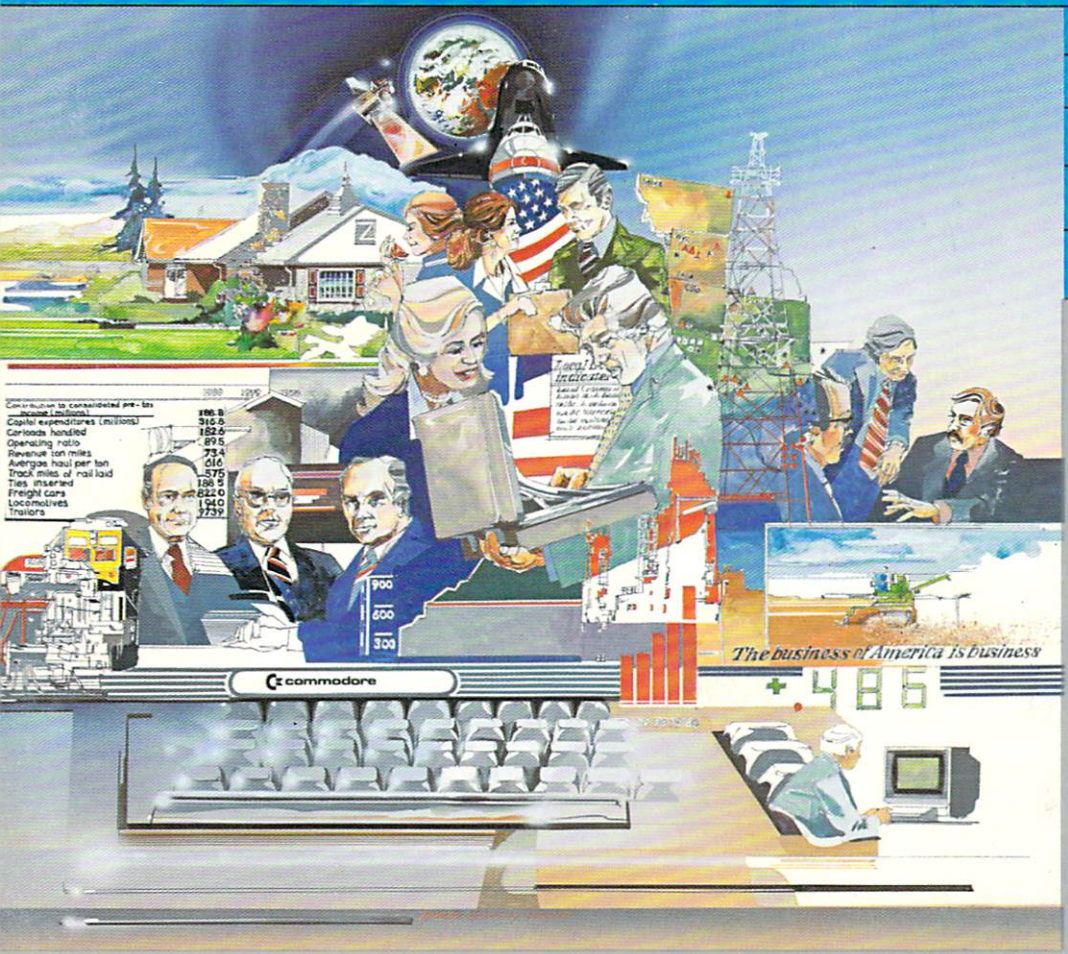
EASY FINANCE II

commodore 64



THIS PRODUCT REQUIRES COMMODORE 1541 DISK DRIVE

commodore

EASY FINANCE II

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Preface

In today's fast-paced economy, you need to know how to get the most out of your hard-earned money; your Commodore 64 can help you learn how. EASY FINANCE II shows you how to make the right financial decisions and plan for future expenditures.

EASY FINANCE II is completely pre-programmed; you need absolutely no programming knowledge to use this product. All the screens use several colors so the information is very clear. To make the program even easier, EASY FINANCE II has a tutorial you can request to see on your screen any time during the program.

Here are the sixteen investment functions EASY FINANCE can help you determine:

- Future investment value
- Initial investment
- Minimum investment for withdrawals
- Regular investment withdrawals
- Nominal interest rate
- Annual interest rate
- Net present value
- Internal rate of return
- Regular deposits
- Future annuity value (regular deposits)
- Present value of an annuity
- Earned interest table
- Continuous interest compounding
- Current value of common stock
- Current value of bonds
- Bar graph of an investment

This manual follows the same logical sequence and uses the same terminology as the investment functions you will see on your screen.

At the end of the manual, you'll find a glossary that briefly explains some financial terminology. You'll also find some rudimentary refreshers of generally accepted concepts and practices.

Read through the manual and practice the examples so you feel at ease with the package in the shortest possible time. Then, you can easily select each investment function and enter your information. Each calculation requires only a few simple keystrokes. In just a few minutes, you'll master this powerful, easy-to-use product.

User Conventions

The Commodore 64 keyboard looks like a regular typewriter with a few extra keys; it is very simple to use. Here is a brief description of some of the conventions you should know to run EASY FINANCE II.

RETURN Pressing this key transmits information to the computer's memory.

SHIFT This key is like the **SHIFT** key on a typewriter; pressing it lets you enter the top characters on double-character keys.

/ In this manual, / denotes the CURSOR. This is the little colored rectangle you see blinking on your screen. It shows you where to begin entering information.

=> This is the prompt character which precedes the cursor on your screen. It indicates that you will be entering information on that line.

INST/DEL You can change information you have keyed in before you press **RETURN** by using the **INST/DEL** key.

DEL stands for DELETE. You can delete characters on a line by following these steps:

1. Look at the cursor. The character immediately preceding its position will be the first character deleted when you press the **INST/DEL** key.
2. Press the **INST/DEL** key.
3. You will see the cursor move back one space and the character there will be erased.
4. If you wish to erase more than one character on a line, hold the **INST/DEL** key down and you will see characters deleted one at a time on your screen.
5. Continue on with the program.

'n' In this manual, any character surrounded by single quotes (') denotes entries you will key in. Enter only the character between the quotes and **not** the quotes themselves. For this example, **n** is the character, so you would key in only the **n**; not **'n'**.

"n" Any character surrounded by double quotes (") in this manual indicates information the program will present for you on the screen.

Diskette Handling

You should handle the EASY FINANCE diskette carefully; it contains your computer programs. Follow these instructions for the use, handling, and care of all of your diskettes.

- Store diskettes in their separate paper folders and stand them on edge to prevent damage to the magnetic surface.
- Do not damage the non-removable black diskette envelope; if the envelope is damaged, the diskette itself may also be damaged.
- Do not wash diskettes; you can purchase compressed air in a spray can from most photographic stores and this can be used to remove dust. You can also use a soft brush if necessary.
- Do not store diskettes in direct sunlight or near excessive heat of any kind.
- Do not bend diskettes; handle them very carefully, especially when you are placing them in or out of the disk drive.
- Do not open the disk drive door when the red IN USE light is on; you can damage the diskettes if you open the door.
- Do not attach paper clips to diskettes.
- If you need to label a diskette, use only a felt-tip pen.
- Do not expose diskettes to any magnetic source, such as electrical equipment or telephones; this may erase data from the diskettes.

Table of Contents

Section I Tutorial

1.1 Getting Started 7
1.2 Guidelines for Entering Information 9
1.3 Using Special Options 11
1.4 Quitting the Program 12

Section II Examples for Each Menu Selection

2.1 Future Investment Value 13
2.2 Initial Investment 14
2.3 Minimum Investment for Withdrawals 15
2.4 Regular Investment for Withdrawals 15
2.5 Nominal Interest Rate on Investments 16
2.6 Annual Interest Rate 17
2.7 Net Present Value of an Investment 18
2.8 Internal Rate of Return 19
2.9 Regular Deposits 20
2.10 Future Annuity Value (Regular Deposits) 21
2.11 Present Value of an Annuity 22
2.12 Earned Interest Table 23
2.13 Continuous Interest Compounding 24
2.14 Current Value of Common Stock 25
2.15 Current Value of Bonds 26
2.16 Bar Graph 27

Section III Terms and Information

3.1 Compounding and Discounting 28
3.2 Forecasting and Graphs 29
3.3 Sample Run for Future Investment 30

Section IV Appendix: Screen and Report Options 34

Section V Glossary 37

Section I Tutorial

1.1. Getting Started

Here is how you start the EASY FINANCE II program. We suggest you follow right along on your machine, step by step.

1. Turn on your Commodore 64 and your disk drive.
2. If you have a printer, turn it on and align the paper.
3. Insert EASY FINANCE II disk with label side up into your disk drive.
4. Key in **'LOAD "*",8'** and press **RETURN.**
5. After **"SEARCHING FOR *", "LOADING",** and **"READY"** are displayed, enter **'RUN'** and press **RETURN.**

After you see a screen with the program's title on it, this menu will be displayed for you:

$$ EASY * FINANCE II $$

F1 — BACKGROUND COLOR
F3 — BORDER COLOR
F5 — CHARACTER COLOR
F7 — DONE

PRESS A FUNCTION KEY TO CHANGE COLORS

The function keys are located on the right side of the Commodore 64 keyboard. Try pressing each one several times so you can see what colors are possible on your screen. Then, choose which colors you like best for the background, border, and characters of EASY FINANCE II.

When the colors on your screen are the colors you want for the program, press **F7** once. There will be a short delay and then you will see the following menu.

$$ EASY * FINANCE II $$

BASIC INVESTMENT ANALYSIS PACKAGE

MODE: INPUT
MENU DISPLAY

1 FUTURE INVESTMENT VALUE
2 INITIAL INVESTMENT
3 MINIMUM INVESTMENT FOR WITHDRAWALS
4 REGULAR INVESTMENT WITHDRAWALS
5 NOMINAL INTEREST RATE ON INVESTMENTS
6 ANNUAL INTEREST RATE
7 NET PRESENT VALUE OF AN INVESTMENT
8 INTERNAL RATE OF RETURN
9 EXIT
0 ADDITIONAL SELECTIONS

ENTER YOUR SELECTION (0-9):/

The cursor (**"/"**) will be blinking where you will enter your selection. Enter the number preceding the function you want to run. For example, if you want to run FUTURE INVESTMENT VALUE, key in **'1'**. If you respond with **'0'**, you will see this screen:

$$ EASY * FINANCE II $$

BASIC INVESTMENT ANALYSIS PACKAGE

MODE: INPUT
MENU DISPLAY

1 REGULAR DEPOSITS
2 FUTURE ANNUITY VALUE (REG. DEPOSITS)
3 PRESENT VALUE OF AN ANNUITY
4 EARNED INTEREST TABLE
5 CONTINUOUS INTEREST COMPOUNDING
6 CURRENT VALUE OF COMMON STOCK
7 CURRENT VALUE OF BONDS
8 BAR GRAPH
9 HELP
0 SELECTIONS FROM PREVIOUS DISPLAY

ENTER YOUR SELECTION (0-9):/

Enter your selection by making a single key entry corresponding to the function you wish to perform. If you respond with **'9'**, you will see the EASY FINANCE general overview tutorial presented on your screen. To continue through the tutorial, press **'C'**; to end the tutorial and return to the first function selection menu, press **'R'**. If you want to see the investment functions on the first menu, enter **'0'** and the first menu will appear on your screen. You will

see different displays as you go through the program, and you will be prompted for the information needed to calculate the function you chose on one of these first menus. You may see a tutorial about the specific function you're running when you are responding to a prompt for numeric data by pressing **'T'** followed by **RETURN.** To continue through this tutorial for that specific function, press **'C';** to end the tutorial and return to the point where you left the function's run, press **'R'.** After you have entered all the data the program requests, EASY FINANCE will calculate the function and display the results for you.

Section 3.3 of this manual follows the program step by step for computing choice number 1 on the first of the two function selection menus, FUTURE INVESTMENT VALUE.

1.2. Guidelines for Entering Information

Here are some guidelines you should know when you are responding to the EASY FINANCE prompts:

- There are two ways you can enter responses to the EASY FINANCE prompts. Some prompts require that you press **RETURN** after you enter the information and some do not.
  1. If your response consists of only one character, such as **'Y'** or **'N',** do not press **RETURN.**
  2. If your response consists of numeric data, such as your response to the INITIAL INVESTMENT prompt, you must press **RETURN** after entering your response.
- You may respond to a prompt with **'0'** by simply pressing the **RETURN** key; you will see a **"0"** on the next menu that displays your response.
- The message **"DATA ERROR"** will flash if entries are incorrect; press any key and you will be prompted to change the incorrect item. Enter the correct information and continue on with the program from that point.
- If you enter **'R'** as a response to certain prompts, EASY FINANCE will use the result of the previous run for your entry. For example:
  1. Run EASY FINANCE to determine INITIAL INVESTMENT; the program calculates your investment to be $4000.00.
  2. Run EASY FINANCE again, this time to compute your REGULAR INVESTMENT WITHDRAWALS.

3. When the program to determine your REGULAR INVESTMENT WITHDRAWALS prompts you for the INITIAL INVESTMENT entry, key in **'R'** and the program will enter **$4000.00** for you.
4. Continue answering all prompts and then you will see the REGULAR INVESTMENT WITHDRAWALS displayed for you.

NOTE:

You can use the **'R'** option for variable length fields. For example, you can use output from the INTERNAL RATE OF RETURN for NET PRESENT VALUE OF AN INVESTMENT. Enter **'R'** in response to the first value period number prompt when you are running NET PRESENT VALUE OF AN INVESTMENT after running INTERNAL RATE OF RETURN; every value period will then be filled in with the previous function's values (in this example, INTERNAL RATE OF RETURN values will be used for NET PRESENT VALUE data). If you run a function with more value periods than the previous function you ran, EASY FINANCE will fill extra fields with **"0"**; you can change these when the program prompts you for ANY CHANGES if you wish. You can exit from the program using the up-arrow key to return to the first menu where you can select the EXIT function, but the **'R'** option will not work as described previously. If you exit from the program and try to use the **'R'** option, EASY FINANCE will use **"0"** in the field where you entered **'R'.**

- EASY FINANCE can perform calculations on your individual responses. If you want the program to add (" + "), subtract (" – "), multiply ("*"), or divide ("/") your entry, simply enter the appropriate arithmetic operator between your responses. For example:

  1. The program prompts you to enter your regular monthly deposit.
  2. You know your weekly payments are $50.00, so you can enter **'50 * 4'.**
  3. The next screen will display your regular monthly deposit as **'200.00'.**

     NOTE:
     You can use arithmetic operators with an **'R'** option if you wish. For example, you can enter **'R * 4'.**

- Exponents will not be accepted by the program; you must enter all responses in decimal format.

- Your screen shows only two decimal places, but if you enter more than two, the extended values will be used in processing your answer.
- Enter percent values as percents; do not enter them as hundredths. For example, 5 & 3/4% is entered as **'5.75'**; it is not entered as **'.0575'**.
- If you enter a value that is more than nine digits long, percent signs (**"%%%%%"**) will appear on the screen because the screen cannot display numbers with more than nine digits. However, EASY FINANCE can perform calculations on these numbers, so the program will still process correctly. You will not be able to view any answer that is more than nine digits long.
- If the result of any calculation is greater than 10 raised to the 38th power, the message **"FATAL ERROR"** will flash on your screen and the program will stop running at this point. You **must** turn off your Commodore 64 and start the program over again.
- When EASY FINANCE prompts you for a whole number, any decimal value you may enter will not be processed even though that value will be displayed. For example:

  1. For the NUMBER OF MONTHS prompt, enter **'4.1'**.
  2. On the next display, you will see **"4.1"** listed as the NUMBER OF MONTHS.
  3. EASY FINANCE will calculate the answer using **'4'** for the NUMBER OF MONTHS.

  You may enter decimal values for any prompts that do not require whole numbers, such as INTEREST RATE.

1.3. Using Special Options

There are six special options you may want to use when you are running the EASY FINANCE program. You can use these options only at certain points during the program's run. The options are:

1. **'T'**
   - Displays the tutorial for the function you are currently running. Valid only when you are responding to a data item prompt, such as **"NUMBER OF MONTHS"**.
2. **'D'**
   - Displays everything you have entered for this function. Useful when you are running a function that presents more than one

screen of data. Valid only when you are responding to a data item prompt or one of these prompts:

- **"ANY CORRECTIONS? (Y OR N)"**
- **"PRINTER OUTPUT? (Y OR N)"**

3. **'S'**

   - Erases all previous entries and causes the program to prompt you for entries again. Valid only when you are responding to a data item prompt, such as **"NUMBER OF MONTHS".**

4. **'N'**

   - Cancels your request to change information you have entered. Valid only when you are responding to the prompt, **"ITEM NUMBER TO BE MODIFIED".**

5. **'P'**

   - Prints what you are currently viewing on the screen. Valid only when you are responding to the prompt, **"RE-RUN?. (Y OR N, OR P)".** If you use the **P** option, you must wait until printing has completed before you enter any more information. You will see a **"WAIT . . . PRINTING"** message on your screen while printing occurs.

     NOTE:
     If your printer is disconnected or turned off, this option is ignored.

6. **'K'**

   - Stops tabular screen or printer output; the program returns to the first function selection menu. Valid only when you are running EARNED INTEREST TABLE or BAR GRAPH functions and tabular output is being presented.

If you want the program to go back to the first function selection menu before the function has completed, simply press the up-arrow key located in the upper right-hand section of your keyboard next to the **RESTORE** key and, if necessary, press **RETURN.** (You must press **RETURN** if you have just responded to a prompt for numeric data.)

1.4. Quitting the Program

To end EASY FINANCE, enter **'9'** when you are viewing the first function selection menu. Remember you can get to the first function selection menu any time by pressing the up-arrow key and, if necessary, pressing **RETURN.** After you enter **'9',** a **"BYTES FREE"** message appears on your screen, followed by **"READY".** You are now ready to begin any other program.

Section II Examples for Each Menu Selection

This section shows you some typical runs of the EASY FINANCE program. An example is provided for each choice on the first and second function selection menus (presented after the title and color selection menus): FUTURE INVESTMENT VALUE, INITIAL INVESTMENT, MINIMUM INVESTMENT FOR WITHDRAWALS, REGULAR INVESTMENT WITHDRAWALS, NOMINAL INTEREST RATE ON INVESTMENTS, ANNUAL INTEREST RATE, NET PRESENT VALUE OF AN INVESTMENT, INTERNAL RATE OF RETURN, REGULAR DEPOSIT, FUTURE ANNUITY VALUE (REGULAR DEPOSITS), PRESENT VALUE OF AN ANNUITY, EARNED INTEREST TABLE, CONTINUOUS INTEREST COMPOUNDING, CURRENT VALUE OF COMMON STOCK, CURRENT VALUE OF BONDS, and BAR GRAPH. You may want to test your understanding of the program by entering these exact samples and seeing that you arrive at the same answer.

For a more detailed, step-by-step presentation of an investment function, see Section 3.3.

2.1. Future Investment Value

Suppose you have $5000 that you want to save in an account for 18 years, when your child will be ready for college. You want to know how much that $5000 will be worth in 18 years, so you'll know how much money you'll have for your child's education.

This function assumes that you won't make any additional deposits or any withdrawals during the entire period.

Sample Application

Your bank is offering savings certificates with a nominal interest rate of 11%, compounded quarterly. You are ready to invest $5000 now. How much will your account be worth in 18 years?

Information You Must Enter:

1. Initial Investment	— **'5000'**
2. No. of Years	— **'18'**
3. No. of Months	— **'0'**
4. Interest Rate	— **'11'**
5. No. of Comp. Periods	— **'4'** (quarterly)

NOTE:
The number of compounding periods must be greater than zero.

Results:
"FUTURE INVESTMENT VALUE = $ 35258.33"

2.2. Initial Investment

For this example, suppose you want to have $10,000 in an account in a few years and you want to know how much you must invest or deposit now to reach that objective. The INITIAL INVESTMENT function calculates the deposit required to attain a total account value over a specified time period. Compounding effects are considered, so you must enter the number of compounding periods per year.

Sample Application

You want to find out how much you'll have to deposit now at 10.5% interest compounded quarterly so that you'll have $10,000 in five years.

Information You Must Enter:

1. Future Value — **'10000'**
2. No. of Years — **'5.00'**
3. No. of Months — **'0.00'**
4. Interest Rate — **'10.50'**
5. No. of Comp. Periods — **'4'** (quarterly)

NOTE:
The number of compounding periods must be greater than zero.

Results:

"INITIAL INVESTMENT NEEDED = $ 5955.75"

2.3. Minimum Investment for Withdrawals

Suppose you want to set up an account where you can withdraw $800 every month for 5½ years. You want to know how much money you must deposit now so you can make those withdrawals for 5½ years. The MINIMUM INVESTMENT FOR WITHDRAWALS function calculates the minimum investment you need to make regular periodic withdrawals until the balance is $0.

Sample Application

You want to withdraw $800 every month for 5½ years. Your account has a nominal interest rate of 12.6%. What initial investment or deposit will you have to make?

Information You Must Enter:

1. Regular Withdrawal — **'800'**
2. No. of Years — **'5'**
3. No. of Months — **'6'**
4. Nominal Interest Rate — **'12.6'**
5. No. of Withdrawals/Year — **'12'** (one each month)

Results:

"MINIMUM INVESTMENT NEEDED = $ 37951.72"

2.4. Regular Investment Withdrawals

When you know what amount you want to invest now, use this function to determine how large your periodic withdrawals can be. By withdrawing the amount EASY FINANCE calculates, you can be sure you will not deplete your account until you make the last withdrawal.

Sample Application

If you invest $10000 at 12% interest, how much money will you be able to withdraw monthly for the next five years?

Information You Must Enter:

1. Initial Investment — **'10000'**
2. No. of Years — **'5'**
3. No. of Months — **'0'**
4. Nominal Interest Rate — **'12.00'**
5. No. of Withdrawals/Year — **'12'**

Results:

"REGULAR WITHDRAWAL AMOUNT = $ 222.44"

2.5. Nominal Interest Rate on Investments

This function calculates the nominal interest rate you need to look for when you know how much you want to invest and you know how much you want the investment to grow by a specific time.

Sample Application

You want to invest $50,000 in a savings account and ycu want the account to achieve a value of $90,000 in 4 years. If the interest is compounded monthly, what must the nominal interest rate be to achieve this objective?

Information You Must Enter:

1. Initial Investment — **'50000'**
2. No. of Years — **'4'**
3. No. of Months — **'0'**
4. Future Value Desired — **'90000'**
5. No. of Comp. Periods — **'12'** (one each month)

Results:

"NOMINAL INTEREST RATE =$ 14.79"

2.6. Annual Interest Rate

This function determines what **effective** interest rate you must seek when you want your investment to grow to a specific amount. Because of interest compounding, you can reach your goal with a nominal interest rate that is lower than the **effective** rate. Compounding adds the amount earned in the previous compounding or investment periods to your principal for the next compounding period.

You can use this function whenever you know how much you have to invest and you know how much you want to attain. This function calculates the actual interest rate earned annually on an initial investment which matures to a known future value over a specified time period. If you wish, you can use the program to calculate the effective rate with tax.

Sample Application

If you invest $25,000 in a savings certificate and the account value is $50,000 in 5½ years, what is the **effective** annual interest rate?

Information You Must Enter:

1. Initial Investment — **'25000'**
2. No. of Years — **'5'**
3. No. of Months — **'6'**
4. Desired Final Value — **'50000'**
5. Tax Rate — **'0'** (if not considered)

Results:

"ANNUAL INTEREST RATE = 13.43%"

2.7. Net Present Value of an Investment

This function tells you if an investment opportunity meets your required rate of return objectives. It calculates the net present value of an initial investment with a specified number of uneven yearly cash flows and a specified required rate of return.

Sample Application

You have an investment opportunity requiring a $100,000 initial investment. Cash flows for the next three years will be $25,000, $50,000, and $75,000. If you have a 17% return rate, should you invest? Remember, if the NET PRESENT VALUE is a positive number, the actual rate of return exceeds the required rate of return you enter, so you should consider the investment opportunity.

Information You Must Enter:

1. No. of Years	— **'3'**
2. Initial Investment	— **'100000'**
3. Rate of Return	— **'17'**
4. Cash Flow #1	— **'25000'**
5. Cash Flow #2	— **'50000'**
6. Cash Flow #3	— **'75000'**

Results:

"NET PRESENT VALUE = $ 4720.99"

2.8. Internal Rate of Return

This function tells you if today's value of the future dollars you expect to receive will be a sound investment when compared to the amount you must invest now. You will want to use this function when you are considering an investment with an initial deposit with or without additional periodic deposits and with a single or multiple receipt. This function is also useful when you want to invest in a coupon type bond.

Sample Application

Suppose you want to invest $50,000 initially and cash flows for the next 3 years will be $20,000, $25,000, and $30,000. What is the internal rate of return?

Information You Must Enter:

1. No. of Periods — **'3'** (years)
2. Initial Investment — **'50000'**
3. Cash Flow #1 — **'20000'**
4. Cash Flow #2 — **'25000'**
5. Cash Flow #3 — **'30000'**

Results:

"INTERNAL RATE OF RETURN = 21.65%"

2.9. Regular Deposits

Use this function when you want to reach a certain savings or investment account value by a specific date. The REGULAR DEPOSITS function tells you how much your periodic deposit must be to reach your objective.

This function is useful for sinking fund calculations, where you always know the end amount required by a certain time and you need to know the amount of your periodic deposit.

Sample Application

In 3 years you need $5000 for your initial college expenses. What deposit will you have to make to attain $5000 if the interest rate is 8.5%?

Information You Must Enter:

1. Final Total Value — **'5000'**
2. No. of Years — **'3'**
3. No. of Months — **'0'**
4. Interest Rate — **'8.5'**
5. No. Deposits/Year — **'12'** (one each month)

Results:

"REGULAR DEPOSIT AMOUNT = $ 122.42"

2.10. Future Annuity Value (Regular Deposits)

This function will determine how large your account will be after you have made a number of equal deposits. The future value will be the sum of deposits plus earned interest. You should remember there can be no interim withdrawals from this type of account, and that interest will be compounded each time you make a deposit. You can use this function when you want to know what the value of an annuity account will be at some future date.

Sample Application

Suppose you want to transfer $100 each month from your checking account to a special annuity savings account with a 7% interest rate. What will your regular deposits (annuity value) be worth in three years after you've deposited $3600?

Information You Must Enter:

1. Amount of Deposits — **'100'**
2. No. of Years — **'3'**
3. No. of Months — **'0'**
4. Interest Rate — **'7'**
5. No. Deposits/Year — **'12'** (one each month)

Results:

"FUTURE ANNUITY VALUE = $ 3993.01"

2.11. Present Value of an Annuity

This function determines the present value of any sum that will be received or paid in periodic installments. At any positive rate of interest, the present value will be less than the total amount you receive or pay. This function can calculate three types of annuities:

1. Ordinary — You receive or pay a fixed amount at regular intervals beginning one year from the current date; the present value is the amount that must be on deposit today to start these regular payments.
2. Advanced — You deposit or receive a particular sum and receive or pay the first installment immediately.
3. Deferred — You deposit or receive a particular sum and payments begin at some future date at least two periods from the date of deposit.

Sample Application

Suppose you want to know how much money must be on deposit so you can withdraw $5000 each year for 15 years beginning one year from now. If the discount rate is 12.5%, what must the present annuity value be?

Information You Must Enter:

1. No. of Years	— **'15'**
2. Payment Amount	— **'5000'**
3. Discount Rate	— **'12.5'**
4. Annuity Type	— **'0'**
5. Periods Defer	— **'0'**

Results:

"PRESENT ANNUITY VALUE = $ 33164.47"

2.12. Earned Interest Table

This function shows you where your investment will stand at various times in the future. You can print your own amortization schedule and determine your future taxable interest earnings on your investments. The EARNED INTEREST TABLE contains:

- effective interest rate;
- periodic balance;
- periodic interest paid; and
- total interest accumulated.

Sample Application

Suppose you invest $50,000 at 12.6% and the interest is compounded monthly. How much interest will you earn in each quarter of the first two investment years?

Information You Must Enter:

1. Initial Investment	— **'50000'**
2. Output Start Yr	— **'1'**
3. Output End Yr	— **'2'**
4. Interest Rate	— **'12.6'**
5. No. of Deposits/Year	— **'0'**
6. Dep/Withdr Amount	— **'0'**
7. No. Comp. Periods	— **'12'**

Results:

"EFFECTIVE RATE = 13.35%"

YEAR	BALANCE	INTEREST	ACCUM INT
1	51591.60	1591.60	1591.60
1	53233.86	1642.26	3233.86
1	54928.40	1694.54	4928.40
1	56676.88	1748.48	6676.88
		6676.88	
2	58481.01	1804.13	8481.01
2	60342.57	1861.56	10342.57
2	62263.39	1920.82	12263.39
2	64245.35	1981.96	14245.35
		7568.47	

2.13. Continuous Interest Compounding

This function calculates an investment's final value before and after taxes at the end of a specified time period. The interest paid on this investment must have been compounded continuously.

Computerized banking systems have made continuous interest compounding on savings investments quite common. It is a practical administrative effort since the compounding is more frequent than daily; it is **continuous.**

Continuous compounding eliminates the need to time your withdrawals and deposits for fear of losing interest. Here is an example of various compounding frequencies based on a $1000 investment for one year at an 8% annual percentage rate:

Frequency	End of Year $	Effective Rate %
Annual	1080.00	8.00
Quarterly	1082.43	8.24
Monthly	1083.00	8.30
Daily	1083.28	8.32
Continuous	1083.29	8.329

Sample Application

Suppose you invested $1000 when your daughter was born and you want to know how much money will have been accrued by the time she is 21 years old. If the continuous interest is 8.5%, what will the future value be?

Information You Must Enter:

1. Initial Investment — **'1000'**
2. No. of Years — **'21'**
3. No. of Months — **'0'**
4. Interest Rate — **'18.5'**
5. Tax Rate (%) — **'0'**

Results:

"FINAL ACCOUNT VALUE = $ 5959.58"

2.14. Current Value of Common Stock

This function determines an optimum market price for a share of common stock using information you have available. The rate of return is the dividend yield, if the firm pays dividends, plus the capital gain on the external sale of stock. The current value of a share of common stock is the sum of the discounted dividends and the discounted selling price at the end of the investment. EPS stands for Earnings Per Share and means the percentage growth rate during the period of time you hold the stock.

Sample Application

Suppose you have a share of common stock that sells for $11 and you plan to hold it for one year with a dividend of $1. If you require a 20% rate of return, what is the optimum price for a share of this stock?

Information You Must Enter:

1. Earnings Per Share — **'1'**
2. EPS Growth Rate — **'0'**
3. Dividend Payout — **'100'**
4. Price/Share — **'11'**
5. No. of Ownership Yrs. — **'1'**
6. Rate of Return — **'20'**

Results:

"CURRENT COMMON STOCK VALUE = $10.00 PER SHARE"

2.15. Current Value of Bonds

This function tells you how much you should be willing to pay for a bond with a certain face value, discount rate, and maturity. As the owner of a bond, you receive interest, or face value times coupon rate, while you hold the bond. At maturity, you receive the face value of the bond. If you sell or redeem it early, you receive the market value of the bond. The current value of the bond (what you should be willing to pay for it) is the sum of the interest paid annually and the lump sum of the face value of the bond. Both are discounted at the appropriate rate for investments of a similar risk.

Sample Application

Suppose you are considering purchasing a bond with the following properties:

- $1000 Face Value
- 10% Discount Rate Compounded Annually
- 8% Coupon Rate Compounded Annually
- 2 Coupons Per Year
- 10 Years Maturity

How much should you be willing to pay for such a bond?

Information You Must Enter:

1. Par or Face Value	— **'1000'**
2. Yield to Maturity	— **'10'**
3. Coupon % Rate	— **'8'**
4. Years to Maturity	— **'10'**
5. No. of Coupons/Year	— **'2'**

Results:

"CURRENT INTRINSIC VALUE OF THIS BOND = $875.38"

2.16. Bar Graph

For this example, suppose you want to develop a forecast for a future period for sales or demand purposes. This function uses both expected (forecast) values and actual values gathered from the previous period to forecast a value for the current period.

The forecast for this period is determined to be the weighted and smoothed average of the preceding period's expected and actual values. This technique lets you adjust a forecast by a factor called a **smoothing constant.** The range of adjustment is from 0 to 1. (A value of 2 will give a bar graph of raw input.) Factors closer to 0 will weigh the values toward the forecast. Factors approaching 1 will weigh the values toward the actual value.

Sample Application

Suppose your first five sales periods have actual sales of $1000, $2550, $925, $3050, and $1810. What is the sales forecast for period six if the smoothing value is .25? Remember that you can request results on a bar chart if you wish.

Information You Must Enter:

1. No. of Periods — **'5'**
2. Smoothing Value — **'.25'**
3. Value Period #1 — **'1000'**
4. Value Period #2 — **'2550'**
5. Value Period #3 — **'925'**
6. Value Period #4 — **'3050'**
7. Value Period #5 — **'1810'**

Results:

"PERIOD	FORECAST	ACTUAL	DIFF
1	1000.00	1000.00	0.00
2	1000.00	2550.00	– 1550.00
3	1387.50	925.00	462.50
4	1271.88	3050.00	– 1778.13
5	1739.80"		

Section III Terms and Information

3.1. Compounding and Discounting

Compounding is a financial term you will see often; you should understand it to invest wisely. Compounding means that you earn interest on both your principal and the interest you've already earned. You benefit from compounding because it increases the real rate of return on your investments. The more frequent the compounding, the better your return rate. EASY FINANCE functions using compounding are:

- Initial investment
- Minimum investment for withdrawals
- Regular investment withdrawals
- Nominal interest rate on investments
- Annual interest rate
- Regular deposits
- Future annuity value
- Earned interest table
- Continuous interest compounding

Discounting is another important investment consideration. Discounting is converting the value of your future cash receipts from invetments to their value in today's dollars. You know that you can buy less today with one dollar than you could buy with one dollar years ago because of economic inflation. You should also consider that if you invested that dollar years ago, it could be worth more now if your account had a good rate of return. EASY FINANCE functions using discounting are:

- Net present value of an investment
- Internal rate of return

3.2. Forecasting and Graphs

The EASY FINANCE program uses forecasting and graphs to calculate some of the investment functions. You should understand the benefits of these concepts to improve your financial planning.

Forecasting is the evaluation of information with historical value and predictions of future occurrences based on probability. Forecasting is particularly valuable in business because it reduces the uncertainty of the future by helping management assess alternatives based on ranges of performance and probabilities of occurrence. For example, a company's sales history could be used to predict future demand and trends.

Graphs are used to clarify information by presenting it in the form of pictures. You can see trends quickly when they are put on a chart; graphs show you the calculations in a format that is easily understood. Presenting a list of numbers will not tell a clear story quickly; showing these figures on a graph will help you communicate all the reasons why you've chosen a certain course for your organization.

3.3. Sample Run for Future Investment

Here is a menu-by-menu presentation of one of the functions of the EASY FINANCE program. This example calculates FUTURE INVESTMENT, choice number 1 on the first function selection menu. When you enter **'1'** on the first display, the screen will clear and the following screen will appear:

$$ EASY * FINANCE II $$

BASIC INVESTMENT ANALYSIS PACKAGE

MODE: INPUT
FUTURE INVESTMENT VALUE

INITIAL INVESTMENT => /

A cursor (**"/"**) will be blinking on the display, waiting for your response.

For our example, the initial investment is $3000. Enter **'3000';** before you press **RETURN,** you may change your response by using the **INST/DEL** key. Your response is not entered into the computer until you press **RETURN.** Press **RETURN** and the following screen is displayed:

$$ EASY * FINANCE II $$

BASIC INVESTMENT ANALYSIS PACKAGE

MODE: INPUT
FUTURE INVESTMENT VALUE

1. INITIAL INVESTMENT = 3000.00

NO. OF YEARS => /

You can see that your response, **'3000'**, has been entered as the initial investment. The cursor (**"/"**) will be blinking where you will enter your response to the number of years of your investment. For our example, enter **'5'** and press **RETURN,** remembering the computer does not receive your response until you press **RETURN.**

Next, this screen is displayed:

$$ EASY * FINANCE II $$

BASIC INVESTMENT ANALYSIS PACKAGE

MODE: INPUT
FUTURE INVESTMENT VALUE

1. INITIAL INVESTMENT	**=**	**3000.00**
2. NO. OF YEARS	**=**	**5.00**

NO. OF MONTHS => /

Enter **'0'** for the number of months and press **RETURN.** Remember that you can enter **'0'** or simply press **RETURN** and a **'0'** will be entered for you. The next screen displayed will be:

$$ EASY * FINANCE II $$

BASIC INVESTMENT ANALYSIS PACKAGE

MODE: INPUT
FUTURE INVESTMENT VALUE

1. INITIAL INVESTMENT	**=**	**3000.00**
2. NO. OF YEARS	**=**	**5.00**
3. NO. OF MONTHS	**=**	**0.00**

INTEREST RATE (NOMINAL) => /

For this example, enter the interest rate as **'12.00'** and press **RETURN.** Then, you will see this screen:

$$ EASY * FINANCE II $$

BASIC INVESTMENT ANALYSIS PACKAGE

MODE: INPUT
FUTURE INVESTMENT VALUE

1. INITIAL INVESTMENT	**=**	**3000.00**
2. NO. OF YEARS	**=**	**5.00**
3. NO. OF MONTHS	**=**	**0.00**
4. INTEREST RATE	**=**	**12.00**

 # COMP. PERIODS/YEAR => /

Enter **'1'** for the number of compounding periods and press **RETURN.**

After you have responded to this prompt, you will see this screen:

$$ EASY * FINANCE II $$

BASIC INVESTMENT ANALYSIS PACKAGE

MODE: INPUT
FUTURE INVESTMENT VALUE

1. INITIAL INVESTMENT	**=**	**3000.00**
2. NO. OF YEARS	**=**	**5.00**
3. NO. OF MONTHS	**=**	**0.00**
4. INTEREST RATE	**=**	**12.00**
5. # COMP. PERIODS	**=**	**1.00**

ANY CORRECTIONS? (Y OR N) /

Enter **'Y'**, but do not press **RETURN.** You will now see a prompt requesting **"ITEM # TO BE MODIFIED".** In this example, you want to change the number of compounding periods, so enter **'5'** and press **RETURN.**

The next screen highlights the area you want to change (the number of compounding periods). The last line of the display prompts you for the new number of compounding periods. Enter **'4'** and press **RETURN.** This corrects the number of compounding periods and another **"ANY CORRECTIONS? (Y OR N)"** prompt is displayed.

$$ EASY * FINANCE II $$

BASIC INVESTMENT ANALYSIS PACKAGE

MODE: INPUT
FUTURE INVESTMENT VALUE

1. INITIAL INVESTMENT	**=**	**3000.00**
2. NO. OF YEARS	**=**	**5.00**
3. NO. OF MONTHS	**=**	**0.00**
4. INTEREST RATE	**=**	**12.00**
5. # COMP. PERIODS	**=**	**4.00**

ANY CORRECTIONS? (Y OR N) /

Enter **'N'** and do not press **RETURN.** You may see a **"WAIT . . . COMPUTING"** message as computation occurs. After the answer has been calculated, it replaces the **"WAIT"** message.

Next, a prompt for re-running the program appears on the last line of the display.

$$ EASY * FINANCE II $$

BASIC INVESTMENT ANALYSIS PACKAGE

MODE: CALCULATION/OUTPUT

FUTURE INVESTMENT VALUE

1. INITIAL INVESTMENT	**=**	**3000.00**
2. NO. OF YEARS	**=**	**5.00**
3. NO. OF MONTHS	**=**	**0.00**
4. INTEREST RATE	**=**	**12.00**
5. # COMP. PERIODS	**=**	**4.00**
FUTURE INVESTMENT VALUE	**=**	**$5418.33**

RE-RUN? (Y OR N, OR P) /

Enter **'N'.** The program returns to the first function selection menu where you may now select additional functions. To print these results, simply enter **'P'.** A **"WAIT . . . PRINTING"** message is displayed after the **"RE-RUN"** prompt until printing is finished.

If you answer **'Y'** to the **"RE-RUN"** prompt on the preceding screen display, you will be asked if you want to begin the function with all new data. The preceding screen continues to be displayed until you enter an answer to this prompt.

If you enter **'N'** to the **"ALL NEW DATA"** prompt after entering **'Y'** to the **"RE-RUN"** prompt, you will be asked which item number from the previous run you wish to change. After you enter that number and press **RETURN,** you will see the item you wish to change displayed as described in the sample run. Proceed with the program as discussed previously.

If you enter **'Y'** to the **"ALL NEW DATA"** prompt, the program will clear the data display area and start prompting you from the first function's prompt (in this case, INITIAL INVESTMENT) as if you had just selected the FUTURE INVESTMENT function.

To end the EASY FINANCE program, enter **'9'** when you are viewing the first function selection menu. Remember you can get to the first selection menu any time during the program by pressing the up-arrow key and, if necessary, pressing **RETURN.** After you enter **'9',** a **"BYTES FREE"** message appears on your screen, followed by **"READY".** You are now ready to begin any other program.

Appendix: Screen and Report Options

This section shows you samples of the tabular reports EASY FINANCE can tell your printer to print out for you. You will always see the results EASY FINANCE has calculated for you on your screen. If the function you are running presents results in tabular form, you can ask the program to make a printed copy of the tabular report if you wish. A graphic report is possible with the bar graph function, and you can have the program print this report as well. If the function you are running does not present results in tabular form, you can request that the screen that shows the results in non-tabular form be printed.

Tabular reports are possible with these functions:

- Earned Interest Table
- Bar Graph

With these tabular functions the program can print:

- Exactly what you see on your screen when function results are presented; and
- A tabular report of the calculations.

With the bar graph function, the program can print the input screen, a tabular report, and a bar graph of the calculations.

Examples of tabular reports are presented in this section.

If you are running a non-tabular function and you want the program to print what is on the screen that presents the function calculations, enter **'P'** when EASY FINANCE asks you **"RE-RUN? (Y OR N, OR P)"** on the screen where the results are being displayed.

If you are running a tabular function and you want the program to print the results screen and a tabular report of the calculations, enter **'Y'** to the **"PRINTER OUTPUT? (Y OR N)"** prompt. The results screen alone cannot be printed if you are running a tabular function; if you want to print that screen, you must also print the tabular report of the results.

If you are running the bar graph function and you want the program to print the screen, a tabular report, **and** a bar graph of the calculations, enter **'Y'** to the **"PRINTER OUTPUT? (Y OR N)"** prompt and enter **'Y'** to the **"GRAPHIC OUTPUT? (Y OR N)"** prompt. Then, enter **'Y'** to the second **"PRINTER OUTPUT? (Y OR N)"** prompt.

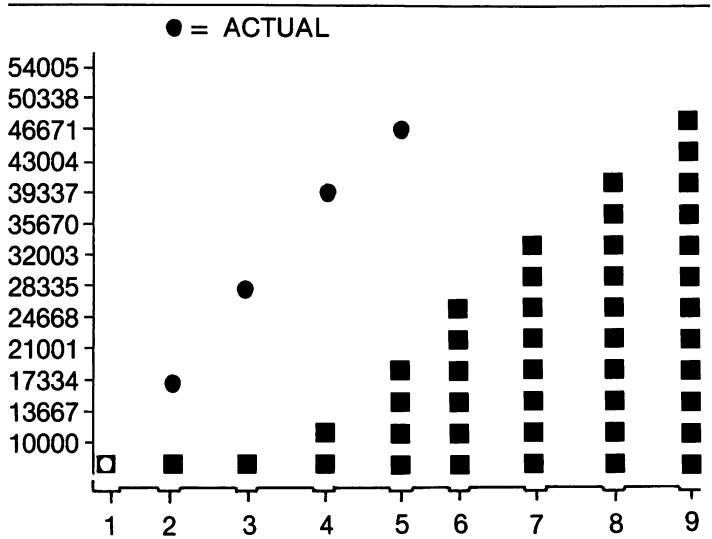
If you want to see the tabular or graphic reports on your screen, **but** you do **not** want the results to be printed, simply answer **'N'** to the **OUTPUT** prompts and the results will appear **only** on your screen.

BAR GRAPH

1. NO. OF PERIODS	=	8.00
2. SMOOTHING VALUE	=	0.25
3. VALUE PERIOD# 1	=	10000.00
4. VALUE PERIOD# 2	=	20000.00
5. VALUE PERIOD# 3	=	30000.00
6. VALUE PERIOD# 4	=	40000.00
7. VALUE PERIOD# 5	=	50000.00
8. VALUE PERIOD# 6	=	60000.00
9. VALUE PERIOD# 7	=	70000.00
10. VALUE PERIOD# 8	=	80000.00

PERIOD	FORECAST	ACTUAL	DIFF
1	10000.00	10000.00	0.00
2	10000.00	20000.00	– 10000.00
3	12500.00	30000.00	– 17500.00
4	16875.00	40000.00	– 23125.00
5	22656.25	50000.00	– 27343.75
6	29492.19	60000.00	– 30507.81
7	37119.14	70000.00	– 32880.86
8	45339.36	80000.00	– 34660.64
9	54004.52		

BAR GRAPH



EARNED INTEREST TABLE

1. INITIAL INVEST	=	50000.00
2. OUTPUT START YR	=	1.00
3. OUTPUT END YR	=	2.00
4. INTEREST RATE	=	12.60
5. # DEPOSITS/YEAR	=	0.00
6. DEP/WITHDR AMT	=	0.00
7. # COMP. PERIODS	=	12.00

EFFECTIVE RATE = 13.35%

YEAR	BALANCE	INTEREST	ACCUM INT
1	51591.60	1591.60	1591.60
1	53233.86	1642.26	3233.86
1	54928.40	1694.54	4928.40
1	56676.88	1748.48	6676.88
		6676.88	
2	58481.01	1804.13	8481.01
2	60342.57	1861.56	10342.57
2	62263.39	1920.82	12263.39
2	64245.35	1981.96	14245.35
		7568.47	

Glossary

Annuity	A stipulated payment made at stated intervals for a specified period of time.
Compounding	Periodic rates of return earned on amounts invested; these amounts include accumulated interest and the initial investment. (More interest is actually earned on interest.)
Decimal	A proper fraction in which the denominator is a power of 10 signified by a point placed at the left of the numerator. For example: .25 = 25/100
Deposits	Money balances due from banks to those who have either placed funds with the bank or borrowed funds from the bank, creating an account for the borrower.
Effective Annual Interest Rate	The true percentage rate earned on an investment or paid on a loan when the effect of compounding the nominal rate is considered.
Future Value	Present dollars plus the amount of interest that could be earned on present dollars when invested at a given interest rate.
Initial Investment	Amount paid to acquire an asset or the first deposit required to initiate an investment.
Integer	Any natural whole number, including negatives and zero.
Interest	Dollars paid by the borrower to the lender for use of cash.
Interest Rate	An amount paid for the use of capital.
Loan	Something of value, usually money, borrowed at interest for a specified period of time.
Nominal Interest Rate	A stated rate of return on an investment or stated interest charge on a loan without the effects of compounding. (Compounding will increase the rate.)

Non-numeric	Any character other than 0 through 9. Such characters may be alphabetic or special characters like a dash (—) or an asterisk (*).
Numeric	Information consisting of the digits 0 through 9 or any combination of such characters.
Principal	The amount of money borrowed.
Tax Rate	The percentage of tax obligation applied to personal or business taxable earnings.
Withdrawal	Removal of a deposit or investment.

EASY FINANCE II

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- Rule of 78's interest
- Mortgage comparison analysis
- Property investment cost analysis
- Financial forecasting on a bar graph

Financial terminology is defined and clarified in this package. Some generally accepted concepts and practices are also presented. Have fun using EASY FINANCE and improve your budget at the same time!

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