MORTGAGE STUDY REPORTS

Report #2

THE SLOAN SCHOOL MORTGAGE STUDY: AN ANALYSIS OF PRICE-LEVEL ADJUSTED AND VARIABLE-RATE ALTERNATIVES*

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* This description was prepared by Donald Lessard and Judith Mason from the working documents of various members of the study team.

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PUBLICATIONS

1. "Some Economic Implications of the Indexing of Financial Assets With Special Reference to Mortgages," Franco Modigliani, Institute Professor, Sloan School, M.I.T.

2. "The Sloan School Mortgage Study: An Analysis of Price-Level Adjusted and Variable-Rate Alternatives," prepared by Professor Donald Lessard and Miss Judith Mason, Sloan School, M.I.T. from working documents of various members of the study team.

This project is funded by the Department of Housing and Urban Development and the Federal Home Loan Bank Board under HUD Contract #H-2211R, and involves a study of alternative mortgage instruments: price-level adjusted, variable interest rate, and fixed-rate payment contracts.

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THE SLOAN SCHOOL MORTGAGE STUDY

AN ANALYSIS OF PRICE-LEVEL ADJUSTED AND VARIABLE-RATE ALTERNATIVES

I - Purpose of the Study

Recent increases in both the level and variability of inflation and interest rates have had strong, unfavorable impacts on the market for housing and on institutions which provide mortgage financing. A combination of rising house prices and rising interest rates has led to a rise in initial monthly mortgage payments for financing a given amount and quality of housing that has exceeded income increases for most households. Furthermore, the use of rules of thumb, which were developed by lenders during periods of relatively stable prices and historically low interest rates, with respect to the maximum mortgage loan and monthly payment that can be supported by a given income level have limited the ability of households to cope with these increased costs. And deposit rate ceilings accompanied by rising interest rates have led to a decline in the share of national savings going to mortgage lending institutions, principally savings and loan associations and mutual savings banks.

These forces have led to a diminished ability of households to acquire housing financed with mortgage credit and a lessened ability by lenders to extend such credit. The resulting shrinkage in mortgage credit has led to a sharp decline in new housing construction and a lower turnover of the existing housing stock.

A number of observers has suggested that many of these damaging impacts of inflation and high interest rates are the result of the standard, fixed-interest level-payment mortgage itself. Pressures for changes in the standard mortgage have come primarily from two sources. Mortgage-lending institutions, saddled with long-term fixed-interest mortgages during this period of rapidly rising interest rates, have sought variable-rate instruments which allow the rate on existing mortgages to adjust to current levels. Groups concerned with the increasing difficulty households face in acquiring adequate housing, on the other hand, have focused on the need to provide flexibility in the time-pattern of mortgage payments.

The Sloan School study, sponsored by the U.S. Department of Housing and Urban Development and the Federal Home Loan Bank Board, analyzes a variety of alternative residential financing instruments with a view toward determining the feasibility and viability of introducing one or more of them into the U.S. financial system. The analysis is, therefore, concerned with the impact of alternative instruments on both the supply and demand for housing finance and with their effect on cost to borrowers and on the allocation of risk between lenders and borrowers.

Three primary classes of mortgages are examined in an attempt to determine the extent to which their designs meet the needs and desires of both borrowing households and lending institutions. These are: (1) price-level adjusted mortgages, (2) variable interest rate mortgages, and (3) fixed-rate mortgages. The analysis also includes a variety of combinations of these basic types such as variable-rate and fixed-rate mortgages with contractually rising payment streams and variable-rate mortgages with price-level adjusted payment streams.

The final objective of this study is to determine whether one or more of the alternative types of mortgages deserves the detailed policy-oriented study that would be required to confidently advocate its introduction into the U.S. It is not intended, however, that the traditional level-payment mortgage contract be eliminated.

II - Outline of the Study

Because of the far-reaching nature of such a major change in the financial system as adopting one of these alternative types of mortgages, the analysis must go beyond the advantages and disadvantages to households and financial institutions. Such a change would hopefully and probably reduce fluctuations in the demand for housing, and hence in new construction, and might increase the general level of housing demand. This, in turn, would have major macroeconomic implications, including a possible decrease in the effectiveness of monetary policy. In addition, due to the key roles played by regulatory and institutional factors in the financing of housing, a determination must be made of the changes needed for implementation of the various alternatives.

In order to focus on each of these issues, the study is divided into six tasks. These are: (1) the overall organization of the study, (2) the determination, description, and micro-economic analysis of the major alternative mortgage instruments, (3) an analysis of the impact on household demand for housing of changes in the mortgage instrument, (4) a review of foreign experience with price-level adjusted and variable-rate mortgages, (5) an examination, through a simulation, of the macroeconomic impacts of such a change, and (6) an examination of existing legal and regulatory barriers to various changes in the mortgage instrument.

Summaries of each of the five substantive tasks follows.

Task Two involves an analysis of three principal alternative types of mortgages: (1) Price-level adjusted mortgages; (2) variable-rate mortgages, and (3) fixed-rate mortgages.

Price-level adjusted mortgages are those for which the outstanding principal is adjusted in accordance with the change in the price level as measured by some index. Variable-rate mortgages are those for which interest and principal payments are computed in accordance with the level of some specified current interest rate, rather than the original interest rate on the mortgage contract. Fixed-rate mortgages are those for which interest is a constant percentage of the oustanding principal amount throughout the life of the mortgage. The standard, level-payment, fully-amortized mortgage is one type of fixed-rate mortgage, and it will be the benchmark against which other designs are analyzed.

This task has the following objectives: (1) determination of major alternatives, (2) a precise description of the terms of each major type, (3) an analysis of technical problems of implementation of each type, (4) the risk-return characteristics of each type from the standpoint of the borrowing household, (5) a similar analysis from the viewpoint of a representative lending institution, and (6) a determination of the relative desirability of the major types on the basis of (3), (4) and (5) above.

In this analysis, the following factors are examined from the viewpoint of the borrower:

(1) The intertemporal sensitivity of the cash payment stream with respect to the exogneous forces of inflation and the level of interest rates. Both real and nominal cash flows are considered.

(2) The ability of households to afford mortgage payments as affected by the following forces:

a) Age of the individuals

b) Interruptions in the household income stream

c) Sensitivity of household income with respect to changes in the aggregate price level, and

d) Changes in the level of interest rates.

(3) The time distribution of owner's equity in the mortgaged property.

From the viewpoint of the financial institution, the analysis will concentrate on unique risk and cash flow characteristics of alternative mortgage types. It will present simple models of a lending institution that demonstrate the interdependence of asset and liability portfolios and the desirability for hedging behavior, including issuing price-level adjusted deposits along with price-level adjusted mortgages.

Task Three provides a review of the existing literature and empirical studies on the financial determinants of the demand for housing in order to identify the relative importance for residential construction and home ownership of interest rates (real and nominal), required downpayment, initial monthly payments, term to maturity and general availability of credit from financial institutions.

Task Four reviews foreign experiences for the light they shed on the principal benefits and problems associated with alternative types of mortgage instruments. The study includes four countries which have employed variable interest rate mortgages: Canada, Great Britain, The Netherlands and Sweden; and three which have employed price-level adjusted mortgages: Israel, Finland and Brazil.

The type(s) of mortgage instruments employed are discussed, concentrating on aspects which are relevant to the U.S. These include the nature of the interest rates used, the amortization patterns followed, and the tax treatment of the various components of mortgage payments. In addition, key events in the introduction of or subsequent experience with alternative mortgage instruments which reflect directly on their benefits or potential problems are described in qualitative terms. In particular, emphasis is placed on any major political interventions which have resulted in changes in the terms of outstanding mortgages. Information is compiled from a review of published material, supplemented by correspondence with lending institutions in each country.

Task Five simulates the overall impact on the U.S. economy of alternative types of mortgages, using the MIT-Penn-SSRC Econometric Model. This is done by hypothetically introducing each of the alternatives into the U.S. economy in 1960 and tracing their impact through 1973.

The primary objective of the macroeconomic simulations is to determine how alternative instruments would affect the level and variability of residential construction activity, as well as the overall stability of the economy. A major question raised by any proposal which seeks to dampen fluctuations in the demand for housing and, consequently, in housing starts, is that the removal of housing as a stabilizing element would magnify aggregate employment and price level fluctuations and/or require more drastic monetary/fiscal policy actions with unfavorable effects on other sectors. The proposed simulation is intended to provide rough answers to these questions.

A secondary objective of the simulations is to determine the impact of the alternative mortgage types on financial institutions in terms of additions to reserves, funds flows, and other relevant variables.

Task Six evaluates the standing and treatment of alternative mortgage arrangements under current tax laws (both Federal and State) and regulations, and suggests the modifications in current practice that would be required for introduction and implementation of the two major classes of mortgage contracts under study--variable rate mortgages and price-level adjusted mortgages--as well as other mortgages with non-level contractual payment streams. An additional concern is a set of tax provisions that would leave the choice among mortgage contracts neutral with respect to taxation.

III - Time-table of Study and Publication of Results

The study began on July 1, 1974 and will be concluded by December 31, 1974. The results will be presented at a conference sponsored jointly by the Federal Reserve Bank of Boston and the Sloan School on January 16 and 17. A full report will be issued following the conference. Preliminary reports on each task will be issued as Sloan School Mortgage Study working papers. This extremely short time-frame is a measure of the urgency of the topic. However, it also places practical constraints on the degree to which it can provide conclusions that can be taken immediately as the basis for policy proposals.

It is expected, however, that the study and conference will establish that one or more of the instruments analyzed holds real promise to provide a practical solution to the current problems of the housing industry and the thrift institutions. If so, additional financial support will be sought to pursue those remaining issues that need to be explored to make implementation possible.

IV - Personnel of the Study

The study team consists of:

Project Co-ordinators

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