FRBSF WEEKLY LETTER

August 11, 1989

Housing and Interest Rates: A Weaker Link?

The housing market historically has played a central role in the U.S. business cycle. Since housing investment is a significant component of investment in the economy (about one-third of total gross investment), cycles in housing influence the overall business cycle directly. In addition, housing investment traditionally has been viewed as very interest sensitive and, thereby, as an important channel through which monetary policy can influence business cycles.

Financial deregulation and innovations in housing finance may have reduced the susceptibility of the housing market to fluctuations in market interest rates in recent years. This *Letter* discusses the various channels through which interest rates traditionally have influenced housing, and examines the data for changes in these relationships. This analysis suggests that, indeed, the link has weakened, and that this weakening is coincident with the extensive financial deregulation that occurred in the early 1980s.

User costs

There are a number of channels through which interest rates may influence housing. A primary channel is the effect of interest rates on what is called the "user cost" of housing capital. The user cost is simply the total, periodic cost faced by owners of housing. It includes taxes, maintenance and depreciation costs, the foregone earnings on the funds used to acquire the housing, and expected changes in the value of the housing asset.

A change in the level of interest rates influences the user cost of housing in two ways, depending on whether it is the real or the inflation component of nominal interest rates that changes. If a rise in the real interest rate occurs, the effect on housing is unambiguous: the opportunity cost of funds invested in housing rises, and the consequent rise in user costs depresses demand for housing. This, in turn, depresses the price of housing capital and the attractiveness of new investment in housing.

If, on the other hand, the increase in interest rates is the result of increased inflation expectations only (that is, nominal, but not real interest rates change), the effect is less clear. An increase in inflation expectations can actually *lower* the user cost of housing capital, because the owner anticipates tax-favored capital gains in the housing capital. Thus, although a rise in inflation expectations causes the opportunity cost of funds invested in housing to rise, it also causes the after-tax return to housing investment to rise. Everything else being equal, therefore, housing demand and investment in housing may rise when inflation expectations and thus, nominal interest rates, rise.

Disintermediation

Another channel by which interest rates are said to influence housing activity is through the phenomenon of "disintermediation." Disintermediation in this context refers to the tendency of funds to flow away from conventional housing lenders (such as thrifts and banks) when interest rates rise suddenly. (See Chart 1.) Historically, disintermediation occurred because the conventional mortgage intermediaries faced restrictions on their ability to pay deposit rates that were competitive with open-market investment opportunities. In the past, when market interest rates rose above the deposit rate ceilings, higher-yield opportunities tended to attract funds away from deposits, thereby reducing the funding available to conventional housing lenders. A diminished supply of mortgage credit, in turn, may have reduced housing demand and investment.

While disintermediation may have contributed to housing *cycles*, it is unlikely to have had an adverse effect on housing activity over the long run. In the longer run, the supply of housing credit was not affected significantly by disintermediation since banks and thrifts were able to attract funds by increasing the services offered their depositors. This non-pecuniary form of competition eventually tended to draw funds back to the affected institutions. Moreover,

increased investment in mortgage debt by other, unaffected intermediaries helped to compensate for the decline in lending by banks and thrifts.

Credit scoring and mortgage instruments

A final channel of influence is sometimes called the "affordability" constraint. In qualifying borrowers for mortgage loans, lenders employ credit scoring, or loan qualification standards. These standards often impose limits on the relationship between mortgage payment size and household income, among other factors. These standards change slowly, driven by regulation, conventions of lenders, and standards imposed by secondary mortgage markets.

Given the slow way in which these standards adjust, a sudden rise in interest rates could cause borrowers' ability to qualify for mortgage credit to change suddenly as well. As a result, these constraints may have contributed to cycles in housing investment. This is particularly true for the fixed-rate, fully amortizing type of mortgage instrument that has prevailed in the post-Depression era.

Lenders have sought ways to overcome affordability constraints by such means as broadening the definition of household income (to include the income of a second wage earner) and by employing alternative mortgage designs. The adjustable-rate mortgage (ARM) is one such innovation. It generally has initial payments that are lower than those of fixed-rate mortgages, making any given payment-to-income test less binding. Some forms of ARMs affect payment affordability by allowing the outstanding principal amount to fluctuate (a feature called "negative amortization"). The availability of such ARMs at various points in the business cycle may help buffer the long-run effects of interest rate shocks.

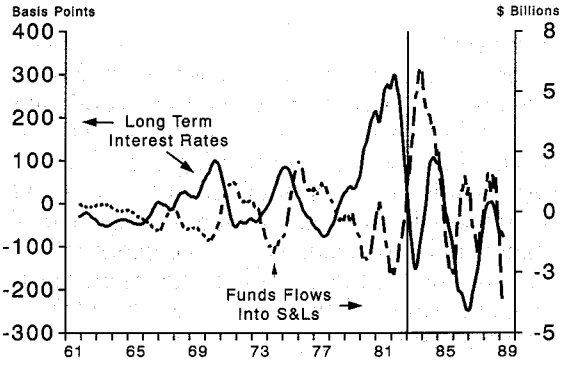
The adjustable rate mortgage may be influential in another way. Borrowers may prefer ARMs over fixed-rate instruments when they believe that their own income is likely to fluctuate with future interest rate movements. Until the early 1980s, however, lenders were restricted by regulation from offering ARMs. By limiting mortgage instrumentation to the fixed-rate instrument, the mortgage market was what economists call "incomplete;" it may have been less able to match borrowers' and lenders' needs efficiently when those needs varied over the business cycle. This, too, may have helped to exaggerate the cyclical relationship among interest rates, mortgage credit, and housing investment.

Regulatory reform

A number of policy changes in the 1980s are likely to have affected the relationship between interest rates and housing investment. With the passage of the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) in 1980, depository institutions began to be able to offer deposits at rates competitive with other investment opportunities. Although this deregulation occurred gradually, and was not complete until sometime after the implementation of the Garn-St Germain Depository Institutions Act in 1983, it is clear that by 1983, a major reason for disintermediation from housing lenders effectively had been removed.

As the first chart indicates, the relatively regular, traditional countercyclical relationship between interest rates and deposit inflows became more complicated after 1983. Indeed, statistical tests do not find a consistent negative link between interest rate shocks and new deposit flows from 1983 on.

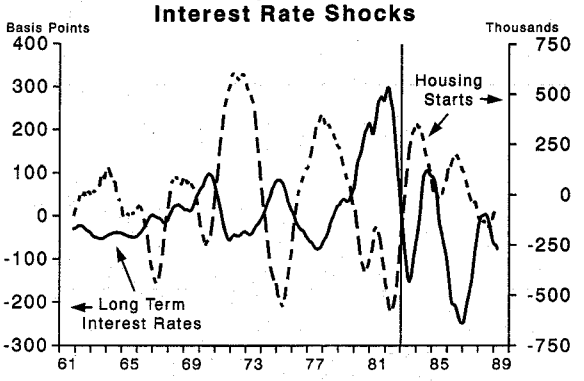
Chart 1
Disintermediation and Interest Rate Shocks



Barriers to mortgage innovation also fell in the early 1980s. The Federal Home Loan Bank Board, for example, first permitted thrifts to offer ARMs on a widespread basis in 1981. Secondary market acceptance of these instruments followed, and soon most lenders were able to offer an alternative mortgage to the traditional fixed-rate instrument. Today, ARMs are common, and as theory would suggest, their issuance varies positively with peaks in the interest rate cycle.

It seems likely that this confluence of regulatory events in the early 1980s altered the link between interest rates and housing. Chart 2 suggests that the traditional, countercyclical relationship between housing starts and the deviation of interest rates from their trend has diminished. More sophisticated statistical testing, accounting for the possible influence of variables in addition to interest rates, confirms that the strength of the link after 1983 or so is less than half as great as in the previous period.

Chart 2
Housing Starts and Interest Rate Shocks



Policy implications

Of course, many other factors also may be responsible for the seemingly different cyclical pattern displayed by housing. Tax policy changes that occurred in the early 1980s and in 1986, for example, affected both household borrowing costs and the tax treatment of passive housing investment. These changes may have altered preferences for housing versus other assets. Aggressive mortgage lending by weak thrifts also may have introduced more strength in housing investment than otherwise would have been expected. Suggestive of this is the fact that the relationship between S&Ls' funds flows and housing investment has *strengthened* in recent years. Unfortunately, insufficient data exist to examine simultaneously all of these effects to determine their relative importance.

In any event, it appears that the cyclical behavior of housing activity, particularly in relation to cycles in interest rates, has changed in the 1980s. The experience of the last half-decade or so suggests that the interest rate-housing channel of influence for monetary policy may be less potent than before. To the extent such a dampened relationship persists, this suggests that the economy as a whole may tolerate somewhat larger interest rate shocks without precipitating sharp changes in national income associated with cycles in the housing market.

Randall J. Pozdena
Assistant Vice President
Banking and Regional Studies

MONETARY POLICY OBJECTIVES FOR 1989

On July 20, Federal Reserve Board Chairman Alan Greenspan presented a mid-year report to the Congress on the Federal Reserve's monetary policy objectives for the remainder of 1989. The report reviews economic and financial developments in 1989 and presents the economic outlook heading into 1990. For single or multiple copies of the report, write to the Public Information Department, Federal Reserve Bank of San Francisco, P.O. Box 7702, San Francisco, CA 94120, or phone (415) 974-2246.

Research Department

Federal Reserve
Bank of
San Francisco

P.O. Box 7702
San Francisco, CA 94120