

# Chapter 18

## Tax-Advantaged Investments

### ■ Summary

This chapter describes how the tax laws function, and how specific investments can provide some tax advantages of which there are many. Depending on our age, our income, and our ability to save while foregoing consumption, recent tax laws of 2001 and 2003 have made it more attractive than ever to take advantage of tax-advantaged investments. This chapter first looks at current tax law and how to calculate taxable income and then reviews some of the most popular investment strategies available to lower this amount.

Tax rates affect investor decisions. All income is not equal. There are now tax-deferred savings plans available for almost everyone, regardless of income, though earned income is a requirement.

In order to cut our taxes we need to understand these statements and how best to take advantage of current tax laws without stepping over the line into tax evasion.

The marginal tax rate is that which applies to each additional dollar of income. Top rate is currently (2004) 35%. Exempt from this rate are qualifying stocks dividends, taxed at only 15% (or 5%). Interest income is fully taxable. Armed with this knowledge, investors may well look at high dividend paying stocks versus bonds as investments as an example.

Adjustments to earned income are popular in the form of 401(k) [403(b) and other employer-based savings plans]. Because the contribution limits are quite high, this is a widely used way of lowering taxable income. The amount of the contribution is not taxed now, but will be taxed along with appreciation and income at the investor's marginal rate upon withdrawals—age 59 ½ or later.

Other ways to lower taxable income is through the use of itemized deductions. If their total exceeds that of the standard deduction, then it is in the taxpayer's best interest to itemize. The most commonly used itemized deductions are interest on mortgages and home equity loans, charitable contributions, local and state income taxes, and property taxes.

IRAs now come in a variety of packages, and it is smart for an investor to learn the differences between deductible and non-deductible IRAs and Roth IRAs. Income limitations may apply; annual contribution limits are being raised; all have tax deferral of income and appreciation; some will lower your taxable income while others won't; some require you to start withdrawals by age 70 ½, others don't; the Roth IRA withdrawals are not taxable, whereas those from the others are fully taxable.

Employer-sponsored savings plans (401(k) etc.) will generally offer a selection of investment vehicles from three to many. The employee must choose from this menu. Many employees choose either very safe investments—GICs and MMMFs—or very risky investments—high percentage of employer stock. A balanced, diversified portfolio will serve the employee best.

IRAs are self-directed. The investor chooses his or her own investments.

Coverdell Education Savings Accounts and Section 529 College Savings Plans are quite new in the tax-advantaged investment area. The Coverdell was formerly known as the Education IRA. In 2001 it changed name along with an increase in annual contribution limit from \$500 to \$2,000. The money can be used for all private education, whether primary, secondary or college. Like the IRAs, the account is self-directed.

Section 529 plans are available everywhere, but often a taxpayer will receive a tax break if he uses a plan set up in his home state. This does not mean the child can only go to college in that state. Money is transferable. Each state has a limit on contributions over the lifetime (18 years or so), but generally that is around \$250,000 total. The investment choices are provided by each state. Some states have automatic changes in the asset allocation from relatively risky to less risky as the child nears the age of entering college. Contributions to ESAs and 529 plans are after-tax—except as mentioned above—but all withdrawals are tax-free if money is used for intended purpose, i.e. education.

Tax-favored income derives from tax-exempt municipal bonds, interest on Treasury and some government agency securities, qualifying dividend payments and realized long-term capital gains (as opposed to short-term). Sale of personal residence has also gained tax-favored status, if certain requirements are met.

Annuities are contracts that guarantee a series of payments for a number of years or over a lifetime. These are not for everyone, and the investor needs to understand what inflation can do to level payments, the effect of high sales and surrender charges, and that not all insurance companies are going to be able to pay the promised distributions.

A syndicate is a joint venture in which investors pool their resources. We look at the corporation, general partnership, limited partnership and limited liability companies, their advantages and disadvantages and how best to choose the investment with the best fit.

Learning goals for chapter 18 are to:

1. Understand what taxable income is and how to calculate it;
2. Define tax avoidance and tax deferral and cite the characteristics of tax shelters;
3. Explain the basic strategies by which investors can earn tax-favored income;
4. Summarize deferred annuities;
5. Describe the tax status of limited partnerships and explain how they work;
6. Discuss popular forms of limited partnerships and limited liability companies and their investment characteristics.

## ■ Outline

- I. *Tax fundamentals* mean knowing and understanding the effects taxes have on—and in—our daily lives, from the essentials to investments.

*Tax planning* is the formulation of strategies that will exclude, defer, or reduce the taxes to be paid.

*Tax-advantaged investments* are those vehicles and strategies for legally reducing tax liabilities.

*Tax filing categories* include single, head of household, married filing jointly, married filing separately. The majority file as single or married filing jointly. Current income tax structure (a/o 2004) has six income brackets, and taxable income increases progressively.

Key provisions in the *Economic Growth and Tax Relief Reconciliation Act (2001 Tax Bill)*:

- Lowest bracket will become 10% (down from 15%)
- Reduction in top income tax brackets
- Expanded retirement contributions allowed to IRAs and 401(k) and similar plans
- Increase in child tax credit
- Repeal of estate tax
- Phase out of the marriage penalty

Key provisions of the *Jobs and Growth Tax Relief Reconciliation Act (2003 Tax Bill)*:

- Accelerated 10% tax bracket expansion
- Accelerated reduction in income tax rates
- Accelerated reduction of marriage penalty
- Accelerated increase in the child tax credit
- Reductions in tax rates on dividends and capital gains

A) *Taxable income* is the income to which tax rates are applied. It is the adjusted gross income minus itemized deductions and exemptions. As a general rule: most income is taxable income, and unless it is considered a long-term capital gain or dividend, it is ordinary income.

1. *Capital asset* is anything owned and used for personal reasons, pleasure, or investment.
2. *Tax basis* is the amount paid for a capital asset, including commissions and other costs related to the purchase.

B) Determining taxable income involves a series of steps.

1. *Gross income* is all income subject to federal income tax. Special note must be made of qualifying dividends and whether capital gains are short- or long-term.
2. *Adjusted gross income* is gross income less total allowable adjustments.
3. *Deductions* can be elected by the taxpayer to be *standard* or *itemized*.
  - a. *Standard deduction* is an amount, indexed to the cost-of-living, that taxpayers elect to deduct from adjusted gross income without itemizing.
  - b. *Itemized deductions* are personal living and family expenses that can be deducted from adjusted gross income, e.g. interest on a home mortgage, charitable contributions, and property taxes, as well as state and local income taxes.
4. *Exemptions* are deductions from adjusted gross income for each qualifying dependent of a federal taxpayer.
5. *Taxable income* is the end result, once deductions and exemptions have been subtracted from adjusted gross income.
  - a. *Marginal tax rate* is the tax rate on additional income and should always be considered when evaluating the tax implications of an investment strategy.
  - b. *Average tax rate* is arrived at by taking total taxes due divided by taxable income. Differs from—and is always equal to or lower than—the marginal tax rate.
6. *Tax credits* are tax reductions, allowed by the IRS on a dollar-for-dollar basis under certain specified conditions.
7. *Alternative minimum tax* is a tax passed by Congress in 1978 to ensure that all individuals pay at least some federal income tax. It is designed to raise additional revenue. The procedures for determining the AMT base and AMT are very complex.

II. *Tax strategies* attempt to maximize the total after-tax income of an investor.

- A) *Tax evasion* involves illegal activities designed to avoid paying taxes by omitting income or overstating deductions.

- B) *Tax avoidance* reduces or eliminates taxes in *legal* ways—differs from tax evasion, which is *illegal*.
  - C) *Tax deferral* is the strategy of delaying taxes by shifting income subject to tax into a later (deferred) period. It is often part of a long-term strategy involving retirement planning.
  - D) *Tax shelters* are investment vehicles that offer potential reductions of taxable income.
- III. *Tax-favored income* is an investment income that is not taxable, is taxed at a rate less than that on other similar investments, defers the payment of tax to a later period, or trades current income for capital gains.
- A) Income excluded from taxation include
    1. *Tax-exempt municipal bond interest*—this is not subject to federal income tax and, in many cases, also excluded from state and local taxation.
    2. *Interest on Treasury* and some government agency issues is exempt from state and local taxation.
    3. *Sale of a personal residence* in which the owner has resided for at least two years may result in capital gains. For a person filing single, \$250,000 of such gain can be excluded from the calculation of capital gains tax. For married filing jointly, \$500,000 can be excluded.
  - B) *Strategies* that defer tax liabilities include
    1. *Put hedge* which is the purchase of a put option on shares currently owned, to lock in a profit and defer taxes on the profit to the next tax year.
    2. *Deep-in-the-money call option* which is a strategy that involves selling a call option on shares currently owned, thus locking in a price equal to the amount received from the sale of the call option but giving up future price appreciation.
  - C) Programs that *defer tax liabilities to retirement* have become increasingly popular. Popular wisdom says that accumulating funds for retirement is the single most important reason for investing.
    1. *401(k)* [403(b)] plans are retirement programs that allow employees to divert a portion of salary to a company-sponsored tax-deferred savings account, thus deferring taxes until the funds are withdrawn. Participation by employees is strongly encouraged, as few employers now offer pension plans.
      - a. *Guaranteed Investment Contracts (GICs)* are portfolios of fixed-income securities with guaranteed competitive rates of return that are backed and sold by insurance companies.
    2. *Keogh* plans are programs that allow self-employed individuals to establish self-directed, tax-deferred retirement plans for themselves and their employees.
    3. *Individual Retirement Accounts (IRAs)* are self-directed, tax-deferred retirement programs available to any gainfully employed individual who has earned income, and who can make up to a specified maximum annual contribution. Recent tax laws increase the annual limit.
      - a. *Deductible IRA*: If an employee **is not** covered by an employer-sponsored retirement plan, she may make the maximum annual IRA contribution and have it fully deductible as an adjustment to ordinary income. Income limitations are very high.
      - b. *Deductible IRA*: If an employee **is** covered by an employer-sponsored retirement plan, she may make the maximum annual IRA contribution and have it fully deductible as an adjustment to ordinary income, but income limitations are considerably lower.
      - c. *Non-deductible IRA*: IRA contributions are non-deductible if the adjusted gross income exceeds limits as specified in the law.

- d. *Roth IRA* is an IRA that allows a worker and spouse with earnings from employment each to contribute up to \$3,000 annually (2004)—subject to certain limitations. Contributions are *after-tax*, but *withdrawals are not taxed* if withdrawn in accordance with specific requirements laid down by the IRS.
- e. *Coverdell Education Savings Accounts (ESAs)*, formerly known as Education IRAs, allow taxpayers—subject to certain limits—to contribute \$2,000 per year after-tax for each child under age 18. The account accumulates tax-free—like the above-mentioned IRAs—and distributions are tax-exempt, if they are used to pay educational expenses for the child for whom the account exists. The law allows the money to be used for elementary and secondary education expenses as well as higher education.

Contributions to individual IRAs and ESAs are separate and can be done simultaneously. Individual IRAs are for people with earned income, whereas ESAs are for children and can be funded by anyone—not just parents or relatives—up to the contribution limit.

IRAs and ESAs are self-directed, that is you are free to choose the financial institution with which you wish to establish your account, and the investments offered by that institution. You can be conservative or aggressive. Always bear two things in mind, except for some extraordinary circumstances identified in the tax law: you cannot withdraw until you are 59½—so think long-term—and any losses (price depreciation) cannot be taken as a capital loss on your income tax return. (Time frame for ESAs is, of course, different, depending on the child's age.)

Inappropriate investments for Keogh, 401(k) and IRAs are tax-exempt bonds and, in most cases, also MMMFs. The latter because of the long-term nature of the investment.

- f. *Section 529 College Savings Plans* are state-sponsored tax-deferred savings plans which have an annual contribution limit of \$11,000 (\$22,000 for married couples). Total contributions to one student may be as high as \$270,000. Contributions are after-tax; withdrawals are tax-free if used for qualified college expenses. Individuals can also make contributions to an ESA.
- D) *Strategies* that trade current income for capital gains are important due to the various tax rates applied to income versus the rates applied to *realized* capital gains.
1. *Growth versus income stocks*—tax is due on dividend income on an annual basis at 15% (5%) income tax rates, whether the dividend is reinvested or not. Capital appreciation is taxed at (marginal or lower) capital gains tax rates only when realized.
  2. *Deep discount bonds*—for tax purposes there is a difference between buying a low coupon discount bond that matures at par and a higher coupon par or premium bond. All interest income is taxed at marginal income tax rates, but income from a discount bond is obviously less. At maturity, the difference between purchase price of the discount bond and par value is taxed at (lower) capital gains tax rates. However, it is worth noting that the difference between the price of a premium bond and par value cannot be deducted as a capital loss. The IRS wins again!
  3. *Income property depreciation* deduction results in a type of interest-free loan. The deduction reduces taxes during the property's holding period and delays the repayment of those taxes until the property is sold.
- E) *Tax swaps* is the strategy of selling one security that has a capital loss and replacing it with another, similar security to offset, partially or fully, a capital gain that has been *realized* in another part of the portfolio.

IV. *Annuities* can be appropriate investment vehicles for investors.

- A) *Annuities* are contracts that guarantee a series of payments for a number of years or over a lifetime.
1. *Single-premium annuity* is an annuity purchased with a single lump-sum payment
  2. *Installment annuity* is an annuity acquired by making payments over time; at a specified future date, the installment payment plus interest earned on them are used to purchase an annuity.
  3. *Accumulation period* under an annuity is the period of time between when the payments to the insurance company are made and when payments to the annuitant begin.
  4. *Distribution period* under an annuity is the period of time over which payments are made to the annuitant.
  5. The *annuitant* is the person to whom the future payments on an annuity are directed.
  6. *Immediate annuity* is an annuity under which payments to the annuitant begin as soon as it is purchased.
  7. *Deferred annuity* is an annuity in which the payments to the annuitant begin at some future date.
- B) *Deferred annuities* generally pay market competitive interest rates. These are the yearly returns the insurance company is currently paying on accumulated deposits.
1. The *current interest rate* on an annuity contract is the yearly return the insurance company pays on accumulated deposits.
  2. The *minimum guaranteed interest rate* for a deferred annuity purchase contract is the minimum interest rate on contributions, which the insurance company guarantees over the full accumulation period.
  3. A *tax-sheltered annuity* is an annuity that allows employees of certain institutions to make a tax-free contribution from current income to purchase a deferred annuity.
  4. The *payout* is the investment return provided by an annuity; it is realized when the distribution period begins.
  5. A *straight annuity* is an annuity that provides for a series of payments for the rest of the annuitant's life.
  6. Annuities are not for everyone.
- C) *Deferred annuities and retirement plans*
1. Before considering the purchase of a tax-deferred annuity, the investor should maximize all other tax-deferred savings options.
  2. A *fixed annuity* is an annuity that pays an unchanging amount of monthly income during the distribution period.
  3. A *variable annuity* is an annuity that adjusts the monthly income it pays during the distribution period according to the investment experience (and sometimes the mortality experience) of the insurer.
- E) *Annuities as investment vehicles*
1. Investment suitability—the principal positive feature is that they allow you to accumulate tax-deferred earnings. Disadvantages are the high sales charges and administrative fees connected with annuities, which take a heavy toll on returns.

2. Buying annuities occur from licensed salespersons and stockbrokers.
3. An annuity is only as good as the insurance company that stands behind it.

VI. *Syndicated investments: limited partnerships and limited liability companies.*

- A) A *syndicate* is a joint venture—general partnership, corporation, or limited partnership—in which investors pool their resources.
1. A *corporation* is a form of organization that provides limited liability benefit to shareholder investors and that has an indefinite life.
  2. In a *general partnership* all partners have management rights, and all assume unlimited liability for any debts or obligations the partnership incurs.
  3. A *limited partnership (LP)* is a vehicle in which the investor can passively invest with limited liability, receive the benefit of active professional management, and apply the resulting profit or loss (subject to limits) to his or her tax liability.
  4. A *limited liability company (LLC)* is a business entity that provides the same liability protection as a corporation but offers the option of being taxed as either a partnership or a corporation.
    - a. LPs and LLCs provide flow-through of profits and losses.

*Passive activity* is one in which the investor does not “materially participate” in its management activity. Unused passive losses are carried forward to future tax years and can eventually be used when the investment in the limited partnership is liquidated.

LLCs should be purchased on their investment merits only, after considering both risk and return. They are illiquid, thus they are not suitable for conservative investors.

## ■ True/False

- T \_\_\_\_ F \_\_\_\_ 1. One of the disadvantages of holding speculative stocks in an IRA is that, should the investment realize a loss, it cannot be offset by a gain for tax purposes.
- T \_\_\_\_ F \_\_\_\_ 2. In the US the marginal tax rate for an investor is greater than or equal to his or her average tax rate.
- T \_\_\_\_ F \_\_\_\_ 3. Tax avoidance and tax evasion are two names for the same technique.
- T \_\_\_\_ F \_\_\_\_ 4. The new 2003 Tax Bill increased the number of tax brackets from five to six.
- T \_\_\_\_ F \_\_\_\_ 5. Capital gains and losses are treated the same as ordinary income for tax purposes.
- T \_\_\_\_ F \_\_\_\_ 6. A put hedge locks in a gain but eliminates additional profit above that gain.
- T \_\_\_\_ F \_\_\_\_ 7. The higher the tax bracket of the investor, the more attractive tax deferral becomes.
- T \_\_\_\_ F \_\_\_\_ 8. A deferred annuity has a stated rate of interest equal to the current interest rate which it guarantees to earn every year.

- T \_\_\_\_ F \_\_\_\_ 9. Limited partnerships have limited liability for the limited partners, but still can be highly speculative, risky investments.
- T \_\_\_\_ F \_\_\_\_ 10. Coverdell ESAs for children can be used for any educational purpose, from elementary school expenses to college.
- T \_\_\_\_ F \_\_\_\_ 11. Variable annuities distribute a different payout each month depending on the performance of the portfolio.
- T \_\_\_\_ F \_\_\_\_ 12. The Tax Reform Act of 1986 in effect eliminated the tax-sheltering appeal of LPs.
- T \_\_\_\_ F \_\_\_\_ 13. The marginal tax rate is more important than the average tax rate when considering an investment.
- T \_\_\_\_ F \_\_\_\_ 14. 401(k) investments are self-directed, whereas IRA investments are not.
- T \_\_\_\_ F \_\_\_\_ 15. Using a tax swap to reduce or eliminate taxes means the investor sells a security at the end of one tax year and repurchases it at the beginning of the next year.
- T \_\_\_\_ F \_\_\_\_ 16. Deep discount bonds have essentially the same tax consequences for taxpayers, as do zero-coupon bonds.
- T \_\_\_\_ F \_\_\_\_ 17. Coverdell ESAs and Section 529 plans are mutually exclusive.
- T \_\_\_\_ F \_\_\_\_ 18. It is neither possible nor advisable to have both a 401(k) plan and an IRA.

## ■ Multiple Choice Questions

- Which of the following \$1,000 items will create the largest reduction in an individual's current federal income taxes?
  - a \$1,000 contribution to a Roth IRA
  - a \$1,000 tax credit
  - a \$1,000 charitable contribution
  - a \$1,000 receipt of tax-free income from a municipal bond
- Favorable tax treatment is not available on
  - income on municipal bonds
  - income on Treasury securities
  - income on deep discount bonds
  - dividend income
- On November 1, financial analysts predicted that the price of Mazen Corporation's stock will most likely fluctuate wildly around its current price during the next few months. An investor desires to lock in a gain of \$20 a share but not sell the stock until next year. Which of the following is the best strategy for this investor?
  - Do nothing—sell the stock next year.
  - Make a short sale. Cover short and sell stock next year.
  - Buy a put hedge.
  - Sell a deep-in-the-money call option.

4. All the following statements concerning Keogh plans, 401(k) plans, and IRAs are correct except
  - (a) The investments accumulate tax-deferred.
  - (b) All contributions are tax deductible.
  - (c) Income taxes on earnings of the plan can be deferred until withdrawal after age 59½.
  - (d) Tax-exempt municipal bonds are an inappropriate investment selection for tax-deferred accounts.
5. The average tax equals the marginal tax rate when a person's marginal tax rate is:
  - (a) 10%
  - (b) 15%
  - (c) 25%
  - (d) 28%
6. Allowable itemized deductions include (in most cases) all of the following except:
  - (a) contributions to your local medical center
  - (b) local property tax
  - (c) interest on a home equity loan
  - (d) contribution to your 401(k) plan

## ■ Problems

1.
  - (a) Using Table 18.3 in the text, calculate Sarah Hutton's income tax due on her 2003 taxable income of \$74,000, assuming she files as a single taxpayer.
  - (b) What is her average tax rate?
  - (c) What is her marginal tax rate?
  - (d) Why is her marginal rate important in investment analysis?
2. Neal and Nadia Topper had the following income tax items to report for 2003:

Salaries and wages	\$104,800
Qualifying dividends	1,000
Interest on corporate bonds & MMMFs	1,600
Interest on municipal bonds	600
Realized long term capital gains on securities	1,200
Itemized deductions	13,000
Contributions to Roth IRAs	6,000

If Neal and Nadia have one dependent child, and file a joint return for 2003, calculate their income tax due using Table 18.3—exemptions are \$3,050 each.

3. Beth and Hans Dodin own 600 shares of Irvine Inn, which they purchased nine months ago at \$14 per share. The stock currently sells for \$27, but Hans feels the price may fall to below \$20 per share in the near future. Beth feels they should buy six put options with a \$25 strike price which have an expiration date of six months. These puts have a \$1 premium. Their financial adviser, Jennifer, feels they should consider selling six call options with a \$20 strike price and an expiration date of six months. These calls have a premium of \$8.50.
  - (a) What level of profitability would be locked in with each alternative?
  - (b) What are the consequences of each alternative?

4. Baby John has just joined his 5-year old sister Abby in the Fuller household. The Fullers have just heard about the new Coverdell ESAs and want to set one up for each of the two children. The contribution limit is \$2,000/year per child, and they choose a relatively aggressive mutual fund and hope to gain on average 11% a year. When Abby starts college, John turns 13.
  - (a) How much money is in each of their accounts at that time?
  - (b) The Fullers will continue their \$2,000 annual contribution to John's plan for another five years, but realize 10% may be more realistic. How much will John have in his account at the time he starts college?
  - (c) Is it possible for the Fullers and their parents to contribute simultaneously to a Section 529 College Savings plan? Could the Fuller's parents also contribute to the ESAs?
5. Joe Smick is 25 years old. He has been told that it is good to start investing for retirement early, but he likes his current free-spending life style. He wants you to help him figure out whether he should start now with \$3,000 a year for 10 years, or wait 10 years but then contribute \$3,000 until he's 60, at which time he can start withdrawals. He has been told he can probably average 11% annual return. Assuming his contribution is put in at the beginning of each year, return is 11%, how much will he have accumulated at age 60 if he
  - (a) starts now, contributes for 10 years and then stops contributing but lets it sit until age 60; or
  - (b) waits 10 years, but then contributes for his remaining years until age 60.

## ■ Answers

### True/False

1. **True.** Because IRAs treat both income and appreciation as income, and the accounts already have tax-deferred status, capital gains or losses are not recognized.
2. **True.** Because the rates increase as income increases.
3. **False.** Tax avoidance is legal, using the tax laws to one's advantage. Tax evasion is illegal.
4. **True.**
5. **False.** Capital gains are fully taxable in the year in which they are realized, but only \$3,000 of capital losses in excess of capital gains can be applied to offset ordinary income in any one year. The remainder can be carried forward to future years.
6. **False.** A put hedge locks in a gain but does not limit additional profits.
7. **True.** It causes a larger difference in after-tax returns.
8. **False.** Deferred annuities have a current rate of interest, which is that rate earned during the present period, but this is usually higher than the minimum guaranteed rate.
9. **True.** Many limited partnerships are highly risky, others fairly conservative.

10. **True.** The new 2001 tax law has expanded the educational purposes for which the funds from a Coverdell ESA can be used to include elementary and secondary school.
11. **True.** The payout may or may not keep pace with inflation on the overall market performance.
12. **True.**
13. **True.** The marginal rate affects the after-tax return on investments and is levied on additional income above salaries and wages.
14. **False.** Available options for 401(k) investing are determined by the employer. Within the available options, the employee may direct her investments. Investments for an IRA are self-directed and are limited only by the choices of the financial institution, with which the investor holds her account.
15. **False.** The tax swap involves selling a security with a loss to offset a realized capital gain on some other investment. The investor who wants to keep his portfolio in balance will purchase a similar security (not the same security) to replace the one sold.
16. **False.** The difference between purchase price and redemption value is a capital gain for deep discount bonds but is amortizable income for zero-coupon bonds.
17. **False.** It is possible for a child to have both a Coverdell ESA and a Section 529 College Savings Plan set up on his behalf.
18. **False.** It is in most cases not only possible, but also highly advisable, to contribute to both.

### Multiple Choice

1. The correct response is B. Tax credits reduce federal income taxes on a dollar-for-dollar basis. Thus a \$1,000 tax credit would reduce the federal income taxes due by \$1,000. Contributions to a Roth IRA are after-tax (A), and (C) reduces the amount of the income for tax purposes by \$1,000, the tax reduction is at most 39.6% (depending on the individual's marginal tax bracket). The receipt of \$1,000 of tax-free income from a municipal bond, answer D, results in a maximum tax savings of \$396, since that is the amount of tax that would be paid if the \$1,000 was fully taxed interest income.
2. The correct answer is C. Income on deep discount bonds do not enjoy any favorable tax treatment.
3. The correct response is C. If the stock price rises the investor can reap additional profits. If the price falls, the investor is sure of obtaining the \$20 gain. The strategy of answer A would result in either additional profits or loss of the \$20 gain should the price go up or down. This is risky and the investor wants to lock in the gain. Answer B assures the investor of the \$20 gain, but it is still taxable this year. Answer D would lock in the \$20 gain and also enable the investor to retain the price paid by the option buyer. However, the stock's price could fall drastically, say to zero, and the investor would only have the price paid for the option as the total proceeds from the sale of the stock.\
4. The correct response is B. All three plans have dollar limits as to the amount of annual contributions that can be made. The limits are, however, different amounts. Answer A is correct. In 401(k) plans the choices are restricted to those included in the plan offered by the employer. Answer C is correct. All gains accumulate free of current taxation. Income taxes are paid on withdrawal. Answer D is also correct. Tax-free municipal bonds pay lower interest income to their owners than is paid if the income were taxable. Tax-exempt municipals are an inappropriate selection within a tax-deferred plan.

5. The correct response is A. It is only possible to have the marginal and average tax rate be the same at the lowest tax rate of 10%, due to the progressive nature of the US tax system.
6. The correct answer is D. Contribution to 401(k) and other tax-deferred savings plans is an adjustment to gross income and thus lowers the adjusted gross income (AGI) of the tax payer.

## Problems

1. (a) Table 18.3 provides us with the following guidelines:
- 10% on the first \$7,000 = \$700
  - 15% on the next \$21,400 = \$3,210
  - 25% on the next \$40,400 = \$10,100
  - 28% on the remaining \$5,200 = \$1,456
  - Total Federal tax payable is \$15,466
- (b) Average tax rate = taxes due/taxable income =  $\$15,466/74,000 = 0.209$  or 20.9%
- (c) Marginal tax rate = rate on top dollar of income, which is 28%.
- (d) The marginal rate is important for investments, since this determines the after-tax return on most investments.
2. This problem requires we adjust the income tax items to reflect the provisions of tax laws.

Given Information		Adjustments
Wages and salaries	\$104,800	\$104,800
Dividends	1,000	
Interest on corp./MMMFs	1,600	1,600
Interest on municipals	600	
Capital gain on securities	1,200	
AGI		\$106,400
Itemized deductions		-13,000
IRAs (Roth contributions are after-tax)		0
Exemptions (3 × \$3,050)		-9,150
Taxable income (excl. capital gains)		\$84,250

Using Table 18.3, the taxes due on \$84,250 are:

10% on \$14,000	\$1,400
15% on \$42,800	6,420
25% on \$84,250 – 56,801	6,863
Tax on above	\$14,683
Capital gains tax 15%	180
Tax on qualifying dividend at 15%	150
Total tax payable is	\$15,013

2. (a) The put hedge allows the Dodins to lock in the present profit  $(\$27 - \$14) \times 600 = (\$7,800)$ , less the cost of the put option  $\$1 \times 600 = \$600$  and, less the difference between the current stock price and the strike price  $(\$27 - \$25) \times 600 = \$1,200$ ; total \$6,000. They will make this much profit, even if the stock price goes to zero. At any stock price above \$25, they will earn even greater profits, i.e., they do not give up any further price appreciation. No tax will be incurred until the put is exercised or the stock is sold in the market.

Selling a deep-in-the-money call is a strategy to provide some downside protection but it requires the Dodins to give up most of any (unlikely) price increases. This strategy gives downside protection to \$18.50  $(\$27 - 8.50)$ . If the stock price falls below this level, their existing profit of \$7,800 will start to erode.

Profit at \$20 or above:

Sell	600 shares @ \$20	= \$12,000
Bought	600 shares @ \$14	= 8,400
		\$ 3,600 profit
Plus call $\$8.50 \times 600$		= <u>5,100</u>
		\$8,700 maximum profit

Below \$18.50, the position reduces their profit.

Sell	600 shares @ \$18.50	= \$11,100
Bought	600 shares @ \$14	= <u>8,400</u>
		\$ 2,700
Plus call $\$8.50 \times 600$		= <u>5,100</u>
		\$ 7,800 profit Dodins have now

- (b) The put hedge also locks in a (smaller) before-tax profit, but does not prevent the investor from realizing an additional profit on further appreciation of the common stock.

Selling a deep-in-the-money call option leaves unlimited downside risk since there is no minimum selling price for the stock, while putting a cap on any further profits. It does protect the existing profit over a significant price drop.

The choice of alternatives will depend upon the attitudes of the investor toward the risk-return trade-off.

4. (a) Future value of \$2,000 a year at 11% for 13 years can be found by using a financial calculator,

$$\text{Microsoft Excel or the formula } FV_{\text{pmts}} = \text{Payment} \left[ \frac{(1+i)^n - 1}{i} \right]$$

If we assume the \$2,000 payments are made at the beginning of each year, Abby and John's accounts will each have \$52,423.

- (b) For John, his parents will continue to place \$2,000 into the account, though for the remaining 5 years the account only returns 10%. We use the combined formulas of

$$FV_{\text{pmts}} = \text{Payment} \left[ \frac{(1+i)^n - 1}{i} \right]_{**} \text{PV} (1+i)^n$$

Where the PV in the second part of the formula is the \$52,423 we started with at John's 13<sup>th</sup> birthday. The result is \$96,638.

(c) The answer to the first question is yes, the second no. The two accounts are compatible and can co-exist. If the Fullers contribute the maximum to the ESA, their parents cannot also contribute.

5. For this problem, we can use the same formulas and methods as used in problem #4.

If Joe contributes \$3,000 for 10 years at the beginning of each year, and gets on average 11% return for the next 10 years, he will accumulate \$50,166. He then lets this amount sit and again gets on average 11% return for an additional 25 years, he will have accumulated \$681,529.

If on the other hand he waits 10 years, and then contributes \$3,000 a year for the remaining 25 years, he will accumulate only \$343,240—only half as much, though he contributed more than twice as much.

You better tell him to cut back his lifestyle but quick, and start saving!