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Publication Date

1991-08-01

Peer reviewed



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WORKING PAPER SERIES

WORKING PAPER NO. 91-198

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By

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PRICE LEVEL ADJUSTED MORTGAGES

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Working Paper# 91-198
August, 1991

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PRICE LEVEL ADJUSTED MORTGAGES

Joe Peek and James A. Wilcox

Characteristics

The simplest form of a price level adjusted mortgage (PLAM) specifies periodic payments that respond contemporaneously with unit elasticity to the price level. PLAMs replicate the real characteristics of a long-term, fixed-rate mortgage (FRM) under conditions of certain, zero inflation: borrowers pay and lenders receive the contractual real rate of interest, payments are constant in real terms, and amortization is complete and in real terms is known. Here we abstract from tax considerations, choice of price index, lags in data availability, and a number of other practical issues.

With inflation, PLAM payments differ fundamentally from the level nominal payments of FRMs. The initial payment on a PLAM is calculated by applying the standard FRM payment factor to the assumed unchanged real interest rate. PLAM payments from then on are a function, not of the inflation rate, but of the price level. At the end of each period, both the nominal payment for the ensuing period and the remaining loan balance are adjusted by the percentage change in the price level during that period, thereby preserving their real value. Even though PLAMs are fully amortizing, moderate inflation rates may lead to the outstanding nominal principal temporarily being larger than the amount borrowed. The outstanding balance in real terms, however, declines

each period.

An increase in interest rates on newly originated FRMs from 10 to 14 percent, for example due to an increase in the expected inflation premium, raises monthly nominal payments on a \$100,000, fully-amortizing, 30-year FRM from \$878 to \$1185, a 35 percent increase. Neither the downward "tilt" in the real value of the fixed nominal payment that inflation produces nor the increase in the real initial payment is eliminated by adjustable rate mortgages (ARMs). Although ARM rates may be expected to be lower and more variable than FRM rates because ARMs partially shift interest rate risk to borrowers, initial real ARM payments are also raised and "tilted" by higher inflation.

Unlike FRMs and ARMs, real payments on new and on ongoing PLAMs are unaffected by changes in the expected inflation premium. Because lenders tend to impose payment ceilings based on current incomes, increases in the premium lower the real borrowing permitted under level payment schedules, but not on PLAMs. Such constraints especially affect the young, who can be expected to progress along an upward-sloped age-earnings profile. By easing borrowing constraints, PLAMs permit more housing to be financed at each stage of the life-cycle and reduce the average number of houses owned over the life cycle. Thus, PLAMs may ameliorate the distortions in housing consumption and the extra transactions costs attributable to inflation.

Relative Risks and Returns

PLAMs reduce and re-allocate some of the risks associated with

FRMs and ARMs. With PLAMs, the risk of higher real interest rates is still borne by lenders. The ability of borrowers to prepay if real rates fall means that PLAM rates will embody a call premium determined by the variance of (long-term) real interest rates. Because expected long-term real interest rates vary relatively little compared to nominal rates, that prepayment premium is very likely to be smaller than the premium for nominal interest rate volatility embedded in FRM rates. On this count, the expected real borrowing rate on PLAMs will be lower than on FRMs.

Somewhat offsetting this rate advantage is that a PLAM's default risk and the associated premium may be higher, ceteris paribus, because its lower initial payments imply loan-to-value ratios that decline more slowly. In practice, to keep default risk down, borrowers may opt for the considerably shorter maturities made feasible by lower initial PLAM payments or lenders may impose lower loan-to-value ceilings.

The payment risk for PLAM borrowers is not that nominal payments will rise, but that real income will fall. Individual real incomes tend to rise over time for two reasons. Long-run labor productivity growth imparts an upward trend to real income and age-earnings profiles slope upward. Nonetheless, over shorter periods, and for some individuals, real incomes sometimes fall. Indexing payments to wages while accruing on the basis of prices or short-term nominal interest rates can mitigate borrowers' cash flow difficulties. Adjusting the maturity of the mortgage helps absorb differences between payment and debiting rates.

Relative to ARMs, ongoing PLAMs are less subject to dramatic short-run changes in payments as a share of income. Although typically nominal wages closely track the price level, they rarely move proportionately with nominal interest rates and bear no particular relation to them. Furthermore, for many households, borrowing constraints may effectively limit their alternatives to making either rent or PLAM payments. Rents generally rise with the price level and, being a subset of the general price index, are likely to be more volatile than PLAM payments. Thus, prospective homebuyers may perceive PLAMs as being no riskier than renting.

Portfolio Features

The investment characteristics of PLAMs seem underappreciated. To the extent that pension plans' liabilities are effectively indexed to future wage and price levels, as when end-of-career income determines benefits, PLAM's inflation-proof real rate of return is an attractive feature. The low correlation between the expected real rate of return on PLAMs and other assets enhances the portfolio demand for PLAMs. If inflation lowers expected real returns, unexpected inflation produces a negative covariance of real returns on PLAMs with other assets.

Experience

PLAMs have existed in a number of countries, often at times when inflation and other, real problems beset them. Among the more persuasive reasons for the absence of PLAMs in the United States are that, until recently, both their tax and regulatory treatment were highly uncertain. In recent years, there has been increasing

activity in PLAMs in various countries as the public sector has attempted to make homeownership more attainable, especially for the young.

Macroeconomic Considerations

By removing a large and volatile expected inflation premium from initial payments, PLAMs raise the mean and lower the variance of activity in the housing industry. By easing cash-flow requirements, PLAMs may reduce pressure on the public sector to provide housing subsidies. PLAMs would also provide public and private sector decisionmakers with a market-determined term structure of real interest rates, much as the index-linked market does in Great Britain.

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