Introduction to Accounting: An Integrated Approach

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VOLUME II
CHAPTERS 14 TO 25

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First, and foremost, we dedicate this text to our families without whose love and support we never could have completed this project. To our spouses, ***Scott Ainsworth, Linda Deines, Marlene Plumlee, and Doug Larson,*** *and to our children,* ***Heather, Dusty, Jennifer, Jeff, Matt, Sarah, Ashley, J. D., and Robyn,*** *we love you and we thank you for your patience. We would also like to thank the students of Kansas State University who used previous drafts of this textbook and gave us valuable suggestions for improvement. Finally, we would like to thank our development editors, Leslye Givarz and Kelly Lee, our executive editor, Jeff Shelstad, and the production and marketing departments at Irwin.*

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Penne Ainsworth, CPA, CMA, and CIA, received her Ph.D. from the University of Nebraska. She is an associate professor in the accounting department at Kansas State University and co-authored the original application for the grant KSU received from the Accounting Education Change Commission (AECC). She won the Kansas State Bank Outstanding Teacher Award in 1993. She is a member of the AAA and the IMA. Penne's research focuses on managerial accounting and accounting education. Her work has been published in *Issues and Accounting Education* and other journals.

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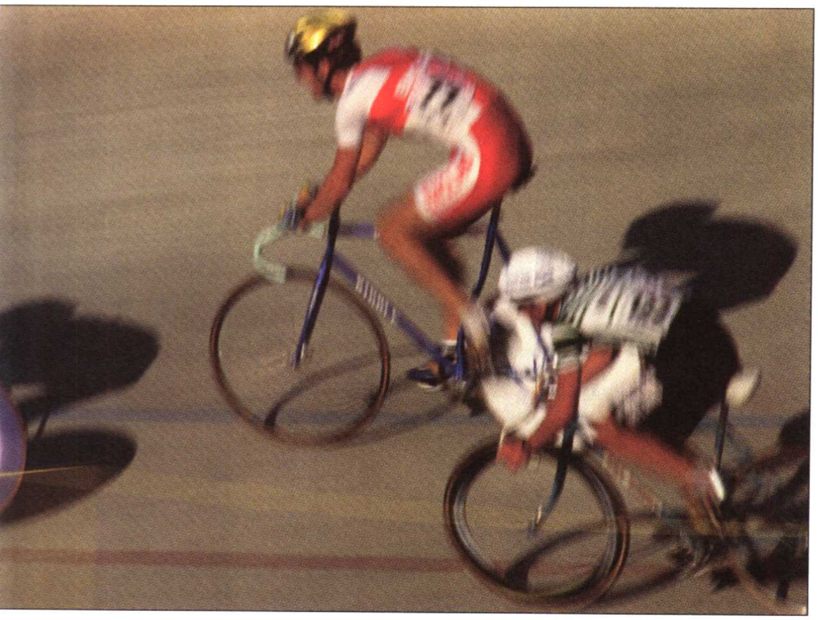
Brief Road Map

Road Map



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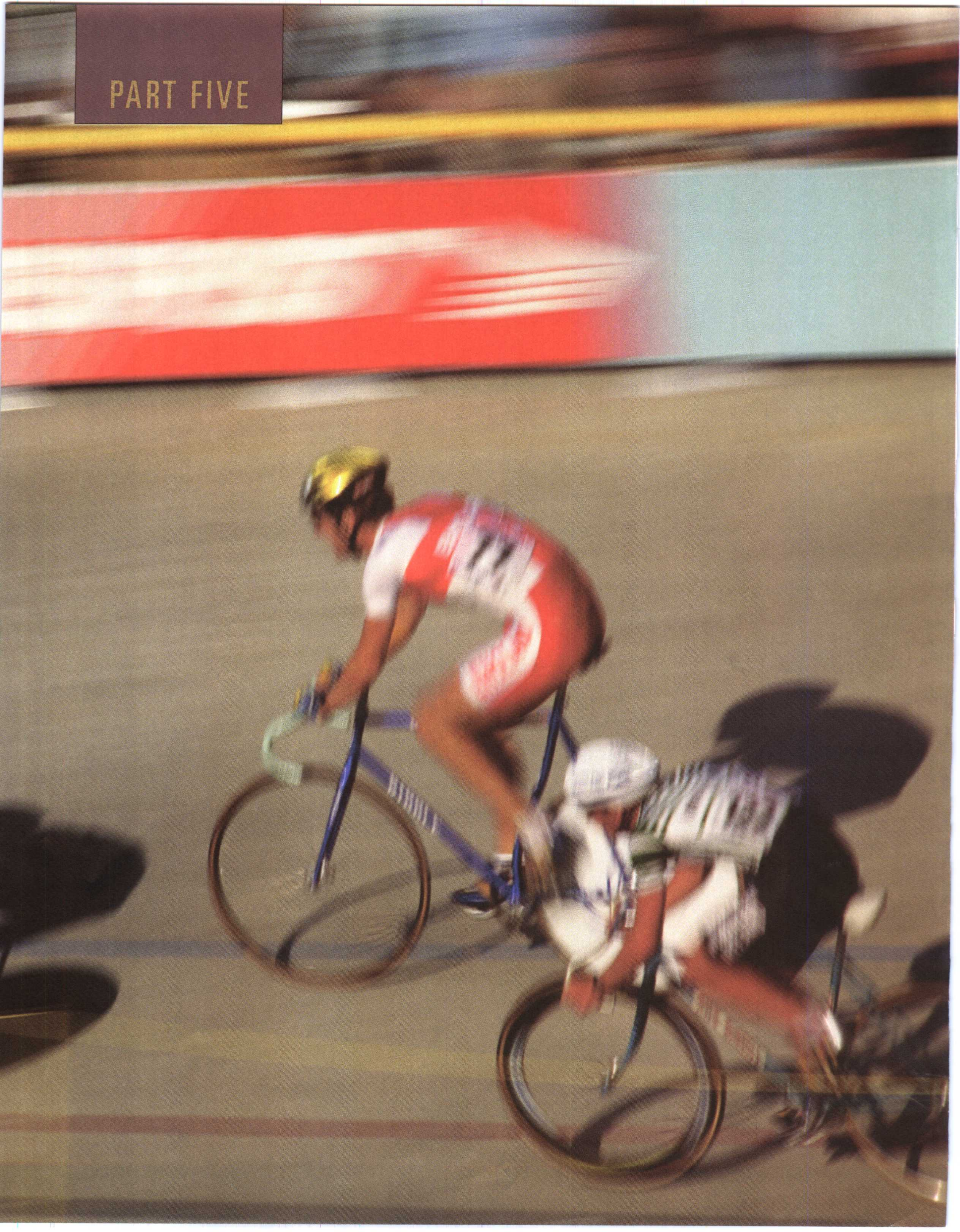
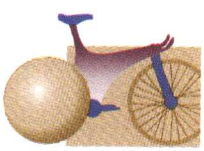


Planning and Decision Making



In part 5, the planning section, the processes and procedures firms use for planning investing and financing activities are discussed. These chapters discuss how operating leverage, various types of available financing, and various capital budgeting techniques are used in planning and decision making.

CHAPTER 14

The Time Value of Money: A Tool for Decision Making

Learning Objectives

1. Explain the cyclical relationship of financing, investing, and operating decisions.
2. Describe the distinction between return of and return on investment and the difference between rate of return and expected rate of return.
3. Explain the risk-return relationship.
4. Describe the difference between simple and compound interest and how interest relates to the time value of money.
5. Illustrate how to use the future value of the amount of $1 and the present value of $1 to solve problems that involve lump-sum cash flows at different points in time.
6. Demonstrate how to use the future value of an annuity and the present value of an annuity to solve problems that involve annuity cash flow.

Want to retire with a million dollars? Would you like your five-year-old child to have $50,000 when he or she is ready for college? Reputable investment companies like Fidelity Investments and the Vanguard Group offer tax-deferred investments that make these goals a reality with relatively small investments. Investment companies like these achieve their investment goals because they understand the risk-return relationship, the time value of money, and the way to utilize the power of compound interest.

In prior chapters, we focused on examining how businesses operate, how decision makers use accounting information for planning business operations, how the accounting system captures the operating information surrounding business events, and how internal and external stakeholders use accounting information to evaluate a firm's operations. The remaining chapters of the text explore how businesses obtain and invest financial resources. We examine the financing and investing activities of a business enterprise, learn how management uses accounting information to plan for these types of activities, how the accounting system captures these events, and how internal and external stakeholders use accounting information to evaluate the firm's financing and investing decisions.

Exhibit 14.1 depicts the interdependent and cyclical nature of financing, investing, and operating decisions. When starting a business enterprise, the person(s) responsible for obtaining the necessary funds must determine not only the amount of funds needed, but also the source of the financing. The firm can acquire funds through debt financing (creditors) or equity financing (owner contributions).

Next the decision makers must determine how to invest the funds obtained. In general, the firm invests in either current assets or long-term assets. Current assets, such as inventory and office supplies, are necessary to sell the firm's products or to render its services. Investments in long-term assets, such as buildings and equipment, provide the infrastructure necessary to support the daily operating activities of the firm.

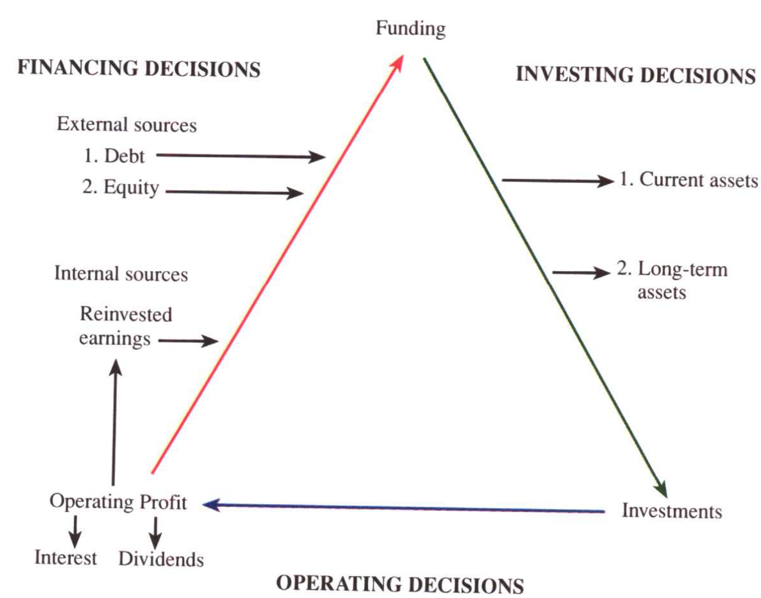
Using the resources at its disposal, management next makes the various operating decisions that will generate an operating profit if management utilizes the resources effectively.

Operating profits generated are used for three primary purposes: (1) to pay the interest on borrowed funds, (2) to reward the owners in the form of dividends (or in the form of withdrawals in proprietorships and partnerships), and (3) to reinvest funds in the firm to maintain the existing operational capacity and finance additional long-term investments in the firm.

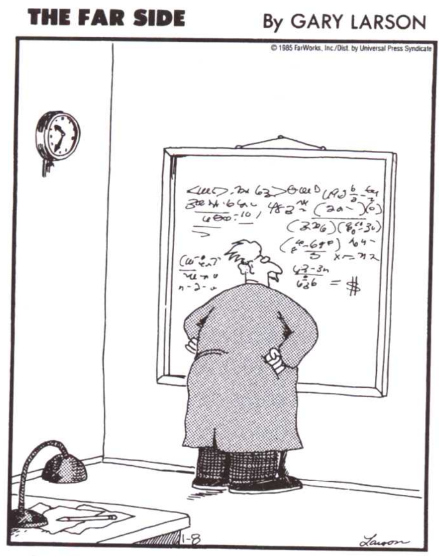
The operating cycle starts again when the funds from profits retained in the company are reinvested in the firm. If additional investments are needed, the firm will again borrow from creditors or solicit contributions from new or existing owners. The amount and sources of funds needed for new investments depend on management's operating plans and the long-term assets needed to successfully implement the plans.

EXHIBIT 14.1

Operating and Decision Cycle



Time affects the value of money because when invested it accumulates to a larger amount at some point in the future. (THE FAR SIDE © FarWorks, Inc./ Dist. by UNIVERSAL PRESS SYNDICATE. Reprinted with permission. All rights reserved.)



Einstein discovers that time is actually money.

Before going any further, however, it is imperative that you understand the fundamental concepts underlying financing and investing decisions. In this chapter we expand the definitions of return and risk and introduce the concept of the time value of money. These essential tools for making financing and investing decisions are as important as hammers, saws, and tape measures are to a carpenter building a house. With these tools, you can make informed financing and investing decisions for a business enterprise. In addition, they are also useful for making personal financial decisions, such as determining how much to save for your retirement or children's college education and the best way to finance the purchase of a car or a house or to start a business after graduation.

RETURN OF AND RETURN ON INVESTMENT: WHAT IS THE DIFFERENCE?

The concept of *return* is associated with investing decisions involving the acquisition of assets, such as certificates of deposit, government bonds, and new equipment. As discussed in Chapter 1, there are two types of return: return of investment and return on investment. When assessing investment alternatives, investors expect to receive a return of investment. That is, investors only make investments that they believe will return their initial investment. For example, if you invest $1,000 in a savings account for one year, you expect, at a minimum, to receive $1,000 at the end of the year. The $1,000 you receive at the end of the year is your return of investment.

Return on investment is money received in excess of the initial investment. If the $1,000 in the savings account generates $1,050 at the end of one year, there is a *return of* the initial $1,000 investment, and a *return on* the investment of interest of $50.

The Importance of Time

Return on investment is not adequate to differentiate among investments because it does not consider the length of time that investments are held or the amount of the initial investment. For example, investments X and Y shown in Exhibit 14.2 generate a return on investment of $300 and $400, respectively. How would you choose between the two investments based on the dollar amount of the return? You might select investment Y because its return is $100 greater than investment X. However, this does not consider the length of time investments X and Y were held. If the $1,300 accumulated by investment X on January 1, 1996, is reinvested and held as long as investment Y (until July 1, 1996), it could generate an additional return that equals or exceeds the $100 difference between the two investments.