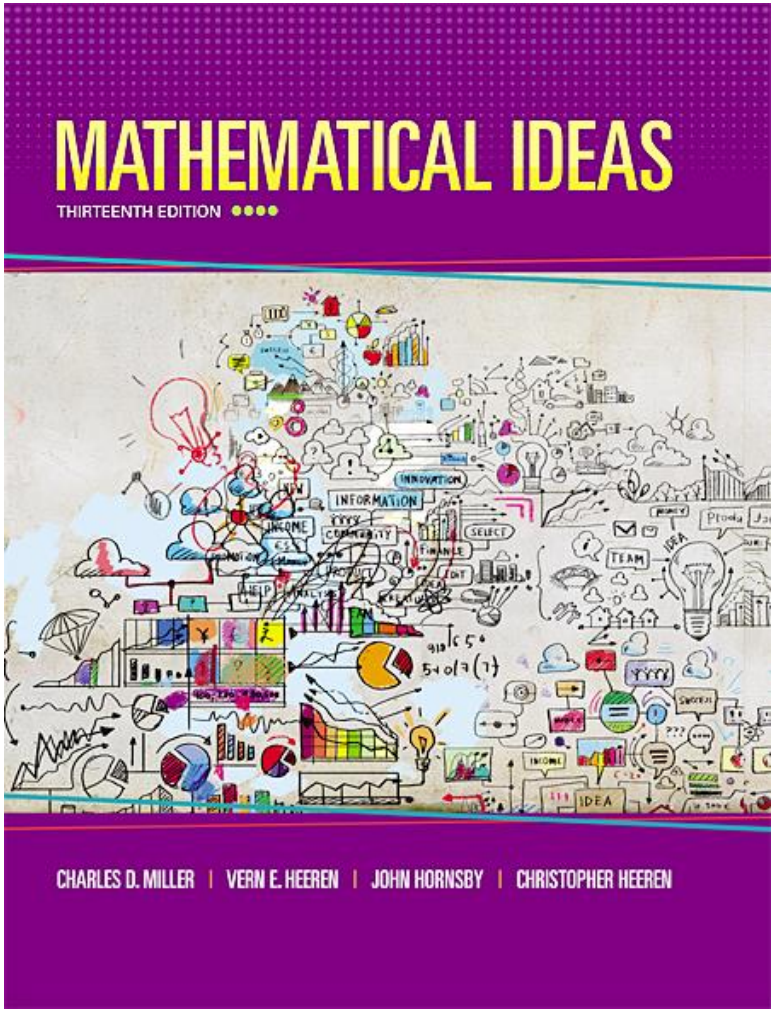
Chapter 7

Personal Financial Management



Chapter 7: Personal Financial Management

7.1 The Time Value of Money

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Section 7-4

The Costs and Advantages of Home Ownership

The Costs and Advantages of Home Ownership

- Understand the characteristics of fixed rate mortgages.
- Understand the characteristics of adjustable-rate mortgages.
- Be familiar with the closing costs associated with mortgages.
- Be familiar with the recurring costs of home ownership.

Fixed-Rate Mortgages

A loan for a substantial amount, extending over a lengthy time interval, for the purpose of buying a home or other property or real estate, and for which property is pledged as security for the loan, is called a **mortgage**. (A mortgage may also be called a **deed of trust** or a **security deed**.)

Fixed-Rate Mortgages

- The time until the final payoff is called the **term** of the mortgage.
- The portion of the purchase price of the home which the buyer pays initially is called the **down payment**.
- The **principal amount of the mortgage** (amount borrowed) is found by subtracting the down payment from the purchase price.

Fixed-Rate Mortgages

With a **fixed-rate mortgage**, the interest rate will remain constant throughout the term, and the initial principal balance, together with interest due on the loan, is repaid to the lender through regular (constant) periodic (we assume monthly) payments. This is called **amortizing** the loan.

Regular Monthly Payment

The **regular monthly payment** required to repay the loan of P dollars, together with interest at an annual rate r, over a term of t years, is given by

$$R = \frac{P\left(\frac{r}{12}\right)}{1-\left(\frac{12}{12+r}\right)^{12t}}.$$

Example: Monthly Mortgage Payment

Find the monthly payment necessary to amortize an $80,000 mortgage at 6% annual interest for 25 years.

Solution

$$R = \frac{P\left(\frac{r}{12}\right)}{1-\left(\frac{12}{12+r}\right)^{12t}} = \frac{\$80,000\left(\frac{0.06}{12}\right)}{1-\left(\frac{12}{12+0.06}\right)^{12(25)}} = \$515.44.$$

Regular Monthly Payment

Another approach to find the monthly payment is to use a tool such as table 7 on page 734.

Using the information from the last example, we find the intersection of the 6% row and the 25 year column, which is $6.44301.

Multiply that number by the number of $1000s for our loan, which is 80:

80($6.44301) = $515.44.

Amortization Schedule

Once the regular monthly payment has been determined, an **amortization schedule** (or **repayment schedule**) can be generated. It will show the allotment of payments for interest and principal, and the principal balance, for one or more months during the life of the loan.

Example: Amortization Schedule

Using the information from the last example, fill in the table (monthly payment $515.44).

Payment	Interest Payment	Principal Payment	Balance of Principal
			$80,000
1			
2			

Example: Amortization Schedule

Solution

The monthly interest = (balance)(.06/12).

Principal payment = $515.44 – interest payment.

Payment	Interest Payment	Principal Payment	Balance of Principal
			$80,000
1	$400	$115.44	$79884.56
2	$399.42	$116.02	$79768.54

Adjustable-Rate Mortgages

An **adjustable-rate mortgage (ARM)**, also known as a **variable-rate mortgage (VRM)**, generally starts out with a lower rate than similar fixed-rate loans, but the rate changes periodically, reflecting changes in prevailing rates.

Adjustable-Rate Mortgages

Your ARM interest rate may change every 1, 3, or 5 years. The frequency of change in rate is called the **adjustment period**. When the rate changes, your payment changes, too. These adjustments are caused by fluctuations in an **index** upon which your rate is based.

Adjustable-Rate Mortgages

To determine your interest rate, the lender will add to the applicable index a few percentage points called the **margin**. The index and margin are both used in determining the cost of the loan.

Example: ARM

Suppose that for a $120,000 house loan, you take out a 1-year ARM for 30 years. The lender uses the 1-year Treasury index (previously 4.5%) and a 2% margin. Find your monthly payment for the first year.

Solution

The first-year rate will be the Index rate + Margin

= 4.5% + 2% = 6.5%.

Example: ARM

Solution (continued)

Look up 6.5% for a 30-year loan in the table and find a payment of $6.32068 per $1000.

So the monthly payment is
($6.32068)(120) = $758.48.

Adjustable-Rate Mortgages

Sometimes initial rates offered on an ARM are less than the sum of the index and the margin. Such a **discount** often is the result of the seller paying the lender an amount in order to reduce the buyer's initial interest rate. The arrangement is called a "seller buydown."

Adjustable-Rate Mortgages

An **interest rate cap** limits the amount your interest rate can increase. A **periodic cap** limits how much the rate can increase from one adjustment period to the next (typically about 1% per 6 months or 2% per year). An **overall cap** limits how much the rate can increase over the life of the loan.

Adjustable-Rate Mortgages

Some ARMs also have **payment caps**, which limit how much the payment can increase at each adjustment. Because of the cap, it is possible that your payment may not even cover the interest owed. You may then find yourself owing more principal at the end of the adjustment period than you did at the beginning. This situation is called **negative amortization**.

Adjustable-Rate Mortgages

Another way to reduce risk is with a **convertibility** feature. This allows you to convert the mortgage to a fixed-rate mortgage.

If you think you may want to completely, or partially, pay off the principal of the loan ahead of schedule, try to negotiate an ARM with no **prepayment penalty**.

Closing Costs

There are some significant one-time expenses that apply to both fixed-rate and adjustable-rate mortgages and are paid when the mortgage is originally set up. Together, these charges are called **closing costs** (or **settlement charges**). The **closing,** or **settlement,** occurs when all the details of the transaction have been determined and the final contracts are signed.

Example: Closing Costs

For a $85,000 mortgage, the borrower was charged the following closing costs.

Loan origination fee (1% of mortgage)	$_____
Broker loan fee	$1640
Lender document and underwriting fees	$350
Lender tax and wire fees	$210
Fee to title company	$225
Title insurance fee	$320
Title reconveyance fee	$70
Document recording fee	$40

Compute the total closing costs for this mortgage.

Example: Closing Costs

Solution

Loan origination fee (1% of mortgage amount)

= ($85000)(0.01) = $850

The total sum = $3,705.

Points

"Loan origination fees" are commonly referred to as **points**. Each "point" amounts to 1% of the mortgage amount. By imposing points, the lender can raise the interest rate without raising the monthly payments (because points are typically paid at closing).

Taxes, Insurance, and Maintenance

The primary financial considerations for most new homeowners are the following.

1. Accumulating the down payment
2. Having sufficient cash and income to qualify for the loan
3. Making the mortgage payments

Taxes, Insurance, and Maintenance

Property taxes are collected by your county or local government. Property taxes, and also mortgage interest, are deductible on your income taxes.

Homeowner's insurance usually covers losses due to fire, storm damages, and other casualties.

Homes also require **maintenance**, but these costs can vary greatly.

Example: Taxes and Insurance

A couple has a 25-year, $175,000 fixed-rate loan at 7%. In addition, they owe $2800 in annual taxes and $750 annually for homeowner's insurance. What is their net average monthly expenditure?

Solution

The monthly mortgage payment is $1236.86. The added monthly expense from taxes and insurance = ($2800 + $750)/12 = $295.83. This gives a total net average monthly expenditure of $1532.69.

Taxes, Insurance, and Maintenance

Payments of property taxes and homeowner's insurance are commonly made from a **reserve account** (also called an **escrow** or an **impound account**) maintained by the mortgage lender. The borrower must pay enough each month, along with amortization costs, so that the reserve account will be sufficient to make payments when they come due.

Collaborative project

Complete the worksheet with a team/partner.