of the two basic loan types, federally insured loan cases tended to have more of the data necessary for analysis than did conventional loans, and (2) among the four status categories, defaults tended to have less of the data necessary. Neither of these patterns were surprising. Given the extent to which federal insurance and guarantee programs have historically had detailed application information requirements which the originating lender was obligated to obtain from the borrower, credit bureau, and so on, these loans are more likely to have

EXHIBIT B-1

NUMBER OF LOANS BY TYPE AND STATUS

	<u>Conventional</u>	<u>Federally-Insured</u>	<u>Total</u>
Current	120	193	313
Minor Delinquencies	148	251	399
Major Delinquencies	97	170	267
Defaults	<u>101</u>	<u>108</u>	<u>209</u>
TOTAL	466	722	1188

EXHIBIT B-2

CASES DELETED DUE TO MISSING DATA

	<u>Conventional</u>	<u>Federally-Unsured</u>
No Key Variables Missing	497 ^a	756 ^a
<u>One Key Variable Missing</u>		
Earned Income	-	-
Mortgage Debt	2	-
Property Tax	166	100
Debt Ratio	21	13
Loan Age	93	39
Principal, Interest, Taxes	-	-
<u>Two or More Key Variables Missing</u>		
Earned Income Plus Others	221	93
Loanage Plus Others	42	14
[excluding Earned]		
2-4 Other Variables	5	4
All Variables Missing	32	29

^aSubsequently, some additional cases were dropped on the basis of either out-of-range responses or logical inconsistencies.

more extensive information than that collected on conventional loans. Only recently Massachusetts banks interested in selling mortgages to outside investors or obtaining private mortgage insurance have had to complete more extensive applications on conventional mortgages than has been necessary when they hold these loans through termination or maturity. As for defaults, given that these loan files are inactive and retained only as archives, the relative incompleteness of these files as compared with those of active loans, current or delinquent, is not unusual.

Computed Variables

Based on the initial data obtained, a series of variables were computed either (1) to combine data items might be more useful in the aggregate than separately, e.g., total household income rather than a string of variables for each source of income and corresponding amount, or (2) to develop ratios as important relative measures, e.g., mortgage-related debt to income or bank appraised value to purchase price. These computed variables included:

- Household Characteristics
Among these were combined household size (number of borrowers plus number of dependents), combined earned or unearned income, and ratios based on this information such as regular earnings per capita. Also included were total installment debt and the household monthly payment burdens outside the mortgage. Mortgage-related debt (principal, interest, and property taxes) was also calculated as a ratio of several different measures of household income.
- Loan Characteristics Related to the Property
These variables include the original loan amount, the amount applied for, the appraised value of the property, and the purchase price of the property. The relationship of these dollar amounts on any

given loan indicate the extent to which the bank's assessment of value and willingness to lend matches the homebuyer's perceptions of reasonable purchase price and loan amount necessary. Ratios such as appraised value to purchase price, loan to value ratio, amount applied for relative to the amount received, were all computed and examined as possible determinants of loan type and/or status.

- Loan Characteristics Over Time
Most of these variables address "seasoning effects" through calculations such as age of loan (at the time of data collection or loan termination, in the case of defaults), mortgage amount outstanding relative to the amount received, number of monthly payments made relative to the total number of payments to be made from origination to maturity, and so on. Period of time in which the loan was originated or defaulted was also calculated as a means of calibrating the extent to which historical particulars of the national or regional economy, governmental policy vis-a-vis federally insured loans, or bank modification of appraisal or underwriting practices might affect bank decision-making on loan type or the probabilities of delinquency or default.
- Servicing Patterns
Two series of computed variables were developed to quantify bank servicing history on delinquent and defaulted loans. One of these series addressed frequency and type of contact and some of this information was used to develop a set of dependent variables on prior delinquency. The other series pertained to defaults, duration of delinquency prior to foreclosure notice, date of foreclosure notice to default, profits versus losses on foreclosures, and so on. This latter series was developed to provide indicators of how long loans are generally delinquent prior to the bank initiating default proceedings and, once default proceedings are initiated, the extent to which the lender recoups the outstanding loan balance or faces a deficit. It is important to note that sampling procedures at a point in time are more likely to capture a delinquency of longer duration than a more minor one and, thus, delinquency data are somewhat biased as a result.

After these computed variables were designed, a critical assessment

was made of the data available. In a few instances, those without sufficient data for each of the factors necessary to derive the computed variable had to be dropped.

Once these variables were calculated, further assessment was made of their analytical potential. For example, there was considerable overlap among some variables such as age of loan defined as number of payments made to date, time period of origination, and the ratio of the outstanding loan to original loan amount. Under these circumstances, one variable was selected on the basis of information available for the greatest number of cases and for the strongest potential to predict loan type or status outcomes.

NOTES TO APPENDIX B

¹This section is based on a document entitled "Sampling Methodology" obtained from the Massachusetts Banking Department in conjunction with the loan data requested under the Freedom of Information Act in December of 1978.

²Loans on larger apartment buildings, new construction loans, home improvement loans and mobile homes were not sampled. Such loans would have required different types of information and, as rarer events, it is unlikely a thorough statistical analysis could be done. If a building included space used for commercial purposes, but also included one to four dwelling units, the loans were sampled provided that at least 50% of the units could be considered residential. Condominiums were also included, but did not number significantly in this sample.

³Loans to absentee owners were ultimately dropped as there were not many of these loans and basic economic information such as rental income was not available from the data.

⁴Conventional loans which have private mortgage insurance were included in the sample. FHA loans issued under the 203(b) or 223(e) program were included, while those issued under the 235 or 237 programs were not. The latter involved income subsidies and would need to be evaluated under different criteria.

⁵In such situations, the lender has either (1) foreclosed with the intent of selling the property serving as collateral security to recoup as much of the outstanding loan as possible, or (2) charged-off the loan, by writing the face value down to little more than one dollar with a note for the full value still outstanding to the borrower (done in situations where the value of the property has deteriorated to a point considerably below the outstanding loan amount such that foreclosure is impractical). For federally insured loans, the lender may have "assigned" the loan to the appropriate federal agency to collect on the insurance or guarantee.

⁶As of June 30, 1978, these savings institutions held 191,303 one-to-four family conventional loans at \$4,911,340,000 outstanding. Federally insured loans numbered only 33,402 with a total of \$1,245,128,000 outstanding.

APPENDIX C

PRELIMINARY ANALYSES OF BIVARIATE RELATIONSHIPS

OVERVIEW

The relationships between the various borrower, loan, property and neighborhood characteristics for which data were available were examined to assess the extent to which any of these characteristics might be related to the two series of loan outcomes which are the subject of this study. One of these outcomes is whether a loan applicant was awarded a conventional mortgage or considered a higher risk applicant and granted a federally insured mortgage. The second series of outcomes represent loan status, that is, within each loan type, whether the loan is current, a minor or major delinquency, or a default.

This series of statistical analyses is viewed as preliminary because individual mortgage, property and borrower characteristics are considered one at a time. More detailed analyses, in which the effects of a number of different characteristics are simultaneously taken into account, are presented in the following sections. It should be noted that a number of the preliminary findings discussed here are modified to varying degrees when other factors are taken into consideration.

DIFFERENCES BETWEEN CONVENTIONAL AND FEDERALLY INSURED LOANS

The differences between these loan types were reviewed through two types of summary tables. One set is a table of the mean values for the specific variables along with tests for statistically significant differences between the means of conventional and federally insured loans. The other set of tables crosstabulated loan type by categorical breakdowns of

EXHIBIT C-1

MEANS AND PERCENTAGES FOR SELECTED VARIABLES
BY LOAN TYPE BY ORIGINATION PERIOD

VARIABLES	Loans Originated From 1951 to 1968			Loans Originated From 1969 to 1978		
	CONVEN- TIONAL	FEDERALLY INSURED	SIGNIF- ICANCE LEVEL ^a	CONVEN- TIONAL	FEDERALLY INSURED	SIGNIF- ICANCE LEVEL ^a
I. <u>HOUSEHOLD FINANCIAL CHARACTERISTICS:</u>						
Regular earnings per capita monthly	163	142	ns	275	255	ns
Total household size	6.2	6.1	ns	5.6	5.6	ns
Installment debt to regular earnings (x100)	3.7	4.8	ns	3.7	5.2	.01
Mortgage debt to regular earnings (x100)	20.1	20.6	ns	22.2	21.9	ns
II. <u>PROPERTY CHARACTERISTICS:</u>						
Purchase Price	22,868	17,488	.001	28,571	25,325	.001
Appraised value	22,570	17,368	.001	28,765	23,078	.001
Appraised value to purchase price (x100)	103.9	99.9	ns	104.0	99.9	.01
Percent of properties located in suburban areas	83.0	66.3	.01	69.9	29.0	.001
Property age ^b	30.1	30.9	ns	37.6	38.4	ns
Percent single family homes	87.1	69.2	.01	72.2	60.5	.001

^aSignificant at .05 level or more.

^bData missing for substantial number of loan cases.

EXHIBIT C-1
(Cont.)

MEANS AND PERCENTAGES FOR SELECTED VARIABLES
BY LOAN TYPE BY ORIGINATION PERIOD

VARIABLES	Loans Originated From 1951 to 1968			Loans Originated From 1969 to 1978		
	CONVEN- TIONAL	FEDERALLY INSURED	SIGNIF- ICANCE LEVEL ^a	CONVEN- TIONAL	FEDERALLY INSURED	SIGNIF- ICANCE LEVEL ^a
III. <u>LOAN CHARACTERISTICS:</u>						
Original loan amount received	16,416	16,142	ns	21,794	21,519	ns
Loan amount to appraised value (x100)	73	93	.001	76	93	.001
Maturity period (in years)	23	26	.001	23	28	.001
Number of months originated prior to 1979	160	173	.001	61	66	ns
Loan age (months in force)	131	153	.001	44	53	.001
IV. <u>LENDER CHARACTERISTICS:</u>						
Bank deposit size (in millions of dollars)	244	433	.001	230	512	.001
Percent of banks located in suburban areas	44.7	23.8	.001	45.8	12.8	.001
Percent of loans granted by savings banks	59.6	88.3		73.7	89.5	.001

^aSignificant at .05 level or more.

EXHIBIT C-1
(Cont.)

MEANS AND PERCENTAGES FOR SELECTED VARIABLES
BY LOAN TYPE BY ORIGINATION PERIOD

VARIABLES	Loans Originated From 1951 to 1968			Loans Originated From 1969 to 1978		
	CONVEN- TIONAL	FEDERALLY INSURED	SIGNIF- ICANCE LEVEL ^a	CONVEN- TIONAL	FEDERALLY INSURED	SIGNIF- ICANCE LEVEL ^a
V. BORROWER ATTRIBUTES:						
Age (in years)	39	34	.001	36	34	.01
Percent male	91.5	97.4	.05	91.2	87.4	ns
Percent married	86.2	91.7	.05	84.1	85.5	ns
Percent widowed or divorced	6.2	1.5		6.9	4.9	
Percent self-employed	8.4	3.4	ns	14.2	2.7	.001
Percent with two or more wage earners	9.6	28.3	.001	28.3	46.2	.001
Percent first time homeowners	48.4	83.5	.001	49.4	88.8	.001
VI. NEIGHBORHOOD CHARACTERISTICS:						
Mean household income, 1970	13,029	11,094	.001	11,850	10,361	.001
Percent minority population, 1970	3.2	15.8	.001	3.3	12.5	.001
Percent of structures built prior to 1939	21	31	.001	27	37	.001
Percent change in pop- ulation 1970 to 1975	3.6	1.2	ns	.79	-1.3	ns
Bank-financed home sales, 1975-1978	80	69	.001	78	62	.001

^aSignificant at .05 level or more.

one of the borrower, mortgage, property, or neighborhood factors and then tested whether there were significant differences in the distribution of these factors between the two loan types.

Household Financial Characteristics

A number of factors were examined to assess the financial resources of a household relative to household size and debt burden to be sustained by these resources. Regular earnings per capita, that is, total monthly wages divided by the number of persons in the household, were not significantly different for loans originated in the first time period (1951-1968) but were significantly different in the second (1969-1978). Total household size was not significantly different in either time period, thus indicating that any differences in regular earnings per capita were primarily attributable to the dollars earned rather than the number of persons supported.

Number of wage earners is significantly higher for federally insured loans during both periods. Between 1969 and 1978, 28 percent of the conventional loans and 46 percent of the federally insured were obtained by households with two or more wage earners. Prior to 1969, 9 percent of the conventional and 28 percent of the federally insured loans were issued to households with multiple wage earners.

Installment debt to regular earnings was slightly higher for federally insured at 4.8 percent than for conventional borrowers at 3.7 percent in the earlier period. In the later time period, this debt to income ratio did not increase on average for conventional loans and increased by less than one-half of one percent for federally insured.

Finally, the ratio of mortgage-related payments (principal, interest,

and property taxes) to regular earnings was not significantly different for these loan types in either period. Nor did these ratios change considerably over time. On the loans originated between 1951 and 1969, these ratios were .201 and .206 for conventional and federally insured respectively; between 1969 and 1978, .222 and .219.

Property Characteristics

One of the most important distinctions between conventional and federally insured loans was found in the number of units, property value, and urban or suburban location of the property for which mortgage financing was obtained. Regarding number of units, both types of loans were granted on single and two-to-four family homes. The proportion of single family homes financed by either loan type was higher prior to 1969 as indicated in Exhibit C-2. After 1969, the proportion of two-to-four family dwellings increases for both loan types.

The dollar values associated with the property were also significantly different for these loan types. The higher the purchase price, the bank appraised value, or the amount of the loan, the greater the likelihood that a conventional loan was granted. The mean value of the purchase price for properties financed prior to 1969 was \$22,868 for conventionals and \$17,488 for federally insured; from 1969 to 1978, \$28,571 for conventionals and \$23,325 for federally insured. After 1969, the corresponding mean bank appraised value was somewhat higher for conventionals. As a result, the ratio of these bank appraised values to purchase prices indicated that appraisals on properties where federally insured loans were granted tend to be slightly below the purchase price.

EXHIBIT C-2

NUMBER OF UNITS IN PROPERTY FINANCED
BY TYPE OF LOAN RECEIVED

<u>Number of Units</u>	<u>CONVENTIONAL</u>		<u>FEDERALLY INSURED</u>	
	<u>Prior to 1969</u>	<u>1969 to 1978</u>	<u>Prior to 1969</u>	<u>1969 to 1978</u>
1	86.9%	75.2%	71.5%	59.7%
2	9.5%	18.7%	14.9%	21.2%
3 or 4	3.6%	6.1%	13.7%	19.0%
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

Of these measures of property value, bank appraised value exhibits the strongest relationship with the type of loan received. Within the limited range of bank appraised values of \$10,000 to \$40,000 where both types of loans were granted, the likelihood of receiving a conventional loan still increases rapidly as the appraised value of the property increases.

Property location was defined by the population density of an area, urban with more than 10,000 persons per square mile and suburban with a density of 10,000 or fewer. Overall, conventional loans were predominantly in suburban areas, while federally insured loans were relatively evenly split between urban and suburban areas. However, when examined by key time periods in FHA history, the distribution is skewed such that prior to 1969, 66.3 percent of the federally insured loans were suburban. However, after the Housing Act of 1968 wherein Congress mandated the Federal Housing Administration to actively solicit urban loans, particularly loans to minority homebuyers and loans in racially integrated neighborhoods generally, the locus of federally insured loan activity shifts from suburban to urban properties. Possibly as a result of stringent FHA regulations subsequently introduced to curb servicing abuses by the loan originators under this urban mandate, the volume of FHA loan activity from 1974 on appears to have decreased somewhat. Nonetheless, of the loans originated, an even higher proportion were urban than in earlier periods. These results are summarized in Exhibit C-3.

Age of property for which information was recorded by the lenders for only half of all the loan cases, indicated virtually no difference between conventional and federally insured loans. For these limited number of

EXHIBIT C-3

PROPERTY LOCATION OF FEDERALLY INSURED
LOANS BY PERIOD OF ORIGINATION

<u>PERIOD OF ORIGINATION</u>	<u>PROPERTY LOCATION</u>		<u>NUMBER OF PROPERTIES</u>
	<u>URBAN</u>	<u>SUBURBAN</u>	
Prior to 1968	31.2%	68.8%	250
1968 to 1973	66.5%	33.5%	284
1974 to 1978	76.0%	24.0%	179

cases, the mean age for both types was 30 years prior to 1969 and 38 years after 1969.

Loan Characteristics

Loan characteristics are a product of what the applicant household originally requested measured against what the lender considered a viable loan. Unless the loan was received on terms identical to those requested, terms to some extent reflect the lender's risk considerations. For example, in the previous section on property characteristics, appraised value for conventionals tended to be higher than the purchase price; for federally insured, slightly lower. Thus, loan type granted reflects the lender's assessment of risks associated with the property serving as collateral security. In turn, this appraisal affects the loan amount which can be granted relative to the appraised value. Time of origination may also affect the terms of the loan granted as a result of general economic conditions or changes in underwriting policies of individual lending institutions or instrumentalities, such as the Federal Housing Administration, which may affect lenders across the board.

One important characteristic is the loan amount originally received by the borrower. In both time periods, the differences between the mean conventional and federally insured loan amounts were not significant within the appraised value range (\$10,000 to \$40,000) for which both types of loans were granted.

Loan to appraised value ratios differed significantly in both of these periods. Conventional loan to value ratios averaged 73 percent in the loans made prior to 1968 and 76 percent afterwards. The mean value for

federally insured loans was 93 percent in both periods. These differences are not surprising given that the federally insured loan programs were developed to assist homebuyers who did not have the financial resources required to make a 20 percent downpayment for a conventional loan. The loan amount generally needed by federally insured mortgage holders was 13 percent above the maximum 80 percent loan to value ratio allowed for a conventional loan during the period studied.¹ In this respect, where the bank appraised value closely approximated the purchase price, the federally insured borrowers were self-selected. By law, they were ineligible for a non-insured mortgage.² However, if bank appraised value is considerably below the purchase price, the borrower may have a substantial equity investment and a loan to value ratio which does not reflect this equity in full as a downpayment.

Loan maturities, the number of years over which a loan is repaid, were generally shorter for conventional loans. Conventionals averaged 23 years for both periods; federally insured, 26 and 28 years respectively. Overall, there was relatively little variation within each loan type. Apart from a few conventionals made for less than 20 years, most of the loan maturities were within a 20 to 30 year range.

Two variables were calculated to place each loan in time. One was developed so as to gauge origination dates of these loans relative to one another. This factor, defined as the number of months originated prior to January of 1979, placed the loan origination chronologically over the past three decades. The earliest loan origination date in the sample was 1951; the most recent, 1978. In both time periods, the origination dates for

federally insured loans were significantly earlier than those for conventional loans.

The second time-related factor calculated was the age of the loan, that is, the number of months over which mortgage payments had been made prior to sampling. For current and delinquent loans, this variable was virtually synonymous with origination date; however, for defaults, this time factor was often considerably different. For example, a loan could have been originated in 1964 and gone into default in 1974. Under the origination before 1979 variable, this loan would be fifteen years old. However, under the loan age measure, this loan was in effect for only ten years (from 1964 to 1974). Again, the age of federally insured loans was significantly older than conventionals in both time periods. The results of both these time factors would seem to indicate federally insured loans are generally held for a longer period of time while conventional loans are terminated (either paid up or foreclosed) earlier in this term to maturity.

Lender Characteristics

General characteristics of the savings institutions which granted these mortgages were examined so as to assess and differences in types of loans originated. In terms of deposit size of the institution, comparing both time periods, smaller banks were increasingly more likely to have issued conventional loans while the very largest banks maintained a high proportion of federally insured loans in the data sampled. The proportion of each loan type in the mortgage data sampled held by small, medium and large institutions is summarized in Exhibit C-4. These results were compared with the total portfolio holdings of all Boston area thrift

EXHIBIT C-4

LOAN TYPE BY DEPOSIT SIZE GROUP
BY ORIGINATION TIME PERIOD

<u>DEPOSIT SIZE</u>	<u>Loans made 1951-1968</u>		<u>Loans made 1969-1978</u>	
	<u>Conventional</u>	<u>Federally Insured</u>	<u>Conventional</u>	<u>Federally Insured</u>
\$11 to 90 million	54%	46%	76%	24%
\$91 to 500 million	26%	74%	50%	50%
Over 500 million	13%	87%	13%	87%

institutions so as to ascertain whether they were peculiar to the sample data or indicative of general lending patterns.³ As of June, 1978, of the total number of real estate loans held by state-chartered thriit institutions in metropolitan Boston, only 11 percent were federally insured. However, for the ten largest thrift institutions with deposits of \$250 million or more, 39 percent of their outstanding real estate loans in the metropolitan area were federally insured.⁴ Of the other real estate loans held by this ten bank group, only 22 percent were conventional loans on one-to-four family homes. Thus, while the proportion of federally insured loans has been augmented through sampling procedures, it appears that larger institutions generally have had proportionately larger holdings of federally insured loans.⁵

Urban and suburban bank locations, defined as the city or town in which the main office of the institution was located, were also compared. Urban banks, comprised of those with main offices in municipalities with population densities of 10,000 or more, held over three-fourths of the federally insured loans in both time periods (Exhibit C-1).

Finally, a third comparison of lender characteristics was made between savings and cooperative banks as the two types of financial institutions from which loan data was collected. Given that cooperatives are generally smaller, it is not surprising that these results correspond to those on deposit size indicating that most of the federally insured activity was among the larger savings banks.

Further analyses will be required to assess the extent to which these loan type differences between institutions are attributable to bank

characteristics, deposit size or main office location, or to the financial resources of the households which obtain mortgages from these institutions.

Borrower Attributes

Profiles of the non-financial characteristics of the borrowers under each loan type were prepared for comparative purposes. Borrower was defined as the primary wage earner in the applicant household, that is, the person making the greatest percentage contribution to total household earnings. Conventional borrowers tended to be both somewhat older and employed several more years than federally insured borrowers. With regard to the sex and marital status of the primary wage earner, no important differences by loan type were in evidence. The vast majority of primary wage earners were male and married and, hence, there was little variation within either loan type. In terms of occupational prestige, in both periods, conventional loans were generally awarded to applicants of higher status occupations; federally insured, to less prestigious occupations. One potentially useful factor in distinguishing conventional from federally insured homebuyers was whether they were first time homeowners or had been homeowners previously. Given that homeownership has generally served to provide households with substantial accumulation of capital which, on sale, can be put toward the downpayment on another home, it is not surprising that in both time periods federally insured borrowers appear to be more likely to be first time homebuyers than conventional borrowers. However, given that roughly one-third of the loans in each time period had no information regarding this attribute, firm conclusions cannot be drawn. Household financial data were not available for other information such as

rental income and liquid assets with which one could more directly assess the financial resources available for the downpayment.

Neighborhood Characteristics

Using primarily census data, a comparative picture of neighborhood characteristics was also prepared. Property location has traditionally been a consideration in residential mortgage appraisal and underwriting. For example, in the most recent textbook of the American Institute of Real Estate Appraisers, the section stressing the importance of neighborhood evaluation in property appraisal includes the following characteristics on a checklist:⁶

Economic: Economic profile of residents.

Social: Population characteristics.⁷

Physical or Environmental: Conformity of structure;
Age and condition of residences
and other improvements.

Data were obtained for factors which approximated this checklist. The issue for this first set of preliminary analyses is to assess whether any of these characteristics differ significantly accordingly to the type of loan granted. Average household income was somewhat higher for conventionals than federally insured loans in both periods. The proportion of minorities in the census tract or zip code where the property was located was considerably higher for federally insured loans. Finally, federally insured loans were more likely to be found in neighborhoods with older two-to-four family housing. It should be noted that since the neighborhood data obtained is as of 1970 or later, it is most applicable in terms of gauging possible effects on the bank's loan type decision in the later

period of loan originations.

DIFFERENCES BETWEEN STATUS GROUPS WITHIN EACH LOAN TYPE

Comparisons of the mean values of a variable in each loan status category serves several purposes. First, these calculations enable one to assess whether there are significant differences in the values for loans in each risk status category. For example, is the fact that defaults are generally younger loans, with the lowest average loan age, and currents, older loans with the highest average loan age, significant? That is, are there important differences between the mean values of the age of the loans in the current, minor delinquent, serious delinquent, and default categories. The results of a comparative analysis of mean values, summarized in Exhibits C-5 and C-6, indicate that many of these mean differences are significant. Highlights of these analyses are summarized below:

Defaults are distinctly the youngest (in terms of the number of months in effect) for conventional and federally insured loans. However, conventional loan defaults with a mean value of less than three years are considerably younger than federally insured defaults which average almost five years. The mean values of current, minor and major delinquencies are generally more comparable. It is interesting to note that minor delinquencies, particularly for federally insured loans, are considerably older than major delinquencies. This indicates that more seasoned loans may become 30 to 90 days overdue, but are less likely than newer loans to become seriously delinquent.

Loan-to-value ratio or, conversely, the ratio of the borrower's downpayment or equity to property value is a commonly used measure of the

EXHIBIT C-5

MEANS AND PERCENTAGES FOR SELECTED VARIABLES
BY LOAN STATUS AT TIME OF SAMPLING BY LOAN TYPE

VARIABLES	CONVENTIONAL LOAN STATUS				SIGNIF- ICANCE LEVEL ^a
	CURRENT	MINOR DELINQUENCY	MAJOR DELINQUENCY	DEFAULT	
I. <u>LOAN CHARACTERISTICS:</u>					
Original loan amount received	24,106	23,876	25,790	24,807	ns
Loan amount to appraised value (x100)	70.4	72.0	76.5	78.8	.001
Maturity period (in years)	23.0	23.6	23.1	23.7	ns
Loan age (months in force) ^b	69.6	74.0	63.1	33.2	.001
II. <u>HOUSEHOLD FINANCIAL CHARACTERISTICS:</u>					
Mortgage debt to regular earnings (x100)	22.2	21.4	21.9	22.9	ns
Installment debt to regular earnings (x100)	2.27	3.52	5.11	4.68	.01
Regular earnings per capita (monthly)	315	287	306	260	ns
Total household size	5.2	5.9	5.6	6.1	.01

^aSignificant at .05 level or more.

^bResults skewed by the fact that current and major delinquencies were matched for this variable in the sampling procedures.

EXHIBIT C-5
(Cont.)

MEANS AND PERCENTAGES FOR SELECTED VARIABLES
BY LOAN STATUS AT TIME OF SAMPLING BY LOAN TYPE

VARIABLES	CONVENTIONAL LOAN STATUS				SIGNIF- ICANCE LEVEL ^a
	CURRENT	MINOR DELINQUENCY	MAJOR DELINQUENCY	DEFAULT	
<u>III. PROPERTY CHARACTERISTICS:</u>					
Purchase price	35,109	32,533	31,887	31,867	ns
Appraised value	34,852	34,386	33,336	31,673	ns
Appraised value/ purchase price (x100)	102.5	105.9	106.2	99.6	ns
Percent of properties located in suburban areas	77.5	77.6	76.0	76.2	ns
Property age ^c	34.3	40.2	31.3	31.0	ns
Percent single family homes	74.8	76.9	82.3	76.3	ns
<u>IV. BORROWER ATTRIBUTES:</u>					
Age (in years)	36.9	37.9	37.3	35.7	ns
Percent male	90.0	91.2	95.9	88.1	ns
Percent married	10.3	6.2	7.2	9.0	ns
Percent widowed or divorced	2.6	6.2	7.2	9.0	ns
Percent self-employed	10.3	17.3	18.1	19.1	ns
Percent two or more wage earners	33.3	25.0	21.6	24.8	ns
Percent first-time homeowners	51.1	39.4	41.9	45.0	ns

^cData missing for a substantial number of loan cases.

EXHIBIT C-5
(Cont.)

MEANS AND PERCENTAGES FOR SELECTED VARIABLES
BY LOAN STATUS AT TIME OF SAMPLING BY LOAN TYPE

VARIABLES	CONVENTIONAL LOAN STATUS				SIGNIF- ICANCE LEVEL ^a
	CURRENT	MINOR DELINQUENCY	MAJOR DELINQUENCY	DEFAULT	
<u>V. NEIGHBORHOOD CHARACTERISTICS:</u>					
Mean household income, 1971	12,884	12,819	12,519	12,318	ns
Percent minority population, 1970	2.4	2.2	2.7	4.1	ns
Percent of structures built prior to 1939	24.9	22.2	22.3	24.3	ns
Bank financed home sales, 1975 to 1978	81.1	79.6	79.2	75.4	.001
<u>VI. LENDER CHARACTERISTICS:</u>					
Deposit size (in millions)	234.7	258.0	247.9	193.8	ns
Percent of banks located in suburban areas	51.7	41.2	50.5	57.4	ns
Percent of loans granted by savings banks	67.5	78.4	70.1	73.3	ns

EXHIBIT C-6

MEANS AND PERCENTAGES FOR SELECTED VARIABLES
BY LOAN STATUS AT TIME OF SAMPLING BY LOAN TYPE

VARIABLES	FEDERALLY INSURED LOAN STATUS				SIGNIF- ICANCE LEVEL ^a
	CURRENT	MINOR DELINQUENCY	MAJOR DELINQUENCY	DEFAULT	
<u>I. LOAN CHARACTERISTICS:</u>					
Loan age (months in force)	88.8	120.9	76.2	59.3	.001
Loan amount to appraised value (x100)	93.3	92.9	93.1	94.6	ns
Original loan amount received	20,650	18,582	20,126	17,185	.001
Maturity period (in years)	27.4	26.8	27.6	26.1	.001
<u>II. HOUSEHOLD FINANCIAL CHARACTERISTICS:</u>					
Mortgage debt to regular earnings (x100)	20.7	20.6	22.1	21.7	ns
Installment debt to regular earnings (x100)	4.46	4.93	4.76	5.78	ns
Regular earnings per capita (monthly)	228	185	234	193	.001
Total household size	5.7	5.9	5.6	5.9	ns
<u>III. PROPERTY CHARACTERISTICS:</u>					
Percent single family homes	65.4	74.6	60.6	41.1	.001
Purchase price	22,415	20,231	21,861	18,337	.001
Appraised value	22,279	19,950	21,581	18,273	.001
Appraised value/purchase price (x100)	98.8	100.5	99.9	99.9	ns
Percent of properties located in suburban areas	42.1	59.3	32.9	25.9	.001
Property age ^a	33.7	31.9	37.5	41.0	ns

^aSignificant at .05 level or more.

EXHIBIT C-6
(Cont.)

MEANS AND PERCENTAGES FOR SELECTED VARIABLES
BY LOAN STATUS AT TIME OF SAMPLING BY LOAN TYPE

VARIABLES	FEDERALLY INSURED LOAN STATUS				SIGNIF- ICANCE LEVEL ^a
	CURRENT	MINOR DELINQUENCY	MAJOR DELINQUENCY	DEFAULT	
<u>IV. BORROWER ATTRIBUTES:</u>					
Age (in years)	35.2	32.7	33.6	34.2	.01
Percent male	91.2	92.4	87.6	90.7	ns
Percent married	89.1	90.8	84.5	83.3	ns
Percent widowed or divorced	2.1	4.8	4.2	5.6	ns
Percent self-employed	1.1	3.5	3.1	4.0	ns
Percent two or more wage earners	47.2	33.1	37.6	39.8	.05
Percent first-time homeowners	86.8	85.3	82.1	92.8	ns
<u>V. NEIGHBORHOOD CHARACTERISTICS:</u>					
Mean household income, 1970	10,790	11,273	10,392	9,303	.001
Percent minority population, 1970	8.6	10.2	14.9	32.1	.001
Percent of structures built prior to 1939	34.2	29.4	37.8	43.5	.001
Bank-financed home sales, 1975-1978	66.9	72.2	60.6	48.5	.001
<u>VI. LENDER CHARACTERISTICS:</u>					
Deposit size (in millions)	544.5	449.2	526.7	412.4	.001
Percent of banks located in suburban areas	9.8	25.9	14.1	14.8	ns
Percent of loans granted by savings banks	90.7	88.8	89.4	89.8	ns

lender's risk exposure. The results of this analysis indicate that, indeed, among conventional loans, the higher the initial equity investment of the borrower, the lower the risk to the lender. The mean loan-to-value ratio for conventional defaults is 79 percent; current loans and minor delinquencies 77 percent or less. Results for federally insured loans are not significant, as these mortgages generally have very high loan-to-value ratios.

Among the household financial characteristics, the mortgage debt to income ratios appeared to vary little between status groups. Lenders appear to generally adhere to the standard of mortgage-related debt income ratios of .25 or less. While these results are not statistically significant, the fact that this underwriting standard appears to be applied fairly rigorously is noteworthy.

Regular earnings per capita, the dollars earned relative to the size of the household supported by these earnings, was used to assess income effects on mortgage status. Generally, current loans and serious delinquencies have the highest monthly earnings per capita (\$315 and \$306 for conventionals and \$228 and \$234 for federally insured loans); minor delinquencies and defaults, the lowest (\$287 and \$260 for conventionals and \$185 and \$193 for federally insured loans). This result may be partially attributable to the fact that currents were matched to serious delinquencies on the basis of loan type and period of origination. Again, given the major changes in the relative value of household income in the past three decades, it will be important that final analyses control for the date of origination or age of loan so as to take these historical factors

into account. Finally, it is important to note that while regular earnings per capita appears to differ significantly by status category, the absolute measures of household income and combined household size, i.e., number of wage earners plus total number of dependents, are not significant. Thus, categorical underwriting criteria based on absolute measures of income or household size would appear to be unwarranted. Wage earnings relative to household income, however, will be tested to assess the strength of this variable in predicting loan status.

Installment debt to regular earnings ratio is an indicator of monthly debt payments over and above the mortgage. In all cases, current loans have the lowest ratios, particularly for conventional loans which average 2 percent. Ratios of 4 percent or more are found among conventional major delinquencies and defaults and in all federally insured loan status categories. While these percentages appear small, monthly debt payment requirements can have a substantial effect on the household's ability to meet all of its financial obligations.

Of the property characteristics, bank appraised value of the property serving as collateral security of the mortgage loan is generally higher, relative to the purchase price, for conventional loans than federally insured loans. For conventional loans, the mean bank appraisal value in all but the default category was higher than the homebuyer's stated purchase price, that is, greater than 1.00. For federally insured loans, the mean appraisal was generally slightly below the purchase price. In terms of actual appraised values, conventionals were higher with means ranging from \$31,673 (defaults) to \$34,386 (minor delinquencies, which were

slightly higher on average than current loans). These mean differences among federally insured loans ranged from \$18,273 (defaults) to \$22,279 (currents). It will be important in subsequent analyses to examine the effects of these dollar differences after controlling for dates of origination, particularly given the importance of the changing value of the dollar during the past several decades in which these loans were originated.

Despite past emphasis by some appraisal and underwriting manuals on the age of the property, this information was not collected on many of the loans (44 percent of the federally insured cases with otherwise sufficient data for multivariate analysis; 43 percent of the conventional cases) and, for those cases where the data was available, there was no significant differences in property age by loan status for either conventional or federally insured loans.

Number of units has often been used as an industry measure of loan risk, based on the assumption that single-family houses are the least risky; two family, next; and three- or four-family the highest risk. The results of this analysis indicated mixed patterns. Any differences in the percentage of single-family homes in each status category were insignificant for conventional loans. Among federally insured loans, minor delinquencies had the highest proportion of single-family homes; current and major delinquencies, the next; and defaults, the lowest.

Contrary to conventional wisdom in some segments of the mortgage lending industry, multiple wage earner households showed less propensity to delinquency or default for conventional and federally insured loans. Age of primary wage earner was insignificant for conventional loan status and

marginally significant for federally insured loans. For conventional loans, occupational prestige appeared to be related to loan status, with borrowers from higher prestige occupations having less propensity to delinquency and default, but this relationship did not hold for federally insured loans. For each of these variables, it will be important to control for household financial information such as earnings per capita in order to assess whether these borrowers' attributes have any incremental explanatory value or simply serve as proxies.

Several characteristics, proportion of minority residents, older two-to-four-family units, and average 1970 household income in the census tract or zip code where the property is located, do not appear to influence the status of conventional loans, but do seem to bear some relationship to the status of federally insured loans. Further analysis should indicate whether, after controlling for various financial characteristics of the households, these factors remain significantly different by status.

Of the lender characteristics, differences in the deposit sizes of banks holding loans in each status group are insignificant for conventional loans. However, smaller banks tend to have a greater proportion of defaults on federally insured loans. As discussed in subsequent analyses, this may be attributable to the fact that smaller banks tend to assign federally insured loans to financially riskier borrowers while larger banks have tended to apply federally insured loans more broadly.

While none of these results is conclusive, each breakdown is a useful indicator of the distribution of the variable within each loan status category and the extent to which the variable is related to status categories.

SPECIAL ANALYSES OF KEY VARIABLES

Loan Status by Age of Loan

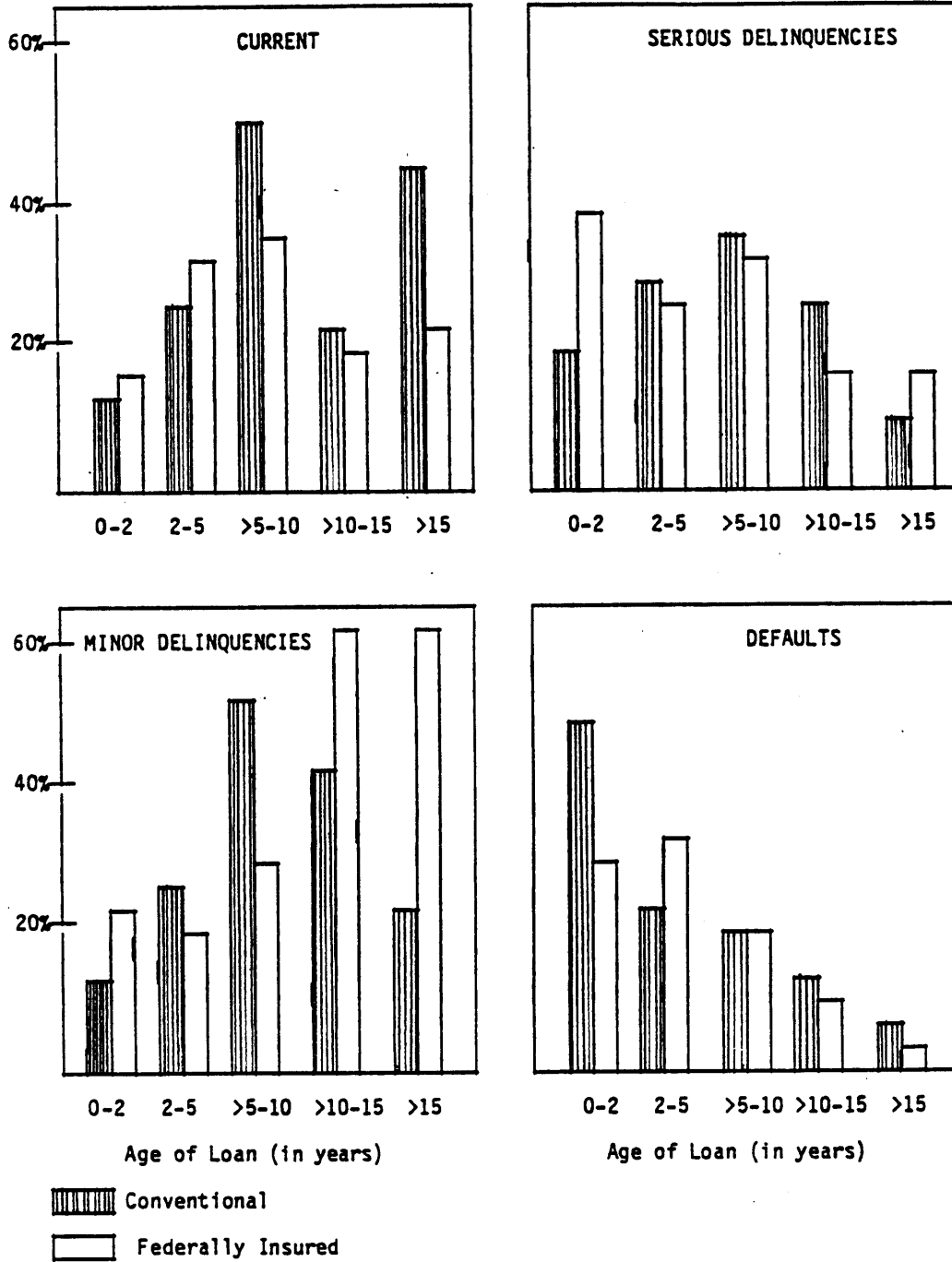
As discussed in the previous section, more "seasoned" loans have less tendency towards serious delinquency or default than newer loans. Within this general pattern, there appear to be distinct changes over time as well as some differences between conventional and federally insured loans which warrant further discussion.

Previous studies, based on FHA loans, have concluded that there is a "honeymoon" period during the first two years in which relatively few loans default (e.g., Armstrong, 1977). However, these default data indicate that over the past decade in metropolitan Boston defaults tend to occur in the first two years on conventional loans. Among federally insured loans, the likelihood of default peaks in the fourth and fifth years. After the fifth year, the likelihood of default gradually declines for both types of loans. None of the loans 16 years or older were defaults.

The distribution of age of loans sampled in each status group is summarized by loan type in Exhibit C-7. It is important to note that given that the sampling methodology paired current loans with those seriously delinquent on the date of data collection, the loan age distribution of current loans cannot be considered representative of all loans on which payments were current. The age of those loans which were minor delinquencies at the time data were collected indicates that loans older than five years are more likely to experience minor delinquency problems. Thus, it appears that older loans fall in arrears but are less likely to become serious delinquencies or defaults.

EXHIBIT C-7

LOAN AGE BY LOAN STATUS GROUPS
(CONVENTIONAL AND FEDERALLY INSURED LOANS)



The history of serious delinquencies by loan age is worthy of note. These loans either had been overdue by more than 90 days but avoided default through repayment in the past or were major delinquencies at the time of data collection. To some extent, one might expect that the longer a loan has been outstanding, the higher the probability that it will have some history of delinquency. However, the data available do not indicate these increasing frequencies over time. The proportion of conventional loans with some history of serious delinquency increases slightly from 34 percent of the loans outstanding for two years or less to 57 percent of those outstanding for eight to ten years. In subsequent time periods, however, these proportions decline. Federally insured loans dip from 64 percent of the loans outstanding for two years or less to 46 percent of the loans in the subsequent time period, and manifest proportionate increases for most of the following years. These unexpected patterns may be partially attributable to the inadequacies associated with the historical information on prior delinquencies discussed in the following subsection on loan servicing patterns. Another possible explanation is that this expected pattern of increasing probabilities may be applicable only for minor delinquencies. That is, while most loans may be more than thirty days overdue during the life of the loan, serious delinquencies of more than ninety days may not be commonly experienced. Unfortunately, data were generally not available on servicing contacts made on minor delinquencies. Even for serious delinquencies or defaults, both of which were clearly minor delinquencies at some point, this information was not recorded.

Loan Servicing Patterns

Once a loan has been granted, the type and frequency of contact that bank personnel may have with the borrower, particularly in the course of any minor delinquencies, may have a significant effect on the ultimate status of the loan. As discussed in earlier sections, banks may differ considerably as to how different types of loans (e.g., conventional versus federally insured, owner-occupied versus absentee-owned) are serviced. Moreover, individual banks may differ in terms of how often delinquent borrowers are contacted, the nature of that contact, how quickly the bank forwards the delinquent loans to staff or outside attorneys for foreclosure proceedings, and so on.

In the data compiled by the Banking Department, an effort was apparently made to quantify and categorize the nature and frequency of contact with the individual borrowers, particularly for contacts regarding prior delinquencies. Given the extent to which written records may not reflect the full servicing history of the loan, this information was initially evaluated for the status of the loan at the time of data collection (as opposed to a prior delinquent status of the loan). This preliminary evaluation indicated that most, but not all, defaults had some servicing records--reminder notices, foreclosure warnings, etc. Over one-third of the major delinquencies had no record of any contact and again as many had record of a contact regarding their ninety day arrears but none prior to this time. Many minor delinquencies had no record of any servicing contact.

Thus, delinquency records may be relatively incomplete. Nonetheless,

for those loans where servicing records are available, those contact histories give some historical perspective on the delinquency experience of each loan. To what extent have those loans which were "current" at the time of data collection always been current, or are there indications that these loans have previously been delinquent? To what extent have minor and major delinquencies or defaults been delinquent, paid up, and then lapsed into delinquency again? Exhibit C-8 summarizes the patterns of the "worst" contact--overdue by less than 90 days, more than 90 days, or threatened with foreclosure--made by the lender prior to the last date on which a loan was current. Briefly, the data in this table may be summarized as follows:

- One-half of all the loans sampled had no prior delinquency contact.
- Less than 10 percent of the loans sampled as current in either conventional or federally insured categories had a recorded history of contact by the lender for reasons of delinquency.
- Among minor delinquencies, 58 percent of the conventionals and 73 percent of the federally insured had been delinquent before and many of these had been seriously delinquent or received default warnings before. Major delinquencies indicate similar patterns.
- Defaults indicate a somewhat lower prior propensity to delinquency than the delinquencies.
- Only 50 percent of the conventionals and 62 percent of the federally insured loans had a recorded history of delinquency or default contact by the lender.

In sum, in this cross-sectional data sample, it appears that currents have by and large been current since their origination, but minor and major delinquencies and defaults tend to have a mixed history or having previously been in various delinquency status categories.

EXHIBIT C-8

SUMMARY OF "WORST" CONTACT MADE PRIOR TO DATE THROUGH WHICH PAID

<u>"Worst" Contact</u>	<u>CONVENTIONAL LOANS</u>				<u>FEDERALLY INSURED LOANS</u>			
	<u>Current</u>	<u>Minor Delinquency</u>	<u>Major Delinquency</u>	<u>Default</u>	<u>Current</u>	<u>Minor Delinquency</u>	<u>Major Delinquency</u>	<u>Default</u>
No Prior contacts	98.3%	42.2%	38.1%	49.5%	91.7%	26.7%	24.7%	39.3%
Pre-90 day contact	0.8%	9.5%	2.1%	3.0%	1.6%	8.8%	4.7%	6.5%
Post-90 day contact	0.8%	32.0%	30.9%	26.7%	4.7%	45.4%	38.8%	20.6%
Default notice	---	16.3%	28.9%	20.8%	2.1%	19.1%	31.8%	33.6%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Sample Size	(120)	(147)	(97)	(101)	(193)	(251)	(170)	(107)

FHA LOANS MADE UNDER THE BOSTON BANKS URBAN RENEWAL GROUP (BBURG) PROGRAM

A comparison of certain characteristics of FHA loans made under the BBURG program in the late 1960's and early 1970's in Boston with other federally insured loans approved by the same banks is presented in Exhibit C-9. While borrower attributes are quite similar for these two groups of loan recipients, there are a number of important differences with respect to property and risk-related factors.

Measures of property value--purchase price, appraised value, and the amount of the loan--were, on the average, \$4,000-\$5,000 lower for BBURG loans than for other federally insured mortgages, although these figures may be somewhat inflated due to earlier origination dates. BBURG recipients had less monthly income per household member and a higher percentage of that income devoted to housing costs than ordinary FHA/VA loans approved by these banks. Loan amounts averaged over 97 percent of the bank's appraised property value on BBURG loans, indicating extraordinary low downpayments.

Given the objectives of the BBURG program--to provide mortgages for less affluent borrowers, particularly minorities who wanted to purchase homes in several neighborhoods in Boston--these differences are not surprising. However, because of the special nature of the BBURG program, loans made under this program have been deleted from the study's data base prior to conducting major analyses.

EXHIBIT C-9

MEANS AND PERCENTAGES FOR SELECTED VARIABLES FOR FHA
LOANS MADE UNDER THE BBURG PROGRAM COMPARED WITH
OTHER FEDERALLY INSURED LOANS MADE BY THE SAME BANKS

<u>VARIABLES</u>	<u>FHA-BBURG LOANS</u>	<u>OTHER FEDERALLY INSURED (FHA, VA)</u>	<u>SIGNIFICANCE LEVEL^b</u>
<u>I. HOUSEHOLD FINANCIAL CHARACTERISTICS:</u>			
Regular earnings per capita (monthly)	192	257	.001
Total household size	5.8	5.5	ns
Installment debt to regular earnings	5.2	5.2	ns
Mortgage debt to regular earnings	24.2	22.1	.05
<u>II. PROPERTY CHARACTERISTICS:</u>			
Purchase price	17,705	22,782	.001
Appraised value	17,633	22,557	.001
Appraised value to purchase price	99.96	100.00	ns
Percent of properties located in suburban areas	0.0 ^a	19.8	.001
Property age	48.0	38.6	.01
Percent single family homes	16.1	55.1	.001
<u>III. LOAN CHARACTERISTICS:</u>			
Original loan amount received	17,105	21,166	.001
Loan amount to appraised value	97.1	93.9	.001
Maturity (in years)	28.9	27.7	.001
Months originated prior to 1979	100.3	62.6	.001
Loan age (months in force)	59.0	51.9	.05

^aNote that all BBURG loans were made by large Boston-based banks in one Boston neighborhood.

^bSignificant at .05 level or more.

EXHIBIT C-9
(Cont.)

MEANS AND PERCENTAGES FOR SELECTED VARIABLES FOR FHA
LOANS MADE UNDER THE BBURG PROGRAM COMPARED WITH
OTHER FEDERALLY INSURED LOANS MADE BY THE SAME BANKS

<u>VARIABLES</u>	<u>FHA-BBURG LOANS</u>	<u>OTHER FEDERALLY INSURED (FHA, VA)</u>	<u>SIGNIFICANCE LEVEL^a</u>
<u>IV. LENDER CHARACTERISTICS:</u>			
Deposit size (millions)	599	581	ns
Bank location	100.0 ^a	100.0	ns
Percent savings banks	98.9 ^a	92.4	.01
<u>V. BORROWER ATTRIBUTES:</u>			
Age (in years)	37.0	34.2	.01
Percent male	82.4	85.4	ns
Percent married	78.4	84.2	ns
Percent widowed/divorced	10.2	6.0	ns
Percent self-employed	2.4	2.6	ns
Percent with two or more wage earners	43.5	47.7	ns
Percent first time homeowners	90.1	89.3	ns
<u>VI. NEIGHBORHOOD CHARACTERISTICS:</u>			
Mean household income, 1970	8,041	10,074	.001
Percent minority population, 1970	44.8	14.9	.001
Percent of structures 2 to 4 family units built prior to 1939	54.4	39.4	.001

^aNote that all BBURG loans were made by large Boston-based banks in one Boston neighborhood.

NOTES TO APPENDIX C

¹Ongoing statutory and regulatory changes may permit higher loan to value ratios for conventional financing without any insurance requirements.

²By and large, these statutory requirements were enacted in the 1930's. Equity, or the percentage downpayment made by the homebuyer, is an indicator of the lender's risk exposure. If the homeowner's initial investment is one-fifth of the bank appraised value of the property, the property must depreciate by that amount before the bank's investment is inadequately secured. In other words, as long as the resale value of the property is greater than the outstanding loan balance, the bank should be able to recoup its investment through foreclosure and resale of the property.

³See Appendix B for a discussion of the stratified sampling procedures used which deliberately increased the data collection of federally insured loans over that which would have been collected through a random sample of loans.

⁴These data were obtained from the Mortgage and Deposit Disclosure Directory issued by the Massachusetts Banking Department.

⁵It should be noted that this may also be indicative of the lending policies of some smaller institutions which grant only conventional loans and require downpayments as high as 30 to 40 percent. This precludes financing for those households who need lower downpayment loans. Policies such as these also preclude conventional financing at 20 percent down.

⁶American Institute of Real Estate Appraisers. Appraising the Single-Family Residence. Chicago: A.R.E.A., 1978:90.

⁷This most recent edition of the textbook includes the following caveat: "...The appraiser should avoid reliance on the racial, religious, or ethnic characteristics of the residents. Racial and other ethnic factors are not reliable predictors of value trends and use of such factors by the appraiser in neighborhood analysis can be misleading." AIREA, 1978:85.

APPENDIX D
STATISTICAL TABLES ON
METROPOLITAN BOSTON DATA

EXHIBIT D-1

CORRELATIONS, MEANS AND STANDARD DEVIATIONS
LOAN TYPE ANALYSIS
LOANS ORIGINATED 1951-1968

Correlation Matrix
(N = 322)

<u>Variable</u>	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>	<u>(8)</u>	<u>(9)</u>
<u>I Basic Equation</u>									
(1) Type ^a									
(2) Months originated prior to 1979	-.128								
(3) Regular earnings per capita	.106	-.235							
(4) Installment debt/regular earnings (x100)	-.135	-.109	.155						
(5) Appraised value/purchase price (x100)	.135	-.049	-.011	-.009					
(6) Appraised value (in dollars)	.464	-.247	.304	-.024	.210				
Mean	.208	169.7	145.3	4.5	100.5	18,662			
Standard Deviation	.407	37.9	80.3	6.4	8.6	5,122			
<u>II Additional Significant Variables^b</u>									
(7) Deposit size of bank	-.214	.015	.091	.022	-.167	-.053			
(8) Number of units (single vs. 2-4 family)	-.166	-.145	.137	.118	-.078	.001	-.079		
(9) Marital status (widowed or divorced)	-.077	-.024	-.027	-.007	-.115	-.183	.046	.100	

^acoded 1 = conventional, 0 = federally-insured.

^bMatrices calculated with all additional variables and, hence, this information is based on only 233 cases. Reduction in cases also attributable to the fact that runs included only through 1967 and, hence, loans originated in 1968 omitted from these calculations.

EXHIBIT D-2

CORRELATIONS, MEANS AND STANDARD DEVIATIONS
LOANS ORIGINATED 1951-1968

Correlation Matrix
(N = 589)

<u>Variable</u>	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>	<u>(8)</u>	<u>(9)</u>
<u>I Basic Equation</u>									
(1) Type ^a									
(2) Months originated prior to 1979	-.070								
(3) Regular earnings per capita	.086	-.280							
(4) Installment debt/regular earnings (x100)	-.151	-.026	-.039						
(5) Appraised value/purchase price (x100)	.118	-.106	-.045	.035					
(6) Appraised value (in dollars)	.396	-.254	.207	-.040	.071				
	Mean	63.7	265	4.6	101.3	25,235			
	Standard Deviation	.477	153	6.2	16.5	7,182			
<u>II Additional Significant Variables^b</u>									
(7) Deposit size of bank	-.471	.258	.093	.052	-.079	-.196			
(8) Self Employed	.236	.003	.032	.038	-.023	.157	-.174		

^acoded 1 = conventional, 0 = federally-insured.

^bMatrices calculated with all additional variables. Calculations included loans originated in 1968 and, hence, total number of cased reduced only to 579.

EXHIBIT D-3

CORRELATIONS, MEANS AND STANDARD DEVIATIONS
 LOAN STATUS ANALYSIS
 CONVENTIONAL LOANS

Status Outcome Correlation Matrix
 (N = 446)

<u>Risk factor</u>	Probability of: ^a					
	<u>Default</u>	<u>Ever receiving default notice</u>	<u>Being seriously delinquent</u>	<u>90 days or more delinquent at sampling</u>	<u>30 days or more delinquent at sampling</u>	
<u>I Basic Equation</u>						
(1) Age of loan (in months)	-.292	-.167	-.073	-.219	-.088	
(2) Regular earnings per capita	-.068	-.121	-.115	-.054	-.085	
(3) Installment debt/regular earnings (x100)	.078	.076	.099	.147	.152	
(4) Mortgage debt/regular earnings (x100)	.052	.035	.013	.051	.002	
(5) Refinanced loan	-.050	-.081	.095	.056	.144	
(6) Loan amount/appraised value (x100)	.191	.221	.264	.236	.159	
	Mean	.224	.339	.576	.433	.735
	Standard Deviation	.418	.474	.495	.496	.442
<u>II Additional Significant Variables^b</u>						
(7) Occupational Prestige	-	.029	-	-	-	

^a"Bad" loans for each outcome were coded 1 and "good" loans were coded 0.

^bMatrices calculated with all additional variables and, hence, this information is based on only 321 cases.

EXHIBIT D-4

CORRELATIONS, MEANS AND STANDARD DEVIATIONS
LOAN STATUS ANALYSIS
CONVENTIONAL LOANS

Risk Factor Correlation Matrix
(N = 446)

<u>Risk factor</u>	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>
<u>I Basic Equation</u>							
(1) Age of loan (in months)							
(2) Regular earnings per capita	-.314						
(3) Installment debt/regular earnings (x100)	-.136	-.014					
(4) Mortgage debt/regular earnings (x100)	-.118	-.219	.111				
(5) Refinanced loan ^a	-.007	-.063	.111	.007			
(6) Loan amount/appraised value (x100)	-.155	-.014	.078	.054	-.277		
	Mean	60.9	288	3.8	22.1	.20	74.1
	Standard Deviation	51.6	211	6.4	8.2	.40	13.6
<u>II Additional Significant Variables^b</u>							
(7) Occupational Prestige	.133	.145	.020	-.070	.016	-.032	

^aCoded 1 if a loan was refinanced and 0 if it was not.

^bMatrices calculated with all additional variables and, hence, this information is based on only 321 cases.

EXHIBIT D-5
CORRELATIONS, MEANS AND STANDARD DEVIATIONS
LOAN STATUS ANALYSIS
FEDERALLY INSURED LOANS

Status Outcome Correlation Matrix
(N = 667)

Probability of:^a

Risk factor	Default	Ever receiving default notice	Ever seriously delinquent	90 days or more delinquent at sampling	30 days or more delinquent at sampling	
I Basic Equation						
(1) Age of loan (in months)	-.215	-.067	-.068	-.257	-.045	
(2) Regular earnings per capita	-.060	-.068	-.031	.036	-.092	
(3) Installment debt/regular earnings (x100)	.065	.043	.105	.063	.068	
(4) Mortgage debt/regular earnings (x100)	.041	.065	.039	.093	.035	
(5) Refinanced loan	.010	-.032	-.019	.020	-.000	
(6) Loan amount/appraised value (x100)	.079	.054	.059	.043	.006	
	Mean	.153	.295	.616	.378	.729
	Standard Deviation	.360	.457	.487	.485	.445
II Additional Significant Variables^b						
(7) Single Family Home	-.212	-.165	-	-.197	-	
(8) Deposit Size	-.121	-.134	-	-	-	
(9) Percent Minority Population	.273	.236	.172	-	.141	
(10) Age (of Borrower)	-	-	-	-	-.138	

^a"Bad" loans for each outcome were coded 1 and "good" loans were coded 0.

^bMatrices calculated with all additional variables and, hence, this information is based on only 589 cases.

EXHIBIT D-6
CORRELATIONS, MEANS AND STANDARD DEVIATIONS
LOAN STATUS ANALYSIS
FEDERALLY INSURED LOANS

Risk Factor Correlation Matrix
(N = 667)

Risk factor

I Basic Equation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Age of loan (in months)										
(2) Regular earnings per capita	-.458									
(3) Installment debt/regular earnings (x100)	-.092	.022								
(4) Mortgage debt/regular earnings (x100)	-.075	-.222	.075							
(5) Refinanced loan ^a	.019	.022	-.006	-.031						
(6) Loan amount/appraised value (x100)	-.068	-.006	.034	.095	-.243					
Mean	93.4	210	5.0	21.0	.016	93.3				
Standard Deviation	65.7	129	6.3	7.6	.128	6.9				

II Additional Significant Variables

(7) Single Family Home	.130	-.079	-.058	-.388	.021	-.047				
(8) Deposit Size	-.195	.142	.005	.040	-.066	.330	-.039			
(9) Percent Minority Population	-.022	-.004	.016	.152	.060	.079	-.392	.071		
(10) Age (of borrower)	.031	-.046	.035	.021	.242	-.103	-.016	.021	.118	

^aCoded 1 if a loan was refinanced and 0 if it was not.

EXHIBIT D-7a

REGRESSION AND LOGIT ANALYSIS STATISTICS
LOANS ORIGINATED FROM 1951-1968

DEPENDENT VARIABLE = PROBABILITY OF RECEIVING CONVENTIONAL LOAN

BASIC EQUATION	OLS			LOGIT		
Explanatory variable	b	standard error	F	b	standard error	F
Months originated prior to 1979	.00036	.00056	.41	-.006	.005	1.25
Regular earnings per capita	-.00009	.00027	.12	-.001	.002	.08
Installment debt/regular earnings (x100)	-.00796	.00321	6.15	-.079	.032	6.07
Appraised value/purchase price (x100)	.00179	.00240	.55	.010	.019	.28
Appraised value	.00004	.00000	69.06	.000	.000	40.59
Constant	-.52850			-5.521	2.218	6.20
	$R^2 = .233$ $R^2(\text{adj.}) = .221$ $F = 19.199$ $N = 322$			Goodness of fit $\chi^2 = 255.15$ $df = 316$ $p = .995$		

EXHIBIT D-8a

REGRESSION AND LOGIT ANALYSIS STATISTICS
LOANS ORIGINATED FROM 1969 - 1978

DEPENDENT VARIABLE = PROBABILITY OF RECEIVING CONVENTIONAL LOAN

Basic Equation	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Explanatory variable						
Months originated prior to 1979	.00064	.00063	1.04	.003	.003	.77
Regular earnings per capita	.00005	.00012	.17	.000	.001	.24
Installment debt/regular earnings (x100)	-.01057	.00289	13.37	-.068	.018	13.67
Appraised value/purchase price (x100)	.00290	.00109	7.01	.017	.007	5.22
Appraised value	.00003	.00000	99.35	.000	.000	74.62
Number of units (single or 2-4 family)	-.60506	.03043	10.099			
Constant	-.09670			-.5.783	.943	37.59
	$R^2 = .186$ $R^2(\text{adj}) = .179$ $F = 26.571$ $N = 589$			Goodness of fit $\chi^2 = 641.90$ $df = 582$ $p = .043$ $N = 589$		

EXHIBIT D-8b

REGRESSION AND LOGIT ANALYSIS STATISTICS
LOANS ORIGINATED FROM 1969 - 1978

DEPENDENT VARIABLE = PROBABILITY OF RECEIVING CONVENTIONAL LOAN

Basic Equation with Additional Significant Variables	OLS		
	b	standard error	F
Explanatory variable			
Months originated prior to 1979	-.00114	.00049	5.401
Regular earnings per capita	.00010	.00010	1.023
Installment debt/regular earnings (x100)	-.00832	.00250	11.092
Appraised value/purchase price (x100)	.00150	.00095	2.487
Appraised value	.00001	.00000	94.959
Number of units (single or 2-4 family)	-.09670	.03043	10.099
Self-Employed	.21426	.06065	12.480
Deposit size of bank	-.00070	.00006	152.259
Constant	.22106		
	R ² = .437		
	R ² (adj) = .430		
	F = 63.205		
	N = 579		

EXHIBIT D-9

REGRESSION AND LOGIT ANALYSIS STATISTICS
CONVENTIONAL LOANS

DEPENDENT VARIABLE = PROBABILITY OF DEFAULT

Risk Factor	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Age of Loan (in months)	-.00266	.00040	45.38	-.026	.004	36.28
Regular earnings per capita	-.00035	.00010	13.31	-.003	.001	12.62
Installment debt/regular earnings (x100)	.00182	.00295	.38	.014	.018	.59
Mortgage debt regular earnings (x100)	-.00180	.00238	.58	-.013	.017	.64
Refinanced Loan	-.03265	.04912	.44	-.101	.173	.34
Loan amount/appraised value (x100)	.00395	.00145	7.38	.032	.012	6.92
Constant	.23474			-1.453	1.096	1.76
	$R^2 = .135$ $R^2(\text{adj}) = .123$ $F = 11.371$ $N = 446$			Goodness of fit $\chi^2 = 396.16$ $df = 439$ $p = .930$ $N = 446$		

^aNo additional variables were significant (r^2 change of .02 or more) for this status outcome.

EXHIBIT D-10a

REGRESSION AND LOGIT ANALYSIS STATISTICS
CONVENTIONAL LOANS

DEPENDENT VARIABLE = PROBABILITY THAT DEFAULT NOTICE WAS EVER ISSUED

Risk Factor	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Age of Loan (in months)	-.00185	.00046	16.38	-.010	.003	15.10
Regular earnings per capita	-.00044	.00011	15.22	-.003	.001	13.91
Installment debt/regular earnings (x100)	.00321	.00341	.88	.018	.016	1.19
Mortgage debt/regular earnings (x100)	-.00262	.00275	.91	-.015	.014	1.08
Refinanced Loan	-.06113	.05680	1.16	-.146	.147	.98
Loan amount/appraised value (x100)	.00600	.00168	12.74	.035	.010	12.04
Constant	.19020			-1.850	.907	4.16
	R ² = .101 R ² (adj) = .089 F = 8.225 N = 446			Goodness of fit $\chi^2 = 519.34$ df = 439 p = .005 N = 446		

EXHIBIT D-10b

REGRESSION AND LOGIT ANALYSIS STATISTICS
CONVENTIONAL LOANS

DEPENDENT VARIABLE = PROBABILITY THAT DEFAULT NOTICE WAS EVER ISSUED

Risk Factor ^a	OLS		
	b	standard error	F
Age of Loan	-.00118	.00058	4.120
Regular earnings per capita	-.00037	.00015	6.344
Installment debt/regular earnings (x100)	-.00431	.00393	1.199
Mortgage debt regular earnings (x100)	-.00399	.00367	1.184
Refinanced Loan	-.06294	.07103	0.785
Loan amount/appraised value (x100)	-.00515	.00199	6.723
Occupational prestige	-.00753	.00252	8.912
Constant	.20701		

^aThese runs included additional variables added in earlier steps (single family; Multiple Wage Earner; Self-Employed). None of these were significant, but their inclusion has some effect on the values presented in this table. Summary statistics for this equation were as follows:
 $R^2 = .101$; R^2 (adj) = .072; $F = 3.481$; $N = 321$.

EXHIBIT D-11

REGRESSION AND LOGIT ANALYSIS STATISTICS
CONVENTIONAL LOANS

DEPENDENT VARIABLE = PROBABILITY THAT LOAN WAS EVER SERIOUSLY DELIQUENT
(N = 446)

Risk Factor	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Age of Loan (in months)	-.00063	.00047	1.79	-.003	.002	1.75
Regular earnings per capita	-.00031	.00012	7.06	-.001	.001	6.52
Installment debt/regular earnings (x100)	.00406	.00353	1.32	.019	.017	1.24
Mortgage debt regular earnings (x100)	-.00283	.00285	.99	-.013	.013	1.02
Refinanced Loan	.20123	.05876	11.73	-.494	.147	11.26
Loan amount/appraised value (x100)	.01077	.00174	38.28	.051	.009	31.28
(constant)	.08627			-2.321	.788	8.67
	R ² = .118 R ² (adj.) = .106			Goodness of fit $\chi^2 = 551.94$ df = 439 p = .000		

^aNo additional variables were significant (r^2 change of .02 or more) for this status outcome.

EXHIBIT D-12

REGRESSION AND LOGIT ANALYSIS STATISTICS
CONVENTIONAL LOANS

DEPENDENT VARIABLE = PROBABILITY THAT LOAN 90 DAYS OR MORE DELIQUENT AT SAMPLING

Risk Factor	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Age of Loan (in months)	-.00201	.00047	18.13	-.010	.002	16.46
Regular earnings per capita	-.00027	.00012	5.35	-.001	.001	5.17
Installment debt/regular earnings (x100)	.00700	.00353	3.94	.032	.016	3.86
Mortgage debt regular earnings (x100)	-.00128	.00284	.20	-.007	.014	.26
Refinanced Loan	.12384	.05875	4.44	.307	.138	4.96
Loan amount/appraised value (x100)	.00819	.00174	22.17	.042	.009	19.70
(constant)	.00298			-2.244	.834	7.23
	R ² = .123 R ² (adj.) = .111 F = 10.231 N = 446			Goodness of fit $\chi^2 = 549.69$ df = 439 p = .000 N = 446		

^aNo additional variables were significant (r^2 change of .02 or more) for this status outcome.

EXHIBIT D-13

REGRESSION AND LOGIT ANALYSIS STATISTICS
CONVENTIONAL LOANS

DEPENDENT VARIABLE = PROBABILITY THAT LOAN 30 DAYS OR MORE DELIQUENT AT SAMPLING

Risk Factor	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Age of Loan (in months)	-.00071	.00043	2.74	-.003	.002	2.25
Regular earnings per capita	-.00022	.00011	4.58	-.001	.001	3.80
Installment debt/regular earnings (x100)	.00761	.00320	5.65	.056	.023	5.66
Mortgage debt/regular earnings (x100)	-.00297	.00258	1.32	-.015	.014	1.17
Refinanced Loan	.19635	.05331	13.57	.637	.183	12.10
Loan amount/appraised value (x100)	.00615	.00158	15.16	.032	.009	13.39
(constant)	.38618			-.164	.774	.04
	R ² = .089			Goodness of fit $\chi^2 = 473.20$		
	R ² (adj) = .076			df = 439		
	F = 7.126			p = .125		
	N = 446			N = 446		

^aNo additional variables were significant (r^2 change of .02 or more) for this status outcome.

EXHIBIT D-14a

REGRESSION AND LOGIT ANALYSIS STATISTICS
FEDERALLY INSURED LOANS

DEPENDENT VARIABLE = PROBABILITY OF DEFAULT

Risk Factor	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Age of Loan (in months)	-.00168	.00024	50.59	-.017	.003	43.47
Regular earnings per capita	-.00058	.00012	22.83	-.006	.001	19.72
Installment debt/regular earnings (x100)	.00241	.00215	1.26	.020	.017	1.42
Mortgage debt/regular earnings (x100)	-.00174	.00187	.86	-.019	.016	1.42
Refinanced Loan	.10355	.10850	.91	.518	.425	1.48
Loan amount/appraised value (x100)	.00355	.00201	3.13	.039	.021	3.42
(constant)	.12305			-2.127	2.068	1.06
	$R^2 = .085$ $R^2(\text{adj}) = .077$ $F = 10.254$ $N = 667$			Goodness of fit $\chi^2 = 504.63$ $df = .660$ $p = 1.000$ $N = 667$		

EXHIBIT D-14b

REGRESSION AND LOGIT ANALYSIS STATISTICS
FEDERALLY INSURED LOANS

DEPENDENT VARIABLE = PROBABILITY OF DEFAULT

Risk Factor ^a	OLS		
	b	standard error	F
Age of loan (in months)	-.00220	.00027	68.963
Regular earnings per capita	-.00092	.00015	38.497
Installment debt/regular earnings (x100)	-.00032	.00219	0.022
Mortgage debt/regular earnings (x100)	-.00788	.00229	11.811
Refinanced loan	.10249	.11065	0.858
Loan amount/appraised value (x100)	-.00707	.00211	11.255
Single-family Home	.09305	.02384	15.235
Deposit size	-.00027	.00006	22.276
Percent minority population	.00334	.00071	22.279
constant	-.29944		

a This run included all additional variables. Thus, the statistics presented are not comprehensive as they summarize results only for those factors which were significant. The summary statistics for this equation were as follows:
 $R^2 = .243$; R^2 (adj.) = .215; $F = 8.790$; $N = 569$.

EXHIBIT D-15a

REGRESSION AND LOGIT ANALYSIS STATISTICS
FEDERALLY INSURED LOANS

DEPENDENT VARIABLE = PROBABILITY THAT DEFAULT NOTICE WAS EVER ISSUED

Risk Factor ^a	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Age of Loan (in months)	-.00077	.00031	6.21	-.004	.002	6.16
Regular earnings per capita	.00040	.00016	6.27	-.002	.001	6.11
Installment debt/regular earnings (x100)	.00230	.00281	.67	.011	.013	.69
Mortgage debt/regular earnings (x100)	.00149	.00245	.37	.006	.012	.31
Refinanced Loan	-.06196	.14320	.19	-.188	.401	.22
Loan amount/appraised value (x100)	-.00254	.00264	.93	.015	.014	1.08
(constant)	.17266			-1.873	1.416	1.75
	R ² = .021 R ² (adj) = .021 F = 2.326 N = 667			Goodness of fit $\chi^2 = 795.20$ df = 660 p = .001 N = 667		

EXHIBIT D-15b

REGRESSION AND LOGIT ANALYSIS STATISTICS

DEPENDENT VARIABLE = PROBABILITY THAT DEFAULT NOTICE WAS EVER ISSUED

Risk Factor ^a	OLS		
	b	standard error	F
Age of loan (in months)	-.00119	.00036	11.171
Regular earnings per capita	-.00054	.00020	7.487
Installment debt/regular earnings (x100)	-.00075	.00294	0.065
Mortgage debt/regular earnings (x100)	-.00315	.00312	1.016
Refinanced loan	-.07425	.14899	0.248
Loan amount/appraised value (x100)	.00647	.00283	5.219
Single-family Home	-.08350	.05122	2.657
Deposit size	-.00035	.00008	19.651
Percent minority population	.00431	.00095	20.553
constant	.01248		

a This run included all additional variables. Thus, the statistics presented are not comprehensive as they summarize results only for those factors which were significant. The summary statistics for this equation were:
 $R^2 = .139$; R^2 (adj.) = .107; $F = 4.412$; $N = 569$.

EXHIBIT D-16a

REGRESSION AND LOGIT ANALYSIS STATISTICS
FEDERALLY INSURED LOANS

DEPENDENT VARIABLE = PROBABILITY THAT LOAN WAS SERIOUSLY DELINQUENT

Risk Factor	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Age of Loan (in months)	-.00066	.00033	4.02	-.003	.001	3.98
Regular earnings per capita	-.00027	.00017	2.58	-.001	.001	2.60
Installment debt/regular earnings (x100)	.00747	.00300	6.20	.034	.014	6.12
Mortgage debt/regular earnings (x100)	-.00030	.00261	.01	.002	.011	.02
Refinanced Loan	-.01236	.15162	.01	-.028	.321	.01
Loan amount/appraised value (x100)	.00335	.00281	1.42	.014	.012	1.32
(constant)	.37948			-.533	1.157	.21
	$R^2 = .022$ $R^2(\text{adj}) = .013$ $F = 2.422$ $N = 667$			Goodness of fit $\chi^2 = 873.64$ $df = 660$ $p = .000$ $N = 667$		

EXHIBIT D-16b

REGRESSION AND LOGIT ANALYSIS STATISTICS
FEDERALLY INSURED LOANS

DEPENDENT VARIABLE = PROBABILITY THAT LOAN WAS SERIOUSLY DELINQUENT

Risk Factor	OLS		
	b	standard error	F
Age of Loan (in months)	-.00100	.00038	6.841
Regular earnings per capita	-.00048	.00021	5.137
Installment debt/regular earnings (x100)	.00452	.00316	2.038
Mortgage debt/regular earnings (x100)	-.00425	.00336	1.062
Refinanced Loan	.01562	.16038	0.009
Loan amount/appraised value (x100)	.00704	.00305	5.335
Percent minority population	.00377	.00102	13.590
(constant)	.08960		

a This run included all additional variables. Thus, the statistics presented are not comprehensive as they summarize results only for those factors which were significant. The summary statistics for this equation were as follows: $R^2 = .110$; R^2 (adj.) = .078; $F = 3.397$; $N = 569$.

EXHIBIT D-17a

REGRESSION AND LOGIT ANALYSIS STATISTICS
FEDERALLY INSURED LOANS

DEPENDENT VARIABLE = PROBABILITY THAT LOAN WAS 90 DAYS OR MORE DELINQUENT AT SAMPLING

Risk Factor	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Age of Loan (in months)	-.00214	.00032	45.08	-.010	.002	40.63
Regular earnings per capita	-.00033	.00016	3.96	-.002	.001	4.06
Installment debt/regular earnings (x100)	.00259	.00290	.80	.012	.013	.53
Mortgage debt/regular earnings (x100)	.00308	.00253	1.48	.013	.011	1.35
Refinanced Loan	.13716	.14660	.88	.327	.325	1.01
Loan amount/appraised value (x100)	.00183	.00272	.46	.009	.013	.48
(constant)	.39545			-.116	1.210	.01
		R ² = .080		Goodness of fit $\chi^2 = 827.65$		
		R ² (adj) = .071		df = 660		
		F =		p = .000		
		N = 667		N = 667		

EXHIBIT D-17b

REGRESSION AND LOGIT ANALYSIS STATISTICS
FEDERALLY INSURED LOANS

DEPENDENT VARIABLE = PROBABILITY THAT LOAN WAS 90 DAYS OR MORE
DELINQUENT AT SAMPLING

Risk Factor ^a	OLS		
	b	standard error	F
Age of Loan (in months)	-.00234	.00037	39.556
Regular earnings per capita	-.00054	.00021	6.758
Installment debt/regular earnings (x100)	-.00162	.00307	0.279
Mortgage debt/regular earnings (x100)	-.00223	.00321	0.482
Refinanced Loan	.23176	.15500	2.236
Loan amount/appraised value (x100)	.00595	.00295	4.057
Single-family home	.07057	.03340	4.465
(constant)	-.07714		

a This run included all additional variables. Thus, the statistics presented are not comprehensive as they summarize results only for those factors which were significant (r^2 change of .02 or more). The summary statistics for this equation were as follows: $R^2 = .171$; R^2 (adj.) = .140; $F = 5.673$; $N = 569$.

EXHIBIT D-18a

REGRESSION AND LOGIT ANALYSIS STATISTICS
FEDERALLY INSURED LOANS

DEPENDENT VARIABLE = PROBABILITY THAT LOAN WAS 30 DAYS OR MORE DELINQUENT AT SAMPLING

Risk Factor	OLS			LOGIT		
	b	standard error	F	b	standard error	F
Age of Loan (in months)	.00009	.00030	.08	.001	.002	.11
Regular earnings per capita	-.00029	.00016	3.54	-.001	.001	3.39
Installment debt/regular earnings (x100)	.00494	.00275	3.22	.027	.015	3.20
Mortgage debt/regular earnings (x100)	.00066	.00240	.08	.004	.012	.10
Refinanced Loan	.00977	.13920	.01	.022	.356	.00
Loan amount/appraised value (x100)	.00022	.00258	.01	.001	.013	.01
(constant)	.72341			.969	1.228	.62
	$R^2 = .014$ $R^2(\text{adj}) = .005$ F = 1.516 N = 667			Goodness of fit $\chi^2 = 770.81$ df = 660 p = .000 N = 667		

EXHIBIT D-18b

REGRESSION AND LOGIT ANALYSIS STATISTICS
FEDERALLY INSURED LOANS

DEPENDENT VARIABLE = PROBABILITY THAT LOAN WAS 30 DAYS OR MORE
DELINQUENT AT SAMPLING

Risk Factor ^a	OLS		
	b	standard error	F
Age of Loan (in months)	-.00042	.00035	1.404
Regular earnings per capita	-.00034	.00020	2.968
Installment debt/regular earnings (x100)	.00282	.00290	0.943
Mortgage debt/regular earnings (x100)	-.00047	.00304	0.024
Refinanced Loan	.09272	.14673	0.399
Loan amount/appraised value (x100)	.00254	.00279	0.826
Percent minority population	.00342	.00094	13.318
Age (of borrower)	-.00902	.00243	13.732
(constant)	.66972		

a This run included all additional variables. Thus, the statistics presented are not comprehensive as they summarize results only for those factors which were significant. The summary results for the equation were as follows:
 $R^2 = .118$; R^2 (adj.) = .086; F = 3.671; N = 569.