

SUBJECT: Financial Strategies for Credit Union 1st Mortgage Lenders

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INTRODUCTION

This release applies to all credit unions engaged in real estate lending.

It presents a [America's Credit Unions](#) white paper, intended as a general orientation on strategic issues in mortgage lending. It is not meant as a substitute for legal, accounting, or other professional advice on matters of specific policy.

The white paper was prepared by [America's Credit Unions](#) and Affiliates with input from the Credit Union Lending Committee. The text was revised in November, 1992.

EXECUTIVE SUMMARY

Financial Strategies for Credit Union Mortgage Lenders

Credit union mortgage lending has expanded rapidly since the early 1980s. Credit unions now offer a wide variety of mortgage loans. This paper discusses characteristics of mortgage loans and mortgage programs that provide the benefits of offering loans to members while protecting both borrowing members and the rest of the credit union from financial risks. The major points discussed include:

1. Whether to offer fixed-rate mortgages (FRMs). Offering FRMs allows credit unions to maintain contact with members who might otherwise borrow elsewhere at less advantageous terms. FRM programs also provide income to credit unions, whether the loans are sold or retained in portfolio.
2. The risks to the credit union of holding FRMs in portfolio. Earnings shortfalls occur when interest rates rise, and liquidity problems arise from having assets committed to loans with long payback periods and fixed rates. Fifteen-year FRMs present almost as much interest rate and liquidity risks to credit unions as do thirty-year FRMs.
3. Whether to offer adjustable-rate mortgages (ARMs), and whether to hold ARMs in portfolio. Holding ARMs presents less interest-rate risk than holding FRMs, but ARMs are not a panacea since they do not eliminate liquidity risk. Writing ARMs that conform to secondary market standards increases the credit union's liquidity by preserving the option to sell the loans.
4. Ways to structure nonconforming (not readily saleable) ARMs that minimize risks to members and credit unions. Long periods between rate adjustments (more than two years) leave the credit union with high interest-rate risk exposure. Large first year discounts (teaser rates) result in low-earning loans for credit unions and rapidly increasing payments for members.

Recommendations for credit unions holding mortgages in portfolio.

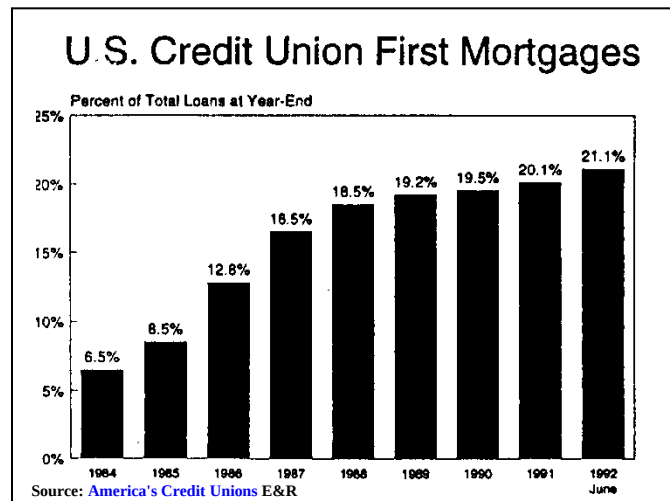
- (a) *Limit fixed-rate mortgages held in portfolio.* As a rule of thumb, the maximum amount to hold is two times capital.
- (b) *Write loans with documentation and underwriting that conform to secondary market standards, even if the credit union intends to hold the loans in portfolio.* This gives the credit union the option of selling the loans at a later date if liquidity shortages arise. Secondary market standards also help to improve loan quality. It is less crucial that loans be priced to conform to standard secondary market programs, but any pricing scheme should offer the credit union substantial protection from interest-rate risk.

Retain the servicing of loans sold into the secondary market if volume is sufficient. That enables credit unions to maintain contact with members in order to protect the members' interests and market other credit union services. Staff training and data processing requirements for efficient secondary market servicing make this impractical for credit unions with low loan volume.
- (c) *Institute an asset/liability management program to monitor and model the effect of changing interest rates and liquidity positions on the credit union's financial condition.*
- (d) *Make asset/liability management adjustments to reduce the credit union's risk exposure.* If long-term mortgages are to be added to the balance sheet, adjustments would include shortening the maturity or repricing periods of investments, increasing the liquidity of investments, and increasing the maturity of liabilities and equity.

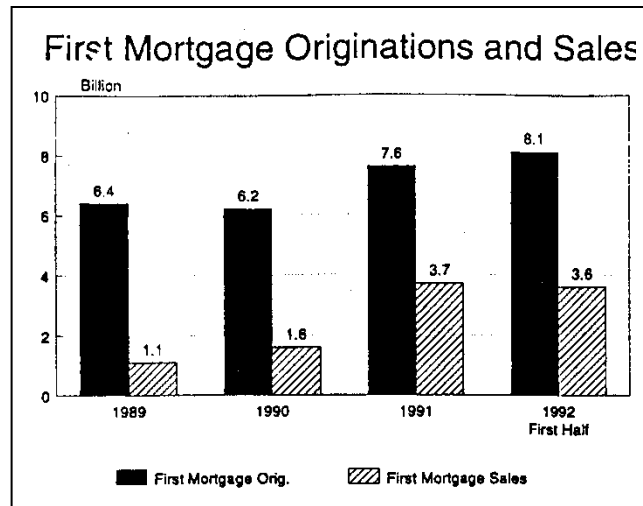
THE GROWTH OF CREDIT UNION MORTGAGE LENDING

This paper discusses the *financial* aspects of first mortgage lending by credit unions for owner-occupied properties. It covers characteristics of successful mortgage programs and financial management strategies for credit unions offering mortgages. Mortgage administration and operations will only receive brief mention. A brief discussion of the institutions making up the secondary market for mortgages appears in an appendix to the paper.

Credit unions have increased their mortgage lending significantly since the mid-1980s. At year-end 1984, first mortgages outstanding totaled 6.5% of credit union loans and 4% of credit union assets. By the middle of 1992, first mortgages had soared to 21.1% of loans outstanding and 11.4% of assets. At year-end 1991, 29% of credit unions offered first mortgages, and those credit unions served 67% of U.S. credit union members.



The growing volume of credit union mortgage lending shows up in more than just the growth of portfolio outstandings. Credit unions are increasingly originating mortgages and selling them into the secondary market. Since 1990, credit unions have sold nearly half of all loans originated. Reasons for not holding all mortgages include the lessons learned from the demise of the S&L industry, and growing pressure from regulators not to hold fixed-rate mortgages in portfolio.



Credit union mortgage lending has grown rapidly since the mid-1980s for a number of reasons:

- (1) Episodes of falling interest rates created demand for both home-purchase loans and refinancing,
- (2) Credit union consumer loans grew less than credit union savings, encouraging credit unions to seek other assets to absorb the savings, and
- (3) The decline of the S&L industry left borrowers seeking new sources of mortgages loans, although credit unions are certainly not the only new outlets for mortgages.

Despite the recent growth in mortgage lending, credit union mortgage holdings account for only about two percent of national mortgage loans, and most credit unions still specialize in consumer loans. The 1992 *National Member Survey* reports that credit unions are the source of six percent of their members' first mortgages, up from five percent in 1989 and four percent in 1987. This suggests there is still a huge potential for credit union mortgage lending, if credit unions wish to and are able to take advantage of it. Banks take the largest share of the market for member mortgage loans, at 40%. Mortgage companies account for about 25% of credit union member mortgages, and S&Ls another 20%.

Benefits of Credit Union Mortgage Programs

The primary benefit to members of credit union mortgages is the opportunity to deal with credit union people they know and trust. Credit unions can structure lending programs to protect both the borrowing member and the rest of the credit union. Examples of ways to protect members include charging reasonable fees and points; providing excellent service, especially during refinancing crunches; not charging prepayment penalties; and paying dividends or interest on escrow accounts.

Successful mortgage programs bring a variety of benefits to credit unions. Mortgages generate interest, fee and servicing income. Credit unions with weak growth in consumer loans can make mortgage loans to earn higher yields than investments provide. Those credit unions that choose to sell loans in the secondary market, rather than hold the mortgages in portfolio, still can receive income from those loans in the form of fees and servicing income.

Mortgage programs also provide an opportunity to cross-sell other services to borrowing members. Mortgage loans can generate increased savings for credit unions, especially in the form of share draft accounts. Members may also think first of their mortgage lender when they borrow for cars or apply for a home equity line of credit a few years down the road. Where a member has his or her mortgage is second only to the location of the transaction account in determining primary financial institution.

Risks of Mortgage Lending

Management of mortgages' financial risks is the main subject of this paper. Those risks include:

- Interest-rate risk. Income from mortgage loans may not increase with the cost of funds when interest rates rise.

- **Liquidity risk.** Mortgages produce lower cash flows than other loans and may not be salable. If the credit union experiences a sustained period of low savings growth or high demand for new loans, it may be unable to extend new credit or may need to borrow.
- **Credit and collateral risks.** Credit unions have always evaluated credit risk, usually focusing on borrowers' ability and willingness to repay. But mortgage lending's emphasis on collateral values may necessitate changes in underwriting practices. Most lenders reduce credit risk by requiring mortgage insurance on loans of more than 80% of the property's value.

Mortgage programs require a large initial commitment of time and staff, and the benefits may not appear immediately. Staff training and additional data processing capability generate new expenses. Success can depend on the speed with which mortgages are processed, and the credit union must achieve significant volume in its mortgage section to use its new staff and data processing efficiently.

One alternative that credit unions may consider is enrolling in agency or correspondent programs provided by such organizations as the [America's Credit Unions](#) Mortgage Corporation or one of the state credit union league-endorsed mortgage corporations. Those programs perform some or all of the back-office work of processing mortgages and may even fund the loans. They enable members to deal with their credit union and provide an income source to the credit union, yet pass the expense and risk of dealing with the secondary market to a larger, specialized institution.

Financial Risks of First Mortgage Loans in a Nutshell

The S&L industry of the late 1970s and early 1980s provides a case study of what can go wrong for mortgage lenders. Under the protection of Regulation Q ceilings on permissible rates on deposits, S&Ls had specialized in making and holding fixed-rate mortgages. Then in the late 1970s, they were hit with simultaneous deposit rate deregulation and rising interest rates. The result was disastrous. Their cost of funds increased with market rates, while income rose sluggishly due to the slow turnover of mortgages. When interest rates really spiked from 1979 to 1981, the vast majority of S&Ls operated at huge losses.

Congress tried to help by allowing S&Ls to diversify out of fixed-rate mortgages and into a variety of new investments, such as adjustable-rate mortgages (ARMs), consumer loans, and commercial real estate loans. The ARM and consumer loan authority didn't help fast enough because S&Ls still had a huge volume of long-term mortgages on their books. The commercial real estate authority backfired when many S&Ls invested unwisely.

Another characteristic of mortgage loans is the collateral value's sensitivity to local economic conditions, and the collateral's fixed location. Local recessions during the mid-1980s in the oil-producing states caused lenders problems as unemployed workers became unable to make payments. Some borrowers walked away from their properties when they realized they owed more on mortgages than the value of their homes. Repossessed real estate resulted in huge losses in Texas and other oil-producing states. Real estate was once considered a fool-proof investment in New England and California as well, but the early 1990s showed that not to be the case.

Many credit unions have memberships that usually avoid layoffs during recessions, such as teacher's or government employees' credit unions. But, recessions can now introduce risk even to these credit unions through erosion of the value of their members' housing investments. Local economic conditions have more importance than ever for credit unions.

MANAGEMENT STRATEGIES FOR FIXED-RATE MORTGAGES (FRMS)

A fixed-rate mortgage is a great way for a consumer to finance a home. Unfortunately, the very features that make it so attractive to borrowers, mean it can be a poor investment for most depository institutions to hold in any quantity. Other things (like interest rates) being close to equal, borrowers prefer FRMs to adjustable-rate loans because they like knowing that their monthly payments won't rise, regardless of what might happen to interest rates. Adjustable-rate mortgages (ARMs) look most attractive during periods of high interest rates, when payments on a new fixed-rate loan would strain budgets but an ARM's lower initial rate makes it affordable. Some members will not take on the risks of adjustable-rate loans under almost any rate conditions. Providing access to FRMs keeps those members in the credit union for mortgage services.

But that doesn't mean credit unions should keep those loans in portfolio. If the credit union holds FRMs and rates rise, slow principal repayment means the funds cannot be reinvested at the new, higher rates. Net income drops as savings costs rise. This is interest-rate risk in action.

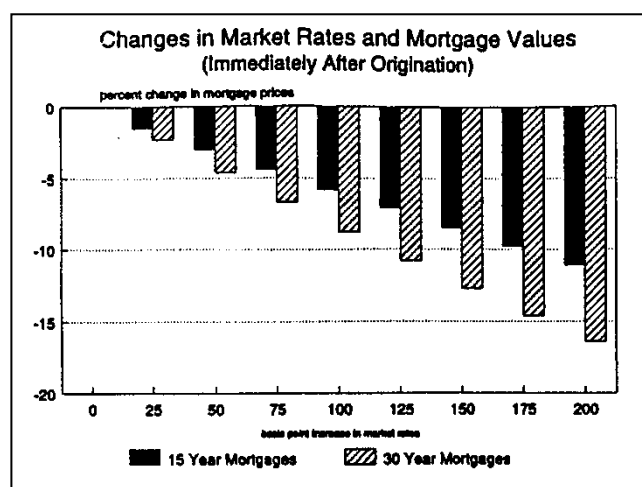
Rising interest rates can also erode capital at FRM lenders. A seasoned portfolio of fixed rate mortgages can lose four to five percent of its value for each 100 basis point (one percentage point) rise in interest rates. It takes only about a 200

basis point increase in rates to wipe out 10% of the value of a mortgage portfolio. For a credit union with 15% of its assets in FRMs, that would mean a 1.5 percentage drop in the value of the capital ratio. Of course, under Generally Accepted Accounting Principles (GAAP) that 1.5 percentage point erosion wouldn't have to be recognized unless the loans were sold. But, it is an accurate measure of the actual loss to the credit union. Were the loans kept in portfolio, the loss would be realized more gradually in the form of reduced earnings. Again assuming 15% of assets in FRMs, net income would be 30 basis points lower (15% of the 200 basis points interest rate increase) than if the assets had been able to reprice more rapidly. A mitigating factor is that those shorter term assets would generally have earned less than mortgages prior to the rate increase.

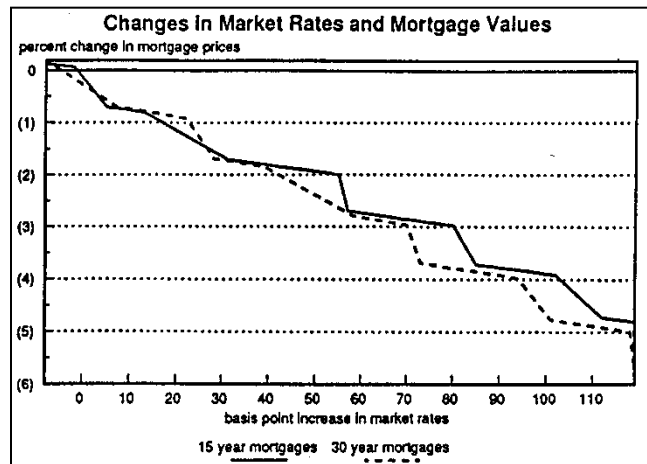
Unfortunately for lenders, it is not the case that interest rate reductions inflate the value of FRM portfolios as often as or in the same way that rate increases devalue them. That's because mortgages have the unique feature that the borrower has the option to refinance at will. Whenever rates fall, refinancing speeds up and mortgages are repaid at par just when their value would otherwise be rising. Because of this feature, mortgage-backed securities tend to rise in value less, in response to interest rate reductions, than they fall in value when rates rise. This makes holding FRMs an even more dubious strategy than holding other long-term assets. For standard long-term, fixed-rate assets, at least the risk of the effects of rising rates is offset by the possible benefits of falling rates. With FRMs, both rising and falling rates can harm lenders.

Thus, the average yield on a portfolio of seasoned FRMs is usually below the average rate that was in effect for FRMs over the previous several years. Originations bunch up at low points of the interest rate cycle because many borrowers can profitably refinance whenever rates fall 150 basis points to 200 basis points below their contract rates. That's why many of the FRMs granted during the low rate refinancing boom of late 1991 and 1992 may stay on the books for a long time as borrowers hold onto their good deals.

Many credit unions avoid holding 30-year FRMs for the above reasons, yet feel safe holding 15-year FRMs. *However, holding loans with one-half the stated maturity does not reduce interest-rate risk exposure by half.* The following two charts demonstrate this by showing how 15-year and 30-year mortgage values respond to rising interest rates. The first chart shows the maximum possible difference in rate sensitivity of 15- and 30-year mortgages. In each case, we assume that interest rates rise by the indicated amount in the first month after the loan was originated, and that the loan will never be refinanced. As interest rates rise (moving from left to right), the length of each bar shows the percentage reduction in the value of the mortgage. For a 100 basis point increase in rates, a 15-year loan falls in value by about 6%, a 30-year loan by around 9%. In this extreme case, the drop in the value of the 15-year loan is about two thirds of the fall in the value of the longer loan for any given rate increase.



The second chart uses actual data on mortgage-backed securities prices, and shows lines instead of bars. As interest rates increase (again moving from left to right), the percentage reductions in the values of 15-year securities are almost as great as the discounts for 30-year mortgage-backed securities. This is because the market takes into account that most mortgages (regardless of original maturity) will be repaid in somewhere between seven and twelve years. In fact, in the secondary market, new 30-year fixed rate mortgage-backed securities generally price off 10-year treasury securities, and new 15-year mortgage-backed securities are tied to seven years treasuries.

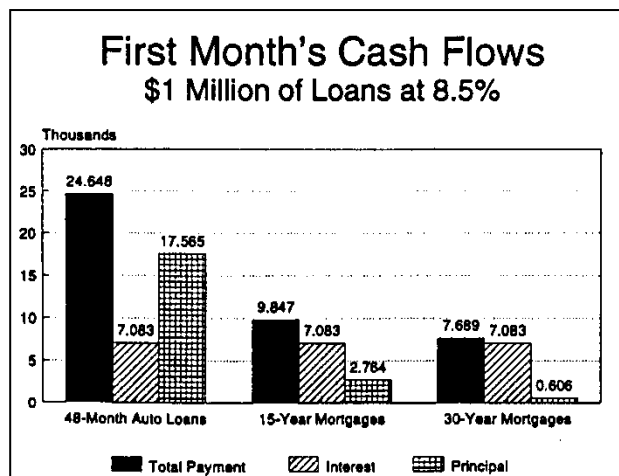


How much interest-rate risk a credit union can take on depends on the structure of the rest of its balance sheet. The shorter the repricing of the rest of the assets, and the longer the repricing of sources of funds (liability and equity), the more FRMs a credit union will be able to hold. A credit union with mostly short-term loans and investments that also offers long-term, fixed-rate certificates to members will be in a better position to hold some fixed-rate mortgages. [You can evaluate your] exposure to interest-rate risk by using "what if" scenarios. Ask what would happen to the rates on your various savings accounts if the general level of interest rates rose by two or three percentage points. Then ask what would happen to the yields of your loan and investment portfolios. Consider next the effect on the bottom line. This can be done with net income simulations using ALM models, or using simple spread analysis. The more FRMs your credit union holds, the less your asset yields will move with your costs. Limit your mortgages to the level that leaves you with acceptable net income in the event of rising interest rates. Also model the effects of faster prepayments should rates fall.

Fixed-rate mortgages carry liquidity risk as well as interest-rate risk. An asset's liquidity risk has two aspects:

- (1) Whether the asset produces cash flows the credit union could use to meet increased loan demand or savings withdrawals, and
- (2) Whether the credit union could sell the asset without substantial loss. FRMs usually do not perform very well on either count.

Consider cash flows. The longer maturity of mortgages means slower principal repayment than traditional consumer loans, and hence lower cash flows. The following chart shows the first month's payments from three hypothetical loan portfolios of the same million dollar size, but of various maturities: 48 months, 15 years, and 30 years. The early cash flow from a 48-month portfolio is two and a half to three times that of the mortgage portfolios, and most of it is principal. Fifteen- and 30-year mortgages have much smaller and similar cash flows, most of which is interest.



More than any other loan, expected mortgage cash flows depend on interest rate changes because of prepayments. When rates fall and FRM borrowers refinance, cash flows can increase dramatically. These cash flows must then be reloaned or

invested at lower rates. In times of failing rates, mortgages will therefore throw off additional cash flow just when a credit union's liquidity is typically increasing.

What about the option of selling FRMs during periods of tight liquidity? Two considerations arise here: the ability to sell FRMs, and the willingness to sell. Credit unions can sell only loans that conform to secondary market standards. Keeping this option open requires careful quality control to meet underwriting and documentation requirements.

Paradoxically, credit unions needing liquidity often find themselves reluctant to sell their FRMs. Liquidity shortages typically arise during periods of high and/or rising interest rates. Credit unions needing to raise liquidity discover they want to sell their mortgages at exactly the wrong time--high interest rates cause the price of FRMs to plummet, just like the price of long-term securities.

Selling fixed-rate mortgages immediately after origination eliminates almost all these risks. The remaining interest-rate risk comes during the period between agreeing to a loan rate with the borrower and delivering the loan to the investor. If rates rise during that period, the loan's price will drop. On a 30-year loan, the selling price drops 4-6% for every one percentage point increase in interest rates. Because of this sharp interest-rate risk exposure, credit unions should be careful if they decide to extend the period loans are held in portfolio prior to sale.

Credit unions can negotiate an agreement that establishes in advance the selling price for mortgages. With such a commitment from the loan purchaser or the credit union's conduit to the secondary market, the credit union need not worry that market rates will change between setting the loan rate and selling the loan. Because the purchaser of the loan absorbs that risk, loans sold under prearranged agreements sell at a slight price discount.

A problem can arise with prearranged sale agreements if the credit union makes commitments and then does not have loans to sell. If potential borrowers cancel their applications, the credit union pays a penalty to the investor for nondelivery, or else must buy loans in the secondary market to deliver to the investor. Some vendor programs minimize the risk for credit unions by negotiating their own contracts with investors.

Credit unions making mortgages with the intent to sell into the secondary market must take careful steps to ensure quality control during the loan processing, closing, and delivery stages. Documentation or underwriting errors may result in unsalable loans or loans that will only sell at a discounted price. Well-trained staff and adequate data processing are essential to meet the standards required by secondary market investors.

Some credit unions that sell mortgages into the secondary market elect to keep the servicing of those loans in the credit union. By retaining the servicing, the credit union earns servicing income and maintains contact with the member. Credit unions that retain servicing can ensure that members receive quality, personal service they may not receive from an out-of-town processor. If servicing is released from the credit union, members may have more trouble resolving errors in their accounts. They also may fail to receive necessary assistance if they experience difficulty making payments during the course of the loan. Being able to efficiently retain this servicing can require a substantial volume of loans.

Some credit unions will need to upgrade their data processing systems in order to service the mortgages they sell. For example, the secondary market standard for mortgage interest calculations is based on monthly interest, whereas many credit unions calculate interest on a daily basis. If data processing systems cannot adapt to the idiosyncrasies of mortgages, credit unions cannot retain servicing.

The risks of making and selling FRMs pale in comparison to the risks of holding FRMs in portfolio. Nevertheless, this does not mean that credit unions should hold no FRMs. Credit unions that hold FRMs should consider the following policies and actions to reduce risk exposure:

1. *Set firm and well thought out policy limits on the amount of FRMs to hold.* Up to one times capital (reserves and undivided earnings) is quite safe. Most credit unions can reasonably go as far as two times capital. More than that can be dangerous. A credit union can go closer to the top of the range (twice capital) if: (a) it has a lower than average loan/savings ratio, (b) it has some relatively long-term, fixed rate savings, and (c) the rest of its assets are fairly short-term. The policy limit should be established after conducting simulations of the effects of various interest rate changes on the credit union's net income.
2. *Write and service all FRMs to conform to secondary market standards.* That preserves the option of selling the loans and increases the credit union's liquidity.
3. *Hold only non-assumable mortgages.* Assumable loans originated during periods of low interest rates can live forever, as buyers assume the mortgage from the previous owners. Due-on-sale clauses require the borrower to repay the loan when selling the property. State laws and regulations may differ on the inclusion of due-on-sale clauses in

mortgage loans. The exercise of due-on-sale clauses may be prohibited for sales to family members, but many credit unions would waive that option anyway. See *ii Release No. B050 - Federal Limitation on Exercise of Due-on-Sale Clauses*.

4. *Shorten the maturity of investments.* FRMs expose credit unions to the risk of declining net income when interest rates rise; long-term investments (anything over three years maturity) cause further losses. When adding FRMs to the portfolio, first sell Treasury securities with maturities longer than three to five years, GNMA mutual funds, and other investments with prices that respond sensitively to changing interest rates.
5. *Lengthen the maturity of liabilities and try to rely less on rate-sensitive savings accounts.* Offer fixed-rate certificates with maturities of over a year. That reduces the earnings squeeze and liquidity problems that occur when interest rates rise.
6. *Maintain adequate liquidity for periods of low savings growth or high loan demand.* The slower repayment of principal on mortgages makes a liquid investment portfolio especially important. Credit unions may also choose to rely more on lines of credit from their corporate credit unions during liquidity shortages.

Several of these recommendations require asset/liability management (ALM) techniques. The importance of ALM increases when credit unions lengthen the maturity of their loan portfolios by holding mortgage loans. Those credit unions not already using ALM models should investigate computer software products available to simulate the effects of changing interest rates on the credit union's bottom line.

MANAGEMENT STRATEGIES FOR ADJUSTABLE-RATE FIRST MORTGAGES (ARMS)

Adjustable-rate mortgages (ARMs) feature interest rates that change periodically on the loans' outstanding balances. The loan rate is typically quoted as an index rate, such as the interest rate on one-year Treasury securities, plus a fixed margin or spread of a certain number of percentage points. Because the loan rate moves at predetermined times with market rates, ARMs shift most of the interest-rate risk from lenders to borrowers. This risk shifting can be limited to the extent there are annual or lifetime caps on rate increases. To compensate borrowers for taking on more risk, ARMs have lower initial interest rates than fixed-rate mortgages.

ARMs proliferated during the early 1980s. Lenders wrote fewer fixed-rate mortgages after their bad experiences with rising interest rates, and low initial ARM rates attracted borrowers. The popularity of new ARMs declines as interest rates fall, since lower rates make new fixed-rate loans more affordable. Borrowers with outstanding ARMs often refinance into fixed-rate loans when rates fall. The proportion of loan originations that are ARMs tends, therefore, to rise and fall with interest rates.

Credit unions can sell ARMs into the secondary market. The value of ARMs in the secondary market fluctuates less in response to interest rate changes than FRM prices because of ARMs' rate adjustments. Selling ARMs into the secondary market allows credit unions to serve more members and maintain higher liquidity. Writing at least some ARMs that conform to secondary market standards gives the credit union increased flexibility.

Credit unions with strong expected liquidity positions may also want to hold some ARMs with no intention of selling them. The reduced interest-rate risk of ARMs makes holding some ARMs in portfolio an acceptable risk. If the loans are not going to be sold, they needn't conform to all secondary market criteria. One reason to hold nonconforming ARMs is that the pricing of these loans in the secondary market often leaves something to be desired.

To compensate borrowers for taking on the interest-rate risk, the initial rate is usually discounted from the "fully-indexed" rate of the index plus the spread. The rate on the mortgage then rises automatically for the first year or two until reaching the fully-indexed rate, unless market rates decline substantially. For this reason, for the first year or two after origination, the yields on these loans may not be much better than those available on short-term investments. Then after the rate rises to its fully indexed amount, these loans are quite likely to be refinanced the next time fixed rates fall. This process means these loans may not be really effective assets for credit unions to hold. The smaller the up-front discount, the better the loan for the credit union. The next section describes ways to structure nonconforming loans to protect both the member and the credit union.

Designing Customized ARMs

Before designing their own ARMs, credit unions should investigate secondary market standards. Management can use those standards as a jumping-off point in designing their own programs. Most credit unions will find that, except for the discount feature, the basic financial structure of ARMs that conform to secondary market standards fits their needs well. Possible ways to differentiate credit union mortgages from industry standards include

- (1) Using a different index, and/or limiting the sensitivity of the loan rate to index changes,
- (2) Charging lower fees,
- (3) Easing such requirements as employment and income verification by taking advantage of credit unions' special relationship with members, and
- (4) Paying interest on escrow accounts.

The topic of which index interest rate to use for adjustable-rate loans is discussed in Appendix II.

Length of Adjustment Period

Most ARMs adjust rates annually, except in certain markets such as California, where semiannual or quarterly adjustments are common. Lenders concerned about interest-rate risk prefer short adjustment periods to insulate themselves from changes in costs, but borrowers prefer loans that adjust infrequently. Most markets have compromised with annual adjustments. The products offered by local competitors may determine which terms credit unions can offer successfully.

Some lenders offer loans that adjust less frequently than annually; we have heard of credit unions offering loans that adjust every five years. Longer adjustment periods can shift much of the risk of rising interest rates back to the credit union. A portfolio of five-year adjustable ARMs exposes a credit union to substantially more interest-rate risk than say a portfolio of five-year auto loans because of the relatively slow amortization of mortgages over five years compared to the total amortization of five-year auto loans.

Credit unions that want to shield members from as much risk as possible may wish to consider adjustment periods of longer than one year, but extending beyond two to three years can defeat the purpose for writing ARMs instead of fixed-rate loans. It is also advisable to have rates adjust on the anniversary date of the loan instead of all loans adjusting at the same time each year. That helps keep the average yield on the portfolio moving in line with market rates.

Selecting a Margin and Setting Rates

After picking a index for ARM loan programs, credit unions must decide what margin to add to that index in pricing loans. Credit unions make this decision in the same way they determine other loan rates, by determining

- (1) Which loan rate (index plus margin) provides enough income to cover the credit union's cost of funds, operating expenses, and additions to reserves, and
- (2) How that loan rate compares to competitors' rates.

Answering the first question requires information from within the credit union, while the second necessitates regular monitoring of local competitors.

A mortgage is typically the largest and longest loan most households have, so monthly payments are very sensitive to rate differences. This gives potential borrowers a stronger incentive to shop for rates than is the case for typical consumer loans. This fact, plus the large number of competitors who change rates daily means that credit unions will have to be prepared to change the offering rate on mortgages much more frequently than is usually necessary on other types of consumer loans.

Many credit unions find that they can compete best by offering low closing costs and points, rather than trying to beat other lenders' rates. For most first-time buyers, coming up with down payment money poses more problems than making monthly payments; mortgages with low closing costs and low (or no) points free up cash for down payments. Many lenders that compete for the low-rate market intend to sell their loans into the secondary market but retain the loan servicing; their interest is in attracting high volume to use their servicing operations. Origination fees and points provide them with up-front income. Credit unions intending to hold mortgages can recoup some of that forgone up-front income through slightly higher interest rates.

Caps on Rate and/or Payment Changes

ARMs shift interest-rate risk from lenders to borrowers. How much risk the borrower assumes depends on the maximum amount the interest rate can change. Keeping some of the risk in the credit union makes sense, but credit unions should price that risk accordingly.

The Federal Reserve's Regulation Z requires adjustable-rate first mortgages to have a cap on the allowable increase in loan interest rates over the life of the loan. Many lenders also limit the change in loan rates that can occur in any one adjustment period. Some lenders limit annual rate changes to one percentage point per year and lifetime changes to six percentage points. Others use limits of two percentage points annually and five percentage points over the lifetime of the loan. Some lenders also limit the increase in monthly mortgage payments.

Three factors interact to determine the risk-sharing characteristics of ARMs:

- (1) The cap on lifetime rate changes,
- (2) The cap on periodic changes, and
- (3) The first-year discount (teaser rate).

Each of these features reduces the interest-rate risk to the member. Credit unions that shelter borrowers from more risk should charge higher loan rates as compensation for the greater risk exposure to the credit union. The periodic cap matters most during the first few years, since only the annual cap can limit the first rate increases. For example, on a loan with a 2% annual cap and a 6% lifetime cap, the lifetime cap cannot bind for at least three years.

Lifetime caps expose the credit union to more risk when large first-year discounts are offered. The lower the first-year rate, the greater the chance that interest rates will rise high enough to push the loan rate up to its lifetime maximum. When offering large first-year discounts, consider increasing lifetime caps from five to six percentage points and/or annual caps from one to two percentage points.

Another way to limit the effect of interest rate changes is to offer a "partially adjustable rate mortgage." With such a loan, the rate is not stated as an index plus a spread, but rather as an initial rate that will move in relation to the index. The difference from a standard ARM is that the rate does not move in a one-to-one relationship to changes in the index. For example, the rate might move by only one half the amount that the index does. This has the advantage of limiting the risk to the borrower of sharp rate movements, and thus reducing the necessary discount from fixed mortgage rates. This disadvantage of such a program is that the credit union's portfolio yield will of course not respond as rapidly to changes in market rates. Before considering such an option, perform some simulations of the effect on net income.

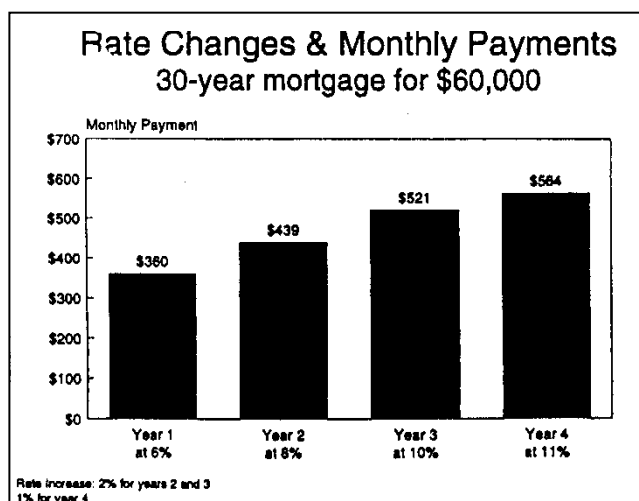
Instead of rate caps, some lenders might consider using limits on changes in the size of monthly payments to shield members from budget crunches that can arise from rising interest rates. This is generally not advisable for ARMs. Many adjustable-rate consumer loans have fixed monthly payments to make member budgeting easier and to facilitate payroll deduction. Interest rate changes simply alter the final maturity of the loan. Fixed payments or caps on monthly payment changes may work well for five-year car loans, but can cause serious problems when used with mortgages. If the interest rate rises but payments do not, the amount of each monthly payment dedicated to principal shrinks. Amortization slows and maturities lengthen. Because so little of the early payments on a long-term mortgage go to principal, maturity lengthens dramatically for even small increases in rates.

For larger rate increases, monthly payments may not even cover monthly interest charges, especially if rates rise early in the loan. The loan's outstanding balance increases as the difference between interest charges and monthly payments is added to principal owed, a situation known as negative amortization. Members who make timely payments nonetheless owe an increasing amount on their loan. Aside from the shock that may give the members, that puts the credit union at some risk; reduced equity in the home may lead to more problem loans, especially if property values fall.

In most areas, mortgage lenders do not restrict changes in payments. Credit unions currently limiting changes in monthly payments on adjustable-rate consumer loans should not necessarily apply the same terms to mortgages; longer maturities and slower principal repayment make negative amortization a more serious potential problem.

Payment Shock and Underwriting Standards

Underwriting for ARMs is more difficult than for fixed-rate loans because of the payment increases that can occur when interest rates rise. Large first-year discounts make a payment increase after the first year almost inevitable, and rising market interest rates may cause further increases. The increases can be dramatic as the next chart shows. In this example, a loan is made at six percent with two-percent annual and five-percent lifetime caps, and rates rise enough to make the caps binding. The second year's payment is 22% higher than the first's. After just 3 years, the payment is up a whopping 57%. Borrowers who barely qualified for their loans at the initial rate may not have the resources to make higher payments, a situation known as payment shock.



If the credit union plans to make conforming mortgages to maintain the option of selling loans in the secondary market, standards require that mortgage payments should not exceed 28% of the borrower's gross income and all debt service should not exceed 36% of gross income. On loans made to hold in portfolio, credit unions can take advantage of their special relationships with members to use more flexible underwriting standards. The credit union may have an ongoing relation with the member and may be able to assess the prospects for the member's future economic success. Members with good chances for continuing raises at prospering employers will feel that their credit union should qualify them for larger loans than would other lenders

Many ARM lenders use simulation techniques to evaluate underwriting standards. The credit union can compare monthly payments under a rising-rate scenario with the member's prospective raises. If the member barely qualifies now, will his or her income rise enough to cover increases in monthly payments? Some lenders qualify their potential borrowers with rules that compare this year's income with the second year's mortgage payment, assuming the loan interest rate increases by the maximum amount.

Potential problems increase with the size of the loan's first-year discount, and payment shock is magnified for loans made at low initial rates. Credit unions should avoid steep first-year discounts (teaser rates) as much as competition allows, because they lead to more payment shock and loans that will lose money during at least their first couple of years. To the extent teaser rates are offered, underwriting standards should be tightened, for example, qualifying the borrower at the fully-indexed rate. Rather than competing on rates, many credit unions compete with low points and fees and member-oriented policies such as paying interest on escrow account balances.

Holding ARMs in portfolio carries less risk than holding fixed-rate mortgages. The longer maturity and imperfect adjustability of ARMs (due to caps on rate changes) still make the use of asset/liability modeling and techniques important. Appropriate financial strategies for credit unions holding ARMs include:

1. *Watch the liquidity and maturity of investments.* Longer loan maturities make for lower cash flows, and the caps on ARM rate changes leave credit unions exposed to some interest-rate risk.
2. *Prepare to deal with liquidity shortages if they should arise.* Holding some ARMs that conform to secondary market standards increases the credit union's liquidity by making loan sales possible. Establishing a line of credit with a corporate credit union also contributes to credit union liquidity.
3. *Use caution when holding ARMs that contain options for conversion to fixed rate loans.* The conversions will come when rates are lowest, resulting in low earnings and added interest-rate risk for the credit union. Refinancing to new FRMs will occur regardless of whether the old loan contains a conversion option, but the original lender is not obligated to extend the new FRM if there is no conversion option. Credit unions should ensure that the new fixed-rate loan conforms to secondary market standards.

HOLDING OTHER NONCONFORMING LOANS

There is another reason to hold some mortgages that don't conform to secondary market standards. Most mortgages tailored to the secondary market are designed to meet the needs of investors in that market: pension funds, life insurance

companies, and individual investors. These all have very different sources of funds from a retail depository institution like a credit union. These mortgages are therefore not necessarily the most attractive assets to be held by a credit union.

The problem is how best to split the interest-rate risk between the borrowing member and the credit union as a whole. Fixed rate loans assign all this risk to the lender. ARMs give almost all of it to the borrower. What is needed are mortgages that divide the risk more evenly, so that each party's share is small enough to deal with. Credit unions can manage some interest rate risk. Borrowers won't need so large a bribe if they aren't being asked to bear all the risk.

Of the mortgage loans accepted by regular programs in the secondary market, only balloon loans come close to meeting these goals, but not close enough. There is only one point when the adjustment can be made, and the cost of the adjustment to both parties can be considerable. Therefore, credit unions may need to develop new pricing schemes for mortgages that are designed for their own asset/liability needs, not those of pension funds and life insurance companies.

The "partially-adjustable-rate" loan discussed above is one such option. Another is a "payable on demand" (POD) loan in which the loan can be called due after a set period (typically three or five years.) These are similar to balloon loans, but the adjustment can be made anytime after the set period, instead of just once.

A POD is like a special variation on an ARM. The rate is fixed for the initial three-to-five year period, after which it can vary at the credit union's discretion by calling the loan due, possibly with a refinance offer at a new rate. Future changes are not tied to any index, and they need not be made at regular intervals. POD loans should not be made with the expectation of frequent rate changes after the locked period (frequent calls for payment and refinancing.) Instead they can be thought of as insurance for the lender in case interest rates rise substantially.

A POD places substantial risk on the borrowers because they have no way to judge how much their loan rate might go up if rates increase. They therefore must be priced below the rate available on fixed-rate loans. A lender that makes "unjustified" rate changes as soon as the locked period ends will quickly lose credibility.

Most for-profit lenders are unlikely to be able to offer POD loans because of the uncertainty of the risk to the borrower. Because of the unique relationship of trust that credit unions have with their member-owners, credit unions might be the single type of financial lender to be able to successfully offer them. If the payable on demand clause is only used when really necessary, this trust will be maintained. The first time it is used without justification, the program will be dead. Certainly not all members will want such loans. But, if priced properly, they can be another valuable item on the menu of mortgage loan options available to members.

[America's Credit Unions](#) is in the process of collecting additional ideas from credit unions on nonconforming mortgages that offer some protection against interest-rate risk. These ideas will be written up in publications like Credit Union Magazine.

APPENDIX I: THE SECONDARY MARKET FOR FIRST MORTGAGE LOANS

An active secondary market exists for both fixed- and adjustable-rate mortgages. The market arose as an intermediary between mortgage lenders, who wanted increased liquidity for mortgage loans, and investors who wanted long-maturity assets but did not have the means to write mortgage loans. The growth of this market began to take off in 1970 when Congress created the Federal Home Loan Mortgage Corporation (FHLMC or Freddie Mac) and allowed the Federal National Mortgage Association (FNMA or Fannie Mae) to purchase conventional mortgages. Credit unions today may sell mortgages through FHLMC, FNMA, or the Government National Mortgage Association (GNMA or Ginnie Mae).

Secondary market buyers require lenders to meet extensive documentation and underwriting standards, such as loan-to-value and payment-to-income limits., Credit unions that wish to deal directly with FHLMC, FNMA, or GNMA must also meet financial strength and insurance standards. Other conduits to the secondary market may or may not apply financial standards to lenders.

APPENDIX II: CHOOSING A LOAN INDEX RATE

Choosing an index has both marketing and economic considerations. First a discussion of marketing implications of the choice.

Marketing Considerations

Most ARMs are indexed to either the interest rate on Treasury securities, adjusted to a constant maturity of one year, or the Federal Home Loan Bank Board Eleventh District Cost of Funds Index (for S&Ls). The Eleventh District Index is more popular in the western United States, especially in California, than in other parts of the country. Secondary markets

exist for loans written with both indexes. Examples of other indexes used occasionally as ARM indexes include other Treasury security rates, national cost of funds indexes for the S&L industry, and the bank prime rate.

Credit unions may find that members prefer the same index in use at other local mortgage lenders. Rates are quoted as:

- (1) An index, plus
- (2) A margin, and
- (3) In many cases, less discount during the first year.

Comparing programs can cause headaches for members if different lenders use different indexes. As a starting point, credit unions should find out what indexes their competitors use.

A marketing problem can arise for credit unions that use an index based on another industry. Members sensitive to the unique purpose of credit unions may object to paying an interest rate tied to the banking industry, such as the prime rate, since many feel that banks have the power to set interest rates as they see fit. While many adjustable-rate home equity loan programs use the prime rate as an index, most First mortgage lenders (even banks) use other indexes. The S&L cost of funds index has sometimes moved more as the result of problems in the S&L industry than because of market rate changes. However, if local competitors use an S&L index, credit unions may find their members prefer the same.

That leaves the Treasury securities rates. The active markets for Treasury securities determine Treasury rates by open competition. The one-year Treasury rate is most popular, but some ARMs use three- and five-year Treasury rates instead.

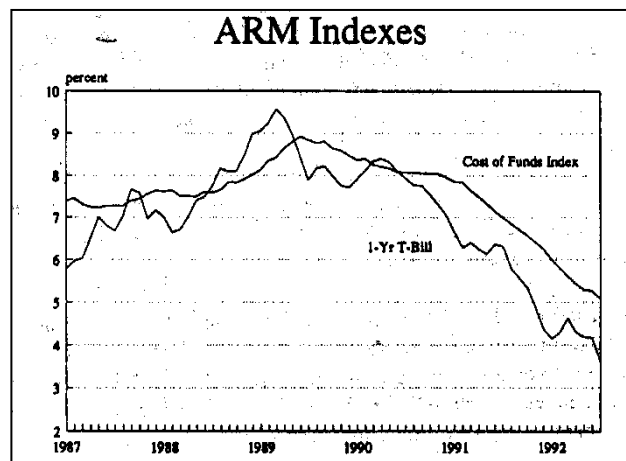
Economic Considerations

Economic features of ARM indexes include:

- (1) The ability of the index to track the credit union's cost of savings,
- (2) The volatility of the index, or the size and frequency of its changes, and
- (3) The index's sensitivity to shocks that don't affect other interest rates.

We will discuss these issues in reverse order.

The third consideration makes the S&L indexes inferior to other indexes; the deteriorating condition of the S&L industry has sometimes caused those indexes to rise even during periods of generally declining market interest rates.



A volatile index makes mortgage payments more unpredictable for members, and may result in more delinquencies. Because almost all of the monthly mortgage payment on a new mortgage goes to interest, movements in the index rate can cause sharp changes in monthly payment size. An increase from a 6% loan rate to 8% at the end of the first year causes monthly payments to jump by 22%. If rates rise to 11% after three years, monthly payments in the fourth year will rise fifty-six percent above their initial level.

That doesn't mean credit unions should avoid writing adjustable-rate loans or look for an index that almost never changes. Some credit unions have inquired about using the Federal Reserve discount lending rate, the rate at which the Fed lends to

banks and other depository institutions. Aside from the fact that politics has as much influence as economics in how the Fed sets the discount rate, the infrequency of changes in the discount rate make it inappropriate as a loan index. The discount rate seldom changes, and then only long after changes in other rates.

The bank prime rate also changes infrequently, and consequently some observers think of it as a relatively stable rate. The prime's staying the same for weeks at a stretch masks its high volatility; when it changes, it moves in increments of at least one-quarter percentage point. The prime rate showed more volatility over the 1974-1988 period than any other interest rate we examined (with volatility measured by statistical standard deviation).

As mentioned above, the most popular index for ARMs in many regions is the rate on Treasury securities with a maturity of one year. The one-year Treasury index is more stable than the prime rate, and has about the same volatility as rates on Treasury securities of maturity less than one year. Rates on Treasury securities with longer maturities, in particular three years and five years, have seen some use as ARM indexes, and they show a little less volatility than the one-year Treasury index.

The perfect index would track the credit union's costs from one adjustment date to the next. For example, if loan rates adjust annually, the perfect index would relate loan revenues to the credit union's cost of funds during the year. That would keep net income from fluctuating during the year. Of course, the amount of adjustment that is needed depends on the how sensitive the credit union's other assets and sources of funds are to changes in interest rates. Each credit union should simulate its balance sheet to market rate changes using a variety of indexes.

The Treasury security with maturity of the same length as the ARM's adjustment period is usually standard. Most ARMs with Treasury indexes adjust annually, which explains the popularity of the one-year Treasury index.

After selecting an index, the credit union must decide how to calculate the index in adjusting rates -- whether to use the index value on a particular day, such as the first business day of the month of January, or the average of the daily rates for that week, or a monthly average. Secondary market standards use a weekly average. A weekly average smoothes out daily fluctuations yet changes enough to reflect the current interest rate environment.

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