CHAPTER

Purchasing and Financing a Home

9

Jeff and Julie Stockwell moved into an apartment while Julie pursued her graduate degree. Because money was tight and their future work location was uncertain, they decided to rent. Three years later when Julie earned her degree, the Stockwells discovered that both of them could pursue their careers right where they were. For the first year, their rent was $550 per month. It was $570 in year two and $590 in year three. A quick calculation showed that if rent continued to escalate by $20 per year, rent would be $1,190 in thirty years. A house with the same amount of space as their apartment would cost about $100,000. And in thirty years they would own the house. They decided to buy a house shortly after Julie received her first job after graduating.

Tim and Becky Remington moved to town in the same year that Julie returned to college. Tim and Julie were in the same graduate program. Tim firmly believed that home ownership was better than renting, so they bought a house immediately after moving into town. They paid $5,000 down and borrowed $99,000 for a home for which they paid $104,000. Their total monthly mortgage payment was $775.

When Tim graduated, he was offered a job several states away. Since the job offer was too good to refuse, the Remingtons put their house on the market for $110,000. Because the home did not sell quickly enough, they lowered their price to $105,000, at which point they found a buyer. Tim and Becky were surprised to find out, however, that the seller pays the real estate agent's commission, which was 6 percent of the selling price. After paying the $6,300 commission and $700 in other selling expenses, they netted $98,000. With $95,532 still owed on the mortgage, the Remingtons were left with $2,468 of their original $5,000 investment.

Buying your first home is an important personal financial decision due to the long-term and costly nature of the investment. Given the changes in the job market, it may not be the only home you buy. Your decision on how much to spend and how much to finance will affect your cash flows for years. Home ownership can be rewarding both financially and emotionally. Much of a family's wealth is tied to the value of their home. If not done appropriately, home ownership can be an expensive short-term investment. This chapter describes the fundamentals of purchasing a home and will help you evaluate your first home purchase.

The objectives of this chapter are to:

- explain how to select a home to purchase,
- explain how to conduct a valuation of a home,
- describe the transaction costs of purchasing a home,
- identify the characteristics of a fixed-rate mortgage,
- describe the characteristics of an adjustable-rate mortgage,
- show how to compare the costs of purchasing versus renting a home, and
- explain the mortgage refinancing decision.

SELECTING A HOME

Buying a home may be the single biggest investment you will ever make, so the decision should be taken very seriously. You should carefully consider several factors. Evaluate the homes for sale in your target area to determine the typical price range and features. Once you decide on a realistic price range and identify

a specific home that you desire, you can compare the cost of buying that home to the cost of renting. In this way, you can weigh the extra costs against the benefits of home ownership.

An alternative to purchasing a house is to purchase a condominium. In a condominium, individuals own units of a housing complex, but jointly own the surrounding land and common areas (such as parking lots) and amenities (such as a swimming pool). The benefits of a condominium are somewhat different from those of a house. Whereas a house is detached, units in a condominium are typically attached, so there is less privacy. Condominium expenses are shared among unit owners, while the owners of a house pay for expenses on their own. Nevertheless, the factors to be considered when selecting or financing a house are also relevant when purchasing a condominium. Thus, the following discussion will use *home* rather than *house* to indicate that it also applies to a condominium.

Relying on a Realtor

You may consider advice from a real estate broker when you assess homes, decide whether to buy a home, or determine which home to purchase. Yet you should not rely completely on the advice of real estate brokers because they have a vested interest: they earn a commission only if you purchase a home through them. You should consider their input, but make decisions that meet your needs and preferences. A good real estate broker will ask you about your preferences and suggest appropriate homes.

When selecting a home, you should first determine how much money you can afford to pay per month for a mortgage based on your budget. Once you remove homes from consideration that are too expensive, you should use various criteria to evaluate the homes that you are still considering.

Using Online Realtor Services

Increasingly, online services are being used to facilitate home purchases. Web sites such as zipRealty.com allow sellers to present detailed information about their home in a database that is made accessible to potential home buyers. These types of Web sites are sometimes limited to particular cities. The realty company sponsoring the Web site may provide services to complete a contract, and the commission for using the online service is less than the traditional commission charged by real estate agents.

Other online services allow sellers to list their home in a database, without providing other real estate–related services. The contract would have to be completed by the buyer and seller without the help of a realtor. The advantage of this type of service is that it charges lower commissions than the traditional full-service real estate company. Some of these online services are actually subsidiaries of the traditional full-service real estate companies. For example, Blue Edge Realty (blueedge.com) is a subsidiary of Coldwell Banker Real Estate Corporation. Customers who want full-service real estate services can rely on Coldwell

"You see that dark, spooky image on the screen? That's your credit history coming back to haunt you."

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Banker, while customers who primarily want to list their home for potential buyers can use Blue Edge Realty.

How Much Can You Afford?

Most individuals pay for a home with a down payment (perhaps 10 to 20 percent of the purchase price) and obtain a mortgage loan to finance the rest. You will pay monthly mortgage payments over the life of the loan. Mortgage loan lenders determine how much money they will lend you based on your financial situation and credit history. Various Web sites can estimate the maximum value of a home you can afford based on your financial situation (such as your income and your net worth).

Affordable Down Payment. You can determine your maximum down payment by estimating the market value of the assets that you are willing to convert to cash today for a down payment and for transaction costs (such as closing costs) when obtaining a mortgage. Be sure to maintain some funds for liquidity purposes to cover unanticipated bills.

9.1 Financial Planning Online: How Much Money Can You Borrow?

Go to:
http://www.calcbuilder.com/cgi-bin/calcs/HOM1.cgi/excite

This Web site provides:
an estimate of how much money you could borrow to finance a home, based on your income and other financial information.

Netscape: How much can I borrow?

How much can I borrow?

Inputs | Results | Graphs | Help

Monthly income

Wages before taxes or deductions	$	4,000
Investment income before taxes	$	0
Income from rental properties	$	0
Other income	$	0

Monthly payments *

Auto loans	$	300
Student loans	$	100
Rental property loans ($0 if refinancing)	$	0
Other payments	$	0

* Include only loans that won't be paid off in 10 months

Other debts

Monthly alimony, child support or other	$	0

Affordable Monthly Mortgage Payments. How large a mortgage payment can you afford? Refer to your cash flow statement to determine how much net cash flow you have to make a mortgage payment. If you purchase a home, you will no longer have a rent payment, so that money can be used as part of the mortgage payment. You should also be aware, however, that owning a home entails some periodic expenses (such as property taxes, homeowner's insurance, and home repairs). You should not plan to purchase a home that will absorb all your current excess cash inflows. The larger your mortgage payments, the less you can add to your savings or other investments.

EXAMPLE

Stephanie Spratt just received an unexpected bonus and a promotion from her employer. After assessing her financial situation, she decides that she may want to purchase a home in the near future. She has about $15,000 in liquid assets for use toward a down payment or transaction costs. She evaluates her personal cash flows. Since she would no longer need to pay rent for her apartment, she can afford to allocate $900 a month to monthly mortgage payments. She begins to look at homes for sale in the range of $70,000 to $85,000. Once she identifies a home that she may want to purchase, she will obtain estimates of the required down payment, the transaction costs, and the mortgage payment.

Criteria Used to Select a Home

The most important factors to consider when selecting a home are identified here:

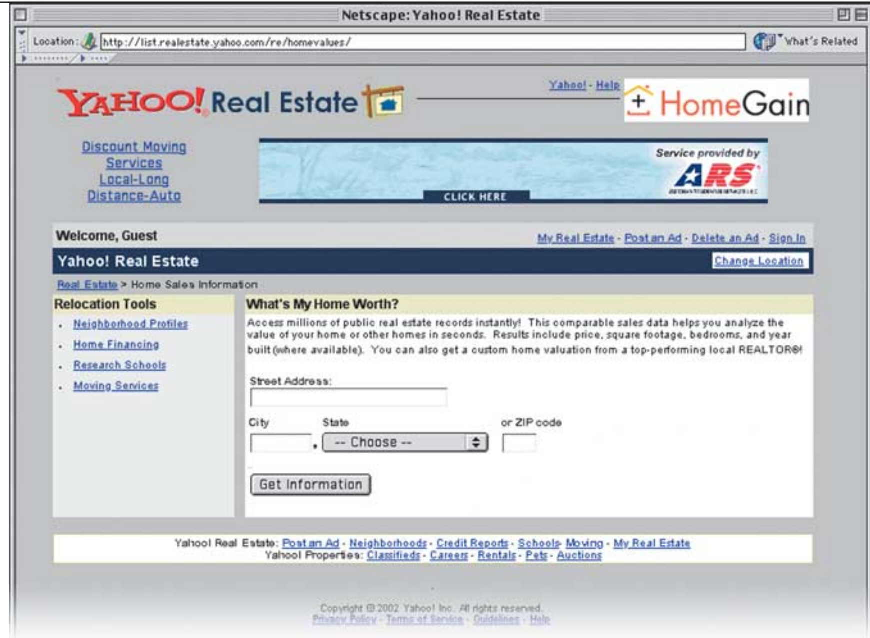
- **Price.** Stay within your budget. Avoid purchasing a home that you cannot afford. Although your favorite may have ample space and a large yard, it may not be worth the stress of struggling to make the mortgage payments.
- **Convenient Location.** Focus on homes in a convenient area so that you can minimize commuting time to work or travel time to other activities. You may save 10 or more hours of travel time a week.
- **Maintenance.** Some homes built by well-known construction companies have lower repair bills than others. In addition, newer homes tend to need fewer repairs than older homes. A home with a large yard requires more maintenance.

  In condominiums, residents share common areas, such as a swimming pool or tennis court. The residents normally pay a fixed monthly fee to cover the costs of maintaining the common areas. In addition, they may be assessed an extra fee to maintain the structure of the condominium, such as a new roof or other repairs.

9.2 Financial Planning Online: Recent Sales Prices of Nearby Homes

Go to:
http://realestate.yahoo.com/re/homevalues/

This Web site provides:
sales prices of homes on a street in a city that you specify over a recent period. It can also provide a list of homes in the city you specify that sold within a certain price range.



- **School System.** If you have children, the reputation of the school system is very important. Even if you do not have children, the resale value of your house benefits from a good school system.
- **Insurance.** When you own a home, you need to purchase homeowner's insurance, which covers the home in case of burglary or damage. The cost of insurance varies among homes. It is higher for more expensive homes and for homes in high-risk areas (such as flood zones) because it costs the insurer more to replace parts of the home that are damaged.
- **Taxes.** Taxes are imposed on homes to pay for local services, such as the local school system and the local park system. Taxes vary substantially among locations. Annual property taxes are often between 1 and 2 percent of the market value of the home. Thus, the tax on a $100,000 home is typically between $1,000 and $2,000 per year. Property taxes are tax-deductible if you itemize deductions on your income tax form. You can deduct them from your income when determining your federal income tax.
- **Homeowner's Association.** Some homes are connected with homeowner's associations, which set guidelines for the homes and may even assess fees that are used to hire security guards or to maintain common grounds within the area. The monthly fees charged by some homeowner's associations are very high and should be considered when buying a home.

9.3 Financial Planning Online: Listing of Homes Nearby for Sale

Go to:
http://www.realtor.com

This Web site provides:
a listing of homes for sale in an area that you specify and homes in the price and size range that you specify.

- **Resale Value.** The resale value of a home is highly dependent on its location. Most homes with similar features within a specific subdivision or neighborhood are in the same range. Although home prices in a given subdivision tend to increase at a similar rate, the general rate of increase can vary substantially among subdivisions. For example, homes in a subdivision within walking distance of a school may be worth more than comparable houses several miles from the school.

  You cannot perfectly predict the future resale value of a home, but you can evaluate today's resale value of similar homes in that location that were sold years ago. Information about home prices is provided on numerous Web sites. Be aware, however, that the rate of increase in home prices in previous years does not necessarily serve as a good predictor of the future.

  Keep in mind that when you use a realtor to sell a home (as most people do), you will pay the realtor a commission that is usually about 6 percent of the selling price. Thus, if you resell your home for $100,000, you will probably pay a commission of about $6,000 and therefore receive $94,000. The buyer of a home does not pay commissions.

- **Personal Preferences.** In addition to the general criteria described above, you will have your own personal preferences regarding such features as the number of bedrooms, size of the kitchen, and size of the yard.

Focus on Ethics: Disclosing Defects

For both the buyer and seller, the sale of a home is stressful due to the large amount of money involved. Concerns about unethical behavior only add to the tension. For example, there are many cases of sellers of homes who did not disclose problems (such as a leaky roof or cracked foundation).

As a seller, by law most states require that you fully disclose any defect that may affect the value of the home. In addition to being the legal thing to do, disclosure is the moral thing to do. You would hope that a seller would be completely honest with you, so you should treat the potential buyer in the manner that you wish to be treated. And if any problem arises shortly after you sell a house, the buyer can sue you for any misrepresentations.

VALUATION OF A HOME

You should use the criteria described previously to screen your list of desirable homes so that you can spend time analyzing the advantages and disadvantages of three or four particular homes. You will probably find some homes that meet all your criteria, but are simply overpriced and therefore should not be purchased.

Market Analysis

market analysis
An estimate of the price of a home based on the prices of similar homes in the area.

You can conduct a market analysis, in which you estimate the price of a home based on the prices of similar homes in the area. The market value can be estimated by multiplying the number of square feet in a home by the average price per square foot of similar homes in the area. A real estate broker or appraiser may also provide you with a valuation.

EXAMPLE

Stephanie Spratt finds the selling prices of three other homes in the same area, with a similar lot size, and about the same age as the home that she wants to purchase. The purchase prices are shown in the second column of Exhibit 9.1.

She recognizes that the homes in an area vary in price due to their size. She determines the price per square foot by dividing each home's price by the square feet, as shown in the third column. Then she determines that the average price per square foot of the three homes is $64, as shown at the bottom of the exhibit.

Since the home that Stephanie wants to purchase has 1,300 square feet, she estimates its market value to be:

$$\begin{aligned}\text{Market Value of Home} &= \text{Average Price per Square Foot} \times \text{Square Feet of Home}\\ &= \$64 \times 1{,}300\\ &= \$83{,}200.\end{aligned}$$

She estimates the price of this home at $83,200. Although she will consider other factors, this initial analysis gives her some insight into what the home is worth. For example, the real estate broker told her that the owner of the home has already

moved and wants to sell it quickly. Stephanie considers making an offer of $80,000, but she first needs to determine the costs that she will incur as a result of purchasing the home.

Exhibit 9.1 Using a Market Analysis to Purchase a Home

House Size	Price	Price per Square Foot
1. 1,200 square feet	$78,000	$78,000/1,200 = $65
2. 1,300 square feet	$87,100	$87,100/1,300 = $67
3. 1,100 square feet	$66,000	$66,000/1,100 = $60
Average price per square foot = ($65 + $67 + $60)/3 = $64		

Effects of Business Activity and Zoning Laws

The value of a home is also dependent on the demand for homes in that area or subdivision, which can vary in response to business activity or zoning laws.

Business Activity Nearby. When a large firm moves into an area, people hired for jobs at that firm search for homes nearby. As a result, demand for homes in the area increases, and home prices may rise as well. Conversely, when a large firm closes its facilities, home prices in that area may decline as homeowners who worked there attempt to sell their homes. The large supply of homes for sale relative to demand may cause homeowners to lower their price in order to find a willing buyer.

Zoning Laws. Locations are zoned for industrial use or residential use. When zoning laws for a location change, its desirability may be affected. Homes near areas that have just been zoned for industrial use become less desirable. Therefore, the demand for homes in these areas may decline, causing prices of homes to decline as well.

Zoning laws also change for school systems. The value of a subdivision can change substantially in response to a change in the public schools that the resident children would attend. Proximity to schools can increase home values, while increased distance from schools often lowers home values.

Obtaining a Second Opinion on Your Valuation

If your valuation leads you to believe that a particular home is undervalued, you may want to get a second opinion before you try to purchase that home. If you are using a real estate broker to help you find a home, that broker may conduct a valuation of the home and offer suggestions about the price that you should be willing to offer. Be aware, however, although brokers are experienced at valuing homes, some brokers provide a valuation that is intended to serve the seller rather than the buyer. That is, they may overestimate the value, so that potential buyers are convinced that the home is worth buying. In this way, the

brokers can ensure that a home is sold and that they receive a commission. Although many real estate brokers are honest and will provide an unbiased estimate, you should always conduct your own valuation and carefully assess the broker's valuation.

Negotiating a Price

Once you have finished your valuation and are convinced that you should buy a particular home, you need to negotiate a price with the seller of the home by making an offer. Some homes are initially priced above the price that the seller will accept. As with any investment, you want to make sure that you do not pay more than you have to for a home.

You may consider the advice of your real estate broker on the offer that you should make. Most sellers are willing to accept less than their original asking price. Once you decide on an offering price, you can submit an offer in the form of a contract to buy the home, which must be approved by the seller. Your real estate broker takes the contract to the seller and serves as the intermediary between you and the seller during the negotiation process.

The seller may accept your offer, reject it, or suggest that you revise it. If the asking price is $100,000, and you offer $90,000, the seller may reject that offer but indicate a willingness to accept an offer of, say, $96,000. Then the decision reverts back to you. You can agree, reject that offer, or revise the contract again. For example, you may counter by offering $94,000. The contract can go back and forth until the buyer and seller either come to an agreement or decide that it is no longer worthwhile to pursue a possible agreement. The contract stipulates not only the price, but also other conditions that are requested by the buyer, such as repairs to be completed by the seller and the date when the buyer will be able to move into the home.

TRANSACTION COSTS OF PURCHASING A HOME

Once you have started the offer process, you should begin applying for a mortgage from a financial institution. The loan application process requires that you summarize your financial condition, including your income, your assets, and your liabilities. You will need to provide proof of income, such as recent paycheck stubs and bank statements. The lender will check your financial condition by contacting your employer to verify that you are still employed and to learn your present salary.

In addition to applying for a mortgage, you will need to plan to cover the transaction costs of purchasing the home. These include the down payment and closing costs.

Down Payment

When you purchase a home, you use your money to make a down payment and pay the remaining amount owed with financing. Your down payment represents your equity investment in the home.

9.4 Financial Planning Online: Applying for a Mortgage

Go to:
http://www.loanweb.com

Click on:
"loan type" under "start here" and complete area code and state.

This Web site provides:
access to mortgage applications, and a guide for assessing whether to refinance a mortgage.

For a conventional mortgage, a lender typically requires a down payment of 10 to 20 percent of the home's selling price. The lender expects you to cover a portion of the purchase price with your own money because the home serves as collateral to back the loan. The lending institution bears the risk that you may possibly default on the loan. If you are unable to make your mortgage payments, the lender can take ownership of the home and sell it to obtain the funds that you owe.

If the home's value declines over time, however, a creditor may not obtain all the funds that it initially lent. Your down payment provides a cushion in case the value of the home declines: the lender could sell the home for less than the original purchase price and still recover all of the mortgage loan.

With government-backed loans, a traditional lender extends the loan, but the government insures it in the event of default. Government-backed mortgages may require lower down payments and may even specify lower interest rates than conventional mortgages. Government-backed mortgages are often backed by the Federal Housing Administration (FHA) or the Veterans Administration (VA). To qualify for federally insured mortgages, borrowers must satisfy various requirements imposed by the guarantors. The FHA loans enable low- or middle-income individuals to obtain mortgage financing. The VA loans are extended to military veterans. Both FHA and VA loans are assumable in the event that the homeowner who initially qualified for the mortgage loan decides to sell the home.

Closing Costs

A borrower incurs various fees in the mortgage loan application process. These fees are often referred to as closing costs. The most important fees are identified here.

Loan Application Fee. When applying for a mortgage loan, you may be charged an application fee by the lender. The fee typically ranges from $100 to $500.

points
A fee charged by the lender when a mortgage loan is provided; stated as a percentage of the purchase price.

Points. Lenders often charge a fee that is commonly referred to as points. Points are stated as a percentage of the purchase price. Many lenders charge between 1 and 2 percent of the mortgage loan. If you are charged 2 points when you obtain a mortgage in the amount of $100,000, a fee of $2,000 (computed as 2% × 100,000) is charged at the time the loan is granted. Points are tax-deductible, so the expense can be deducted from your income when determining your taxable income.

Loan Origination Fee. Lenders may also charge a loan origination fee, which is usually 1 percent of the mortgage amount. If you are charged a 1 percent origination fee on a $100,000 mortgage, the fee is $1,000 (computed as 1% × $100,000). Many lenders allow homeowners to select among different fee structures, so you may be able to pay a lower loan origination fee if you accept a slightly higher interest rate. Some lenders may not charge an origination fee, but instead charge a higher interest rate on the mortgage.

Appraisal Fee. An appraisal is used to estimate the market value of the home and thus protects the financial institution's interests. If you are unable to make your monthly payments, the financial institution can sell the home to recoup the mortgage loan that it provided. The appraisal fee commonly ranges between $200 and $500.

Title Search and Insurance. An agreement to purchase a home from a current owner (as opposed to a new home from a developer) typically involves various transaction costs for a title search and insurance. A title search is conducted by the mortgage company to ensure that the home or property is owned by the seller. Title insurance provides you with protection in the event that persons other than the seller show evidence that they hold the actual deed of ownership to the property. It also protects you in the event that there are other liabilities attached to the home that were not discovered during the title search.

EXAMPLE

Recall that Stephanie Spratt is considering making an offer of $80,000 on a house. She wants to determine what her transaction costs would be. She is planning to make a down payment of $8,000 and borrow $72,000. She called York Financial Institution for information on obtaining a mortgage loan. She learned that if she applied for a $72,000 mortgage, York would charge the following:

- 1 point
- 1 percent origination fee
- $300 for an appraisal
- $200 application fee
- $400 for a title search and title insurance
- $200 for other fees

Thus, the total closing costs would be:

Points	(1% × $72,000)	$720
Origination Fee	(1% × $72,000)	720
Appraisal Fee		300
Application Fee		200
Title Search and Insurance		400
Other Fees		200
Total		$2,540

Stephanie will need a down payment of $8,000 and $2,540 in closing costs to purchase the home.

Both the closing costs and the down payment are due after the offer for the home has been accepted at the time of the closing. During the closing, the title for the home is transferred to the buyer, the seller is paid in full, and the buyer takes possession of the home.

CHARACTERISTICS OF A FIXED-RATE MORTGAGE

A mortgage loan is most likely the biggest loan you will ever obtain in your lifetime. The terms for mortgages vary. You will need to decide whether to obtain a fixed-rate or adjustable-rate mortgage and what the maturity of the mortgage should be. Traditionally, mortgages had a fixed interest rate and a maturity of 30 years. A fixed-rate mortgage specifies a fixed interest rate that is constant for the life of the mortgage. When homeowners expect that interest rates will rise, they tend to prefer fixed-rate mortgages because their mortgage payments will be sheltered from the rising market interest rates. Many other types of mortgages are available, but the traditional fixed-rate 30-year mortgage is still popular. You can access various Web sites to obtain a general summary of prevailing mortgage rates, but rates vary among financial institutions. If you sell a home before the mortgage is paid off, you can use a portion of the proceeds from selling the home to pay off the mortgage. Alternatively, it may be possible for the buyer to assume your mortgage under some conditions.

fixed-rate mortgage
A mortgage in which a fixed interest rate is specified until maturity.

9.5 Financial Planning Online: Average Mortgage Rates

Go to:
http://biz.yahoo.com/b/r/m.html

This Web site provides:
national averages for mortgage rates, as well as average mortgage rates for specific regions and states.

Netscape: Yahoo! Mortgage Rates

Location: http://biz.yahoo.com/b/r/m.html

YAHOO! FINANCE Search - Finance Home - Yahoo! - Help Bankrate.com

LowestMortgage.com Mortgage Center

Purchase | Refinance | Debt Consolidation | Home Equity

Mortgage Rates

Loan Center > Mortgage > Mortgage Rates

National Mortgage Rates — Updated as of Thu Oct 17, 8:10am EST

Type	Range	Rate	Points	APR
	Minimum	4.50%	1.00	4.37%
30 - Year Fixed	Average	5.84%	1.18	6.01%
	Maximum	3.25%	0.00	6.22%
	Minimum	4.50%	1.00	4.37%
15 - Year Fixed	Average	5.27%	1.01	5.52%
	Maximum	3.25%	0.00	6.22%
	Minimum	4.50%	1.00	4.37%
1 - Year ARM	Average	4.18%	0.80	4.69%
	Maximum	3.25%	0.00	6.22%

Rates by Metro Region

- Akron
- Albany
- Allentown - Bethlehem
- Ann Arbor
- Fairfield County
- Fort Wayne
- Ft Lauderdale
- Grand Rapids
- Orange County
- Orlando
- Philadelphia
- Phoenix - Mesa

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Loan Finder

- Purchase
- Refinance
- Home Equity
- FHA Loans
- VA Loans

Today's Rates

Amortization Table

Your monthly mortgage payment for a fixed-rate mortgage is based on an amortization schedule. This schedule discloses the monthly payment that you will make, based on a specific mortgage amount, a fixed interest rate level, and a maturity.

Allocation of the Mortgage Payment. Each monthly mortgage payment represents a partial equity payment that pays a portion of the principal of the loan and an interest payment.

EXAMPLE

Stephanie Spratt decides to review mortgage Web sites to estimate her monthly mortgage payments. One Web site asks her to input the mortgage amount she desires and the interest rate that she expects to pay on a 30-year mortgage. She inputs $72,000 as the amount and 8 percent as the interest rate. The Web site then provides her with an amortization schedule, which is summarized in Exhibit 9.2. This exhibit shows how her mortgage payments would be allocated to paying off principal versus interest. Notice how the initial payments are allocated mostly to interest, with a relatively small amount used to pay off the principal. For example, for month 2, $49 of her payment is applied to the principal, while $479 goes to pay the interest expense. Initially, when the amount of principal is large, most of her payment is needed to cover the interest owed. As time passes, the proportion of the payment allocated to equity increases. Notice that by month 360, $525 of the payment is applied to principal and $3 to interest.

Notice, too, that her balance after 100 months is $65,163. This means that over a period of more than eight years, Stephanie would pay off less than $7,000 of the equity in her home, or less than 10 percent of the original mortgage amount. After 200 months (two-thirds of the life of the 30-year mortgage), her mortgage balance would be almost $52,000, which means she would have paid off about $20,000 of the $72,000 mortgage.

Exhibit 9.2 Amortization Schedule for a 30-Year (360-Month) Fixed-Rate Mortgage for $72,000 at an 8 Percent Interest Rate

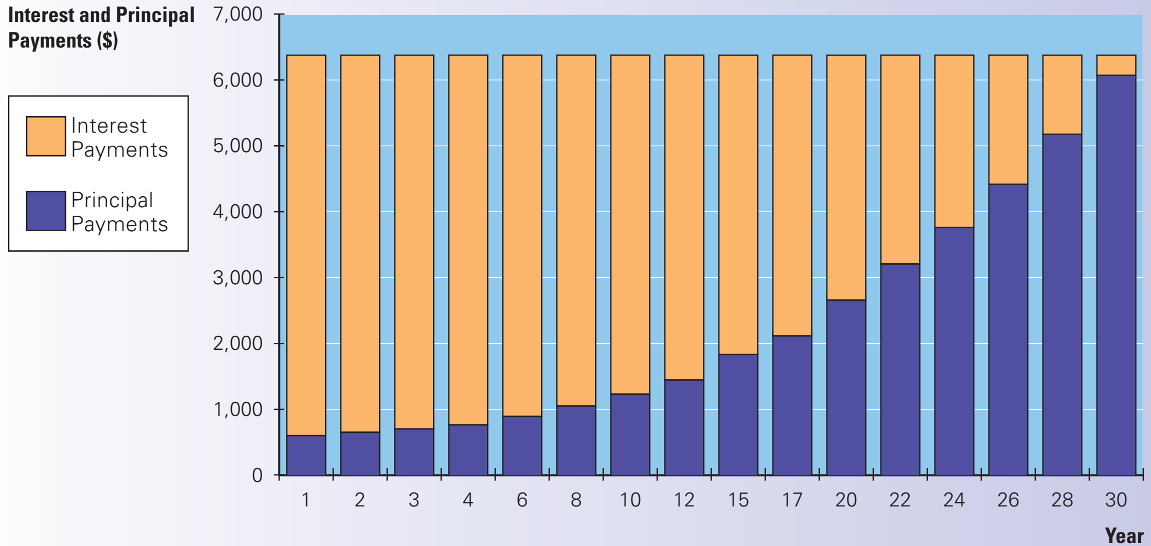
Month	Payment	Principal	Interest	Balance
1	$528	$48	$480	$71,952
2	528	49	479	71,903
10 • • •	528	51	477	71,502
25 • • •	528	57	472	70,691
49 • • •	528	66	462	69,211
100 • • •	528	93	435	65,163
200 • • •	528	181	347	51,877
360	528	525	3	0

Note: Numbers are rounded to the nearest dollar.

The amount of Stephanie's annual mortgage payments that would be allocated to paying off the principal is shown in Exhibit 9.3. In the first year, she would pay off only $601 of the principal, while the rest of her mortgage payments ($5,738) in the first year would be used to pay interest. This information is very surprising to Stephanie, so she reviews the mortgage situation further to determine if it is possible to build equity more quickly.

Exhibit 9.3 Allocation of Principal versus Interest Paid per Year on a $72,000 Mortgage

Year	Principal Paid in That Year	Interest Paid in That Year
1	$601	$5,738
2	651	5,688
3	705	5,634
4	764	5,576
6	896	5,444
8	1,051	5,289
10	1,233	5,107
12	1,446	4,894
15	1,836	4,503
17	2,154	4,186
20	2,736	3,603
22	3,209	3,131
24	3,764	2,576
26	4,415	1,925
28	5,178	1,161
30	6,073	266



9.6 Financial Planning Online: Estimating Mortgage Payments

Go to:
http://www.bloomberg.com/analysis/calculators/mortgage.html

This Web site provides:
the monthly payment on a mortgage based on the loan amount, interest rate, and the loan maturity.

Impact of the Mortgage Amount on the Monthly Payment

The larger the mortgage amount, the larger your monthly payments will be for a given interest rate and maturity. Exhibit 9.4 shows the monthly payment based on a 30-year mortgage and an 8 percent interest rate for different mortgage amounts. Notice the change in the mortgage payment for larger mortgage amounts. For example, the monthly mortgage payment for a $90,000 mortgage is $660, while the monthly payment for a $100,000 mortgage is $734.

Exhibit 9.4 Monthly Mortgage Payments Based on Different Mortgage Amounts (30-Year Fixed-Rate Mortgage; 8 Percent Interest Rate)

Mortgage Amount	Monthly Mortgage Payment
$60,000	$440
70,000	513
80,000	587
90,000	660
100,000	734
110,000	807
120,000	880

9.7 Financial Planning Online: Should You Obtain a 15-Year or a 30-Year Mortgage?

Go to:
http://partners.financenter.com/abcnews/consumer/calculate/us-eng/home06.fcs

This Web site provides:
a comparison of payments that you would make on a 15-year versus a 30-year mortgage on a particular home. It also estimates the amount of additional payments you would make with a 30-year mortgage rather than a 15-year mortgage.

Netscape: Which is better: 15- or 30-year loan term?

Which is better: 15- or 30-year loan term?

Inputs | Results | Graphs | Tables | Help

	Shorter term	Longer term
Interest rate	6.250 %	6.500 %
Loan amount	$ 100,00	$ 100,00
Term (years)	15	30
Discount points	1.000 %	1.000 %
Origination fee	0.00 %	0.00 %
Upfront costs	$ 1,000	$ 1,000
Your state + federal tax rate		33.80 %
Purchase price		$ 125,00
Yearly property tax		$ 2,000
Yearly property insurance		$ 200
Years before you sell or pay off loan		7

Impact of the Interest Rate on the Monthly Payment

Given the large amount of funds that you may borrow to finance a home, you should make every effort to obtain a mortgage loan that has a low interest rate. The lower the interest rate on the mortgage, the smaller the monthly mortgage payment. Even a slight increase (such as 0.5 percent) in the interest rate increases your monthly mortgage payment.

In the last decade, the 15-year mortgage has become very popular as an alternative to the 30-year mortgage. The interest rate charged on 15-year and 30-year fixed-rate mortgages is typically related to other long-term interest rates (such as the 30-year Treasury bond rate) at the time that the mortgage is created. For this reason, homeowners seek a fixed-rate mortgage when they believe that interest rates will rise in the future.

Impact of the Mortgage Maturity on the Monthly Payment

The maturity of the mortgage indicates how long you will take to complete your financing payments and pay off the mortgage. At that point, you own the home outright. The advantage of a 15-year mortgage is that you will have paid off your mortgage after 15 years, whereas a 30-year mortgage requires payments for an additional 15 years. Monthly payments on a 15-year mortgage are typically higher, but you pay less interest over the life of the loan and build equity at a faster pace.

The advantage of a 30-year mortgage is that you have smaller monthly payments for a given mortgage loan amount than you would for a 15-year mortgage. The monthly payments may be more affordable, and you may have more liquidity.

Estimating the Monthly Mortgage Payment

You can use mortgage loan Web sites to obtain estimates of your monthly payments based on a specific mortgage amount and maturity.

EXAMPLE

Stephanie Spratt wants to estimate her monthly mortgage payment on a $72,000 fixed-rate mortgage, based on several interest rate scenarios for 15- and 30-year maturities, as shown in Exhibit 9.5. At an interest rate of 7 percent, the monthly payment on the 30-year mortgage would be $479. At an interest rate of 9 percent, the monthly payment on the 30-year mortgage would be $579, or $100 more. Next, Stephanie evaluates the payments for a 15-year term. She believes she can obtain a loan at an 8 percent interest rate on either maturity, so she focuses on the difference in monthly payments pertaining to that rate.

Although the monthly payment is more for the 15-year mortgage, the difference is not as large as Stephanie expected. Given the interest rate of 8 percent, the 15-year mortgage requires a monthly payment of $688, which is $160 more than the $528 payment on the 30-year mortgage. This is the obvious disadvantage of a 15-year mortgage.

Exhibit 9.5 Comparison of Monthly Payments for a 30-Year versus a 15-Year Mortgage of $72,000 Based on Different Interest Rates

	Monthly Payment on a:	
Interest Rate	**30-Year Mortgage**	**15-Year Mortgage**
7.0%	$479	$647
7.5	503	667
8.0	528	688
8.5	554	709
9.0	579	730
9.5	605	752
10.0	632	774

Note: Payments are rounded to the nearest dollar.

The advantage is that she would pay down the mortgage sooner, meaning that she would more quickly accumulate a larger equity investment in the house. To gain more insight on this advantage, she reviews a Web site to compare the remaining loan balance for each of the two mortgage maturities on a year-by-year basis. This comparison is summarized in Exhibit 9.6. Notice that after six years, she would still owe $67,554 on the 30-year mortgage, versus $52,852 (almost $15,000 less) on the 15-year mortgage. After 10 years, she would owe almost $30,000 more on the 30-year mortgage than on the 15-year mortgage. After 15 years, she would still owe about $55,000 on the 30-year mortgage, while the 15-year mortgage would be paid off.

Exhibit 9.6 Comparison of Mortgage Balance for a 15-Year versus a 30-Year Mortgage ($72,000 Initial Mortgage Amount; 8 Percent Interest Rate)

End of Year	Balance on 30-Year Mortgage	Balance on 15-Year Mortgage
1	$71,399	$69,410
2	70,747	66,604
3	70,042	63,566
4	69,278	60,275
5	68,450	56,712
6	67,554	52,852
7	66,583	48,672
8	65,533	44,146
9	64,395	39,244
10	63,162	33,934
11	61,826	28,185
12	60,381	21,957
13	58,815	15,213
14	57,119	7,910
15	55,283	0

Note: Balances are rounded to the nearest dollar.

The Web site also shows the total payments over the life of the mortgage for both types of mortgages if the mortgage is not paid off until maturity.

	30-Year Mortgage	15-Year Mortgage
Total Principal Payments	$72,000	$72,000
Total Interest Payments	118,192	51,852
Total Payments	$190,192	$123,852

Stephanie would pay about $66,000 more in interest with the 30-year mortgage than with the 15-year mortgage. The total interest payments on the 30-year mortgage are much larger than the total principal payments that would be made over the life of the mortgage.

Weighing the advantages of the 15-year mortgage against the disadvantage of paying the extra $160 per month, Stephanie decides she prefers the 15-year mortgage. Even if she decides to sell this home before she pays off the 15-year mortgage, she will have paid down a larger amount of the mortgage. Since she will have a larger equity investment (from paying off more of the principal) with the 15-year mortgage, she will increase her net worth to a greater degree.

CHARACTERISTICS OF AN ADJUSTABLE-RATE MORTGAGE

adjustable-rate mortgage (ARM)
A mortgage where the interest owed changes in response to movements in a specific market-determined interest rate.

An alternative to a fixed-rate mortgage is an adjustable-rate mortgage (ARM), in which the interest owed changes in response to movements in a specific market-determined interest rate. An ARM is sometimes referred to as a variable-rate mortgage. ARMs represent about one-fourth of all home mortgages. Like a fixed-rate mortgage, an ARM can be obtained for a 15-year or a 30-year maturity. ARMs have various characteristics that must be stated in the mortgage contract.

Initial Rate

Many ARMs specify a relatively low initial mortgage rate over the first year or so. This initial rate is beneficial to homeowners in that it results in a low monthly mortgage payment over the first year. Recognize, however, that this rate is only temporary, as the mortgage rate will be adjusted.

Interest Rate Index

The initial mortgage rate will be adjusted after a period (such as one year) in line with a specified interest rate index. The interest rate index to which the mortgage rate is tied must be included in the mortgage contract. Many ARMs use a rate that is tied to the average cost of deposits of financial institutions. For example, the interest rate charged on an ARM might be set at 3 percentage points above that benchmark. Thus, if the benchmark is 4 percent in a given year, the ARM will apply an interest rate of 7 percent (computed as 4% + 3%). If the interest rate index has risen to 5 percent by the time of the next mortgage rate adjustment, the new mortgage rate will be 8 percent (computed as 5% + 3%).

Frequency of Rate Adjustments

The mortgage contract also specifies how frequently the mortgage rate will be adjusted. Many ARMs specify that the rate will be adjusted once a year. Thus, the mortgage rate is set based on the specified interest rate index and then remains the same for the next 12 months. This means that the monthly payments will be constant for the next 12 months. At the end of the 12-month period, the mortgage rate is revised based on the prevailing interest rate index and is held constant for the following 12 months.

Some mortgages allow for less frequent adjustments, such as every three years or every five years. Others allow a single adjustment at the end of the fifth year, and the adjusted rate is then held constant over the next 25 years of a 30-year mortgage.

Other ARMs offer the following alternatives:

- An interest rate that adjusts every five years.
- An interest rate that is fixed for the first three years, but converts to an ARM (and adjusts annually) after three years.
- An interest rate that is fixed for the first five years, but converts to an ARM (and adjusts annually) after five years.

9.8 Financial Planning Online: Should You Obtain a Fixed- or an Adjustable-Rate Mortgage?

Go to:
http://partners.financenter.com/abcnews/calculate/us-eng/home04.fcs

This Web site provides:
a comparison of payments that you would make on a fixed-rate versus an adjustable-rate mortgage. It can be used to determine which type of mortgage is more desirable.

Netscape: Which is better: fixed or adjustable?

Which is better: fixed or adjustable?

Inputs | Results | Graphs | Tables | Help

	Fixed		Adjustable	
Interest rate	8.000	%	7.500	%
Loan amount	$ 100,00		$ 100,00	
Term	40		30	
Discount points	1.000	%	1.000	%
Origination fee	0.00	%	0.00	%
Upfront costs	$ 1,000		$ 1,000	
Your state + federal tax rate			33.80	%
Purchase price			$ 125,00	
Yearly property tax			$ 2,000	
Yearly property insurance			$ 200	
Years before you sell or pay off loan			7	

- An interest rate that adjusts for the first five years and then is fixed (based on an interest rate index at that time) for the next 25 years.

With so many alternatives available, you can easily find a mortgage that fits your preferences. For example, if you expect that interest rates will decline consistently over time, you may prefer an ARM that is adjusted every year. If your expectations are correct, your mortgage rate will decline over time with the decline in market interest rates. It is difficult to accurately forecast the direction of interest rates, however, which means that your future mortgage payments are uncertain.

Caps on Adjustable-Rate Mortgages

caps
Maximum and minimum fluctuations in the interest rate on an adjustable-rate mortgage.

The mortgage contract also typically specifies caps, or a maximum and minimum fluctuation in the interest rate. For example, an ARM may have a cap of 2 percent per year, which prevents the mortgage rate from being adjusted upward by more than 2 percentage points from its existing level in each year. Assume the market interest rate increases by 3 percentage points from one year to the next. Without a cap, the mortgage rate on the ARM would increase by 3 percentage points. With a 2 percent cap, however, only an increase of 2 percentage points is allowed in that year. This cap is useful because it limits the potential increase in the mortgage payments that may result from an increase in interest rates.

In addition to a cap on the annual increase in the mortgage rate, there is usually a lifetime cap, which represents the maximum amount of the increase in

the mortgage rate over the life of the mortgage. A lifetime cap of 5 percent is commonly used. Thus, if an ARM has an initial mortgage rate of 7 percent and a 5 percent cap, the maximum mortgage rate over the life of the mortgage would be 12 percent.

Financing with a Fixed- versus an Adjustable-Rate Mortgage

Your decision to use a fixed- versus an adjustable-rate mortgage to finance the purchase of a home is dependent on your expectations of future interest rates. The primary advantage of an ARM is that the initial interest rate is lower than that of a fixed-rate mortgage. Yet, if interest rates rise, you may end up paying a higher interest rate on your mortgage than if you had obtained a fixed-rate mortgage.

EXAMPLE

Stephanie Spratt has already determined that if she finances with a 15-year fixed-rate mortgage, she would pay an 8 percent interest rate. Alternatively, she could obtain an adjustable-rate mortgage that specifies an initial rate of 6 percent, with the interest rate adjusted each year to an index reflecting the average cost of bank funds plus 3 percentage points. Assuming the index rate is 5 percent next year, the rate applied to her mortgage would be 8 percent for the following year.

Stephanie notices that financial experts have predicted an increase in interest rates in the near future. She is uncomfortable with the uncertainty surrounding her mortgage rate and therefore surrounding her mortgage payment. Although the ARM would result in a lower mortgage payment in the first year, it would result in a higher mortgage payment in the following years if interest rates increase. Thus, Stephanie decides to choose a fixed-rate mortgage instead of the ARM.

DECISION TO OWN A HOME VERSUS RENT

When considering the purchase (and therefore ownership) of a home, you should compare the cost of purchasing a home with the cost of renting. People attribute different advantages and disadvantages to owning a home versus renting because preferences are subjective. Some individuals value the privacy of a home, while others value the flexibility of an apartment, which allows them to move without much cost or difficulty. The financial assessment of owning a home versus renting can be performed in an objective manner. Once the financial assessment is conducted, personal preferences can also be considered.

Estimating the Total Cost of Renting and Owning

The main cost of renting a home is the monthly rent payment. There is also an opportunity cost of tying up funds in a security deposit. Those funds could have been invested if you did not need to provide the security deposit. Another possible cost of renting is the purchase of renter's insurance.

The primary costs of purchasing a home are the down payment and the monthly mortgage payment. The down payment has an opportunity cost because the funds could have been invested to earn interest if they were not tied up in the purchase of the home. Closing costs are incurred at the time the home is purchased, although a portion of these costs is tax-deductible. Owning a home also involves some additional costs, such as maintenance and repair. Property taxes are assessed annually as a percentage of the home's value. Homeowner's insurance is paid annually and is primarily based on the value of the home.

EXAMPLE

Stephanie Spratt has found a home she desires and has obtained financing. Before making a final decision, she wants to compare the cost of the home to the cost of remaining in her apartment. Although she would prefer a home, she wants to determine how much more expensive the home is compared to the apartment. If she purchases the home, she expects to live in it for at least three years. Therefore, she decides to compare the cost of owning a home to the cost of renting over the next three years. First, Stephanie calculates the cost of renting:

- **Cost of Rent.** Her estimated cost of renting is shown in the top panel of Exhibit 9.7. Her rent is currently $600 per month, so her annual rent is $7,200 (computed as $600 × 12). She does not expect a rent increase over the next three years and therefore estimates her cost of renting over this period to be $7,200 × 3 = $21,600. (If she had expected an increase in rent, she would have simply added the extra cost to the estimated rent over the next three years.)
- **Cost of Renter's Insurance.** She does not have renter's insurance at this time, as the value of her household assets is low.
- **Opportunity Cost of Security Deposit.** She provided a security deposit of $1,000 to the apartment complex. While she expects to get this deposit back when she stops renting, there is an opportunity cost associated with it. She could have invested those funds in a tax-free money market fund earning 4 percent annually, which would have generated annual interest of $40 (computed as $1,000 × .04). The opportunity cost over three years is three times the annual cost, or $120.
- **Total Cost of Renting.** Stephanie estimates the total cost of renting as $7,240 per year and $21,720 over the next three years, as shown in Exhibit 9.7.

Stephanie determines the total cost of purchasing a home by adding up expenses, subtracting any tax savings, and subtracting the value of the equity:

- **Mortgage Payment.** The primary cost of buying a home is the mortgage payment, which she expects to be $688 per month or $8,256 per year (not including payments for property taxes or house insurance).

Exhibit 9.7 Comparing the Total Cost of Renting versus Buying a Home over a Three-Year Period

Cost of Renting

	Amount per Year	Total over Next Three Years
Rent ($600 per month)	$7,200	$21,600
Renter's insurance	0	0
Opportunity cost of security deposit	40	120
Total cost of renting	$7,240	$21,720

Cost of Purchasing

	Amount per Year	Total over Next Three Years
Mortgage payment ($688 per month)	$8,256	$24,768
Down payment	8,000	8,000 (first year only)
Opportunity cost of down payment	320	960
Property taxes	1,000	3,000
Home insurance	600	1,800
Closing costs	2,540	2,540 (first year only)
Maintenance costs	1,000	3,000
Total costs before tax benefits		$44,068
Total tax savings		$1,293
Equity investment		$16,434
Increase in home value		0
Value of equity		$16,434
Cost of purchasing home over three years		$26,341

- **Down Payment.** Stephanie would make a down payment of $8,000 to buy the home.
- **Opportunity Cost of the Down Payment.** If Stephanie did not buy a house, she could have invested the $8,000 in a tax-free security and earned 4 percent per year. Therefore, the annual opportunity cost (what she could have earned if she invested the funds) is $320 (computed as $8,000 × .04).

- **Property Taxes.** Stephanie assumes that the annual property tax will be $1,000 based on last year's property tax paid by the current owner of the home.
- **Home Insurance.** Insurance on this home will cost $600 per year (this estimate is based on the home insurance premium paid by the current owner of the home).
- **Closing Costs.** Closing costs (transaction costs) associated with buying a home must be included, although those costs are incurred only in the first year for a mortgage. The closing costs are estimated to be $2,540, as shown earlier.
- **Maintenance Costs.** Stephanie expects maintenance costs on the home to be $1,000 per year.
- **Utilities.** She will pay for utilities such as water and electricity and will incur a cable TV bill if she buys the home. She already incurs those costs while renting an apartment, so she does not need to include them in her analysis.
- **Tax Savings.** Stephanie must also consider the tax savings that a home provides. Since the home mortgage interest is tax-deductible, she estimates that her taxes will be reduced by 25 percent of the amount by which her taxable income is reduced. The amount of mortgage interest changes every year, and therefore so does her tax savings from interest expenses. She can estimate her interest expenses over three years by using an amortization table based on her mortgage amount, mortgage maturity, and mortgage rate. She estimates that her interest expense over the next three years will be about $16,000.

Note that Stephanie will generate tax savings from property taxes because they are tax-deductible. Given an annual property tax of $1,000, she will have a $3,000 tax deduction over the next three years. Stephanie will also generate tax savings from the points that she would pay (a one-time fee of $720) as part of the closing costs, because the points are tax-deductible.

The total itemized deductions resulting from the purchase of the house over the next three years are:

	Deduction
Interest	$16,000
Property Taxes	$3,000
Points	$720
Total	$19,720

However, keep in mind that individuals without significant tax deductions can receive their standard deduction. Recall from Chapter 4 that Stephanie can take a standard deduction of $4,700 each year if she does not itemize her deductions. If she does not buy the home, she would take the standard

deduction each year, which would be worth $14,550 over three years ($4,850 × 3 years).

The tax savings from buying the home occur because the value of itemized deductions exceeds the value of standard deductions by $5,170 ($19,720 − $14,550) over the three-year period. When considering Stephanie's marginal tax rate, extra deductions result in a tax savings of:

Tax Savings = Value of Extra Deductions × Marginal Tax Rate
= $5,170 × .25
= $1,292.50.

- **Value of the Equity Investment.** Another advantage of owning a home is that Stephanie will have an equity investment in it. Her down payment will be $8,000, and she will pay about $8,434 in principal on her mortgage over the three-year period. The value of this equity investment could be higher in three years if the market value of the home increases. If Stephanie assumes that the home's value will not change, the value of the equity investment will be $16,434 (computed as $8,000 + $8,434).
- **Total Cost of Purchasing a Home.** The total cost of purchasing a home is determined by adding up all the expenses, subtracting the tax savings, and then subtracting the equity investment. As shown in Exhibit 9.7, Stephanie estimates that the total cost of purchasing the home over the three-year period will be $26,341.

The total cost of purchasing a home over three years is about $4,621 more than the cost of renting. Stephanie decides that she wants to buy the home, mainly because she would rather live in a home than an apartment. She also believes that the home's value may rise over time, a factor that was not part of her analysis. If the value of the home increased by 2 percent a year, the market value of her equity in the home would increase by about $5,000.

Now that Stephanie has decided that she wants to purchase a home and can afford it, she submits her offer of $80,000, which is accepted by the seller.

SPECIAL TYPES OF MORTGAGES

In some cases, prospective buyers do not qualify for a traditional fixed-rate mortgage or an adjustable-rate mortgage. Some special types of mortgages are available that can make a home more affordable.

graduated payment mortgage
A mortgage where the payments are low in the early years and then rise to a higher level over time.

Graduated Payment Mortgage

A graduated payment mortgage sets relatively low monthly mortgage payments when the mortgage is first created and then gradually increases the payments over the first five or so years. The payments level off after that time. This type of mortgage may be useful for someone whose income will increase over time,

9.9 Financial Planning Online: Should You Rent or Buy?

Go to:
http://loan.yahoo.com/m/

Click on:
Calculators

Click on:
More calculators

Click on:
Rent vs. Own

This Web site provides:
a recommendation on whether you should buy a home, based on your rent versus the expenses of the home you are considering.

since the mortgage payments will increase as the homeowner's income increases. A graduated payment mortgage would not be desirable for people who are not certain that their income will rise.

BALLOON PAYMENT MORTGAGE

balloon payment mortgage
A mortgage where the monthly payments are relatively low, but one large payment is required after a specified period to pay off the mortgage loan.

A balloon payment mortgage sets relatively low monthly payments and then requires one large payment (called a balloon payment) after a specified period (such as five years) to pay off the remainder of the mortgage loan. A balloon payment mortgage is sometimes offered by the seller of a home to the buyer, especially when the buyer cannot afford to make large monthly payments and does not qualify for a more traditional mortgage. In this situation, the seller might provide a mortgage for five years. The expectation is that the buyer's income will rise, enabling the buyer to obtain a traditional mortgage from a financial institution before the end of the five-year period. Then, the buyer will have enough cash to make the balloon payment to the seller.

MORTGAGE REFINANCING

mortgage refinancing
Paying off an existing mortgage with a new mortgage that has a lower interest rate.

Mortgage refinancing involves paying off an existing mortgage with a new mortgage that has a lower interest rate. You may use mortgage refinancing to obtain a new mortgage if market interest rates (and therefore mortgage rates)

decline. One disadvantage of mortgage refinancing is that you will incur closing costs again. Nevertheless, it may still be advantageous to refinance because the savings on your monthly mortgage payments (even after considering tax effects) may exceed the new closing costs. Mortgage refinancing is more likely to be worthwhile when the prevailing mortgage interest rate is substantially below the interest rate on your existing mortgage. It is also more likely to be worthwhile when you expect to be living in the home for a long time because you will reap greater benefits from the lower monthly mortgage payments that result from refinancing.

Refinancing Analysis

To determine whether you should refinance, you can compare the advantage of monthly savings of interest expenses to the cost of refinancing. If the benefits from reducing your interest expenses exceed the closing costs incurred from refinancing, the refinancing is feasible.

EXAMPLE

Stephanie Spratt decides that if interest rates decline in the future, she may refinance. If interest rates decline to 7 percent a year from now, Stephanie would save about $40 on her monthly mortgage payment by refinancing. Stephanie next needs to determine the potential savings in the monthly interest payments over the time that she expects to remain in the house.

A monthly reduction in interest payments of $40 reflects an annual reduction of $480 (computed as $40 × 12). But because interest on the mortgage is tax-deductible, the reduction in interest payments by $480 interest means that her taxable income would be $480 higher. Since her marginal tax rate is 25 percent, her taxes would increase:

$$\begin{aligned}\text{Annual Increase in Taxes} &= \text{Annual Increase in Taxable Income} \times \text{Marginal Tax Rate}\\ &= \$480 \times .25\\ &= \$120.\end{aligned}$$

Her annual savings due to refinancing at a lower interest rate would be:

$$\$480 - \$120 = \$360.$$

Assuming that she plans to remain in the house for two more years from the time of refinancing, her total savings would be:

$$\$360 \times 2 = \$720.$$

The disadvantage of refinancing is that Stephanie may once again incur the same closing costs ($2,540). Before comparing this cost to the benefits of refinancing, she

accounts for the tax savings. Since the points are tax-deductible, she determines the tax savings from these costs:

$$\text{Tax Savings on Points} = \text{Cost of Points} \times \text{Marginal Tax Rate}$$
$$= \$720 \times .27$$
$$= \$194.$$

$$\text{After-tax Closing Costs} = \text{Closing Costs} - \text{Tax Savings}$$
$$= \$2{,}540 - \$194$$
$$= \$2{,}346.$$

The after-tax closing costs ($2,346) due to refinancing would exceed the savings on the interest payments ($700) over the next two years. Stephanie is now aware that if interest rates decrease by 1 percent over the next year, it would not be worthwhile for her to refinance her home.

The advantages of refinancing (lower interest payments) occur each year, while the disadvantage (closing costs) occurs only at the time of refinancing. Therefore, refinancing tends to be more beneficial when a homeowner plans to own the home for a longer period. The savings from a lower interest payment can accumulate over each additional year the mortgage exists.

HOW A MORTGAGE FITS WITHIN YOUR FINANCIAL PLAN

The following are the key mortgage loan decisions that should be included within your financial plan:

1. What mortgage amount can you afford?
2. What maturity should you select?
3. Should you consider a fixed-rate or an adjustable-rate mortgage?

By making informed decisions, you can avoid accumulating an excessive amount of debt. Exhibit 9.8 provides a summary of how Stephanie Spratt's mortgage loan decisions apply to her financial plan.

Exhibit 9.8 How Mortgage Financing Fits within Stephanie's Financial Plan

Goals for Mortgage Financing

1. *Limit the amount of mortgage financing to a level that is affordable.*
2. *Select a short loan maturity if possible, assuming that the payments are affordable.*

3. *Select the type of mortgage loan (fixed- or adjustable-rate) that is more likely to result in lower interest expenses.*

Analysis

	15-Year Mortgage (8% interest rate)	30-Year Mortgage (8% interest rate)
Monthly payment	$688	$528
Total interest payments	$51,852	$118,192
Advantages	Pay off mortgage in half the time of a 30-year mortgage; pay lower interest expenses on the loan	Smaller monthly payment
Difference between mortgage payment and rent payment	$688 − $600 = $88	$528 − $600 = −$72

Decisions

Decision on Affording a Mortgage:

The monthly interest payment on a $72,000 mortgage loan with a 15-year maturity is $688. My rent is $600 per month, so the difference is $88 per month. Since my monthly cash flows (from my salary) exceed my typical monthly expenses (including my car loan payment) and my purchases of clothes by almost $600, I can afford that difference. I will not save as much money as I planned if I buy a home, but I will be building wealth.

Decision on the Mortgage Maturity:

I prefer the 15-year mortgage because I will pay off a larger portion of the principal each year.

Decision on the Type of Mortgage Loan:

I prefer the fixed-rate mortgage because I know with certainty that the monthly payments will not increase. I am worried that interest rates may increase in the future, which would cause interest expenses to be higher on the adjustable-rate mortgage.

DISCUSSION QUESTIONS

1. How would Stephanie's mortgage financing decisions be different if she were a single mother of two children?
2. How would Stephanie's mortgage financing decisions be affected if she were 35 years old? If she were 50 years old?

SUMMARY

When considering the purchase of a home, you should evaluate your financial situation to determine how much you can afford. Some of the key criteria used in the selection process are price, convenience of the location, quality, the school system, and the potential resale value.

You can conduct a valuation of a home with a market analysis. Homes in the same area that were recently sold can be used to determine the average price per square foot. Then this price per square foot can be applied to the square footage of the home you wish to value.

The transaction costs of purchasing a home include the down payment and closing costs. The key closing costs are points and the origination fee.

A fixed-rate mortgage specifies a fixed interest rate to be paid over the life of the mortgage. Since most of the monthly mortgage payment on a 30-year mortgage is allocated to cover the interest expense in the early years, a relatively small amount of principal is paid off in those years. A 15-year fixed-rate mortgage is a popular alternative to the 30-year mortgage. It requires a larger monthly payment, but a larger proportion of the payment is allocated to principal in the early years.

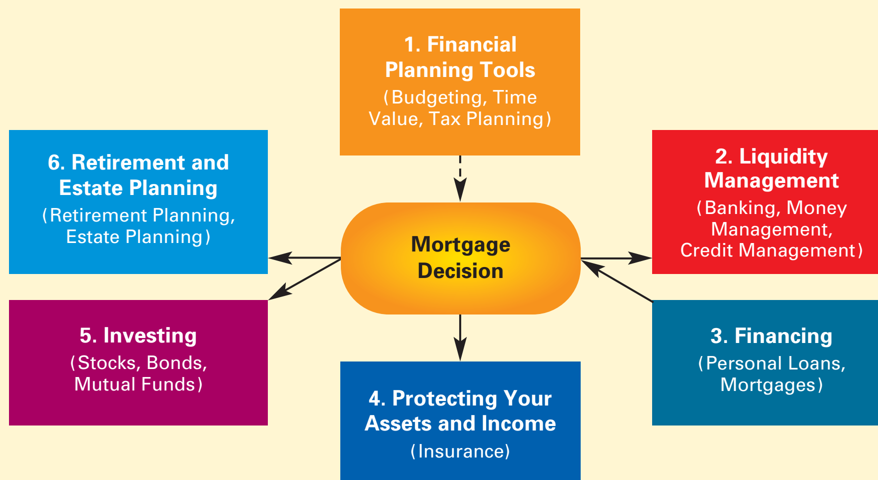
An adjustable-rate mortgage (ARM) ties the interest rate to an interest rate index, so the mortgage interest rate changes over time with the index. Homeowners who expect interest rates to decline in the future are especially likely to choose ARMs.

Before making a final decision to buy a home, you can compare the total cost of owning a home versus renting over a particular period to determine which choice will enhance your financial position more. The total cost of owning a home is estimated by adding up the expenses associated with the home, subtracting the tax savings from owning the home, and subtracting the expected value of the equity of the home at the end of the period.

You may consider mortgage refinancing when quoted interest rates on new mortgages decline. When refinancing, you will incur closing costs. Thus, you should consider refinancing only if the benefits (expected reduction in interest expenses over time) exceed the closing costs.

INTEGRATING THE KEY CONCEPTS

Your mortgage decision affects your ability to purchase a home, as well as other parts of the financial plan. You will need to maintain more liquidity (Part 2) than before to ensure that you will have sufficient funds each month to make your mortgage payment. Your decision to buy a home means that you will have to obtain insurance (Part 4) to protect the home and be insured against any liability resulting from the home. You will likely have less funds for investments (Part 5) and may even have to sell some of your investments to have sufficient cash to make a down payment or monthly mortgage payments.



REVIEW QUESTIONS

1. What is your first task when considering buying a home? Why is this step important? How can a real estate broker help you?
2. What are the two financial components you must consider before purchasing a home? Why should you consider them?
3. What should you consider when determining an affordable down payment and monthly mortgage payments?
4. List the criteria you should use when selecting a home.
5. How do price, convenience of the location, and maintenance affect your home-buying decisions?
6. Why is the reputation of the school system in the area of the home you are buying important?
7. Why do insurance costs and taxes vary among homes?
8. What is the main factor in determining a home's resale value? How can you predict a home's resale value? Who pays commissions when a home is sold?
9. Once you have reduced your list of three or four homes down to one home, what is your next step? Should you offer the price the seller is asking? Describe how you would conduct a market analysis of the home.
10. Why does the value of a home depend on the demand for homes? What factors influence the demand for a home?
11. How do lenders protect their interest in a home? Describe two federally backed home loan programs.
12. What are closing costs? List and briefly describe the different closing costs you might incur when applying for a mortgage.
13. Describe the characteristics of a fixed-rate mortgage. Why do certain homeowners prefer a fixed-rate mortgage to an adjustable-rate mortgage?
14. What is an amortization table? What does each mortgage payment represent?
15. List the three things that determine the amount of the monthly mortgage payment. Explain how each affects the payment.
16. Discuss the characteristics of an adjustable-rate mortgage. What influences your choice of a fixed- or adjustable-rate mortgage?
17. What are the costs of renting a home?
18. Describe some of the costs of buying a home. Are there potential tax savings associated with buying a home?
19. Describe the features of graduated payment and balloon payment mortgages.
20. What is mortgage refinancing? Are there any disadvantages to refinancing?

FINANCIAL PLANNING PROBLEMS

1. Dorothy and Matt are ready to purchase their first home. Their current monthly cash inflows are $4,900, and their current monthly cash outflows are $3,650. Their rent makes up $650 of their cash flows. They would like to put 10 percent of their cash inflows in savings and leave another $200 in their checking account for emergencies. How much of a mortgage payment could they manage under these conditions?
2. Dolly and Kenny are ready to make an offer on an 1,800-square-foot house that is priced at $135,000. They investigate other homes on lots of similar size and find the following information:
   - A 2,400-square-foot house sold for $168,000.
   - A 1,500-square-foot house sold for $106,500.
   - A 1,100-square-foot house sold for $79,000.

   What offer should they make on the house?
3. Larry and Laurie have found a home and made a $125,000 offer that has been accepted. They make a down payment of 10 percent. Their bank charges a loan origination fee of 1 percent of the loan and points of 1.5 percent (both are applied to the loan amount). Other fees include a $25 loan application fee, a $250 appraisal fee, and $350 for title search and insurance. How much cash will Larry and Laurie need at closing?
4. This month you made a mortgage payment of $700, of which $600 was an interest payment and $100 is a payment of the loan principal. You are in the 28 percent tax bracket. What is the tax savings as a result of this payment?

5. Lloyd and Jean are considering purchasing a home requiring a $75,000 mortgage. The payment on a 30-year mortgage for this amount is $498.97. The payment for a 15-year maturity is $674.12. What is the difference in the total interest paid between the two different maturities?

6. Teresa rents her apartment for $650 per month, utilities not included. When she moved in, she paid a $700 security deposit using money from her savings account that was paying 3 percent interest. Her renter's insurance costs her $60 per year. What are Teresa's total annual costs of renting?

7. Eric has found a condominium in an area where he would enjoy living. He would need a $5,000 down payment from his savings and would have to pay closing costs of $2,500 to purchase the condo. His monthly mortgage payments would be $520 including property taxes and insurance. The condominium's homeowner's association charges maintenance fees of $400 per year. Calculate the cost of Eric's condo during the first year if he currently has the $5,000 down payment invested in an account earning 5 percent interest.

8. Eric (from problem 7) paid mortgage interest of $4,330 during his first year in the condo. His property taxes were $600, and his homeowner's insurance was $460. If Eric is in a 30 percent marginal tax rate bracket, what were his tax savings for his first year?

9. Doug and Lynn bought their home three years ago. They have a mortgage payment of $601.69. Interest rates have recently fallen, and they can now get mortgage payments of $491.31 if they refinance. What would their annual savings be if they refinanced? They are in a 15 percent marginal tax rate bracket. (Hint: Consider the reduction in tax savings.)

10. If the cost of refinancing their house is $3,860, how long would Doug and Lynn (from problem 9) have to remain in their home in order to recover the cost? (Ignore any interest on the savings in answering this question.)

Questions 11 and 12 require a financial calculator.

11. Pauly really wants to purchase his own house. He currently lives in an apartment, and his rent is being paid by his parents. Pauly's parents have informed him that they would not pay his mortgage payments. Pauly has no savings, but can save $400 per month. The home he desires costs $100,000, and his real estate broker informs him that a down payment of 20 percent would be required. If Pauly can earn 8 percent on his savings, how long will it take him to accumulate the required down payment?

12. Pauly (from problem 11) will be able to save $400 per month (which can be used for mortgage payments) for the indefinite future. If Pauly finances the remaining cost of the home (after making the $20,000 down payment) at a rate of 9 percent over 30 years, what are his resulting monthly mortgage payments? Can he afford the mortgage?

FINANCIAL PLANNING ONLINE EXERCISES

1. Go to http://www.financenter.com/products/sellingtools/calculators/home/ and click on "How much can I borrow?"
   a. Input $3,000 wages, $500 in other income, $300 in auto loans, $100 for student loans, $125 for other loans, a desired interest rate of 9 percent, a 15-year loan term, a 5 percent down payment, no other debts, a $200 monthly credit card payment, $1,500 property tax, and $300 property insurance. What are the conservative estimates and aggressive estimates of what you can afford to borrow to finance the purchase of a home?
   b. Now change the interest rate to 10 percent. What is the difference in monthly payments on the loan?
   c. Now change the loan term to 30 years. What is the difference in monthly payments on the loan?

2. Go to http://biz.yahoo.com/b/r/m.html.
   a. What are the average national mortgage rates for 30-year fixed, 15-year fixed, and adjustable-rate mortgages?
   b. What mortgage rates are available in your nearest metro region? What mortgage rates are available in your state?
   c. Compare the mortgage rates available in New York and in Utah. Which is higher? Why?

3. Go to http://loan.yahoo.com/m/.
   a. Click on "Calculators" and go to the "Starting the Loan Process" section. Click on "Am I Bet-

ter Off Renting?" Values are already input for the monthly rent, price of home, taxes, etc. Find out if renting is better than buying for the scenario presented on the Web site or for your own situation.

b. Now change the amount of monthly rent to $500 and see how that affects the recommendation on buying or renting.

4. Go to http://www.financenter.com/products/sellingtools/calculators/home and click on "Which is better: 15 or 30 year term?" Use the values already input for the 15- and 30-year mortgage terms. Obtain a comparison on the monthly payments and the total cost of each option by clicking the "Results" tab. What is the difference between the monthly payments for the two loan options? How much less will the 15-year loan cost over the life of the loan than the 30-year loan?

5. Go to http://loan.yahoo.com/m/mortcalc.html. Click on "Payment Calculator."
   a. Input a $100,000 mortgage amount, 8 percent interest rate, and 30-year term. What are the monthly payments?
   b. Click on "Amortization Calculator." Input the same information as in part a without any extra payments for both 15-year and 30-year terms. Compare the total amount of money paid in principal and interest for the two maturities.

BUILDING YOUR OWN FINANCIAL PLAN

The purchase of a home is the largest expenditure that most individuals will make in their lifetime. For this reason, you should approach this decision with as much information as possible. This exercise will familiarize you with various information sources and will alert you to what you can and cannot expect from a realtor. Using the first template provided for this chapter in the *Financial Planning Workbook* and on the CD-ROM, determine the mortgage amount that you can afford. At www.lendingtree.com, click on "Calculators." Use the amount you determined you can spend per month on rent in your personal cash flow statement as the basis for the monthly mortgage payment. Enter information for various loan types, loan terms, and interest rates as prompted by the template.

Next, go to the Web address www.msn.com. After the MSN homepage loads, you will note on the left a list of topics. Click on "House and Home" and then on "Buying a House." Complete the information requested under "Compare and Find Homes" to research cities and neighborhoods of interest. Record your findings in the second chapter template.

The next part of the exercises involves referring to your cash flow statement and personal balance sheet. Compare the monthly mortgage payment estimates for a property you are interested in to the amount of down payment you can afford to make. (Refer to information on current loan rates from www.msn.com; click on "House and Home" on the right side of the screen and on "Research Online Loans" at the lower left side of the page.) You may find it necessary to make some revisions in your goals or personal cash flow statement.

Now that you have a feel for how much house you can afford, we will take a closer look at the mortgage-related expenses. Using the template provided for this chapter, create an amortization table for your preferred fixed-rate loan and compare the allocation of principal versus interest paid per year on the loan. Finally, compare the cost of buying a home to renting over a 3-year period using the final template provided to make sure that homeowner-ship is a wise financial decision at this time.

Go to several other search engines, such as Excite and Yahoo!, to find additional information for home buying and financing. You may want to bookmark some of these pages for future reference.

THE SAMPSONS—A CONTINUING CASE

The Sampsons purchased a home last year. They have a 30-year mortgage with a fixed interest rate of 8.6 percent. Their monthly mortgage payment (excluding property taxes and insurance) is about $700 per month. In the last year, interest rates have declined. A 30-year mortgage now has an interest rate of 8 percent. Dave and Sharon want to determine how much they can lower their monthly payments by refinancing. By refinancing, they would incur transaction fees of $1,400 after considering any tax effects. The Sampsons are in the 28 percent tax bracket.

1. Use a Web site or a financial calculator to determine the monthly mortgage payment (excluding property taxes and insurance) on a $90,000 mortgage if the Sampsons obtain a new 30-year mortgage at the 8 percent interest rate. (One Web site that can be used for this purpose is http://loan.yahoo.com/m/mortcalc.html.)
2. The Sampsons expect that they will not move for at least three years. Advise the Sampsons on whether they should refinance their mortgage by comparing the savings of refinancing with the costs.
3. Why might your advice about refinancing change in the future?

IN-TEXT STUDY GUIDE

True/False:

1. When you purchase a home, the entire cost is usually financed with a mortgage.
2. The resale value of a home is highly dependent on its location.
3. The buyer of a home pays a commission to the realtor selling the home.
4. In a market analysis of a home, the price of the home is estimated based on other homes in the area with similar features.
5. Online services can be used to facilitate the purchase of a home for buyers, but they typically do not allow sellers to list their homes in a database.
6. Points represent the loan application fee.
7. An adjustable-rate mortgage specifies a fixed interest rate that remains the same for the life of the mortgage loan.
8. Compared to a 15-year mortgage, a 30-year mortgage results in a lower amount of interest paid over the life of the mortgage.
9. Many adjustable-rate mortgages specify a relatively low initial mortgage rate over the first year of the mortgage.
10. A balloon payment mortgage is sometimes offered by the seller of a home to the buyer.
11. When you refinance a mortgage, you will not incur closing costs a second time.

Multiple Choice:

1. Which of the following is not a criterion to consider when selecting a home?
   a. price
   b. location
   c. school system
   d. All of the above are criteria considered when selecting a home.
2. The __________ the cost of a home, the _________ the insurance.
   a. lower; higher
   b. higher; higher
   c. higher; lower
   d. none of the above
3. Annual property taxes are often between __________ percent of the market value of the home.
   a. 1 and 2
   b. 3 and 4
   c. 5 and 6
   d. 7 and 8

4. The demand for homes in an area usually does not change in response to
   a. changes in zoning laws.
   b. changes in the local school system.
   c. changes in building laws.
   d. The demand for homes in an area can change in response to all of the above.
5. Points are usually between ________ percent of the mortgage loan; loan origination fees are usually ______ percent of the mortgage amount provided by the lender.
   a. 1 and 2; 3
   b. 2 and 3; 2
   c. 1 and 2; 1
   d. 2 and 3; 4

The following information applies to questions 6 and 7.

Trevor Hopkins just applied for a $90,000 mortgage from Bank A. Bank A will charge the following:

- 2 points
- 1 percent origination fee
- $250 application fee
- $500 for a title search

6. Trevor's closing costs total
   a. $1,150.
   b. $1,650.
   c. $2,550.
   d. $3,450.
7. Trevor's down payment is 10 percent of the $100,000 cost of the home. Thus, he will need a total of ________ to purchase the home.
   a. $11,150
   b. $11,650
   c. $12,550
   d. $13,450
8. During the early years of a fixed-rate mortgage, a large percentage of the monthly mortgage payment will represent
   a. principal reduction.
   b. interest payments.
   c. a reduction in the home's equity.
   d. none of the above
9. The ___________ the interest rate on the mortgage, the ____________ the monthly mortgage payment.
   a. higher; larger
   b. lower; larger
   c. higher; smaller
   d. Answers (b) and (c) are correct.
10. When interest rates are expected to rise, homeowners would prefer a(n)
    a. fixed-rate mortgage.
    b. adjustable-rate mortgage.
    c. variable-rate mortgage.
    d. mixed-rate mortgage.
11. Adjustable-rate mortgages represent about _______ percent of all home mortgages.
    a. 60
    b. 50
    c. 25
    d. 10
12. Without exception, adjustable-rate mortgages (ARMs) adjust the mortgage rate every
    a. year.
    b. two years.
    c. three years.
    d. none of the above
13. The primary cost of purchasing a home is
    a. the down payment.
    b. the monthly mortgage payments.
    c. the down payment and the monthly mortgage payments.
    d. the closing costs.

The following information applies to questions 14 through 16.

Oliver Vorth is currently renting an apartment for $1,000 a month. Oliver does not believe that this rent will change in the next four years. At the time Oliver rented the apartment, he left a $500 security deposit. Oliver is thinking about purchasing a $150,000 home requiring a down payment of $20,000 and monthly mortgage payments of $800. Annual property taxes associated with the home would be $1,500. One-time closing costs total $650. Oliver expects to pay maintenance of $1,200 a year for the home. Furthermore, Oliver's total interest payments and property tax payments over the next four years will be approximately $28,000. Oliver is in the 25 percent tax bracket and can invest his funds at an annual interest rate of 5 percent. Since Oliver already itemizes deductions due to his large charitable contributions, any extra deductions from buying a house will generate a tax savings.

14. Including any opportunity costs, what is Oliver's total cost of renting over the next four years?
    a. $12,000
    b. $12,080
    c. $48,000
    d. $48,100

15. What would Oliver's total mortgage payments be over the next four years?
    a. $38,400
    b. $39,050
    c. $58,400
    d. $59,050
16. Including any opportunity costs, Oliver's total cost of purchasing would be
    a. $47,960.
    b. $41,510.
    c. $66,290.
    d. $66,850.
17. A ____________ mortgage sets relatively low monthly mortgage payments when the mortgage is first created and then gradually increases the payments over the first few years.
    a. fixed-rate
    b. adjustable-rate
    c. graduated payment
    d. balloon payment
18. A ___________ mortgage sets relatively low monthly payments and then requires one large payment after a specified period to pay off the remainder of the mortgage loan.
    a. fixed-rate
    b. adjustable-rate
    c. graduated payment
    d. balloon payment
19. Adjustable-rate mortgages (ARMs) are especially desired by homeowners who expect interest rates to _____________ in the future.
    a. increase
    b. decline
    c. remain stable
    d. none of the above
20. When purchasing a home, which of the following costs will you not incur?
    a. down payment
    b. closing costs
    c. realtor's commission
    d. loan application fee
21. _________ mortgages guarantee repayment of the loan to the lender.
    a. Federally insured
    b. Conventional
    c. Graduated payment
    d. Adjustable-rate

PART 3: BRAD BROOKS—A CONTINUING CASE

Thanks to your help, Brad Brooks is feeling so good about the state of his personal finances that he decides it is time to celebrate by upgrading his car and housing situations. Brad has stopped using his cell phone for personal calls and has more closely monitored his entertainment expenses, reducing them by $207. As a result, his monthly cash inflows now exceed his outflows by approximately $350 per month. Brad is interested in purchasing an SUV. He can get the fully loaded car for $35,000. He still owes $10,000 on his two-year-old sedan (which has 57,000 miles) and has found a buyer who will pay him $15,000 cash. This would enable him to pay off his current car loan and still have $5,000 for a down payment on the SUV. He would finance the remainder of the purchase price for four years at 8 percent. Anticipating your objections to purchasing the SUV, Brad has an alternative plan to lease the SUV for three years. The terms of the lease are $600 per month, a 20 cent charge per mile over 15,000 miles annually, and $1,200 due upon signing for the first month's lease payment and security deposit.

Brad would also like to purchase his condo. He knows that he will enjoy tax advantages with ownership and is eager to reduce his tax burden. He can make the purchase with 10 percent down; the total purchase price is $90,000. A 30-year mortgage is available with an 8 percent rate. Closing costs due at signing will total $3,100. The property taxes on his condo will be $1,800 per year, his Property Owners' Association (POA) fee is $70 per month, and his household insurance will increase by $240 a year if he buys the condo.

1. Refer to Brad's personal cash flow statement that you developed in Part 1. Recompute his expenses to determine if Brad can afford to:
   a. Purchase the new car.
   b. Lease the new car.
   c. Purchase his condo.
   d. Purchase both the car and the condo.
   e. Lease the car and purchase the condo.
2. Brad's rich uncle has offered to provide Brad with a loan for the closing costs and the down payment needed to purchase the condo. Brad exclaims, "This is great. I don't even need a loan contract!" Advise Brad on the situation.
3. What are the advantages and disadvantages to Brad of leasing rather than purchasing a car?
4. Based on the information you provided, Brad decides not to buy the condo at this time. How can he save the necessary funds for the down payment and closing costs of a house in the future? Be specific in your recommendations. Assume that Brad can invest savings in an account earning 10 percent annually.
5. Prepare a written or oral report on your findings and recommendations to Brad.