

PFIN

Gitman

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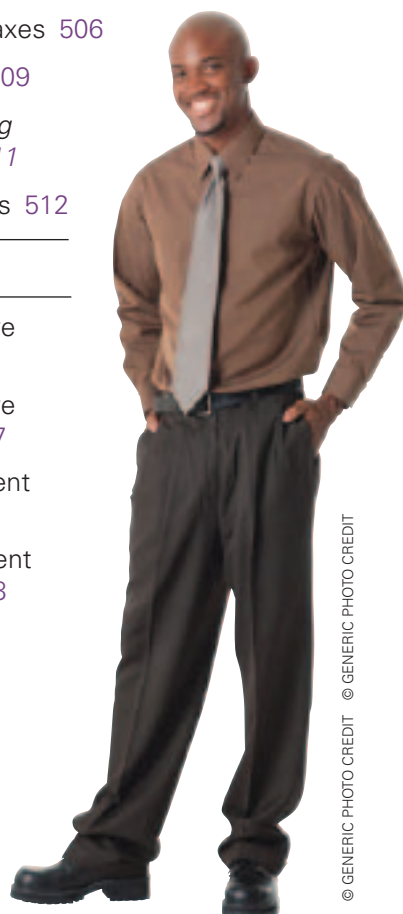
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His major textbooks include *The Future of Business*, Sixth Edition, and *The Future of Business: The Essentials*, Third Edition, which are both coauthored with Carl McDaniel; *Fundamentals of Investing*, Tenth Edition, which is coauthored with Michael D. Joehnk. Gitman and Joehnk also wrote *Investment Fundamentals: A Guide to Becoming a Knowledgeable Investor*, which was selected as one of 1988's ten best personal finance books by *Money* magazine; *Corporate Finance*, Second Edition, which is coauthored with Scott B. Smart and William L. Megginson; *Principles of Managerial Finance*, Fourth Brief Edition; *Principles of Managerial Finance*, Eleventh Edition; *Foundations of Managerial Finance*, Fourth Edition; and *Introduction to Finance*, which is coauthored with Jeff Madura.

An active member of numerous professional organizations, Professor Gitman is past president of the Academy of Financial Services, the San Diego Chapter of the Financial Executives Institute, the Midwest Finance Association, and the FMA National Honor Society. In addition, he is a Certified Financial Planner® (CFP®). Gitman formerly served as a Director on the CFP® Board of Governors, as Vice-President—Financial Education for the Financial Management Association, and as Director of the San Diego MIT Enterprise Forum. He has two grown children and lives with his wife in La Jolla, California, where he is an avid bicyclist.

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In addition to coauthoring several books with Lawrence J. Gitman, Professor Joehnk was the author of a highly successful paperback trade book, *Investing for Safety's Sake*. In addition, Dr. Joehnk was the editor of *Institutional Asset Allocation*, which was sponsored by the Institute of Chartered Financial Analysts and published by Dow Jones-Irwin. He also was a contributor to the *Handbook for Fixed Income Securities*, and *Investing and Risk Management—Vol. 1* of the *Library of Investment Banking*. In addition, he served a 6-year term as executive co-editor of the *Journal of Financial Research*. He and his wife live in Flagstaff, Arizona, where they enjoy hiking and other activities in the nearby mountains and canyons.

PART

1

RETIREMENT AND ESTATE PLANNING

CHAPTER 1
Understanding the Financial
Planning Process

CHAPTER 2
Developing Your Financial
Statements and Plans

CHAPTER 3
Preparing Your Taxes

4

MANAGING YOUR CASH AND SAVINGS



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LEARNING GOALS

After studying this chapter, you will be able to...

- LG1** Understand the role of cash management in the personal financial planning process. (p. 102)
- LG2** Describe today's financial services marketplace, both depository and nondepository financial institutions. (p. 104)
- LG3** Select the checking, savings, electronic banking, and other bank services that meet your needs. (p. 106)
- LG4** Open and use a checking account. (p. 114)
- LG5** Calculate the interest earned on your money using compound interest and future value techniques. (p. 121)
- LG6** Develop a savings strategy that incorporates a variety of savings plans. (p. 121)

LG1 The Role of Cash Management in Personal Financial Planning

Establishing good financial habits involves managing cash as well as other areas of personal finance. In this chapter we focus on **cash management**—the routine, day-to-day administration of cash and near-cash resources, also known as *liquid assets*, by an individual or family. These assets are considered liquid because they're either held in cash or can be readily converted into cash with little or no loss in value.

In addition to cash, there are several other kinds of liquid assets, including checking accounts, savings accounts, money market deposit accounts, money market mutual funds, and other short-term investment vehicles. Exhibit 4.1 briefly describes some popular types of liquid assets and the representative rates of return they earned in the spring of 2009. As a rule, near-term needs are met using cash on hand, and unplanned or future needs are met using some type of savings or short-term investment vehicle.

In personal financial planning, efficient cash management ensures adequate funds for both household use and an effective savings program. The success of your financial plans depends on your ability to develop and follow cash budgets like those discussed in chapter 2.

A good way to keep your spending in line is to make all household transactions (even fun money or weekly cash allowances) using a tightly-controlled *checking account*. Write checks only at certain times of the week or month and, importantly, avoid carrying your checkbook (or debit card) when you might be tempted to write checks (or make debits) for unplanned purchases. If you're going shopping, set a maximum spending limit beforehand—an amount consistent with your cash budget. This system not only helps you avoid frivolous, impulsive expenditures but also documents how and where you spend your money. If your financial outcomes aren't consis-



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tent with your plans, you can better identify causes and take corrective actions.

Another aspect of cash management is establishing an ongoing savings program, which is an important part of personal financial planning. Savings are not only a cushion against financial emergencies, but a way to accumulate funds to meet future financial goals. You may want to put money aside so you can go back to school in a few years to earn a graduate degree, or buy a new home, or take a vacation.

cash management
The routine, day-to-day administration of cash and near-cash resources, also known as liquid assets, by an individual or family.

CONCEPTCHECK

- 4-1** What is cash management and what are its major functions?
- 4-2** Give two reasons for holding liquid assets. Identify and briefly describe the popular types of liquid assets.

LG2 Today's Financial Services Marketplace

Beth White hadn't paid a visit to her bank for years. Her company paid



FINANCIAL ROAD SIGN

YOUR PRIVACY IS PROTECTED

The Financial Modernization Act of 1999, also known as the Gramm-Leach-Bliley Act, protects your personal financial information held by financial institutions. It has three principal parts:

The Financial Modernization Act of 1999, also known as the Gramm-Leach-Bliley Act, protects your personal financial information held by financial institutions. It has three principal parts:

1. Financial institutions must provide customers with a privacy notice—a clear, conspicuous, and accurate statement of their information-sharing practices.
2. Financial institutions must design, implement, and maintain safeguards to protect customer information.
3. Consumers are protected from individuals and companies that obtain their personal financial information under false pretenses.

Exhibit 4.1 Where to Stash the Cash

The wide variety of liquid addets available meets just about any savings or short-term investment need. Rates vary considerably both by type of asset and point in time, so shop around for the best interest rate.

| Type | Representative Rates of Return | |
|-----------------------------|--------------------------------|---|
| | Fall 2006 | Description |
| Cash | 0% | Pocket money; the coin and currency in one's possession. |
| Checking account | 0–1% | A substitute for cash. Offered by commercial banks and other financial institutions such as savings and loans and credit unions. |
| Savings account | 1% | Money is available at any time but cannot be withdrawn by check. Offered by banks and other financial institutions. |
| Money market mutual fund | 4–5% | Savings vehicle that is actually a mutual fund (not offered by banks, S&Ls, and other depository institutions). Like an MMDA, it also offers check-writing privileges. |
| Certificate of deposit (CD) | 2–4% | A savings instrument where funds are left on deposit for a stipulated period (1 week to 1 year or more); imposes a penalty for withdrawing funds early. Market yields vary by size and maturity; no check-writing privileges. |
| U.S. Treasury bill (T-bill) | 5% | Short-term, highly marketable security issued by the U.S. Treasury (originally issued with maturities of 13 and 26 weeks); smallest denomination is \$1,000. |
| U.S. savings bond (EE) | 3–4% | Issued at a discount from face value by the U.S. Treasury; rate of interest is tied to U.S. Treasury securities. Long a popular savings vehicle. |

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her salary into her checking account each month by direct deposit, and she regularly did all her banking from her home computer—with the click of a mouse, she could check her account balances, pay her bills, even search for the best rates on savings instruments. And by pushing a few buttons, she was able to withdraw money from her U.S. bank account using an Automated Teller Machine (ATM) in London!

The pace of change in the financial services industry is accelerating, thanks to advanced technology and less restrictive regulations. Consumers can now choose from many financial institutions competing for their business. No longer must you go to one place for your checking accounts, another for credit cards or loans, yet another for stock brokerage services. Today, financial institutions are expanding services and competitively pricing products by bundling different accounts. For example, if you have \$25,000 worth of funds in Bank of America accounts, you're eligible for reduced or zero-cost commissions on stock trades, free checking, free bill-pay, a credit card, and free ATM debit card transactions. And on-line banking allows you to easily access all of these services. It's your choice:

you can choose an institution like Bank of America that provides “one-stop shopping,” or you can have accounts with a variety of financial service providers, depending on what's best for you.

The *financial services industry* as we know it today embraces all institutions that market various kinds of *financial products* (such as checking and savings accounts, credit cards, loans and mortgages, insurance, and mutual funds) and *financial services* (such as financial planning, securities brokerage, tax filing and planning, estate planning, real estate, trusts, and retirement). What 20–25 years ago was several distinct (though somewhat related) industries is now, in essence, one industry in which firms are differentiated more by organizational structure than by name or product offerings.

Types of Financial Institutions

Financial institutions can be classified into two broad groups—depository and nondepository—based on whether they accept deposits like traditional banks. Financial Institutions are expanding services and competitively pricing products by bundling accounts.

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Depository Financial Institutions

The vast majority of financial transactions take place at depository financial institutions—commercial banks (both brick-and-mortar and Internet), savings and loan associations (S&Ls), savings banks, and credit unions. Although they're regulated by different agencies, depository financial institutions are commonly referred to as “banks” because of their similar products and services. What sets these institutions apart from others is their ability to accept deposits; most people use them for checking and savings account needs. These depository financial institutions are briefly described in Exhibit 4.2.

Nondepository Financial Institutions

Other types of financial institutions that offer banking services, but don't accept deposits like traditional banks, are considered *nondepository institutions*. Today you can hold a credit card issued by a stock

brokerage firm or have an account with a mutual fund that allows you to write a limited number of checks.

Go to Smart Sites

Several comprehensive financial Web sites that get rave reviews are Yahoo! Finance, Microsoft's MSN Money Central and Intuit's Quicken. ●

- *Stock brokerage* firms offer several cash management options, including money market mutual funds that invest in short-term securities and earn a higher rate of interest than bank accounts.
- *Mutual funds*, discussed in detail in Chapter 13, provide yet another alternative to bank savings accounts. Like stockbrokers, mutual fund companies offer money market mutual funds.
- *Stock brokerage* firms offer several cash management options, including money market mutual funds that invest in short-term securities and earn a higher rate of interest than bank accounts, special “wrap” accounts, and credit cards.

Other nondepository financial institutions include life insurance and finance companies.

Exhibit 4.2 Depository Financial Institutions

The wide variety of liquid addets available meets just about any savings or short-term investment need. Rates vary considerably both by type of asset and point in time, so shop around for the best interest rate.

| Institution | Description |
|------------------------------|---|
| Commercial bank | Offers checking and savings accounts and a full range of financial products and services; the only institution that can offer non-interest-paying checking accounts (demand deposits). The most popular of the depository financial institutions. Most are traditional brick-and-mortar banks, but Internet banks—online commercial banks—are growing in popularity due to their convenience, lower service fees, and higher interest paid on account balances. |
| Savings and loan Association | Channels the savings of depositors primarily into mortgage loans for purchasing and improving homes. Also offers many of the same checking, saving, and ending products as commercial banks. Often pays slightly higher interest on savings than do commercial banks. |
| Savings bank | Similar to S&Ls, but located primarily in the New England states. Most are mutual associations—their depositors are their owners and thus receive a portion of the profits in the form of interest on their savings. |
| Credit union | A nonprofit, member-owned financial cooperative that provides a full range of financial products and services to its members, who must belong to a common occupation, religious or fraternal order, or residential area. Generally small institutions when compared with commercial banks and S&Ls. Offer interest-paying checking accounts—called share draft accounts—and a variety of saving and lending programs. Because they are run to benefit their members, they pay higher interest on savings and charge lower rates on loans than do other depository financial institutions. |

deposit insurance

A type of insurance that protects funds on deposit against failure of the institution; can be insured by the FDIC and the NCUA.

How Safe Is Your Money?

Today, the main reason that a bank goes out of business is its purchase by another bank. Almost all commercial banks, S&Ls, savings banks, and credit

unions are federally insured by U.S. government agencies. The few that are not federally insured usually obtain insurance through either a state-chartered or private insurance agency. Most experts believe that these so-called privately-insured institutions have less protection against loss than those that are federally insured. Exhibit 4.3 on page 106 lists the insuring agencies and maximum insurance amounts provided under the various federal deposit insurance programs.



Go to Smart Sites

Look up your bank's deposit insurance status at the Federal Deposit Insurance Corp. ●

Deposit insurance protects the funds you have on deposit at banks and other depository institutions against institutional failure. In effect, the insuring agency stands behind the financial institution and guarantees the safety of your deposits up to a specified maximum amount. The ordinary amount covered per depositor by federal insurance is \$100,000, which was temporarily increased to \$250,000 during the financial crisis of 2009. The current discussion applies the traditional amount of \$100,000 per depositor under federal insurance.

Deposit insurance is provided to the *depositor* rather than a *deposit account*. Thus, the checking and savings accounts of each depositor are insured and, as long as the maximum insurable amount is not exceeded, the depositor can have any number of accounts and still be fully protected. This is an important feature to keep in mind because many people mistakenly believe that the maximum insurance applies to *each* of their accounts. For example, a deposi-

tor with a checking account balance of \$15,000 at a branch office of First National Bank, an MMDA of \$35,000 at First National Bank's main office, and a \$50,000 CD issued by First National Bank is entirely covered by the FDIC's deposit insurance traditional amount of \$100,000 per depositor. If the CD was for \$75,000, however, the total for this depositor would be \$125,000 and therefore not entirely covered under the traditional plan. However, purchasing the CD from another bank, which also provides \$100,000 of deposit insurance, would fully protect all of this depositor's funds.

Now that banks are offering a greater variety of products, including mutual funds, it's important to remember that only deposit accounts, including certificates of deposit, are covered by deposit insurance. *Securities purchased through your bank are not protected by any form of deposit insurance.*

As a depositor, it's possible to increase your \$100,000 of traditional deposit insurance if necessary by opening accounts in different depositor names at the same institution. For example, a married couple can obtain as much as \$500,000 in coverage by setting up several accounts:

- One in the name of each spouse (\$200,000 in coverage)
- A *joint* account in both names (good for another \$100,000)
- *Separate trust or self-directed retirement (IRA, Keogh, etc.) accounts* in the name of each spouse (good for an additional \$200,000)

In this case each depositor name is treated as a separate legal entity, receiving full insurance cover *NOW (negotiable order of withdrawal) accounts* or, in the case of credit unions, *share draft accounts*. Demand deposit balances are an important type of cash balance, and using checks to pay bills or electronic debits to make purchases gives you a convenient payment record.

Savings Accounts

A savings account is another type of liquid asset available at commercial banks, S&Ls, savings banks, credit unions, and other types of financial institutions.

Savings deposits are referred to as **time deposits** because they are expected to remain on deposit for longer periods of time than demand deposits. Because savings deposits earn higher rates of interest, savings accounts are typically preferable to checking accounts when the depositor's goal is to accumulate money for a future expenditure or to maintain balances for meeting unexpected expenses. Most banks pay higher interest rates on larger savings account balances. For example, a bank might



The husband alone is considered one legal entity, the wife another, and the husband and wife as a couple a third. The trust and self-directed retirement accounts are also viewed as separate legal entities.

CONCEPTCHECK

- 4-3** Briefly describe the basic operations and products and services offered by each of the following financial institutions: (a) commercial bank, (b) savings and loan association, (c) savings bank, (d) credit union, (e) stock brokerage firm, and (f) mutual fund.
- 4-4** What role does the FDIC play in insuring financial institutions? What other federal insurance program exists? Explain.
- 4-5** Would it be possible for an individual to have, say, six or seven checking and savings accounts at the same bank and still be fully protected under federal deposit insurance? Explain. Describe how it would be possible for a married couple to obtain as much as \$500,000 in federal deposit insurance coverage at a single bank.

LG3 A FULL Menu of Cash Management Products

After meeting with an officer at his local bank, Bob Matheson was confused. As a student on a tight budget, working to pay his way through college, he knew how important it was to plan his saving and spending, and he wanted to make the right decisions about managing his financial resources. By using a checking account comparison chart, like to the one in Exhibit 4.4, Bob could compare information on daily balance requirements, service fees, interest rates, and services his bank offers to college students and others. As Exhibit 4.4 demonstrates, banks offer a variety of convenient checking account services.

Checking and Savings Accounts

People hold cash and other forms of liquid assets, like checking and savings accounts, for the convenience they offer in making purchase transactions, meeting normal living expenses, and providing a safety net, or cushion, to meet unexpected expenses or take advantage of unanticipated opportunities. Financial institutions compete to offer a wide array of products

meeting every liquid-asset need. Traditionally it pays no interest, and any service.

The federal *Truth-in-Savings Act of 1993* helps consumers evaluate the terms and costs of banking products. Depository financial institutions must clearly disclose fees, interest rates, and terms—of both checking and savings accounts. The act places strict controls on bank advertising and what constitutes a “free” account. For example, banks cannot advertise free checking if there are minimum balance requirements or per-check charges. Banks must use a standard *annual percentage yield (APY)* formula that takes compounding (discussed later) into account when stating the interest paid on accounts. This makes it easier for consumers to compare each bank's offerings. The law also requires banks to pay interest on a customer's full daily or monthly average deposit balance. Banks are prohibited from paying interest only on the lowest daily balance or paying no interest if the account balance falls below the minimum balance for 1 day. In addition, banks must notify customers 30 days before lowering rates on deposit accounts or certificates of deposit.



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Checking Accounts

A checking account held at a financial institution is a **demand deposit**, meaning that the bank must permit these funds to be withdrawn when the account holder demands. You put money into your checking account by *depositing* funds; you withdraw it by *writing a check, using a debit card, or making a cash withdrawal*. As long as you have sufficient funds in your account, the bank, when presented with a valid check or an electronic debit, must immediately pay the amount indicated by deducting it from your account. Money held in checking accounts is liquid, so you can easily use it to pay bills and make purchases.

NUMBER 4 HEAD. is the most common type of checking account. Traditionally, it pays no interest, and any service charges can be waived if you maintain a minimum balance (usually between \$500 and \$1,500). And many banks are moving away from such minimum balance requirements. Technically, only commercial banks can offer non-interest-paying regular checking accounts. S&Ls, savings banks, and credit unions also

demand deposit

An account held at a financial institution from which funds can be withdrawn on demand by the account holder; same as a checking account.

electronic funds transfer systems (EFTS) Systems using the latest telecommunications and computer technology to electronically transfer funds into and out of customers' accounts.

debit cards Specially coded plastic cards used to transfer funds from a customer's bank account to the recipient's account to pay for goods or services.

automated teller machine (ATM) A remote computer terminal that customers of depository institutions can use to make basic transactions 24 hours a day, 7 days a week.

rowing activities and is offered primarily by brokerage houses and mutual funds. AMAs appeal to investors because they can consolidate most of their financial transactions at one institution and on one account statement.

A typical AMA account includes an MMDA with unlimited free checking, a Visa or MasterCard debit card, use of ATMs, and brokerage and loan accounts. Annual fees and account charges, such as a per-transaction charge for ATM withdrawals, vary; so it pays to shop around. AMAs have increased in popularity as more institutions have lowered minimum balance requirements to \$5,000, and they pay higher

interest rates on checking account deposits than banks do. Their distinguishing feature is that they automatically "sweep" excess balances—for example, those more than \$500—into a higher-return MMMF daily or weekly. When the account holder needs funds to purchase securities or cover checks written on the MMDA, the funds are transferred back to the MMDA. If the amount of securities purchased or

checks presented for payment exceeds the account balance, the needed funds are supplied automatically through a loan.

Although AMAs are an attractive alternative to a traditional bank account, they have some drawbacks. Compared with banks, there are fewer "branch" locations. However, AMAs are typically affiliated with ATM networks, making it easy to withdraw funds. ATM transactions are more costly, checks can take longer to clear, and some bank services, such as travelers' and certified checks, may not be offered. AMAs are not covered by deposit insurance, although these deposits are protected by the *Securities Investor Protection Corporation* (explained in Chapter 11) and the firm's private insurance.

Electronic Banking Services

The fastest-changing area in cash management today is electronic banking services. Whether you're using an ATM or checking your account balance online, electronic banking services make managing your money easier and more convenient. Electronic funds transfer systems allow you to conduct many types of banking business at any hour of the day or night.

Electronic Funds Transfer Systems

Electronic funds transfer systems (EFTSs) use the latest telecommunications and computer technology to electronically transfer funds into and out of

your account. For example, your employer may use an EFTS to electronically transfer your pay from the firm's bank account directly into your personal bank account at the same or a different bank. This eliminates the employer's need to prepare and process checks and the employee's need to deposit them.

Debit Cards and Automated Teller Machines. This form of EFTS uses specially-coded plastic cards, called **debit cards**, to transfer funds from the customer's bank account (a debit) to the recipient's account. A

other transactions such as loan payments or transfers between accounts—24 hours a day, 7 days a week. Most banks have ATMs outside their offices, and some place freestanding ATMs in shopping malls, airports, and grocery stores; at colleges and universities; and in other high-traffic areas to enhance their competitive position. If your bank

Customer Relationship Management (CRM) CRM is the on-going process of acquiring, maintaining, and growing profitable customer relationships by delivering unmatched

Arnold Schwarzenegger marketed brilliantly

David Ogilvy, founder of Ogilvy & Mather advertising agency

debit card may be used to make purchases at any place of business set up with the point-of-sale terminals required to accept debit card payments. The personal identification number (PIN) issued with your debit card verifies that you are authorized to access the account. Visa and MasterCard issue debit cards linked to your checking account that give you even more flexibility. In addition to using the card to purchase goods and services, you can use it at ATMs, which have become a popular

belongs to an EFTS network, such as Cirrus, Star, or Interlink, you can get cash from the ATM of any bank in the United States or overseas that is a member of that network. (In fact, the easiest way to get foreign currency when you travel overseas is through an ATM on your bank's network! It also gives you the best exchange rate for your dollar.) Many banks charge a per-transaction fee of \$1 to \$4 for using the ATM of another bank, and some also charge when you use your ATM card to pay certain merchants. However, to be more competitive some banks now reimburse the fees associated with using the ATMs of other banks.

FINANCIAL ROAD SIGN



TIPS FOR SAFE ONLINE BANKING

- **The All-important Security "s" in Website URLs.** Website URLs starting with "https://" are more secure than website URLs starting with "http://". This is particularly important when you are entering passwords and PINs. You should feel better if the URL is followed by the name of your financial institution because this helps authenticate the site. Security icons such as a padlock do not guarantee complete security because they can be reproduced by those seeking to deceive you.
- **Passwords and User IDs.** Passwords and user IDs should be a combination of upper and lower case letters, numbers, and symbols. Passwords should be at least 8 characters in length. NEVER provide your passwords to email requests for information to update your account – it must be bogus!
- **Safe Access Points.** Avoid accessing your bank accounts at an internet café or public places like an airport. Your session is just too easy to intercept.

Source: Adapted from <http://www.419.legal.org/blog/2009/04/16/scam-alert-online-banking-safety-guidelines>

way to make banking transactions. **Automated teller machines (ATMs)** are remote computer terminals that customers of a bank or other depository institution can use to make deposits, withdrawals, and

$$\text{Effective rate of interest} = \frac{\text{Amount of interest earned during the year}}{\text{Amount of money invested or deposited}}$$

The total dollar volume of purchases made using Visa's branded debit cards surpassed credit-card purchases for the first time late in 2008. This is likely related to more cautious use of credit cards during a recession. Yet the trend was becoming clear before this because combined credit- and debit-card purchases of retail goods and services passed those via checks in 2003. Thus, plastic is growing more popular among U.S. consumers in general with debit cards starting to overtake credit cards.

Debit card use is increasing because these cards are convenient both for retailers, who don't have to worry about bounced checks, and for consumers, who don't have to write checks and can often get cash back when they make a purchase. ATM and other debit cards are accepted by supermarkets, gas stations, and convenience stores, and many other retail and service outlets. The convenience of debit cards may in fact be their biggest drawback: it can be easy to overspend. To avoid problems, make sure to record all debit card purchases immediately in your checkbook ledger and deduct them from your checkbook balance. Also be



Slovenia got the green light to change Slovenian tolar to euros on January 1, 2007. A recent European Commission meeting gave Slovenia the chance to be the first Eastern European country with a euro currency.

MONEY IN ACTION

Pros and Cons of Online Banking

PROS

The convenience of online banking is hard to beat:

- **Bank Balances Verification:** You no longer have to wait to get your monthly statement. Just sign in to your online account and verify your bank account balance whenever you want.
- **Download Transactions:** Most banks allow you to download your banking transactions into financial software like Quicken. Debit and credit card charges will show up, which simplifies record-keeping.
- **Online Bill Payment:** It is easier and cheaper to pay online than to mail a paper check. Many banks offer free bill pay services, which reduces the number of paper checks and stamps you need to buy. You can automate some payments, which is great for charges like cable, electric, and the like.
- **Funds Transfer:** It is often free or close to free to transfer funds between your eligible bank accounts and even your accounts at other U.S. financial institutions.

CONS

But is important to be aware of the downside:

- **Threat of Identity Theft:** Security precautions, like those noted in the above Financial Road Sign, must be taken to protect your private information.
- **Not All Businesses Accept Electronic Payments:** Make sure that the businesses you deal with accept online payments well before you need to make a payment. Lack of coordination could lead to late charges. If you choose to pay bills online, make sure that recipients are capable of processing electronic payments. Always remember to print out a hard copy of all online transactions in case there is an error.
- **Website Crashes:** All websites occasionally crash or go down for scheduled maintenance. Keep your bank's phone number handy in case you cannot access a needed account.
- **Fees:** While many banks make online services free, some do not. It is essential to reviews any and all possible fees before you start using your online account.

Critical Thinking Questions

1. What are the main advantages of online banking services?
2. What are some disadvantages of bills online banking?
3. What are the main advantages of online banking services?

ISTOCKPHOTO.COM/KATV

can't stop payment—an action you could take if you had paid by check or credit card.

Two related EFTS services are *preauthorized deposits and payments*. They allow you to receive automatic deposits or make payments that occur regularly. For example, you can arrange to have your paycheck or monthly pension or Social Security benefits deposited directly into your account. Regular, fixed-amount payments, such as mortgage and consumer loan payments or monthly retirement fund contributions, can be preauthorized be made automatically from your account. You can also preauthorize regular payments of varying amounts such as monthly utility bills. In this case, each month you would specify by phone the amount.

Charges for preauthorized payments vary from bank to bank. Typically, customers must maintain a specified minimum deposit balance and pay fees ranging from nothing to less than a \$1 per transaction. This system better allows the customer to earn interest on deposits used to pay bills, and it's a convenient



payment method that eliminates postage costs. Bank customers can do various banking transactions by telephone, either by calling a customer service operator who handles.

The transaction or by using the keypad on a touch-tone telephone to instruct the bank's computer. After the customer provides a secret code to access his or her accounts, the system provides the appropriate prompts to perform various transactions, such as obtaining an account balance, finding out what checks have cleared, transferring funds to other accounts, and dispatching payments to participating merchants. To encourage banking by phone, many banks today charge no fee on basic account transactions or allow a limited number of free transactions per month. However, online banking options are replacing bank-by-phone accounts. Customers are concerned that Internet banks are less secure. Regular, fixed-amount payments, such as mortgage and consumer loan payments

FINANCIAL ROAD SIGN



WHAT DO I NEED TO KNOW ABOUT SAFE-DEPOSIT BOXES

Answering the following questions will help you determine if it's time to rent a safe-deposit box and what should be kept in it:

Do you have anything that would be hard or impossible to replace? Important papers include original deeds, titles, mortgages, contracts, and insurance policies. Family records such as birth, marriage and death certificates can be time-consuming to replace. Valuables that deserve space in a safe-deposit box include expensive jewels, medals, rare stamps and other collectibles. Here's a simple but important thing to keep in your safe-deposit box: videos or pictures of your home's contents to provide your insurance company in case there is theft or damage at your house.

Is there anything that should not be kept in a safe-deposit box? Don't keep anything in a safe-deposit box that you might need in an emergency when your bank is closed. Examples include the originals of a "power of attorney" (written authorization for another person to transact business on your behalf), passports (for an emergency trip), medical-care directives if you become ill and incapacitated, and funeral or burial instructions. It's also reasonable to give the originals of important documents to your attorney and keep copies in your safe-deposit box.

How safe is a safe-deposit box? While safe-deposit boxes are highly resistant to fire, flood, heat, earthquakes, hurricanes, and explosions, there is no guarantee against damage. Substantial losses rarely occur. In the unlikely event your bank fails, the FCIC usually arranges for another institution to take it over.

Source: Adapted from <http://www.419 legal.org/blog/2009/04/16/scam-alert-online-banking-safety-guidelines>

Online Banking and Bill Payment Services

The Pew Internet & American Life Project recently found that over 43% of internet users or 63 million American adults rely on some form of *online banking services*. The number has grown steadily as banks make online services easier to use and people become more comfortable using the Internet for financial transactions. Many individuals just check their balances, but more than half use the Internet to transfer funds as well. Thanks to improved Internet security procedures, most online bank services are delivered through the Internet although some may use direct dial-up connections with the customer's bank. Today most banks compete for your online banking business. It's in their best financial interests to do so. A recent study showed that the cost of a full-service teller transaction is about \$1.00, an ATM transaction is about 30 cents, and an Internet transaction is less than 1 cent.

An online banking service lets you access your bank's Web site from your computer at any time. After logging on with your personal identification code and

password, you can review your current statement to check your balance and recent transactions. Then, you can transfer funds from one account to another or pay bills electronically. You can also download account information to money management software such as Quicken or Microsoft Money.

Although a computer-based bank-at-home system doesn't replace the use of an ATM to obtain cash or deposit money, it can save both time and postage when you're paying bills. Other benefits include convenience and the potential to earn higher interest rates and pay lower fees. Customers like being able to check their account balances at any time of the day or night, not just when their printed statement comes once a month.

While some banks still charge an average of \$5 a month for online banking services it has become free at many banks. But online banking doesn't always live up to its promises. You can't make cash deposits, checks may get lost in the mail, and you don't know when the funds will reach your account. The Money in Action box on page 112 provides more information to help you decide if online banking is right for you.

Most consumers prefer the security of a bank with a physical presence and a variety of other banking options such as branches, ATMs, and phone services. Your current "traditional" bank probably offers online banking services. Another option is to open an account at an Internet bank that exists only online and has few or no physical locations. Because they don't incur branch costs, Internet banks can offer high interest rates on checking and savings accounts and CDs, attractive loan rates, and low fees and charges. However, only about 2 percent of all households that bank online choose these banks. Customers are concerned that Internet banks are less secure, and they find it inconvenient to deposit checks by mail. To counter these concerns, many Internet banks are moving to a "clicks-and-bricks" strategy, adding a physical presence such as ATM networks and staffed mini-branches with ATMs and videoconferencing stations.

Regulation of EFTS Services

The federal *Electronic Fund Transfer Act of 1978* describes your rights and responsibilities as an EFTS user. Under this law, you cannot stop payment on a defective or questionable purchase, although individual banks and state laws have more lenient provisions. If there's an error, you must notify the bank within 60 days of its occurrence. The bank must investigate and tell you the results within 10 days. The bank can then take up to 45 more days to investigate the error but must return the disputed money to your account until the issue is resolved. Today most banks compete for your online banking business. It's in their best finan-

If you fail to notify the bank of the error within 60 days, the bank has no obligation under federal law to conduct an investigation or return your money. You must notify the bank immediately about the theft, loss, or unauthorized use of your EFTS card. Notification within 2 business days after you discover the card missing limits your loss to \$50. After 2 business days, you may lose up to \$500 (but never more than the amount that was withdrawn by the thief). If you don't report the loss within 60 days after your periodic statement was mailed, you can lose all the money in your account. When reporting errors or unauthorized transactions, it's best to notify your bank by telephone and follow up with a letter. Keep a copy of the letter in your file.

Two related EFTS services are *preauthorized deposits and payments*. They allow you to receive automatic deposits or make payments that occur regularly. For example, you can arrange to have your paycheck or monthly pension or Social Security benefits deposited directly into your account. Regular, fixed-amount payments, such as mortgage and consumer loan payments or monthly retirement fund contributions, can be preauthorized to be made automatically from your account. You can also preauthorize regular payments of varying amounts such as monthly utility bills. In this case, each month you would specify by phone the amount. Many state regulations offer additional consumer protection.

CONCEPTCHECK

- 4-6 Distinguish between a checking account and a savings account.
- 4-7 Define and discuss (a) demand deposits, (b) time deposits, (c) interest-paying checking accounts.
- 4-8 Briefly describe the key characteristics of each of the following forms of interest-paying checking accounts: (a) NOW account, (b) money market deposit account (MMDA).
- 4-9 Describe the features of an asset management account (AMA), its advantages, and its disadvantages.
- 4-10 Briefly describe (a) debit cards, (b) banking at ATMs, (c) preauthorized deposits and payments, (d) bank-by-phone accounts.
- 4-11 What are your legal rights and responsibilities when using EFTS?

FINANCIAL ROAD SIGN



CHOOSING A NEW BANK

If you're looking for a new bank, here are some important factors to consider:

- **Convenient Location and Online Services:** Find a bank that is conveniently located and has online services because they tend to pay more competitive savings rates.
- **Fee-Free Checking and Free Money Transfers:** "Free checking" usually means you aren't required to keep a minimum balance in your account and can write as many checks a month as you like. Even if it isn't labeled as such, look for free checking. See www.BankingMyWay for tips on how to keep your checking account cheap. Also look for banks that let you transfer funds between different accounts for free.
- **Convenient ATMs:** The average fee for using the ATM of another bank is about \$3. While some banks are starting to refund such fees, if you visit ATMs belonging to your bank you can avoid the surcharge for sure and the hassle of refunds. It is best to have an ATM close to your work and home.
- **Don't forget to consider credit unions:** Credit unions are not-for-profit institutions that often provide superior better rates because they don't spend as much on advertising and marketing. However, with this benefit comes the cost of typically having fewer physical branches and ATMs than major bank networks. You can find the credit unions in your area at www.findacreditunion.com and www.creditunion.coop.
- **Overdraft and FDIC Protection:** Given that fees for bounced checks average about \$30, it is important to know what the charges are and what kind of overdraft protection is offered. Also make sure that your deposits are insured by the FDIC.
- **Competitive Interest Income:** Find out if the bank pays interest on your balance. You can shop for the most competitive rates at in your zip code at www.bankingmyway.com.

Source: Adapted from Farnoosh Torabi, "Back to Basics: Choosing a New Bank," October 1, 2008, and "How to Choose the Best Checking Account," posted February 24, 2009.

LG4, LG5 Maintaining a Checking Account

By the time David Renquist started college, he had a thriving car-detailing business that earned him several hundred dollars per week. Some customers paid him in advance, some paid after the fact, and some forgot to pay at all. But by depositing each check or cash payment into his checking account, David was able to keep track of his earnings without complicated book-keeping. A checking account is one of the most useful cash management tools you can have. It's a safe and convenient way to hold money and streamline point-of-sale purchases, debt payments, and other basic transactions. You can have regular or interest-paying checking accounts at commercial banks, S&Ls, savings banks, credit unions, and even brokerage houses

through asset management accounts. For convenience, we'll focus on commercial bank checking accounts, although our discussion also applies to checking accounts maintained at other types of institutions.

Opening and Using Your Checking Account

Factors that typically influence the choice of where to maintain a checking account are convenience, services, and cost. Many people choose a bank based solely on convenience factors: business hours, location, number of drive-thru windows, and number and location of branch offices and ATMs. Ease of access is obviously an important consideration because most people prefer to bank near home or work. Although services differ from bank to bank, today most banks offer several types of accounts: debit, ATM, credit cards, and loans. Many banks also offer online and telephone banking and bill-paying services, safe-deposit box rental, provision for direct deposits and withdrawals, and mutual-fund sales.



Slovenia got the green light to change Slovenian tolar to euros on January 1, 2007. A recent European Commission meeting gave Slovenia the chance to be the first Eastern European country with a euro currency.

After determining the banking services you need, evaluate the offerings of conveniently located, federally insured financial institutions. In addition to convenience and safety, consider interest rates, types of accounts (including special accounts that combine such features as credit cards, free checks, and reduced fees), structure and level of fees and charges, and quality of customer service.

The Cost of a Checking Account

Bank service charges have increased sharply due to deregulation and the growth of interest-paying checking accounts. Today few, if any, banks and other depository institutions allow unlimited free check-writing privileges. Most banks levy monthly and per-check fees when your checking account balance drops below a required minimum, and some may charge for checking no matter how large a balance you carry.

Other Bank Services

In addition to the services described earlier in this chapter, many banks offer other types of money management services, such as safe-deposit boxes and trust services.

- **Safe-deposit boxes:** A safe-deposit box is a rented drawer in a bank's vault. Boxes can be rented for \$40–\$85 per year (or more), depending on their size. When you rent a box, you receive one key to it, and the bank keeps another key. The box can be opened only when both keys are used. This arrangement protects items in the box from theft and serves as an excellent storage place for jewelry, contracts, stock certificates, titles, and other important documents. Keeping valuables in a safe-deposit box may also reduce your homeowner's insurance by eliminating the "riders" that are often needed to cover such items.
- **Trust services:** Bank trust departments provide investment and estate planning advice. They manage and administer the investments in a trust account or from an estate.

While home banks are moving away from minimum balance requirements, it is still common to be required to maintain a minimum balance of \$500 to \$1,000 or more to avoid service charges. Although some banks use the average monthly balance in an account to determine whether to levy a service charge,

checkbook ledger A booklet, provided with a supply of checks, used to maintain accurate records of all checking account transactions.

overdraft The result of writing a check for an amount greater than the current account balance.

overdraft protection An arrangement between the account holder and the depository institution wherein the institution automatically pays a check that overdraws the account.

Exhibit 4.5 A Bank Statement

The wide variety of liquid addets available meets just about any savings or short-term investment need. Rates vary considerably both by type of asset and point in time, so shop around for the best interest rate.

P.O. BOX 516 ANY CITY, USA 90000-0000
 JAMES C. MORRISON
 1765 SHERIDAN DRIVE N
 YOUR CITY, STATE 12091 21
 CALL (800) 222-0000
 24 HOURS/DAY, 7 DAYS/WEE
 FOR ASSISTANCE WITH
 YOUR ACCOUNT.

PAGE 1 OF 1 THIS STATEMENT COVERS: 4/30/07 THROUGH 5/29/07

| PREMIUM ACCOUNT SUMMARY | | 123-45678 | |
|-------------------------|--------------|-----------------|-------|
| PREVIOUS BALANCE | 473.68 | MINIMUM BALANCE | 21.78 |
| DEPOSITS | 1,302.83+ | | |
| WITHDRAWALS | 1,669.02- | | |
| SERVICE CHARGES | 7.50- | | |
| DIRECT DEPOSIT DISCOUNT | 1.00+ | | |
| NEW BALANCE | 80.99 | | |

| CHECK | DATE PAID | AMOUNT | CHECK | DATE PAID | AMOUNT |
|-------|-----------|--------|-------|-----------|--------|
| 203 | 5/01 | 10.00 | 213 | 5/08 | 40.00 |
| 204 | 4/30 | 15.00 | 214 | 5/09 | 9.58 |
| 205 | 5/10 | 635.00 | 215 | 5/20 | 66.18 |
| 206 | 5/08 | 25.00 | 216 | 5/20 | 64.92 |
| 207 | 5/07 | 19.00 | 217 | 5/21 | 25.03 |
| 208 | 5/07 | 50.00 | 218 | 5/21 | 37.98 |
| 209 | 5/08 | 15.00 | 219 | 5/22 | 35.00 |
| 210 | 5/10 | 83.00 | 220 | 5/22 | 105.00 |
| 211 | 5/10 | 10.00 | 222* | 5/22 | 100.00 |
| 212 | 5/08 | 70.00 | 223 | 5/21 | 40.00 |
| | | | 224 | 5/29 | 40.82 |

| DATE | DESCRIPTION | AMOUNT |
|------|---|--------|
| 4/30 | PREMIUM ACCOUNT FEE LESS \$1.00 DISCOUNT | 6.50 |
| 5/01 | INTERLINK PURCHASE #572921 ON 04/30 AT LUCKY STORE NO 043 | 50.00 |
| 5/06 | WITHDRAWAL #08108 AT 00165A ON 05/04 | 20.00 |
| 5/13 | INTERLINK PURCHASE #807409 ON 05/11 AT LUCKY STORE NO 056 | 12.51 |
| 5/17 | WITHDRAWAL #01015 AT 00240C ON 05/17 | 20.00 |
| 5/20 | WITHDRAWAL #04792 AT 00167C ON 05/20 | 20.00 |
| 5/21 | WITHDRAWAL #04386 AT 00240D ON 05/21 | 40.00 |
| 5/29 | INTERLINK PURCHASE #880318 ON 05/28 AT LUCKY STORE #043 | 30.00 |

| DATE POSTED | AMOUNT |
|-------------|--------|
| 5/03 | 618.69 |
| 5/17 | 83.39 |
| 5/17 | 600.75 |

LOCATIONS USED
 00165A: 249 PRIMROSE RD., ANY CITY, USA
 00240C: 490 BROADWAY, ANY CITY, USA
 00167C: 1145 BROADWAY, ANY CITY, USA
 00240D: 490 BROADWAY, ANY CITY, USA

most use the daily balance procedure. This means that if your account should happen to fall just \$1 below the minimum balance just once during the month, you'll be hit with the full service charge—even if your average balance is three times the minimum requirement.

Service charges take two forms: (1) a base service charge of, say, \$7.50 a month, and (2) additional charges of, say, 25 cents for each check you write and 10 cents for each ATM or bank-by-phone transaction. Using these fees as an illustration, assume you write 20 checks and make 7 ATM transactions in a given month. If your balance falls below the minimum, you'll have to pay a service charge of $\$7.50 + (20 \times \$.25) + (7 \times \$.10) = \13.20 . In addition to the service charges on checking accounts, banks have increased

most other check-related charges and raised the minimum balances required for free checking and waivers of specified fees. The charge on a returned check can be as high as \$20 to \$25, and stop-payment orders typically cost \$20 to \$35. Some banks charge fees for ATM or bank-by-phone transactions that exceed a specified number. Most also charge for using the ATM of another bank that's a member of the same network. It's not surprising that consumers use cost as the single most important variable in choosing where to set up an account.

Individual or Joint Account

Two people wishing to open a checking account may do so in one of three ways that are outlined below in rightsthe following three different ways.

Exhibit 4.6 Make the Checkbook Balance

The wide variety of liquid addets available meets just about any savings or short-term investment need. Rates vary considerably both by type of asset and point in time, so shop around for the best interest rate.

- On receipt of your bank statement, arrange all canceled checks in ascending numerical order based on their sequence numbers or issuance dates. (Skip this step if your bank doesn't return canceled checks.)
- Compare each check or its bank statement information with the corresponding entry in your checkbook ledger to make sure there are no recording errors. Check off in your checkbook ledger each check and any other withdrawals such as from ATMs, point-of-sale debit transactions, or automatic payments.
- List the checks and other deductions (ATM withdrawals or debit purchases) still outstanding—that is, those deducted in your checkbook but not returned with your bank statement (see Step 2). Total their amount.
- Compare the deposits indicated on the statement with deposits shown in your checkbook ledger. Total the amount of deposits still outstanding—that is, those shown in your checkbook ledger but not yet received by the bank. Be sure to include all automatic deposits and deposits made at ATMs in your calculations.
- Subtract the total amount of checks outstanding (from Step 3) from your bank statement balance, and add to this balance the amount of outstanding deposits (from Step 4). The resulting amount is your adjusted bank balance.
- Deduct the amount of any bank service charges from your checkbook ledger balance, and add any interest earned to that balance. Make sure that you include all service charges for the period, including those for any returned checks, stop payments, or new checks ordered. The resulting amount is your new checkbook balance. This amount should equal your adjusted bank balance (from Step 5). If it doesn't, check all addition and subtraction in your checkbook ledger, because you've probably made an error.

- They can each open individual checking accounts (on which the other cannot write checks).
- They can open a joint account that requires both signatures on all checks.
- They can open a joint account that allows either one to write checks (the most common type of joint account).

One advantage of the joint account over two individual accounts is lower service charges. In addition, the account has rights of survivorship: for a married couple, this means that if one spouse dies, the surviving spouse, after fulfilling a specified legal requirement, can draw checks on the account. If account owners are treated as tenants in common rather than having rights of survivorship, the survivor gets only his or her share of the account. Thus, when you're opening a joint account, be sure to specify the rights you prefer.

General Checking Account Procedures

After you select the bank that meets your needs and has the type of account you want, it's a simple matter to open the account. The application form asks for basic personal information such as name, date of birth, Social Security number, address, phone, and place of employment. You'll also have to provide identification, sign signature cards, and make an initial deposit. The bank will give you a supply of checks to use until your personalized checks arrive.

After opening a checking account, follow these basic procedures:

- Always write checks in ink.
- Include the name of the person being paid, the date, and the amount of the check—written in both numerals and words for accuracy.
- Sign the check the same way as on the signature card you filled out when opening the account.
- Note the check's purpose on the check—usually on the line provided in the lower left corner. This information is helpful for both budgeting and tax purposes.

Make sure to enter all checking account transactions—checks written, deposits, point-of-sale debit purchases, ATM transactions, and preauthorized automatic payments and deposits—in the **checkbook ledger** provided with your supply of checks. Then, subtract the amount of each check, debit card purchase, ATM cash withdrawal, or payment, and add the amount of each deposit to the previous balance to keep track of your current account balance. One advantage of the joint account.

stop payment
An order made by an account holder instructing the depository institution to refuse payment on an already issued check.

account reconciliation
Verifying the accuracy of your checking account balance in relation to the bank's records as reflected in the bank statement, which is an itemized listing of all transactions in the checking account.

The **account reconciliation** process, or *balancing the checkbook*, can uncover errors in recording checks or deposits, in addition or subtraction, and, occasionally, in the bank's processing of a check. It can also help you avoid overdrafts by forcing you to verify your account balance monthly. Assuming that neither you nor the bank has made any errors, discrepancies between your checkbook ledger account balance and your bank statement can be attributed to one of four factors.

1. Checks that you've written, ATM withdrawals, debit purchases, or other automatic payments subtracted from your checkbook balance haven't yet been received and processed by your bank and therefore remain outstanding.
2. Deposits that you've made and added to your checkbook balance haven't yet been credited to your account.
3. Any service (activity) charges levied on your account by the bank haven't yet been deducted from your checkbook balance.
4. Interest earned on your account (if it's a NOW or an MMDA account) hasn't yet been added to your checkbook balance.

Exhibit 4.6 on page 119 lists the steps to reconcile your checkbook each month.

The reverse side of your bank statement usually provides a form for reconciling your account along with step-by-step instructions. Worksheet 4.1 on page 120 includes an account reconciliation form that William Torgeson completed for the month of May 2010 using the reconciliation procedures we have described. You can use the form to reconcile either regular or interest-paying checking accounts such as NOWs or MMDAs.

In some circumstances sellers of goods or services may not accept personal checks because they can't be absolutely sure that the check is good. This is common for large purchases or when the buyer's bank is not located in the same area where the purchase is being made. A form of check that guarantees payment may be required instead: cashier's checks, traveler's checks, or certified checks. With each deposit, write a deposit slip (generally included with your checks and also available at your bank) listing the currency, coins, and checks being deposited. List checks by the transit ID number printed on the check, usually at the top right. Also properly endorse all checks that you're depositing. Federal regulations require your endorsement to be made in black or blue ink, within 1 1/2 inches of the check's trailing edge (left end of the check when viewed from the front) so as not to interfere with bank endorsements. If you don't comply, you'll still get your money but it may take longer. After all, what we normally think of as "savings" is really a form of invest-

| CALCULATOR | |
|-----------------------------|-----------------|
| Inputs | Functions |
| 26140 | FV |
| 6 | N |
| 10 | I |
| | CPT |
| | PMT |
| | Solution |
| | 3,387.94 |
| SEE APPENDIX E FOR DETAILS. | |

| CALCULATOR | |
|-----------------------------|-----------------|
| Inputs | Functions |
| 26140 | FV |
| 6 | N |
| 10 | I |
| | CPT |
| | PMT |
| | Solution |
| | 3,387.94 |
| SEE APPENDIX E FOR DETAILS. | |

In our example, because \$50 was earned during the year on an investment of \$1,000, the effective rate is \$50/\$1,000 or 5 percent, which is the same as the nominal rate of interest. (Notice in the above formula that it's interest earned during the year that matters; if you wanted to calculate the effective rate of interest on an account held for 6 months, you'd double the amount of interest earned.)

But suppose you can invest your funds elsewhere at a 5 percent rate, *compounded semiannually*.

| CALCULATOR | |
|-----------------------------|-----------------|
| Inputs | Functions |
| 26140 | FV |
| 6 | N |
| 10 | I |
| | CPT |
| | PMT |
| | Solution |
| | 3,387.94 |
| SEE APPENDIX E FOR DETAILS. | |

Because interest is applied to your account at midyear, you'll earn *interest on interest* for the last 6 months of the year, thereby increasing the total interest earned for the year. The actual

dollar earnings are determined as follows: Interest is generated on a larger investment in the second half of the year because the amount of money on deposit has increased by the amount of interest earned in the first half (\$25). Although the nominal rate on this account is still 5 percent, the effective rate is 5.06 percent (\$50.63/\$1,000). As you may have guessed, the more frequently interest is compounded, the greater the effective rate for any given nominal rate. Exhibit 4.8 shows these relationships for a sample of interest rates and compounding periods. Note, for example, that with a 7 percent nominal rate, daily compounding adds one-fourth of a percent to the total return—not a trivial amount.

compounding would return. The effective interest rate would have been 7.25 percent (\$72.50 interest earned/\$1,000 initially invested), as noted in Exhibit 4.8.

Compound Interest Equals Future Value

Compound interest is the same as the *future value* concept introduced in Chapter 2. You can use the procedures described there to find out how much an investment or deposit will grow over time at a compounded rate of interest. For example, using the future value formula and the future value factor from Appendix A (see Chapter 2), you can find out how much \$1,000 will be worth in 4 years if it's deposited into a savings account that pays 5 percent interest per year compounded annually:

1. Checks that you've written, ATM withdrawals, debit purchases, or other automatic payments subtracted from your checkbook balance haven't yet been received and processed by your bank and therefore remain outstanding.
2. Deposits that you've made and added to your checkbook balance haven't yet been credited to your account.
3. Any service (activity) charges levied on your account by the bank haven't yet been deducted from your checkbook balance.
4. Interest earned on your account (if it's a NOW or an MMDA account) hasn't yet been added to your checkbook balance.

He told Bert that when he was ready to quit work, there would be a substantial sum available to help him retire. And there was. Bert now spends his days fishing and relaxing in the cabin he and his wife bought on Bluefish Lake, while most of his friends continue to

| Holding Periods | Stocks (as measured by the DJIA) | High-grade Corp. Bond Returns | Stocks and Bonds Together (50/50?) | Returns on Short-Term U.S. Treasury Bills | Stocks, Bonds and T-Bills Combined (1/3 - 1/3 - 1/3) |
|--------------------|----------------------------------|-------------------------------|------------------------------------|---|--|
| 5 years: 1998-'02 | 2.9 | 7.1 | 5.0 | 4.2 | 4.7 |
| 10 years: 1993-'02 | 11.8 | 8.4 | 10.1 | 4.5 | 8.2 |
| 15 years: 1988-'02 | 12.8 | 9.7 | 11.2 | 5.1 | 9.2 |
| 20 years: 1983-'02 | 13.9 | 10.5 | 12.2 | 5.7 | 10.0 |
| 25 years: 1978-'02 | 13.2 | 9.5 | 11.4 | 6.7 | 9.8 |

You can calculate the interest compounded daily by using a financial calculator similar to that described in Appendix E. Let's assume you want to invest \$1,000 at 7 percent interest compounded daily. How much money will you have in the account at the end of the year? Using a calculator, we get \$1,072.50. This value is clearly greater than the \$1,070 that annual

work because they can't afford to retire.

An estimated 75 percent of American households have some money put away in savings, making it clear that most of us understand the value of saving for the future. The act of saving is a deliberate, well-thought-out activity designed to preserve the value of money, ensure liquidity, and earn a competitive rate of return.

Exhibit 4.5 The Magic of Compounding

The wide variety of liquid addets available meets just about any savings or short-term investment need. Rates vary considerably both by type of asset and point in time, so shop around for the best interest rate.

| Nominal Rate | Effective Rate | | | | |
|--------------|----------------|--------------|-----------|---------|-------|
| | Annually | Semiannually | Quarterly | Monthly | Daily |
| 3% | 3.00% | 3.02% | 3.03% | 3.04% | 3.05% |
| 4 | 4.00 | 4.04 | 4.06 | 4.07 | 4.08 |
| 5 | 5.00 | 5.06 | 5.09 | 5.12 | 5.13 |
| 6 | 6.00 | 6.09 | 6.14 | 6.17 | 6.18 |
| 7 | 7.00 | 7.12 | 7.19 | 7.23 | 7.25 |
| 8 | 8.00 | 8.16 | 8.24 | 8.30 | 8.33 |

Series EE bond A savings bond issued in various denominations by the U.S. Treasury.

I Savings bond A savings bond issued at face value by the U.S. treasury that pays a rate that provides some inflation protection.

if it's only \$50 to \$100. (Keep in mind that \$100 monthly deposits earning 4 percent interest will grow to more than \$36,500 in 20 years.) Exhibit 4.7 lists 10 strategies you can use to increase your savings and build a nest egg.

You must also decide which savings products best meet your needs. Many savers prefer to

keep their emergency funds in a regular savings or money market deposit account at an institution with federal deposit insurance. Although these accounts are safe, convenient, and highly liquid, they tend to pay relatively low rates of interest. Other important considerations include your risk preference, the length of time you can leave your money on deposit, and the level of current and anticipated interest rates.

Suppose that 1 year from now you plan to use \$5,000 of your savings to make the down payment on a new car, and you expect interest rates to drop during that period. You should lock in today's higher rate by purchasing a 1-year certificate of deposit (CD). On the other hand, if you're unsure about when you'll actually need the funds or believe that interest rates will rise, you're better off with an MMDA or MMMF because their rates change with market conditions, and you can access your funds at any time without penalty.

Arnold Schwarz marketed himself brilliantly

David Ogilvy, founder of Ogilvy & Mather advertising agency

Short-term interest rates generally fluctuate more than long-term rates, so it pays to monitor interest rate movements, shop around for the best rates, and place your funds in savings vehicles consistent with your needs. If short-term interest rates drop, you won't be able to reinvest the proceeds from maturing CDs at comparable rates. You'll need to reevaluate your savings plans and may choose to move funds into other savings vehicles with higher rates of interest but greater risk.

Many financial planning experts recommend keeping a minimum of 10 to 25 percent of your investment portfolio in savings-type instruments in addition to the 3 to 6 months of liquid reserves noted earlier. Someone with \$50,000 in investments should probably have a minimum of \$5,000 to \$12,500—and possibly more—in short-term vehicles such as MMDAs,

FINANCIAL ROAD SIGN



HOW MUCH INTEREST WILL YOU EARN?

Before opening a deposit account, investigate the factors that determine the amount of interest you'll earn on your savings or interest-bearing checking account:

- Frequency of compounding: The more often interest is compounded, the higher your return.
- Balance on which interest is paid: For balances that qualify to earn interest, most banks now use the actual balance, or day of deposit to day of withdrawal, method. The actual balance method is the most accurate and fairest because it pays depositors interest on all funds on deposit for the actual amount of time they remain there.
- Interest rate paid: As mentioned earlier, the Truth in Savings Act standardized the way that banks calculate the rate of interest they pay on deposit accounts. This makes it easy to compare each bank's annual percentage yield (APY) and to choose the bank.

MMMFs, or CDs. At times, the amount invested in short-term vehicles could far exceed the recommended minimum, approaching 50 percent or more of the portfolio. This generally depends on expected interest rate movements. If interest rates are relatively high, and you expect them to fall, you would invest in long-term vehicles in order to lock in the attractive interest rates. On the other hand, if rates are relatively low and you expect them to rise, you might invest in short-term vehicles so you can more quickly reinvest when rates do rise.

Earning Interest on Your Money

Interest earned is the reward for putting your money in a savings account or short-term investment vehicle, and it's important for you to understand how that interest is earned. But unfortunately, even in the relatively simple world of savings, not all interest rates are created equal.

| Holding Periods | Stocks (as measured by the DJIA) | High-grade Corp. Bond Returns |
|--------------------|----------------------------------|-------------------------------|
| 5 years: 1998-'02 | 2.9 | 7.1 |
| 10 years: 1993-'02 | 11.8 | 8.4 |
| 15 years: 1988-'02 | 12.8 | 9.7 |
| 20 years: 1983-'02 | 13.9 | 10.5 |
| 25 years: 1978-'02 | 13.2 | 9.5 |

Interest can be earned in one of two ways. First, some short-term investments are sold on a *discount basis*. This means the security is sold for a price that's

They pay daily, rather than annual, interest. Consider an example to understand what this means. Assume that you invest \$1,000 in a savings account advertised as paying annual simple interest at a rate of 5 percent. The interest is paid only on the initial amount of the deposit with simple interest. This means that if you leave the \$1,000 on deposit for 1 year, you'll earn \$50 in interest, and the account balance will total \$1,050 at year end. In this case, the nominal (stated) rate of interest (the promised rate of interest paid on a savings deposit or charged on a loan) is 5 percent.

In contrast, the effective rate of interest is the annual rate of return that's actually earned (or charged) during the period the funds are held.

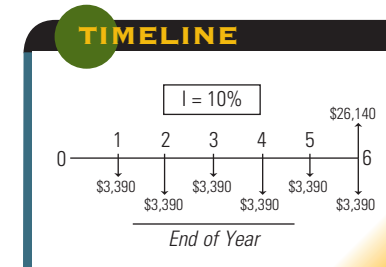
$$\text{Effective rate of interest} = \frac{\text{Amount of interest earned during the year}}{\text{Amount of money invested or deposited}}$$

In our example, because \$50 was earned during the year on an investment of \$1,000, the effective rate is \$50/\$1,000 or 5 percent, which is the same as the nominal rate of interest. (Notice in the above formula that it's interest earned during the year that matters; if you wanted to calculate the effective rate of interest on an account held for 6 months, you'd double the amount of interest earned.)

But suppose you can invest your funds elsewhere at a 5 percent rate, *compounded semiannually*. Because interest is applied to your account at midyear, you'll earn *interest on interest* for the last 6 months of the year, thereby increasing the total interest earned for the year. The actual dollar earnings are determined as follows:

Interest is generated on a larger investment in the second half of the year because the amount of money on deposit has increased by the amount of interest earned in the first half (\$25). Although the nominal rate on this account is still 5 percent, the effective rate is 5.06 percent (\$50.63/\$1,000). As you may have guessed, the more frequently interest is compounded, the greater the effective rate for any given nominal rate. Exhibit 4.8 shows these relationships for a sample of interest rates and compounding periods. Note, for example, that with a 7 percent nominal rate, daily compounding adds one-fourth of a percent to the total return—not a trivial amount.

You can calculate the interest compounded daily by using a financial calculator similar to that described in



Appendix E. Let's assume you want to invest \$1,000 at 7 percent interest compounded daily. How much money will you have in the account at the end of the year? Using a calculator, we get \$1,072.50. This value is clearly greater than the \$1,070 that annual compounding would return.

Compound Interest Equals Future Value

Compound interest is the same as the *future value* concept introduced in Chapter 2. You can use the procedures described there to find out how much an investment or deposit will grow over time at a compounded rate of interest. For example, using the future value formula and the future value factor from Appendix A (see Chapter 2), you can find out how much \$1,000 will be worth in 4 years.:

You can use the same basic procedure to find the future value of an *annuity*, except you'd use the future value annuity factor from Appendix B (see Chapter 2). For instance, if you put \$1,000 a year into a savings account that pays 5 percent per year.

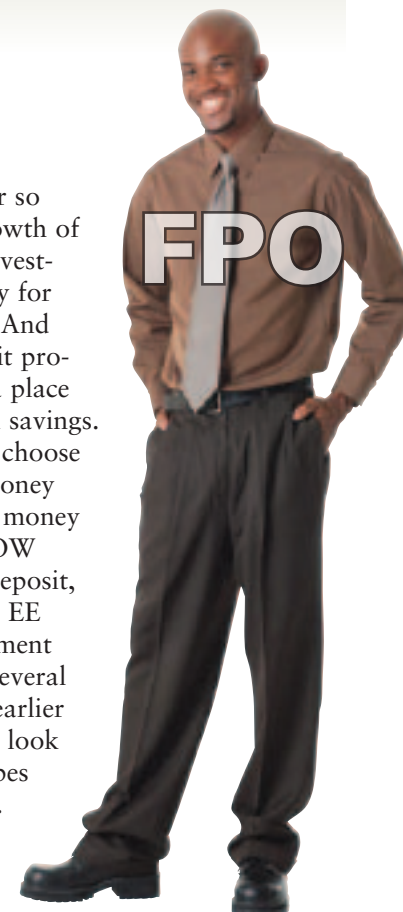
Go to Smart Sites

If you're not satisfied with the CD rate at your local bank, go to Bankrate.com. You'll find not only the highest rates on CDs nationwide, but also the checking and savings account fees at banks in your city.

A Variety of Ways to Save

During the past decade or so there has been a huge growth of savings and short-term investment vehicles, particularly for people of modest means. And because of the flexibility it provides, there'll always be a place in your portfolio for cash savings.

Today, investors can choose from savings accounts, money market deposit accounts, money market mutual funds, NOW accounts, certificates of deposit, U.S. Treasury bills, Series EE bonds, and asset management accounts. We examined several of these savings vehicles earlier in this chapter. Now let's look at the three remaining types of deposits and securities. But suppose you can invest your funds else-



savings instruments discussed earlier in that CD funds (except for CDs purchased through brokerage firms) must remain on deposit for a specified period (from 7 days to as long as 7 or more years). Although it's possible to withdraw funds prior to maturity, an interest penalty usually makes withdrawal somewhat costly. The bank or other depository institution

**Arnold Schwarz
marketed himself
brilliantly**

*David Ogilvy, founder of Ogilvy
& Mather advertising agency*

Free to charge whatever penalty it likes, but most require you to forfeit some interest. Banks, S&Ls, and other depository institutions can offer any rate and maturity CD they wish. As a result, a wide variety of CDs are offered by most banks, depository institutions, and other financial institutions such as brokerage firms. Most pay higher rates for larger deposits and longer periods of time. CDs are convenient to buy and hold because they offer attractive

CONCEPTCHECK

4-17 In general, how much of your annual income should you save in the form of liquid reserves? What portion of your investment portfolio should you keep in savings and other short-term investment vehicles? Explain.

4-18 Define and distinguish between the nominal (stated) rate of interest and the effective rate of interest. Explain why a savings and loan association that pays a nominal rate of 4.5 percent interest, compounded daily, actually pays an effective rate of 4.6 percent.

4-19 What factors determine the amount of interest you will earn on a deposit account? Which combination provides the best return?

4-20 Briefly describe the basic features of each of the following savings vehicles: (a) certificates of deposit.

**FINANCIAL
PLANNING
EXERCISES**



LG2,3

1. What type of bank serves your needs best? Visit the Web sites of the following institutions and prepare a chart comparing the services offered, such as traditional and online banking, investment services, and personal financial advice. Which one would you choose to patronize, and why?
 - a. Bank of America (<http://www.bankofamerica.com>)—a nationwide full-service bank
 - b. A leading local commercial bank in your area
 - c. A local savings institution
 - d. A local credit union

LG3

2. Suppose that someone stole your ATM card and withdrew \$650 from your checking account. How much money could you lose according to federal legislation if you reported the stolen card to the bank: (a) the day the card was stolen, (b) 6 days after the theft, (c) 65 days after receiving your periodic statement?

LG3

3. You're getting married and are unhappy with your present bank. Discuss your strategy for choosing a new bank and opening an account. Consider the factors that are important to you in selecting a bank—such as the type and ownership of new accounts and bank fees and charges.

LG1

4. Determine the annual net cost of these checking accounts:
 - a. Monthly fee \$5, check-processing fee of 25 cents, average of 19 checks written per month
 - b. Annual interest of 2.5 percent paid if balance exceeds \$750, \$8 monthly fee if account falls below minimum balance, average monthly balance \$815, account falls below \$750 during 4 months

LG2

6. If you put \$5,000 in a savings account that pays interest at the rate of 4 percent, compounded annually, how much will you have in 5 years? (Hint: Use the future value formula.) How much interest will you earn during the 5 years? If you put \$5,000 each year into a savings account that pays interest at the rate of 4 percent a year, how much would you have after 5 years?

LG3

7. Describe some of the short-term investment vehicles that can be used to manage your cash resources? What would you focus on if you were concerned that the financial crisis would increase inflation significantly?

LG5

8. Tim and Eilene Smithson together earn approximately \$62,000 a year after taxes. Through an inheritance and some wise investing, they also have an investment portfolio with a value of almost \$133,000.
 - a. How much of their annual income do you recommend they hold in some form of liquid savings as reserves? Explain.
 - b. How much of their investment portfolio do you recommend they hold in savings and other short-term investment vehicles? Explain.
 - c. How much, in total, should they hold in short-term liquid assets?

FINANCIAL PLANNING EXERCISES



LG2, 3

8. What type of bank serves your needs best? Visit the Web sites of the following institutions and prepare a chart comparing the services offered, such as traditional and online banking, investment services, and personal financial advice. Which one would you choose to patronize, and why?
- Bank of America (<http://www.bankofamerica.com>)—a nationwide full-service bank
 - A leading local commercial bank in your area
 - A local savings institution
 - A local credit union

LG3

9. Suppose that someone stole your ATM card and withdrew \$650 from your checking account. How much money could you lose according to federal legislation if you reported the stolen card to the bank: (a) the day the card was stolen, (b) 6 days after the theft, (c) 65 days after receiving your periodic statement?

LG3

10. You're getting married and are unhappy with your present bank. Discuss your strategy for choosing a new bank and opening an account. Consider the factors that are important to you in selecting a bank—such as the type and ownership of new accounts and bank fees and charges.

LG1

11. Determine the annual net cost of these checking accounts:
- Monthly fee \$5, check-processing fee of 25 cents, average of 19 checks written per month
 - Annual interest of 2.5 percent paid if balance exceeds \$750, \$8 monthly fee if account falls below minimum balance, average monthly balance \$815, account falls below \$750 during 4 months

LG2

12. If you put \$5,000 in a savings account that pays interest at the rate of 4 percent, compounded annually, how much will you have in 5 years? (Hint: Use the future value formula.) How much interest will you earn during the 5 years? If you put \$5,000 each year into a savings account that pays interest at the rate of 4 percent a year, how much would you have after 5 years?

LG3

13. Describe some of the short-term investment vehicles that can be used to manage your cash resources? What would you focus on if you were concerned that the financial crisis would increase inflation significantly?

LG5

14. Tim and Eilene Smithson together earn approximately \$62,000 a year after taxes. Through an inheritance and some wise investing, they also have an investment portfolio with a value of almost \$133,000.

- How much of their annual income do you recommend they hold in some form of liquid savings as reserves? Explain.
- How much of their investment portfolio do you recommend they hold in savings and other short-term investment vehicles? Explain.
- How much, in total, should they hold in short-term liquid assets?

LG3

15. What type of bank serves your needs best? Visit the Web sites of the following institutions and prepare a chart comparing the services offered, such as traditional and online banking, investment services, and personal financial advice. Which one would you choose to patronize, and why?
- Bank of America (<http://www.bankofamerica.com>)—a nationwide full-service bank
 - A leading local commercial bank in your area
 - A local savings institution
 - A local credit union

APPENDICES

APPENDIX A

Table of Future Value Factors

Instructions: To use this table, find the future value factor that corresponds to both a given time period (year) and an interest rate. To illustrate, if you want the future value factor for 6 years and 10 percent, move across from year 6 and down from 10 percent to the point at which the row and column intersect: 1.772. Other illustrations: For 3 years and 15 percent, the proper future value factor is 1.521; for 30 years and 8 percent, it is 10.062.

| Year | Interest Rate | | | | | | | | | | | | |
|------|---------------|-------|-------|--------|--------|--------|--------|--------|---------|----------|----------|-----------|--|
| | 2% | 3% | 5% | 6% | 8% | 9% | 10% | 12% | 15% | 20% | 25% | 30% | |
| 1 | 1.020 | 1.030 | 1.050 | 1.060 | 1.080 | 1.090 | 1.100 | 1.120 | 1.150 | 1.120 | 1.250 | 1.300 | |
| 2 | 1.040 | 1.060 | 1.102 | 1.120 | 1.166 | 1.190 | 1.210 | 1.254 | 1.322 | 1.440 | 1.562 | 1.690 | |
| 3 | 1.061 | 1.090 | 1.158 | 1.190 | 1.260 | 1.290 | 1.331 | 1.405 | 1.521 | 1.728 | 1.953 | 2.197 | |
| 4 | 1.082 | 1.130 | 1.216 | 1.260 | 1.360 | 1.410 | 1.464 | 1.574 | 1.749 | 2.074 | 2.441 | 2.856 | |
| 5 | 1.104 | 1.160 | 1.276 | 1.340 | 1.469 | 1.540 | 1.611 | 1.762 | 2.011 | 2.488 | 3.052 | 3.713 | |
| 6 | 1.126 | 1.190 | 1.340 | 1.420 | 1.587 | 1.670 | 1.772 | 1.974 | 2.313 | 2.986 | 3.815 | 4.827 | |
| 8 | 1.172 | 1.260 | 1.477 | 1.590 | 1.851 | 1.990 | 2.144 | 2.476 | 3.059 | 4.300 | 5.960 | 8.157 | |
| 10 | 1.219 | 1.340 | 1.629 | 1.790 | 2.159 | 2.360 | 2.594 | 3.106 | 4.046 | 6.192 | 9.313 | 13.786 | |
| 12 | 1.268 | 1.420 | 1.796 | 2.010 | 2.518 | 2.810 | 3.138 | 3.896 | 5.350 | 8.916 | 14.552 | 23.298 | |
| 15 | 1.346 | 1.560 | 2.079 | 2.390 | 3.172 | 3.640 | 4.177 | 5.474 | 8.137 | 15.407 | 28.422 | 51.185 | |
| 20 | 1.486 | 1.810 | 2.653 | 3.210 | 4.661 | 5.600 | 6.727 | 9.646 | 16.366 | 38.337 | 86.736 | 190.047 | |
| 25 | 1.641 | 2.090 | 3.386 | 4.290 | 6.848 | 8.620 | 10.834 | 17.000 | 32.918 | 95.395 | 264.698 | 705.627 | |
| 30 | 1.811 | 2.420 | 4.322 | 5.740 | 10.062 | 13.260 | 17.449 | 29.960 | 66.210 | 237.373 | 807.793 | 2619.936 | |
| 35 | 2.000 | 2.810 | 5.516 | 7.690 | 14.785 | 20.410 | 28.102 | 52.799 | 133.172 | 590.657 | 2465.189 | 9727.598 | |
| 40 | 2.208 | 3.260 | 7.040 | 10.280 | 21.724 | 31.410 | 45.258 | 93.049 | 267.856 | 1469.740 | 7523.156 | 36117.754 | |

Note: All factors are rounded to the nearest 1/1000 as shown to agree with values used in the text.

APPENDIX B

Table of Future Value Annuity Factors

Instructions: To use this table, find the future value of annuity factor that corresponds to both a given time period (year) and an interest rate. To illustrate, if you want the future value of annuity factor for 6 years and 10 percent, move across from year 6 and down from 10 percent to the point at which the row and column intersect: 7.716.

| Year | Interest Rate | | | | | | | | | | | | |
|------|---------------|--------|---------|---------|---------|---------|---------|---------|----------|----------|-----------|------------|--|
| | 2% | 3% | 5% | 6% | 8% | 9% | 10% | 12% | 15% | 20% | 25% | 30% | |
| 1 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | |
| 2 | 2.020 | 2.030 | 2.050 | 2.060 | 2.080 | 2.090 | 2.100 | 2.120 | 2.150 | 2.200 | 2.250 | 2.300 | |
| 3 | 3.060 | 3.090 | 3.152 | 3.180 | 3.246 | 3.270 | 3.310 | 3.374 | 3.472 | 3.640 | 3.813 | 3.990 | |
| 4 | 4.122 | 4.180 | 4.310 | 4.380 | 4.506 | 4.570 | 4.641 | 4.779 | 7.993 | 5.368 | 5.766 | 6.187 | |
| 5 | 5.204 | 5.310 | 5.526 | 5.630 | 5.867 | 5.980 | 6.105 | 6.353 | 6.742 | 7.442 | 8.207 | 9.043 | |
| 6 | 6.308 | 6.460 | 6.802 | 6.970 | 7.336 | 7.520 | 7.716 | 8.115 | 8.754 | 9.930 | 11.259 | 12.756 | |
| 8 | 8.583 | 8.890 | 9.549 | 9.890 | 10.637 | 11.030 | 11.436 | 12.300 | 13.727 | 16.499 | 19.842 | 23.858 | |
| 10 | 10.950 | 11.460 | 12.578 | 13.180 | 14.487 | 15.190 | 15.937 | 17.549 | 20.304 | 25.959 | 33.253 | 42.619 | |
| 12 | 13.412 | 14.190 | 15.917 | 16.870 | 18.977 | 20.140 | 21.384 | 24.133 | 29.001 | 39.580 | 54.208 | 74.326 | |
| 15 | 17.293 | 18.600 | 21.578 | 23.270 | 27.152 | 29.360 | 31.772 | 37.280 | 47.580 | 72.035 | 109.687 | 167.285 | |
| 20 | 24.297 | 26.870 | 33.066 | 36.780 | 45.762 | 51.160 | 57.274 | 72.052 | 102.443 | 186.687 | 342.945 | 630.157 | |
| 25 | 32.030 | 36.460 | 47.726 | 54.860 | 73.105 | 84.700 | 98.346 | 133.333 | 212.790 | 471.976 | 1054.791 | 2348.765 | |
| 30 | 40.567 | 47.570 | 66.438 | 79.060 | 113.282 | 136.300 | 164.491 | 241.330 | 434.738 | 1181.865 | 3227.172 | 8729.805 | |
| 35 | 49.994 | 60.460 | 90.318 | 111.430 | 172.314 | 215.700 | 271.018 | 431.658 | 881.152 | 2948.294 | 9856.746 | 32422.090 | |
| 40 | 60.401 | 75.400 | 120.797 | 154.760 | 259.052 | 337.870 | 442.580 | 767.080 | 1779.048 | 7343.715 | 30088.621 | 120389.375 | |

Note: All factors are rounded to the nearest 1/1000 as shown to agree with values used in the text.

APPENDIX C

Table of Present Value Factors

Instructions: To use this table, find the present value factor that corresponds to both a given time period (year) and an interest rate. To illustrate, if you want the present value factor for 25 years and 7 percent, move across from year 25 and down from 7 percent to the point at which the row and column intersect: .184. Other illustrations: For 3 years and 15 percent, the proper present value factor is .658; for 30 years and 8 percent, it is .099.

| Year | Interest Rate | | | | | | | | | | | |
|------|---------------|------|------|------|------|------|------|------|------|------|------|------|
| | 2% | 3% | 5% | 7% | 8% | 9% | 10% | 12% | 15% | 20% | 25% | 30% |
| 1 | .980 | .971 | .952 | .935 | .926 | .917 | .909 | .833 | .870 | .893 | .800 | .769 |
| 2 | .961 | .943 | .907 | .873 | .857 | .842 | .826 | .797 | .756 | .694 | .640 | .592 |
| 3 | .942 | .915 | .864 | .816 | .794 | .772 | .751 | .712 | .658 | .579 | .512 | .455 |
| 4 | .924 | .888 | .823 | .763 | .735 | .708 | .683 | .636 | .572 | .482 | .410 | .350 |
| 5 | .906 | .863 | .784 | .713 | .681 | .650 | .621 | .567 | .497 | .402 | .328 | .269 |
| 6 | .888 | .837 | .746 | .666 | .630 | .596 | .564 | .507 | .432 | .335 | .262 | .207 |
| 8 | .853 | .789 | .677 | .582 | .540 | .502 | .467 | .404 | .327 | .233 | .168 | .123 |
| 10 | .820 | .744 | .614 | .508 | .463 | .422 | .386 | .322 | .247 | .162 | .107 | .073 |
| 12 | .789 | .701 | .557 | .444 | .397 | .356 | .319 | .257 | .187 | .112 | .069 | .043 |
| 15 | .743 | .642 | .481 | .362 | .315 | .275 | .239 | .183 | .123 | .065 | .035 | .020 |
| 20 | .673 | .554 | .377 | .258 | .215 | .178 | .149 | .104 | .061 | .026 | .012 | .005 |
| 25 | .610 | .478 | .295 | .184 | .146 | .116 | .092 | .059 | .030 | .010 | .004 | .001 |
| 30 | .552 | .412 | .231 | .131 | .099 | .075 | .057 | .033 | .015 | .004 | .001 | * |
| 35 | .500 | .355 | .181 | .094 | .068 | .049 | .036 | .019 | .008 | .002 | * | * |
| 40 | .453 | .307 | .142 | .067 | .046 | .032 | .022 | .011 | .004 | .001 | * | * |

*Present value factor is zero to three decimal places.

Note: All factors are rounded to the nearest 1/1000 as shown to agree with values used in the text.

APPENDIX D

Table of Present Value Annuity Factors

Instructions: To use this table, find the present value of annuity factor that corresponds to both a given time period (year) and an interest rate. To illustrate, if you want the present value of annuity factor for 30 years and 7 percent, move across from year 30 and down from 7 percent to the point at which the row and column intersect: 12.409. Other illustrations: For 3 years and 15 percent, the proper present value of annuity factor is 2.283; for 5 years and 8 percent, it is 3.993; for 30 years and 8 percent, it is 11.258.

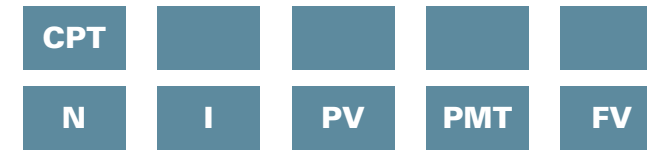
| Year | Interest Rate | | | | | | | | | | | |
|------|---------------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
| | 2% | 3% | 5% | 7% | 8% | 9% | 10% | 12% | 15% | 20% | 25% | 30% |
| 1 | .980 | .971 | .952 | .935 | .926 | .917 | .909 | .833 | .870 | .893 | .800 | .769 |
| 2 | 1.942 | 1.913 | 1.859 | 1.808 | 1.783 | 1.759 | 1.736 | 1.690 | 1.626 | 1.528 | 1.440 | 1.361 |
| 3 | 2.884 | 2.829 | 2.723 | 2.624 | 2.577 | 2.531 | 2.487 | 2.402 | 2.283 | 2.106 | 1.952 | 1.816 |
| 4 | 3.808 | 3.717 | 3.546 | 3.387 | 3.312 | 3.240 | 3.170 | 3.037 | 2.855 | 2.589 | 2.362 | 2.166 |
| 5 | 4.713 | 4.580 | 4.329 | 4.100 | 3.993 | 3.890 | 3.791 | 3.605 | 3.352 | 2.991 | 2.689 | 2.436 |
| 6 | 5.601 | 5.417 | 5.076 | 4.767 | 4.623 | 4.486 | 4.355 | 4.111 | 3.784 | 3.326 | 2.951 | 2.643 |
| 8 | 7.326 | 7.020 | 6.463 | 5.971 | 5.747 | 5.535 | 5.335 | 4.968 | 4.487 | 3.837 | 3.329 | 2.925 |
| 10 | 8.983 | 8.530 | 7.722 | 7.024 | 6.710 | 6.418 | 6.145 | 5.650 | 5.019 | 4.192 | 3.570 | 3.092 |
| 12 | 10.575 | 9.954 | 8.863 | 7.943 | 7.536 | 7.161 | 6.814 | 6.194 | 5.421 | 4.439 | 3.725 | 3.190 |
| 15 | 12.849 | 11.938 | 10.380 | 9.108 | 8.560 | 8.061 | 7.606 | 6.811 | 5.847 | 4.675 | 3.859 | 3.268 |
| 20 | 16.352 | 14.878 | 12.462 | 10.594 | 9.818 | 9.129 | 8.514 | 7.469 | 6.259 | 4.870 | 3.954 | 3.316 |
| 25 | 19.524 | 17.413 | 14.094 | 11.654 | 10.675 | 9.823 | 9.077 | 7.843 | 6.464 | 4.948 | 3.985 | 3.329 |
| 30 | 22.396 | 19.601 | 15.373 | 12.409 | 11.258 | 10.274 | 9.427 | 8.055 | 6.566 | 4.979 | 3.995 | 3.332 |
| 35 | 24.999 | 21.487 | 16.378 | 12.948 | 11.655 | 10.567 | 9.844 | 8.176 | 6.617 | 4.992 | 3.998 | 3.333 |
| 40 | 27.356 | 23.115 | 17.159 | 13.332 | 11.925 | 10.757 | 9.779 | 8.244 | 6.642 | 4.997 | 3.999 | 3.333 |

Note: All factors are rounded to the nearest 1/1000 as shown to agree with values used in the text.

APPENDIX E

Using a Financial Calculator

The important financial keys on a typical financial calculator are depicted and defined below. On some calculators the keys may be labeled using lowercase characters for “N” and “I”. Also, “I/Y” may be used in the place of the “I” key.



CPT Compute Key; Used to initiate financial calculation once all values are input

N Number of Periods

I Interest Rate per Period

PV Present Value

PMT Amount of Payment; Used only for annuities

FV Future Value

The handheld financial calculator makes it easy to calculate time value. Once you have mastered the time value of money concepts using tables, we suggest you use such a calculator.

For one thing, it becomes very cumbersome to use tables when calculating anything other than annual compounding. For another, calculators rather than tables are used almost exclusively in the business of personal financial planning.

You don’t want to become overly dependent on calculators, however, because you may not be able to recognize a nonsensical answer in the event that you accidentally push the wrong button. The important calculator keys are shown and labeled in the above exhibit.

Before using your calculator to make the financial computations described in this text, be aware of the following points.

1. The keystrokes on some of the more sophisticated and expensive calculators are menu-driven: after you select the appropriate routine, the calculator prompts you to input each value; a compute key (CPT) is not needed to obtain a solution.
2. Many calculators allow the user to set the number of payments per year. Most of these calculators are preset for monthly payments—12 payments per year. Because we work primarily with annual payments—one payment per year—it is important to make sure that your calculator is set for one payment per year. Although most calculators are preset to recognize that all payments occur at the end of the period, it is important to make sure your calculator is in the END mode. Consult the reference guide that accompanies your calculator for instructions for setting these values.
3. To avoid including previous data in current calculations, always clear all registers of your calculator before inputting values and making each computation.
4. The known values can be punched into the calculator in any order; the order specified in this and other calculator use demonstrations included in this text results merely from

CALCULATOR KEYSTROKES. Let's go back to the future value calculation on page 53, in which we're trying to calculate the future value of \$5,000 at the end of 6 years invested at 10 percent.

Here are the steps to solve the problem with a calculator:

1. Punch in 5000 and press PV.
2. Punch in 6 and press N.
3. Punch in 10 and press I.
4. To calculate the future value, press CPT and then FV. The future value of 8,857.81 should appear on the calculator display.

On many calculators, this value will be preceded by a minus sign, which is a way of differentiating cash inflows from outflows. For our purposes, this sign can be ignored.

To calculate the yearly savings (the amount of an annuity), let's continue with the example on pages 53 and 54. This time, you're given the interest rate of 10 percent, the number of periods is 6, and the future value is \$26,140. Your job is to solve the equation for the annuity.

The steps using the calculator are:

1. Punch in 6 and press N.
2. Punch in 10 and press I.
3. Punch in 26140 and press FV.
4. To calculate the yearly payment or annuity, press CPT and then PMT.

The annuity of 3,387.94 should appear on the calculator display. Again, a negative sign can be ignored.

A similar procedure is used to find present value of a future sum or an annuity, except you would input the FV or PMT and press CPT and then PV to calculate the desired result.

To find the equal annual future withdrawals from an initial deposit, the PV would be input and you would solve for the PMT by pressing CPT and then PMT.

CALCULATOR

| Inputs | Functions |
|--------|-----------------|
| 26140 | FV |
| 6 | N |
| 10 | I |
| | CPT |
| | PMT |
| | Solution |
| | 3,387.94 |

SEE APPENDIX E FOR DETAILS.

CALCULATOR

| Inputs | Functions |
|--------|-----------------|
| 26140 | FV |
| 6 | N |
| 10 | I |
| | CPT |
| | PMT |
| | Solution |
| | 3,387.94 |

SEE APPENDIX E FOR DETAILS.

Entries in boldface are key terms

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Hand, Learned, 568

green 00
55c 0m 100y 65k

blue 00
55c 0m 0y 75k

purple 00
55c 80m 0y 35k

brick 00
0c 85m 85y 55k

blue bright 01
100c 60m 0y 0k

green 01
45c 0m 100y 55k

blue 01
45c 0m 0y 60k

purple 01
50c 80m 0y 20k

brick 01
0c 75m 75y 45k

blue bright 02
100c 0m 0y 0k

green 02
35c 0m 100y 45k

blue 02
37c 0m 0y 45k

purple 02
40c 60m 0y 15k

brick 02
0c 60m 60y 32k

purple bright 01
60c 100m 0y 0k

green 03
35c 0m 100y 32k

blue 03
30c 0m 0y 30k

purple 03
25c 40m 0y 10k

brick 03
0c 45m 45y 20k

green 04
30c 0m 80y 15k

blue 04
22c 0m 0y 20k

purple 04
15c 24m 0y 6k

brick 04
0c 30m 30y 14k

green 05
20c 0m 60y 5k

blue 05
15c 0m 0y 10k

purple 05
10c 15m 0y 5k

brick 05
0c 15m 15y 10k

sun 01
0c 55m 100y 25k

taupe 00
0c 0m 60y 80k

0c 0m 0y 100k

red 00
0c 100m 100y 40k

0c 20m 80y 0k
to white

sun 02
0c 40m 100y 15k

taupe 01
0c 0m 45y 65k

0c 0m 0y 70k

red 01
0c 100m 100y 20k

30c 0m 0y 10k
to white

sun 03
0c 30m 100y 10k

taupe 02
0c 0m 37y 50k

0c 0m 0y 45k

red 02
0c 90m 90y 10k

0c 0m 12y 17k
to white

sun 04
0c 25m 100y 5k

taupe 03
0c 0m 30y 35k

0c 0m 0y 30k

red 03
0c 45m 45y 0k

sun 05
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taupe 04
0c 0m 20y 25k

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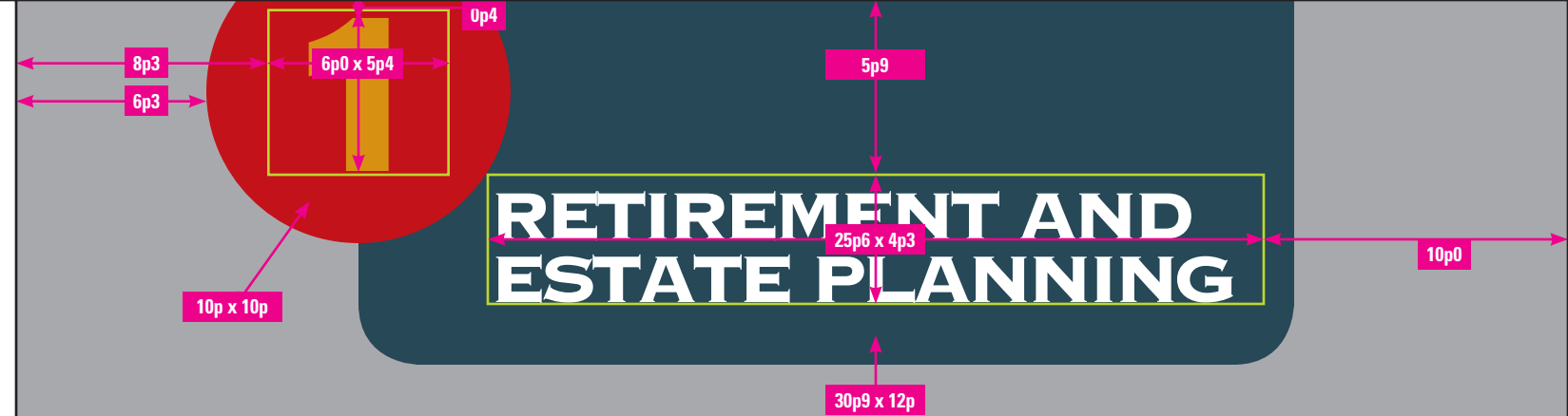
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sun 06
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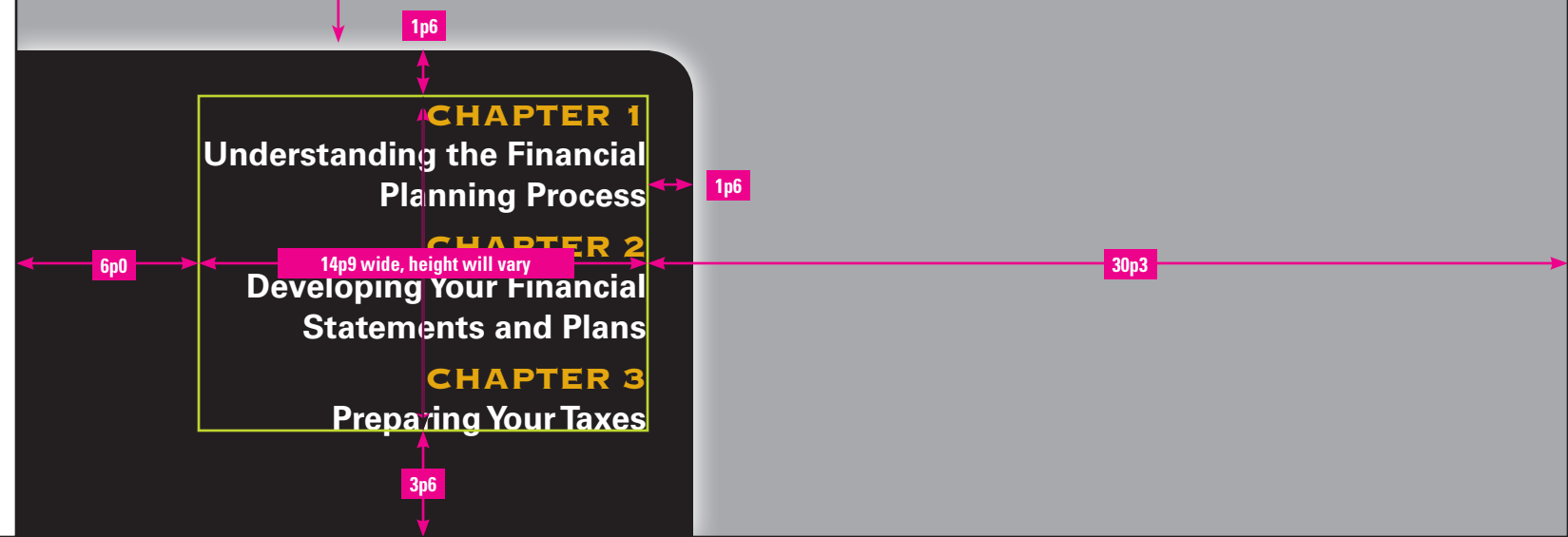
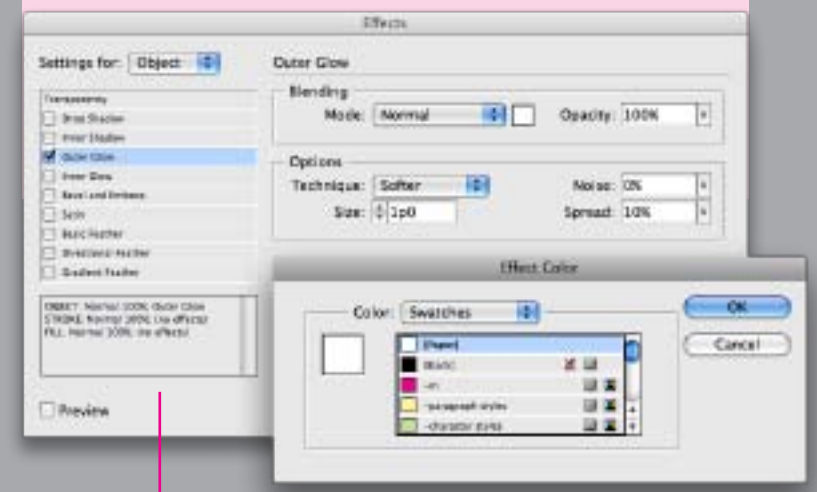
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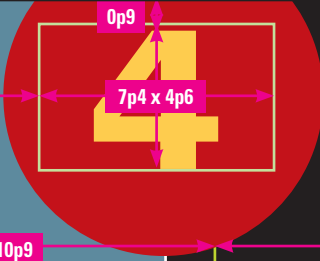
0c 0m 0y 10k

red 05
0c 15m 15y 0k



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MANAGING YOUR CASH AND SAVINGS

LEARNING GOALS

After studying this chapter, you will be able to...

- LG1** Understand the role of cash management in the personal financial planning process. (p. 102)
- LG2** Describe today's financial services marketplace, both depository and nondepository. (p. 104)
- LG3** Select the checking, savings, electronic banking, and other bank services that meet your needs. (p. 106)
- LG4** Open and use a checking account. (p. 114)
- LG5** Calculate the interest earned on your money using compound interest and future value techniques. (p. 121)

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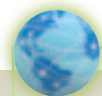
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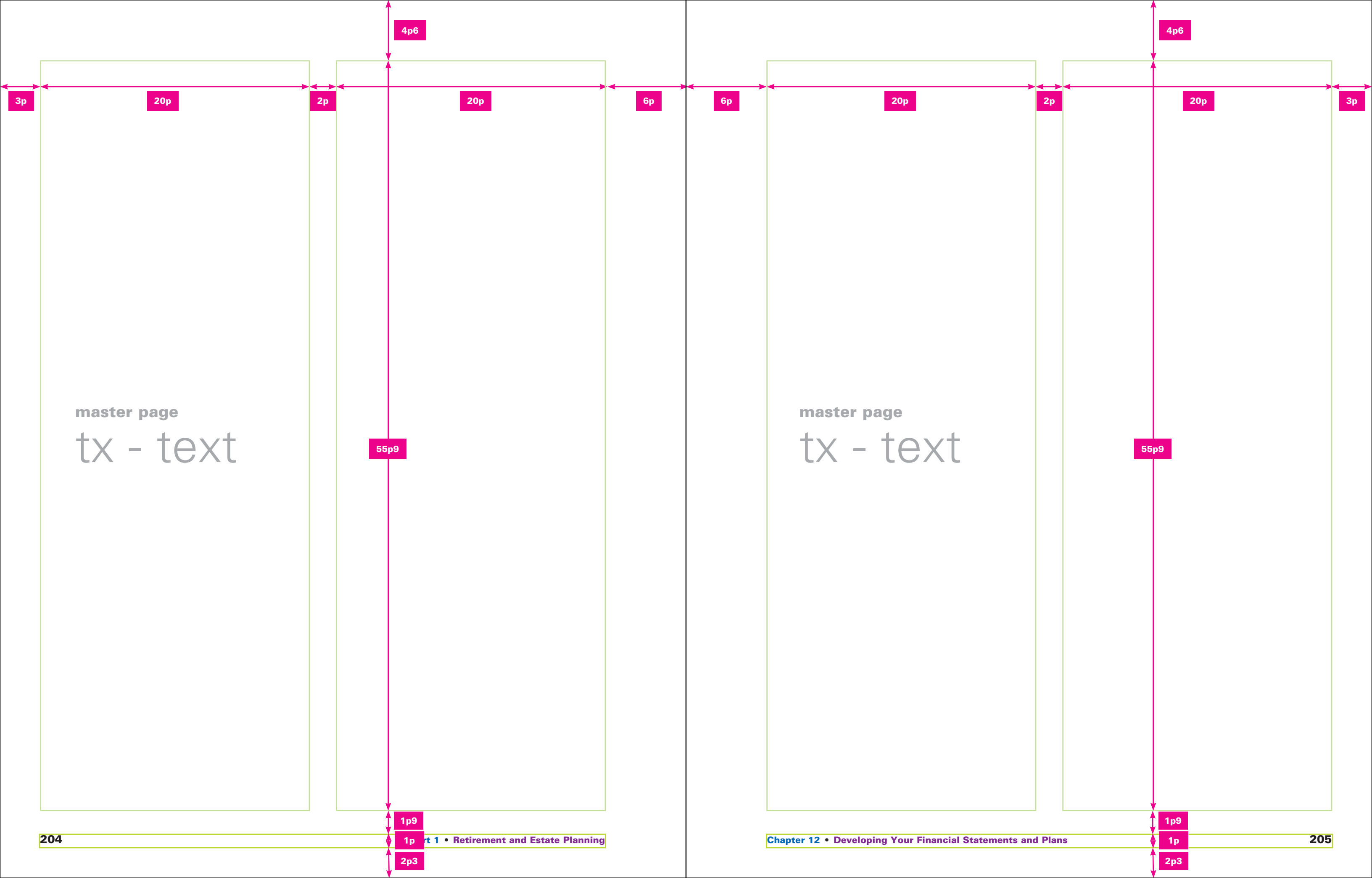
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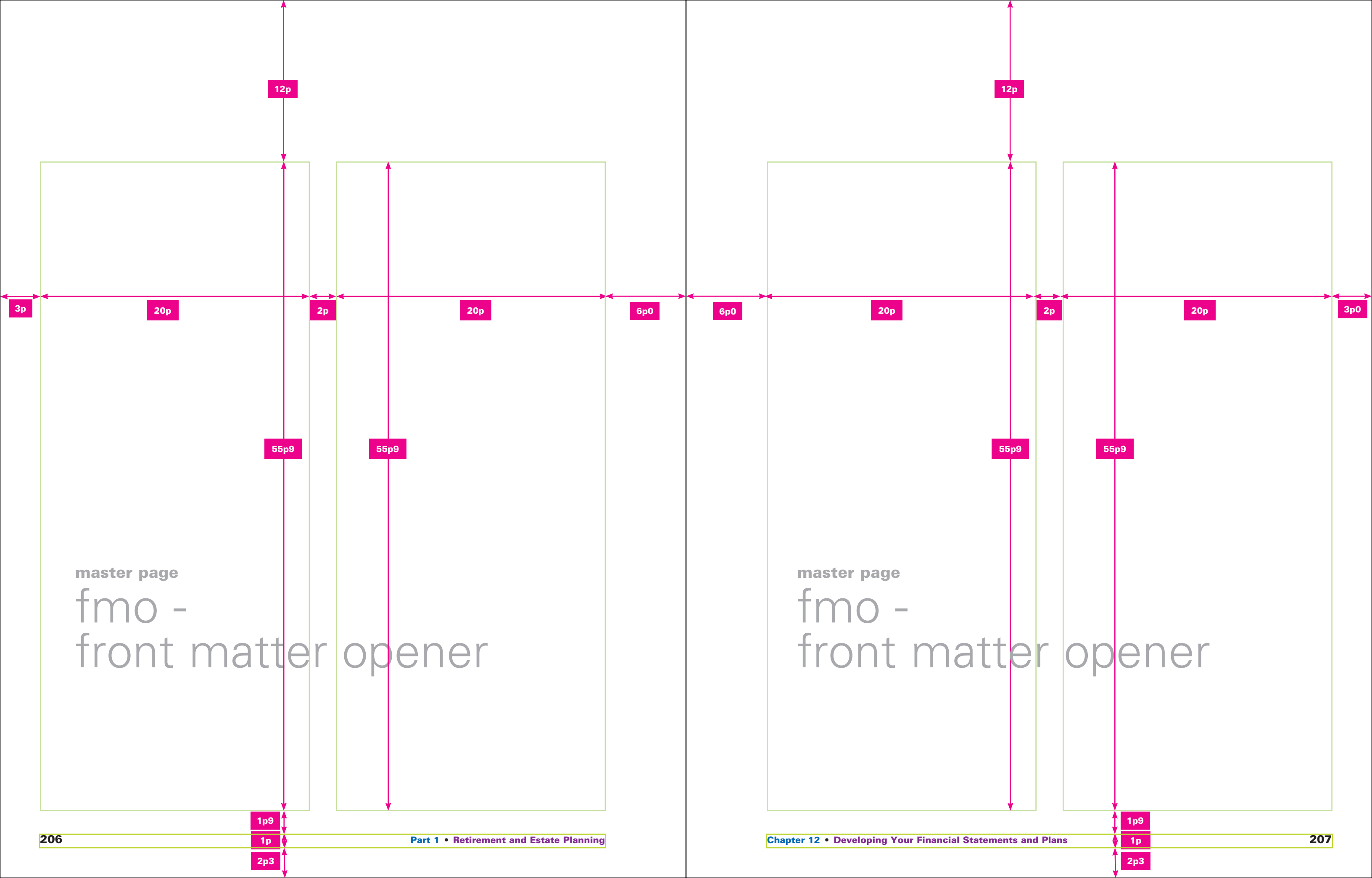
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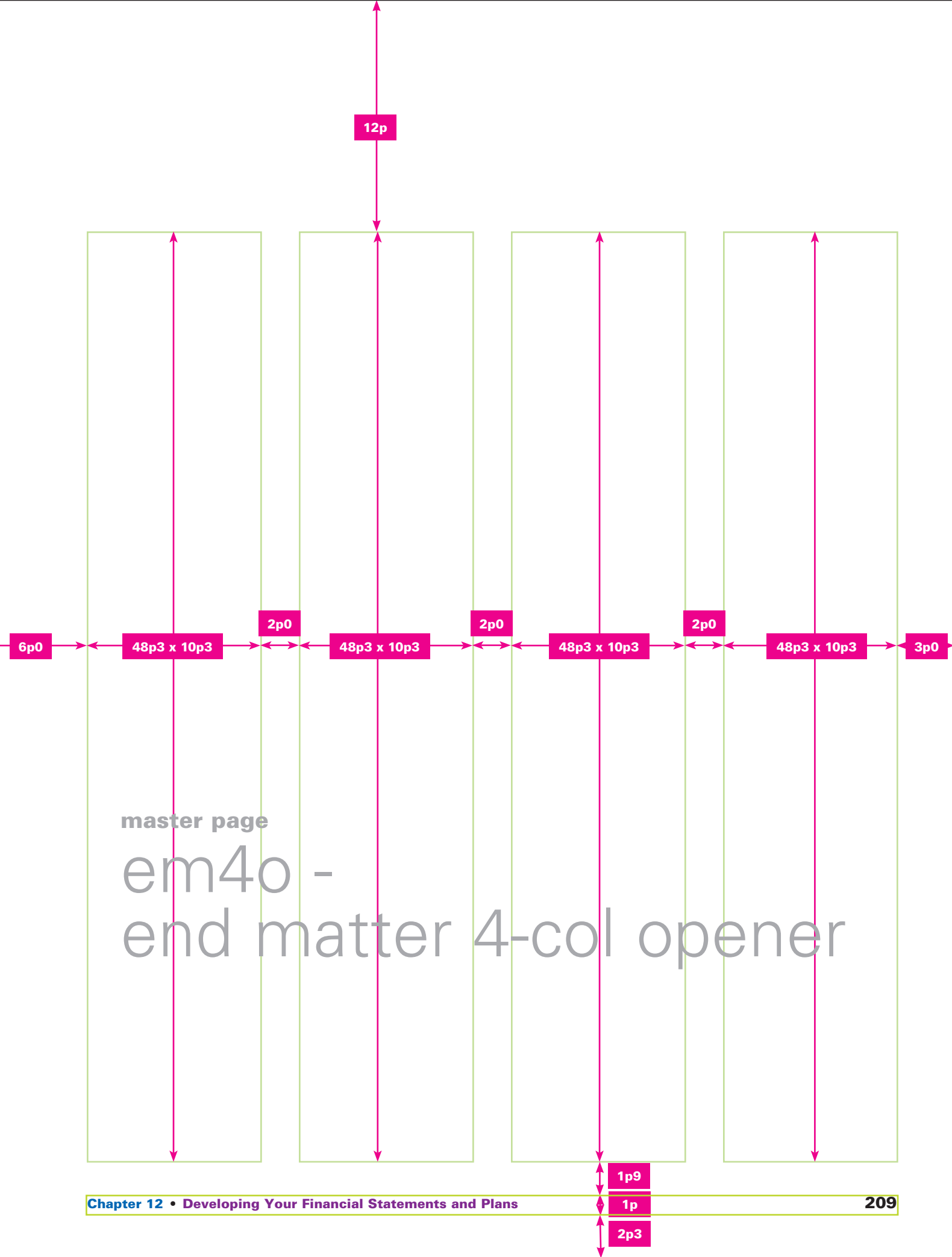
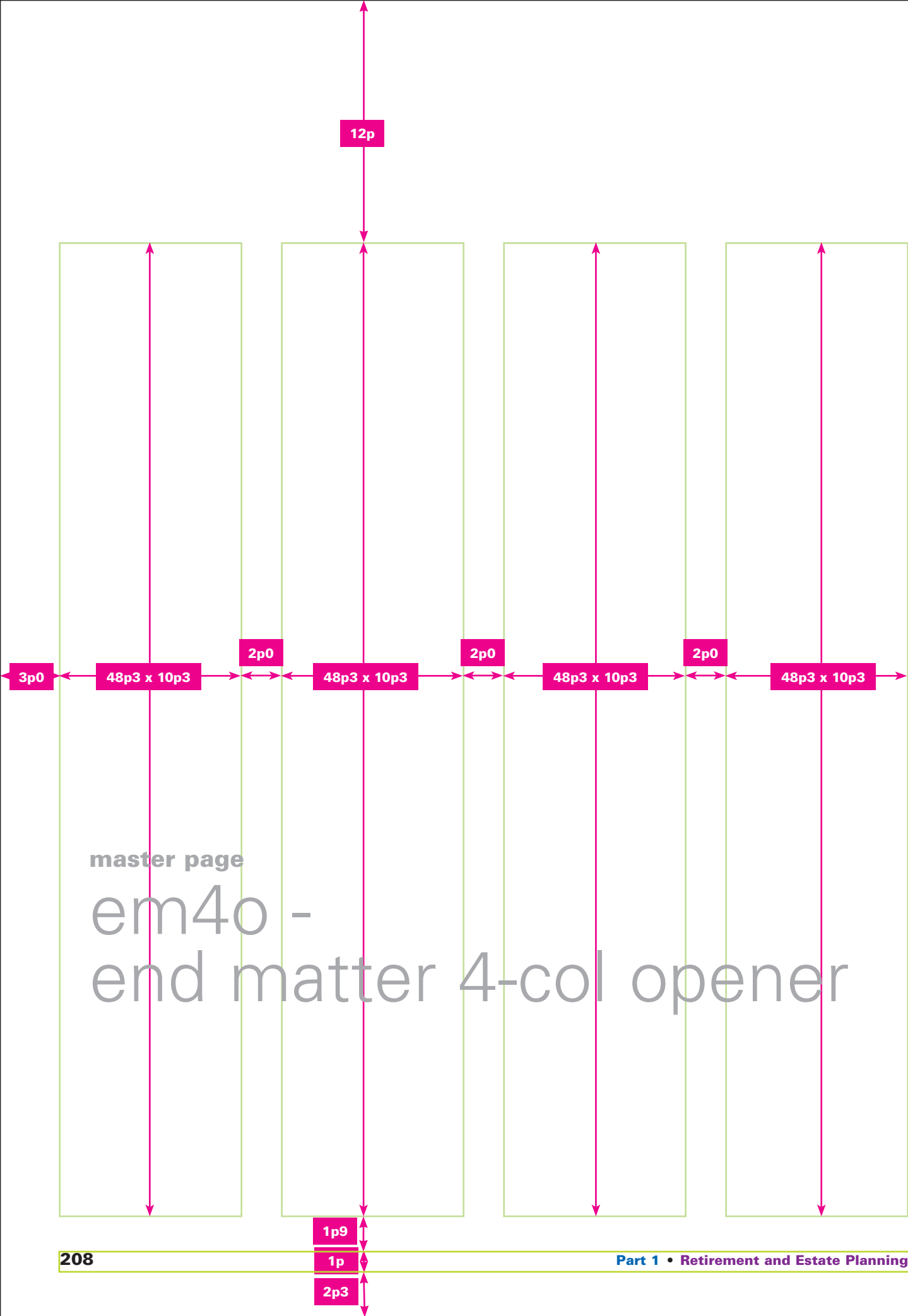
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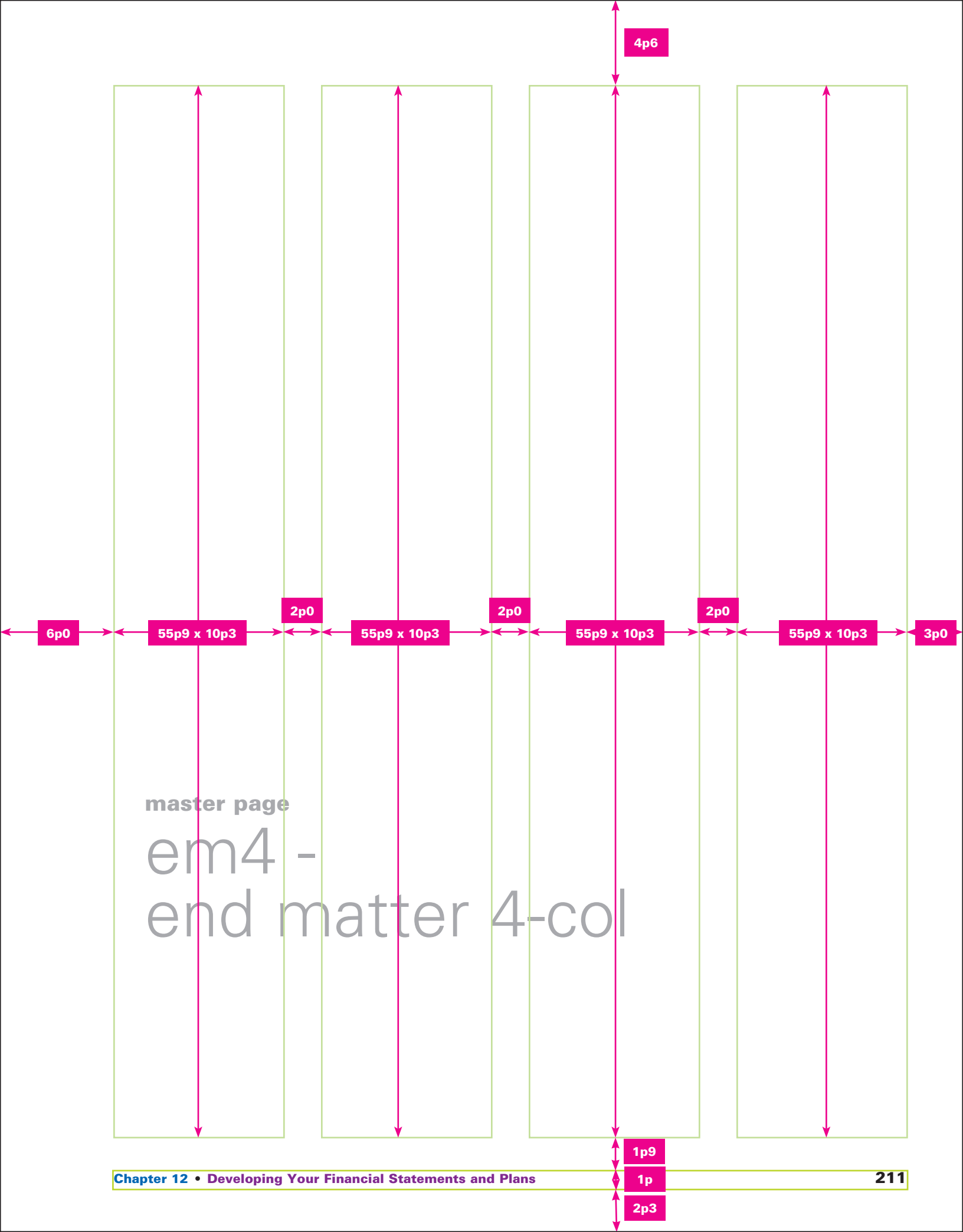
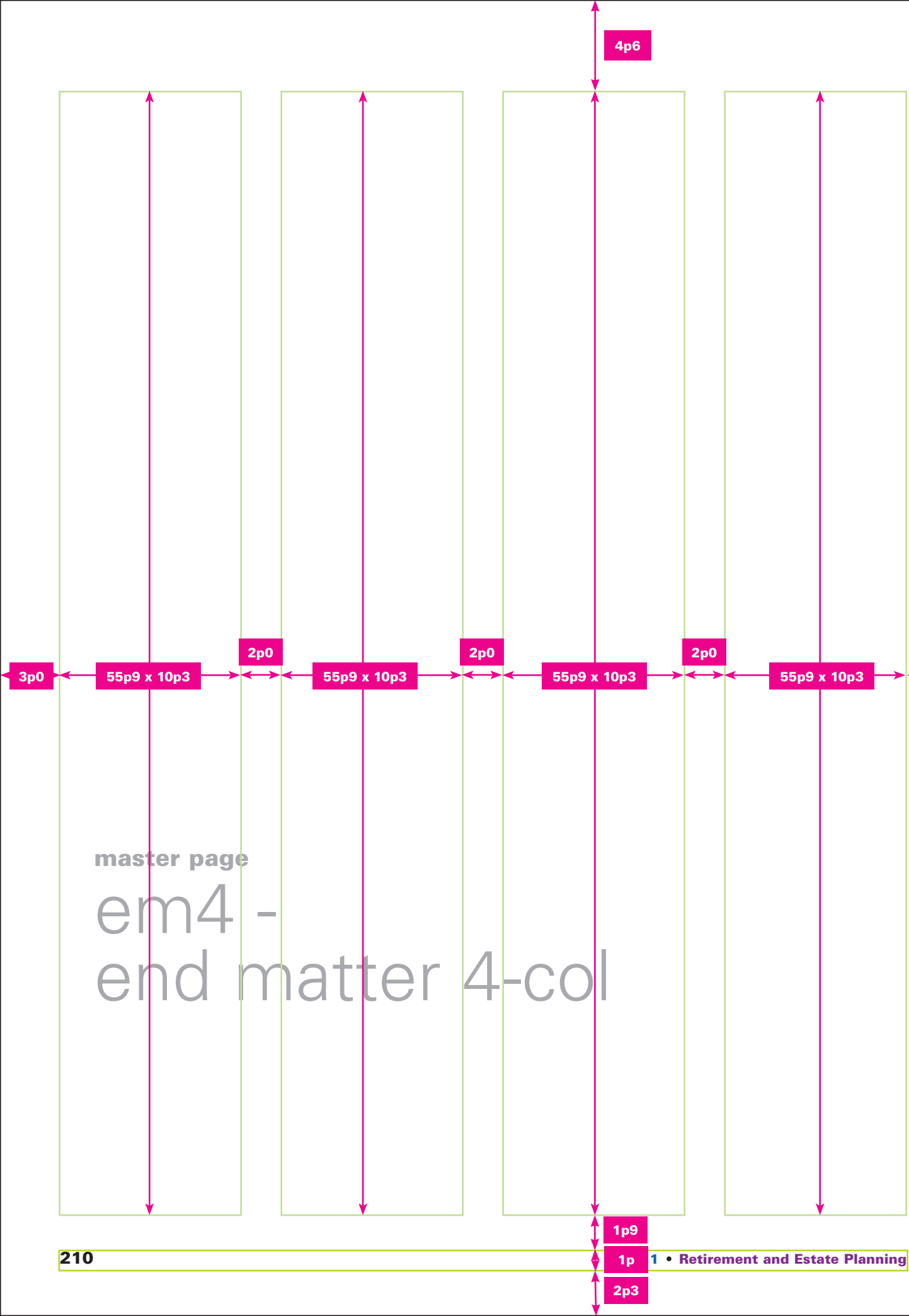


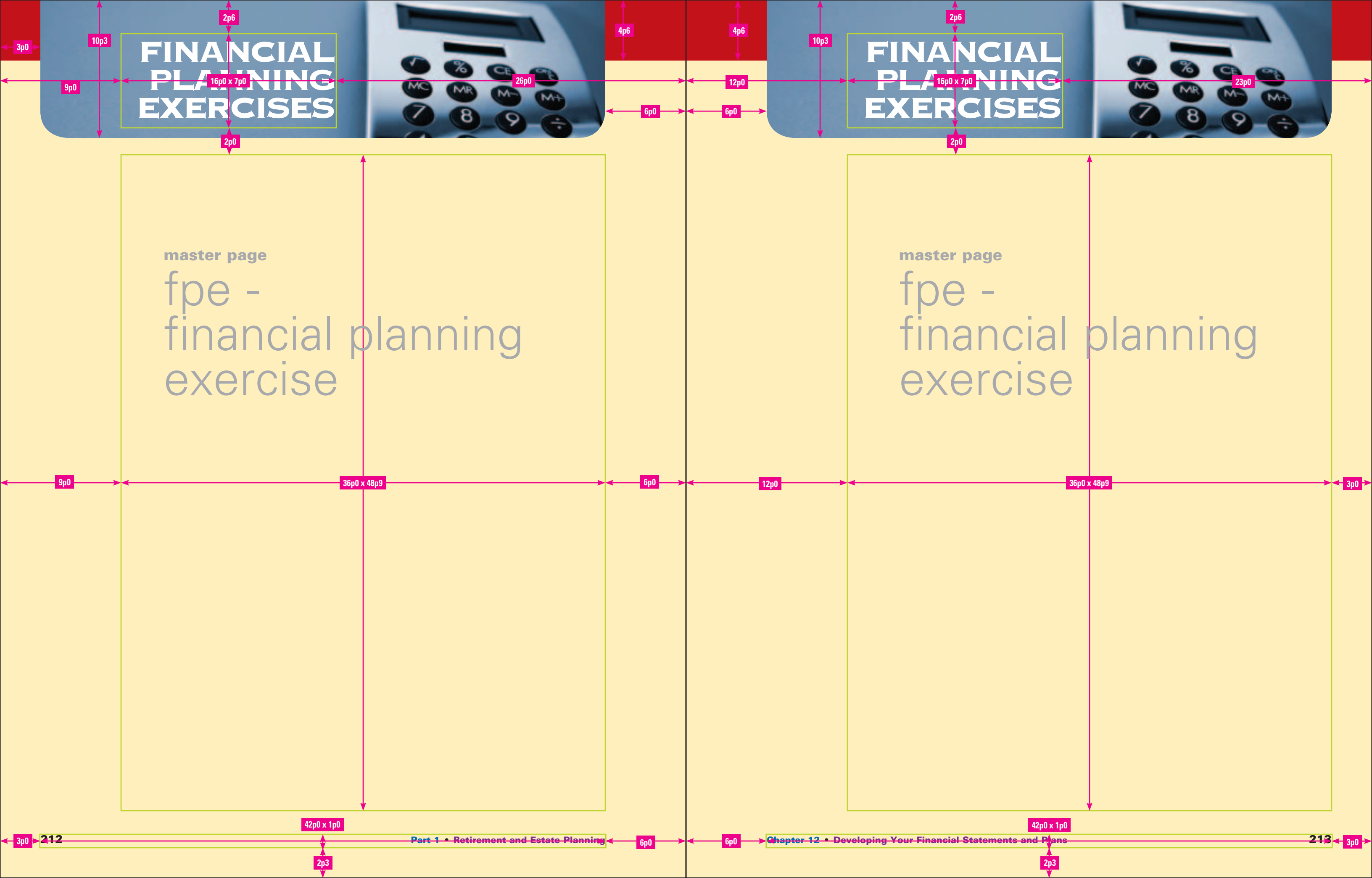


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HOW MUCH INTEREST WILL YOU EARN?

Before opening a deposit account, investigate the factors that determine the amount of interest you'll earn on your savings or interest-bearing checking account:

- Frequency of compounding: The more often interest is compounded, the higher your return.
- Balance on which interest is paid: For balances that qualify to earn interest, most banks now use the actual balance, or day of deposit to day of withdrawal, method. The actual balance method is the most accurate and fairest because it pays depositors interest on all funds on deposit for the actual amount of time they remain there.
- Interest rate paid: As mentioned earlier, the Truth in Savings Act standardized the way that banks calculate the rate of interest they pay on deposit accounts. This makes it easy to compare each bank's annual percentage yield (APY) and to choose the bank offering the highest APY.

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TIPS FOR SAFE ONLINE BANKING

- The All-important Security "s" in Website URLs. Website URLs starting with "https://" are more secure than website URLs starting with "http://". This is particularly important when you are entering passwords and PINs. You should feel better if the URL is followed by the name of your financial institution because this helps authenticate the site. Security icons such as a padlock do not guarantee complete security because they can be reproduced by those seeking to deceive you.
- Passwords and User IDs. Passwords and user IDs should be a combination of upper and lower case letters, numbers, and symbols. Passwords should be at least 8 characters in length. NEVER provide your passwords to email requests for information to update your account – it must be bogus!
- Safe Access Points. Avoid accessing your bank accounts at an internet café or public places like an airport. Your session is just too easy to intercept.

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MONEY IN ACTION

Pros and Cons of Online Banking

PROS

The convenience of online banking is hard to beat:

- **Bank Balances Verification:** You no longer have to wait to get your monthly statement. Just sign in to your online account and verify your bank account balance whenever you want.
- **Download Transactions:** Most banks allow you to download your banking transactions into financial software like Quicken. Debit and credit card charges will show up, which simplifies record-keeping.
- **Online Bill Payment:** It is easier and cheaper to pay online than to mail a paper check. Many banks offer free bill pay services, which reduces the number of paper checks and stamps you need to buy. You can automate some payments, which is great for charges like cable, electric, and the like.
- **Funds Transfer:** It is often free or close to free to transfer funds between your eligible bank accounts and even your accounts at other U.S. financial institutions.

CONS

But is important to be aware of the downside:

- **Threat of Identity Theft:** Security precautions, like those noted in the above Financial Road Sign, must be taken to protect your private information.
- **Not All Businesses Accept Electronic Payments:** Make sure that the businesses you deal with accept online payments well before you need to make a payment. Lack of coordination could lead to late charges. If you choose to pay bills online, make sure that recipients are capable of processing electronic payments. Always remember to print out a hard copy of all online transactions in case there is an error.
- **Website Crashes:** All websites occasionally crash or go down for scheduled maintenance. Keep your bank's phone number handy in case you cannot access a needed account.
- **Fees:** While many banks make online services free, some do not. It is essential to reviews any and all possible fees before you start using your online account.

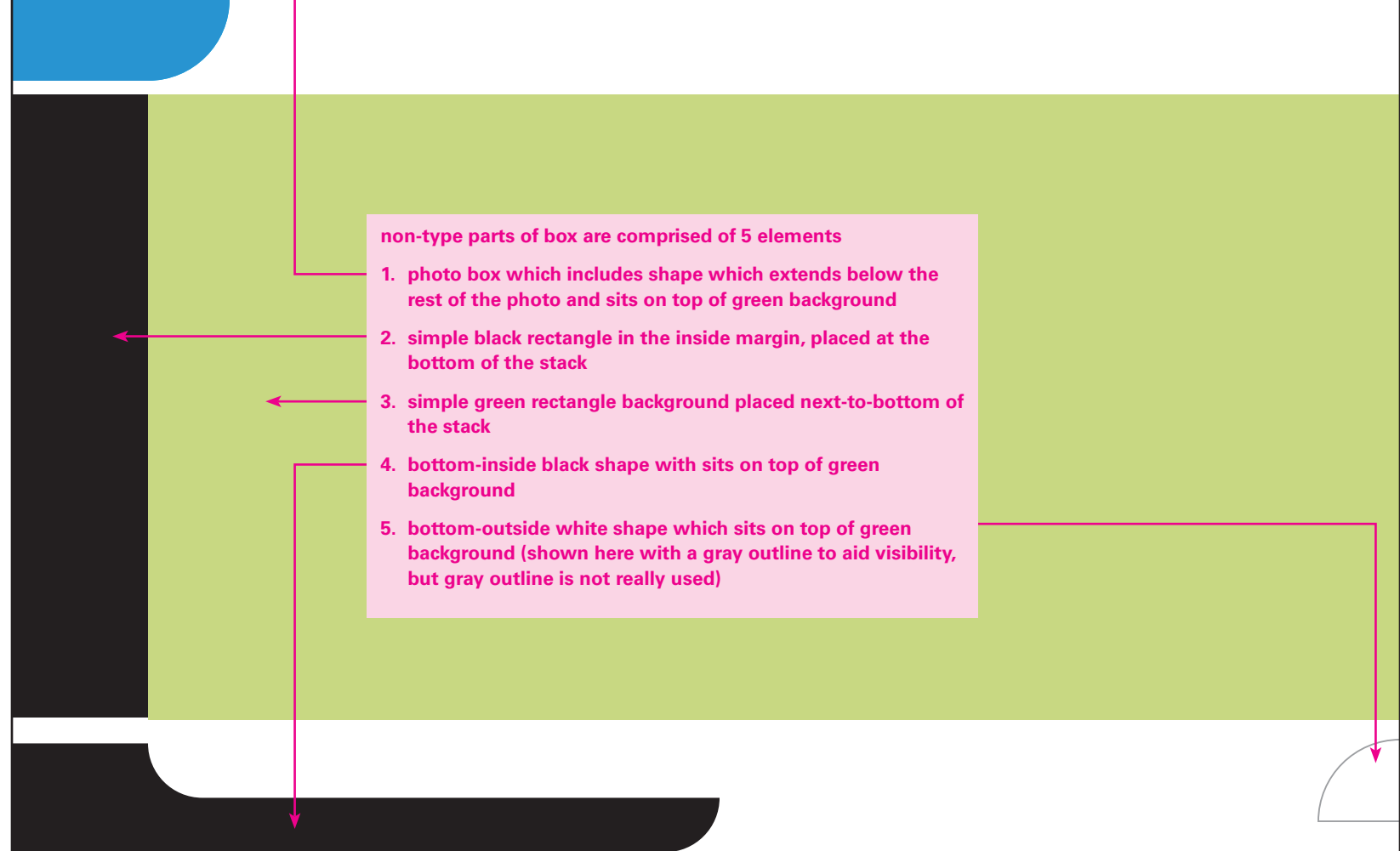
Critical Thinking Questions

1. What are the main advantages of online banking services?
2. What are some disadvantages of bills online banking?

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see next spread for explanation of construction



non-type parts of box are comprised of 5 elements

1. photo box which includes shape which extends below the rest of the photo and sits on top of green background
2. simple black rectangle in the inside margin, placed at the bottom of the stack
3. simple green rectangle background placed next-to-bottom of the stack
4. bottom-inside black shape with sits on top of green background
5. bottom-outside white shape which sits on top of green background (shown here with a gray outline to aid visibility, but gray outline is not really used)