

Principal, 10% Interest, 4-Year

Payments	End-of-year principal
Principal [(2) - (3)] (4)	[(1) - (4)] (5)
\$1,292.82	\$4,707.18
1,422.10	3,285.08
1,564.31	1,721.77
1,720.74	— ^a

Beginning-of-year-4 principal

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Y A LOAN
\$6,000
10%
4
\$1,892.82

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because
it flows.

D	E
SCHEDULE	
\$6,000	

focus on PRACTICE

New Century Brings Trouble for Subprime Mortgages

In practice As the housing market began to boom at the end of the twentieth century and into the early twenty-first, the market share of subprime mortgages climbed from near 0 percent in 1997 to about 20 percent of mortgage originations in 2006. Several factors combined to fuel the rapid growth of lending to borrowers with tarnished credit, including a low interest rate environment, loose underwriting standards, and innovations in mortgage financing such as “affordability programs” to increase rates of homeownership among lower-income borrowers.

Particularly attractive to new home buyers was the hybrid adjustable rate mortgage (ARM), which featured a low introductory interest rate that reset upward after a preset period of time. Interest rates began a steady upward trend beginning in late 2004. In 2006, some \$300 billion worth of adjustable ARMs were reset to higher rates. In a market with rising home values, a borrower has the option to refinance the mortgage, using some of the equity created by the home’s increasing value to reduce the mortgage payment. But after 2006, home prices started a 3-year slide, so refinancing was not an

option for many subprime borrowers. Instead, borrowers in trouble could try to convince their lenders to allow a “short sale,” in which the borrower sells the home for whatever the market will bear, and the lender agrees to accept the proceeds from that sale as settlement for the mortgage debt. For lenders and borrowers alike, foreclosure is the last, worst option.

► As a reaction to problems in the subprime area, lenders tightened lending standards. What effect do you think this had on the housing market?

FINDING INTEREST OR GROWTH RATES

It is often necessary to calculate the compound annual interest or *growth rate* (that is, the annual rate of change in values) of a series of cash flows. Examples include finding the interest rate on a loan, the rate of growth in sales, and the rate of growth in earnings. In doing this, we again make use of Equation 5.4. In this case, we want to solve for the interest rate (or growth rate) representing the increase in value of some investment between two time periods. Solving Equation 5.4 for *r* we have