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New Mortgage Instruments and Housing Affordability

ARTICLES

PLAMs: Affordable Mortgages from Inflation-Proof Deposits

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On August 11, 1982 the Federal Home Loan Bank Board authorized Federal Savings and Loan Associations to make Price Level Adjusted Mortgage (or PLAM) loans in volume for the first time.[2] This power, combined with the Depository Institutions Deregulation Committee's recent elimination of interest rate ceilings on deposits with maturity greater than 3½ years, creates a new and potentially profitable opportunity for federally chartered savings and loan associations. This article is concerned with these opportunities, focusing first on PLAM loans and then turning to inflation-adjusted deposits.

The Problem with Conventional Mortgages

Conventional mortgages with constant dollar payments over a fixed number of years make good sense if the value of the dollar remains constant. Houses are very durable assets, and warrant long-term financing. If the dollar had constant purchasing power, a 20- or 30-year conventional mortgage would enable homebuyers to repay their loans with 240 or 360 easy payments of equal value.

However, if the dollar declines rapidly in value, as it has done in recent decades and is quite likely to do again in the future, equal dollar payments will not have equal value in terms of purchasing power. The final payments will be worth far less than the initial payments. In order to give the lender back the value of the money he advanced, plus some real return over inflation, the initial payments must be made inordinately high in order to compensate for the small real value of the final payments. This "tilt" in the real value of the payments is the source of the affordability crisis that has been crushing the housing industry.[3]

A further drawback of the conventional mortgage, from the lender's point of view, is that the average level of inflation over the next few decades is next to impossible to predict. The twelve month inflation rate was running as high as 14.6 percent as recently as two years ago, and could easily return at even higher rates. Conventional mortgages, therefore, do not allow thrift institutions to promise savers any reliable real return over inflation on long-term deposits. Savers are turning instead to short-term instruments such as money market funds, even as a home for their long-range savings.

The PLAM Alternative

The PLAM is the solution to the problems of both the borrower and the lender. The simplest form of PLAM works like a conventional mortgage, except that the payments, instead of being constant in terms of current dollars, are constant in purchasing power as measured by an appropriate price index such as the CPI. The unpaid principal is also expressed in constant dollars and adjusted for inflation when the house is sold.

A PLAM, therefore, takes the inflation guesswork out of borrowing and lending. The rate at which interest is charged is a guaranteed real return over and above inflation, no matter what the inflation rate turns out to be through the life of the loan. Under normal market conditions, the annual real interest rate on a PLAM would probably be in the range of three to five percent.

A 20-year, $50,000 PLAM with a contractual real interest rate of four percent, for example, would have monthly payments for principal and interest equal in purchasing power to $303 (current dollars). This loan would put a $52,700 home with five percent down within comfortable reach of a couple with a $20,000 annual income, since the payments would be 18.2 percent of their monthly gross earnings.

[1] McCulloch is an economics and finance professor at The Ohio State University. This article is based, in part, on "The Price Level Adjusted Mortgage: Affordability and Inflation Protection," *Mortgage Banking*, September 1982.

[2] *Federal Register*, August 23, 1982, pp. 36612-21.

[3] See Patric H. Hendershott, "Nominal Interest Rates and Housing Demand," *Quarterly Review*, Federal Home Loan Bank of Cincinnati, 2:1982.

With 10 percent expected inflation, conventional rates would have to be approximately 14 percent to net the lender four percent over inflation.[4] At this rate, the monthly payments on a $50,000 loan would be $622 over 20 years, or $592 stretching the loan out to 30 years. Even with a 30-year loan, our couple would need to earn almost $25,400 in order to qualify for this loan under the 28 percent payment-to-income rule. On top of this, they would have to pay taxes, utilities, maintenance, and other homeowning costs. This is far more than it makes sense to pay for housing on a regular basis. The only reason borrowers might be tempted to do so is the hope that inflation will quickly erode the value of the payments. In fact, 30 years of 10 percent inflation would lower the real value of the $592 payment to less than $34.

Table 1 shows how the payments and remaining principal balance on a four percent, 20-year, $50,000 PLAM would vary over time with no inflation, and with 10 percent inflation. Without inflation, the payments are constant at $303 per month, and the principal declines steadily. With 10 percent inflation, however, the first payment is already $305, and the remaining principal after one month is up to $50,261.

If our couple sells their house after eight years, the price level will have slightly more than doubled with 10 percent inflation. Their payments will have risen to $649, roughly what they would have been paying all along with a 14 percent conventional mortgage. If their $20,000 income keeps up with inflation, however, this will not have become a burden, since by then they will be making $53,600 a year. The payments will still be 18.2 percent of their gross income. The payments are not really bigger; the dollars are just smaller.

Because they were not making high payments all along, it is only fair that the remaining principal will be higher than it would have been with a 14 percent conventional. In fact, after eight years of 10 percent inflation, it will be about $74,200, more than the

Table 1
20-Year PLAM — 4% Real Interest Rate — $50,000 Initial Balance

	No Inflation			10% Inflation		
Payment	Price Index	Monthly Payment	Remaining Principal	Price Index	Monthly Payment	Remaining Principal
1	1.000	$302.99	$49,863.68	1.008	$ 305.41	$50,261.30
12	1.000	302.99	48,333.79	1.100	333.29	53,167.17
24	1.000	302.99	46,599.70	1.210	366.62	56,385.63
36	1.000	302.99	44,794.96	1.331	403.28	59,622.09
48	1.000	302.99	42,916.69	1.464	443.61	62,834.32
60	1.000	302.99	40,961.89	1.611	487.97	65,969.54
72	1.000	302.99	38,927.46	1.772	536.77	68,962.36
84	1.000	302.99	36,810.13	1.949	590.44	71,732.54
96	1.000	302.99	34,606.55	2.144	649.49	74,182.21
108	1.000	302.99	32,313.19	2.358	714.43	76,192.81
120	1.000	302.99	29,926.39	2.594	785.88	77,621.35
132	1.000	302.99	27,442.35	2.853	864.47	78,296.24
144	1.000	302.99	24,857.11	3.138	950.91	78,012.26
156	1.000	302.99	22,166.54	3.452	1,046.00	76,524.91
168	1.000	302.99	19,366.35	3.797	1,150.60	73,543.70
180	1.000	302.99	16,452.08	4.177	1,265.67	68,724.44
192	1.000	302.99	13,419.08	4.595	1,392.23	61,660.32
204	1.000	302.99	10,262.51	5.054	1,531.45	51,871.55
216	1.000	302.99	6,977.33	5.560	1,684.60	38,793.40
228	1.000	302.99	3,558.31	6.116	1,853.06	21,762.33
240	1.000	302.99	0.00	6.727	2,038.37	0.00

[4]Because of the effects of compounding, 13.60 percent is actually the conventional rate necessary to give the same real return as a four percent mortgage with zero inflation.

$52,700 they originally paid for the house. However, inflation does not make houses depreciate, just the dollar. As long as this house has retained its value, it should sell for about $113,000. The proceeds from the sale will be about $38,800 after repaying the PLAM. In today's purchasing power, this is about $18,100, which is just what they would have netted if they had sold the house for $52,700 and paid off the $34,600 balance with no inflation.

If this couple does not sell their house, the final monthly payment will be over $2,000 with 10 percent inflation, which is more than 122 percent of their initial income level. But their income should also have risen because of inflation. Even if they are still stuck in the same $20,000 job (in real terms), they should be making something like $135,000 a year given the effects of inflation. A $2,000 payment will still be about 18.2 percent of their monthly income, and is about what they could expect to be paying for rent if they had instead been occupying a $300 per month (initial dollars) rental unit all along. It will seem like a small price to pay for clear title to a $355,000 house.

Sources of Funds

Since May 1, 1982, there have been no restrictions on the interest that may be paid on deposits of more than 3½ years original maturity, and ceilings on shorter maturities are due to be phased out soon. This means that federally chartered savings and loans can finance their PLAM loans with similarly indexed Price Level Adjusted Deposits or PLADs that pay a guaranteed real return over inflation.[5]

Investors have become inured to zero or even negative, not to mention highly volatile, real returns on "safe" investments like Treasury bills. A guaranteed real return of even one or two percent on a Federally insured long-term deposit would seem very attractive in comparison for inflation-wary savers who are planning for retirement, college, or other big expenditures many years down the road. Yet in today's tight market, federally chartered associations could charge at least four to five percent over inflation on PLAMs, which would easily enable them to pay about three percent on PLADs and still turn a good profit after operating expenses. PLADs should be particularly popular with IRA and Keogh investors.

To prevent cash flow problems, PLADs should defer the inflation adjustment and pay out only the real interest on the adjusting balance before maturity. Associations should furthermore attempt to maintain approximately the same maturity structure of real principal payments for its PLADs as it anticipates for its PLAMs, adjusted for prepayment experience. Ultimately, this may require offering different rates on different maturities in order to coax depositors into the required maturities.

But PLADs are not the only source of funds savings and loans can use to originate PLAMs. Institutions such as pension funds, insurance companies, and foundations that desire inflation-proof long-term investments would also find PLAMs attractive. Savings and loans could act as originators/servicers for pools of PLAMs sold as pass-through securities to these investors. The Utah State Retirement Board has already purchased $50 million worth of pass-through securities based on a modified PLAM. These securities, which net the Board four percent over inflation, are insured by MGIC and have received an "A" rating from Standard and Poor's.[6]

Underwriting Standards

Two of the most commonly expressed concerns about the PLAM are, "What if the borrower's income doesn't keep up with inflation and what if the value of the house doesn't keep up with inflation?" These concerns are well taken, and mean that PLAMs will require special underwriting standards.

Real incomes ordinarily rise over time, particularly for young homebuyers who are advancing in their careers. However, there is no guarantee that this trend will continue, or hold for each individual. The initial ratio of principal and interest payments to income should therefore be kept low enough that real incomes can fall considerably without making future payments

[5]PLAD is the acronym that is usually used. However, Price Level Adjusted Investment Deposit or PLAID would sound even thriftier.

[6]Reed E. Gunderson, "Utah Retirement Fund Develops Adjustable Balance Mortgage Program," *Mortgage Banking*, Special Issue, Spring, 1982.

unmanageable. We have seen that a 25 percent or even 28 percent payment ratio is manageable, if uncomfortable. Restricting the initial ratio to 20 percent would allow real incomes to fall to 80 percent of their initial values — an enormous drop — before the current ratio rises even as high as 25 percent. I would therefore recommend that 20 percent be used as the qualification rate for PLAMs, at least initially until more experience is obtained. This is probably unnecessarily conservative, yet it would still give most borrowers more credit than they are likely to want.

The Utah PLAMs attempt to solve this problem with a modified payment stream. Even though the borrower pays only 4.75 percent over inflation, the payments over 25 years are based on the artificially high rate of 10.50 percent. The loan is recast semiannually at this rate over the remaining life, which implies that the real value of the payments declines by about 5.75 percent each year. This virtually guarantees that the payments will rapidly decline relative to income over the life of the loan. However, a straight PLAM with constant real payments and a 20 percent maximum initial payment ratio is much easier to explain, much easier to calculate, and makes the initial burden of the loan much smaller, while achieving equal, if not greater, safety.

The Utah experience has proven that investors desire, and borrowers are willing to pay, a real return over inflation. However, I would recommend the straight PLAM over the Utah-type modified PLAM.

The second problem deals with fluctuations in the value of the house. Many PLAM advocates (Milton Friedman, *Newsweek,* May 26, 1980; Henry J. Cassidy, *Federal Home Loan Bank Board Journal,* January 1981) have assumed that PLAMs would have a 30-year maturity. With a four percent real rate, this would make the payments on a $50,000 loan only $239, and the real value of the outstanding principal would initially decline at a rate of only 1.7 percent per year. This would cause no problems with an initial equity buffer equal to 20 percent of the value of the house. However, with a five percent downpayment, there is a distinct possibility that the buyer's equity might be seriously eroded after a few years.

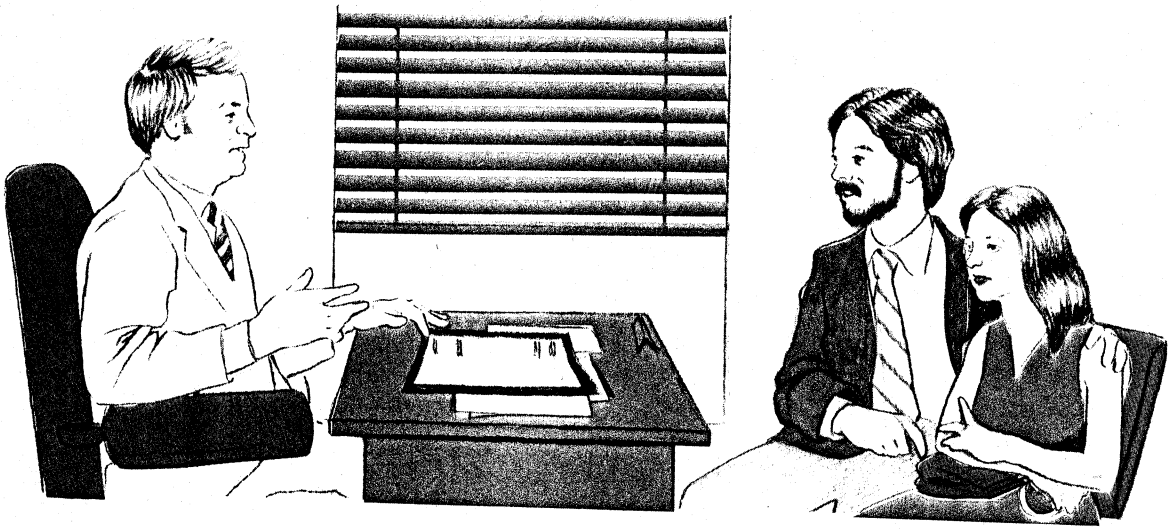
In order to avoid this problem, I would recommend that the PLAM maturity be restricted to 20 years when the downpayment is in the five to nine percent range. With a five percent downpayment, this would force equity, relative to the initial real value of the house, to build up to 10 percent within two years and to 20 percent within five years. With a 10 to 19 percent downpayment, the maturity should be restricted to 25 years, and a full 30 years should be allowed only with a 20 percent or greater downpayment. Again, these underwriting standards are probably unnecessarily conservative, and could perhaps be relaxed as we obtain more experience. Note that even a 20 year maturity on all PLAMs would not significantly reduce their attractiveness in today's market.

These "20-20" underwriting standards (20 percent initial payment-to-income ratio and 20-year maturity with five percent down) should make PLAMs as safe or safer than conventional mortgages, without impairing their viability.

Officials of both Ticor and MGIC have expressed interest in insuring PLAMs, on a case-by-case basis. A combination of sound underwriting standards, recognized mortgage insurance, and investment-grade ratings should make PLAM-backed securities attractive even to institutional investors who have little experience with mortgages.

Tax Aspects

One important advantage of owner-occupied housing has been the deductibility of interest payments. The fact that the interest payments on conventional mortgages include a substantial inflation premium that increases this deduction has increased the value of this tax advantage, and to some extent has offset the other disadvantages of conventional mortgages under inflationary conditions. Fortunately, PLAMs share the tax advantage of conventional mortgages, while giving the borrower additional flexibility.



Most authorities agree that the inflation adjustment on a PLAM would be treated as ordinary interest by the IRS. This means that it would be deductible by the borrower as he pays it if he is on the cash accounting basis. With moderate inflation, this implies that the PLAM borrower could deduct his entire payments for the first several years of the loan. In the illustration of Table 1 with 10 percent inflation, this complete deductibility would continue for over 17 years, until his nominal principal fell below its initial level. During this time, any partial prepayment he made would also be deductible.

Although the required payments on a PLAM would, under the underwriting standards suggested above, not to exceed 20 percent of the borrower's income, there is nothing to prevent the borrower from making additional payments up to, say, 28 percent of his income, which is probably what he would be paying initially with a conventional loan. With moderate inflation, this would be entirely deductible for the first several years of the loan, so if he chose these additional payments, he could claim essentially the same deduction. He therefore cannot be any worse off with a PLAM. Moreover, if instead he takes the option of making a smaller payment and taking a smaller deduction, he must be even better off, in spite of the smaller deduction, since he apparently prefers to have the extra cash to spend today even if it means higher taxes.

A taxable institutional lender would not want to finance PLAMs permanently out of capital, because it would have to pay taxes on the inflation as it accrues, rather than as it is paid off. However, this would not be a problem if instead it financed the PLAMs with similarly indexed liabilities, held by cash-basis individuals, on which it was simultaneously accruing an unpaid inflation liability. This is one more reason for matching PLAMs and PLADs on the savings and loans' balance sheets.

In order to prevent taxable PLAD depositors from having to pay taxes on the accruing inflation adjustment before it is received under the "constructive receipt" doctrine, it may not be possible to promise withdrawability of their deposits prior to maturity, even with a penalty, unless the penalty amounts to the entire accrued inflation adjustment. However, depositors could still have effective access to their deposits by making them negotiable. This has been allowed for smaller denomination deposits since April 25, 1982. There would be nothing to prevent the depository institution itself from repurchasing a negotiable deposit on favorable terms, according to market conditions.

The tax-flow situation is highly advantageous for PLAMs financed by PLADs held in IRA or Keogh plans or for PLAM-backed securities sold to pension funds or other tax-exempt investors, since the borrower has an immediate tax deduction while the ultimate saver is sheltered from taxes until the funds are actually disbursed and spent. For PLAMs financed by PLADs held by taxable depositors, discussed above, the tax-flow situation is merely neutral since the tax deduction and the tax liability occur simultaneously, while the institution pays taxes only on its realized profits.

Conclusion

PLAMs provide meaningful long-term financing for housing by spreading the repayment of the loan out in 240 to 360 installments of equal real value. By greatly reducing the size of initial payments they solve the affordability problem that is depressing the home construction industry today.

At the same time, PLADs enable federally chartered savings and loan associations to promise a guaranteed real return on long-term deposits that will lure back savings that have strayed off into cash management funds. This would enable savings and loans to return to their traditional, if almost forgotten, role as financial intermediaries profitably serving savers and homebuyers.