



# **MGT 12**

# **Personal Financial Management**

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**UC San Diego**  
RADY SCHOOL OF MANAGEMENT



# My Personal Thoughts on Personal Finance

1. Live below your means (spend less than you make)
2. Have a plan for financial independence and stick to it
3. Have a budget and track spending
4. Save systematically – 10% of gross salary idea
5. Understand the power of compounding (time value of money)
6. Be careful with debt and only use it if it furthers your goals
7. Pay off credit card balances right away and don't carry a balance
8. Always have something for a rainy day
9. Know what is happening in the financial markets

# Wall Street Journal

<https://ucsd.libguides.com/newspapers/wsj>

Please consider subscribing to this **FREE** service as class material may be derived from it and it has lots of great information.



# Chapter 1

## Personal Finance Basics and the Time Value of Money

# Chapter 1 – Planning Principles

1. Best time of your life to learn about Personal Financial Planning
2. Achieving a Financial Plan means Financial Independence (most people fail to plan, not plan to fail)
3. Take advantage of the power of compounding or the Time Value of Money

Who likes matcha?

Or fancy hot beverages?

Let's assume \$10/day spending for 40 years





# Retirement Planning

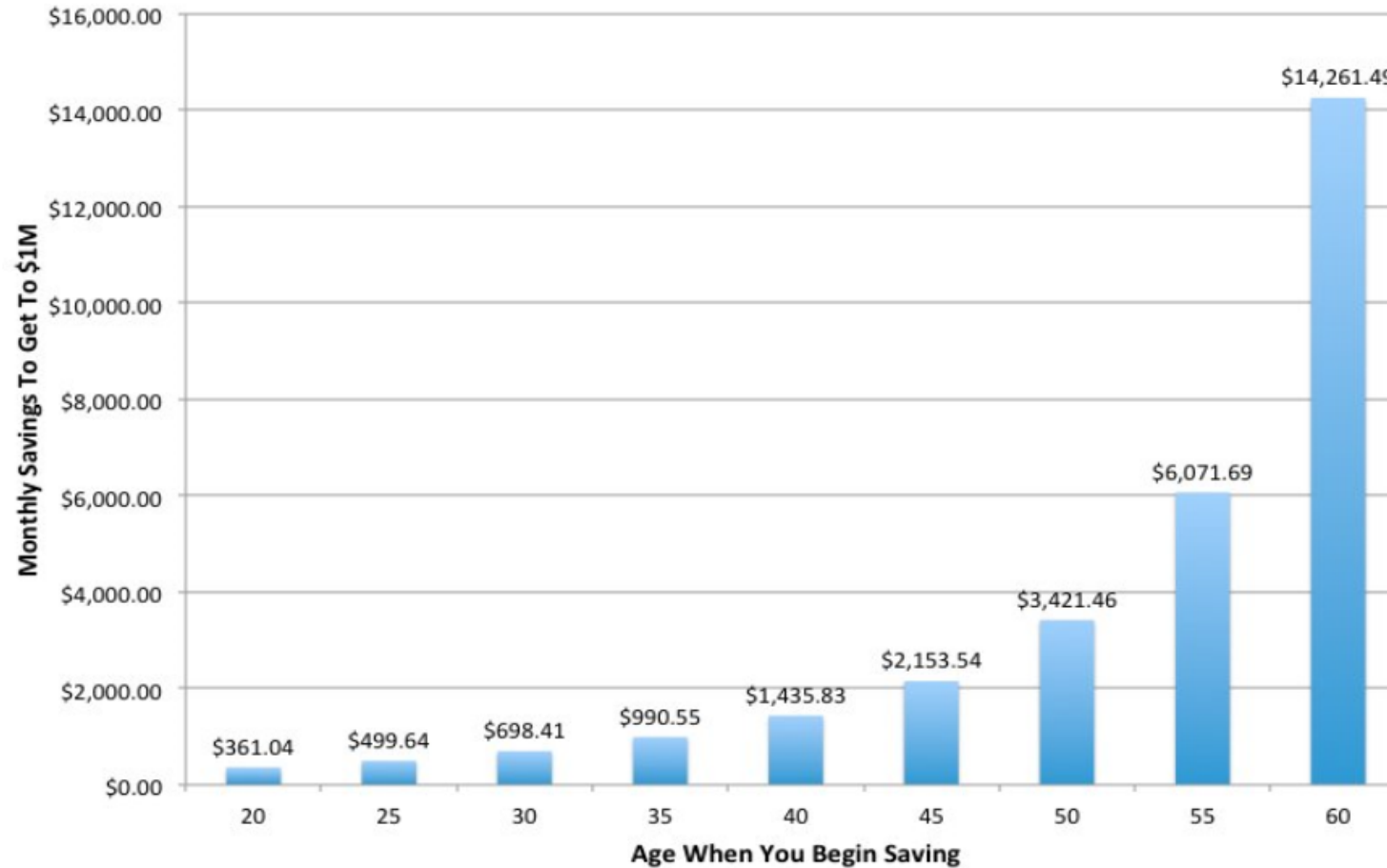
## I CANNOT OVEREMPHASIZE THE IMPORTANCE OF STARTING EARLY!

- Why? Because you need to take advantage of the exponential power of the time value of money
  - If from age 25 to 65 you invest \$300 a month (10% annual return compounded monthly), at age 65 you'll have approximately :  
***\$1.9 million***
  - Wait ten years until age 35 to start, at age 65 you'll have approximately :  
***\$684,000 or ~65% less than starting at 25***
  - Wait twenty years until age 45 to start, at age 65 you'll have approximately :  
***\$230,000 or ~88% less than starting at 25***
  - By the way, if you stop at 35 after saving for 10 years, you'll have approximately :  
***\$1.2 million***

***Key message : Money grows exponentially, so get started early!***

# Another Way to Look at It

How Much You Need To Save To Get To \$1M At Retirement  
(6% Return Rate)



Business Insider/Andy Kiersz



# Retirement Planning

I CANNOT OVEREMPHASIZE THE IMPORTANCE OF STARTING EARLY!

- To take advantage of the time value of money
  - *You want to build assets and let them grow exponentially*
  - *You don't want to build liabilities and let them grow exponentially*

## But It's Not Just About the Numbers

### LIVING YOUR AUTHENTIC LIFE IS SO IMPORTANT!!!

- What good is wealth if you are miserable?
- There is a balance, and you should strive for the balance that works for you





# Chapter 1

## Learning Objectives

- LO1-1 Analyze the process for making personal financial decisions.
- LO1-2 Assess personal and economic factors that influence personal financial planning.
- LO1-3 Develop personal financial goals.
- LO1-4 Calculate time value of money to analyze personal financial decisions.
- LO1-5 Identify strategies for achieving personal financial goals for different life situations.

# Personal Financial Planning

***LO1-1:***

**Analyze the process for making personal financial decisions.**

**What is Personal Financial Planning? ....**

The process of managing your money to achieve personal economic satisfaction.



## Advantages of Personal Financial Planning

- **Increased effectiveness** in obtaining, using, and protecting financial resources.
- **Increased control** of one's financial affairs by avoiding excessive debt, bankruptcy, and dependence on others.
- Improved **personal relationships**.
- **Enhanced freedom** from financial worries obtained by looking to the future, anticipating expenses, and achieving personal economic goals.

# The Financial Planning Process





# Types of Risk



- Rising or falling (deflation) prices cause changes in buying power.
- Decide whether to buy something now or later. If you buy later, you may have to pay more.



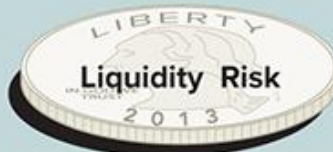
- Changing interest rates affect your costs (when you borrow) and your benefits (when you save or invest).
- Borrowing at a low interest rate when interest rates are rising can be to your advantage. Variable-rate loans may increase, resulting in higher payments. If you save when interest rates are dropping, you will earn a lower return with a six-month savings certificate than with a certificate having a longer maturity.



- The loss of a job may result from changes in consumer spending or expanded use of technology.
- Individuals who face the risk of unemployment need to save while employed or acquire skills they can use to obtain a different type of work.



- Many factors can create a less than desirable situation. Purchasing a certain brand or from a certain store may create the risk of having to obtain repairs at an inconvenient location.
- Personal risk may also take the form of health risks, safety risks, or additional costs associated with various purchases or financial decisions.



- Some savings and investments have the potential for higher earnings. However, they may be more difficult to convert to cash or to sell without significant loss in value.

# Influences on Personal Financial Planning

## **LO1-2:**

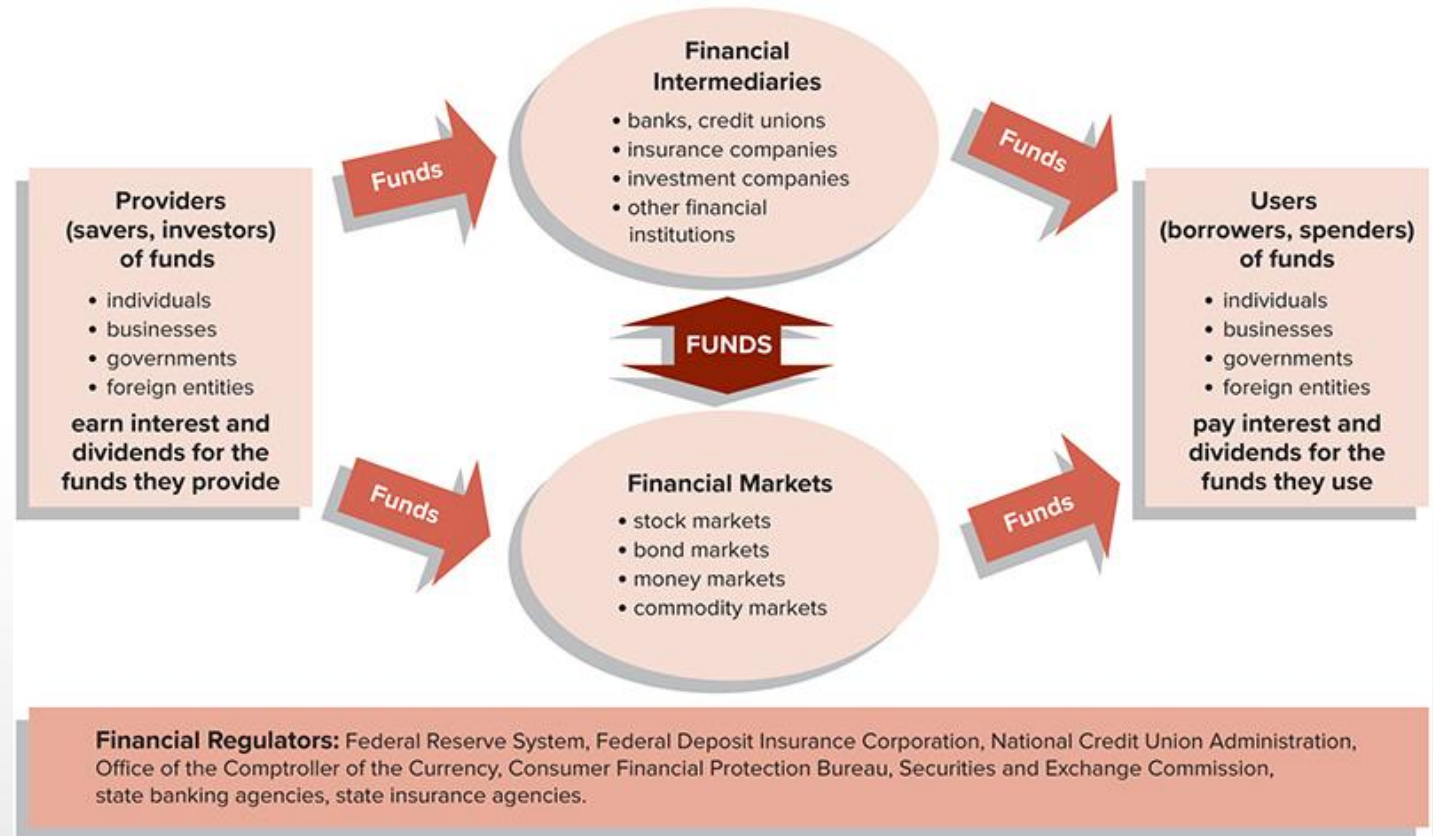
**Assess personal and economic factors that influence personal financial planning.**

### LIFE SITUATION AND PERSONAL VALUES.

- ***Adult life cycle*** is the stages in the family and financial needs of an adult.
  - Marital status, household size, and employment, as well as major events such as graduation, engagement, career change, children, retirement, etc.
- ***Values*** influence spending and saving decisions.

# The Financial System and Economic Factors

The financial system and daily economic activities influence personal financial decisions.



## Global Influences

- Global economy influences personal finance.
- American companies compete against foreign companies for US dollars.
- Balance of exports and imports.
- Foreign investments and their role in the US money supply.
- *A trade deficit* also affects the value of a nation's money and the cost of items being purchased by consumers.



# Exhibit 1-5: Changing Economic Conditions and Financial Decisions

Economic Factor	What It Measures	How It Influences Financial Planning
Consumer prices	The buying power of a dollar; inflation.	If consumer prices increase faster than income, you are not able to purchase the same amount of goods and services; higher consumer prices often cause higher interest rates.
Consumer spending	The demand for goods and services by individuals and households.	Increased consumer spending usually creates more jobs and higher wages; high levels of consumer spending and borrowing may push up consumer prices and interest rates.
Interest rates	The cost of money; the cost of credit when you borrow; the return on your money when you save or invest.	Higher interest rates make buying on credit more expensive; higher interest rates make saving and investing more attractive and may discourage borrowing.
Money supply	The dollars available for spending in our economy.	Interest rates tend to decline as more people save and invest; but higher saving (and lower spending) may also reduce job opportunities.
Unemployment	The number of people without employment who are willing and able to work.	Unemployed people should reduce their debt level and have an emergency fund; high unemployment reduces consumer spending and job opportunities.
Housing starts	The number of new homes being built.	Increased home building creates jobs, higher wages, more consumer spending, and overall economic expansion.
Gross domestic product (GDP)	The total value of goods and services produced within a country's borders, including items produced with foreign resources.	GDP is an indication of a nation's economic viability, resulting in jobs and opportunities for increased personal wealth.
Trade balance	The difference between a country's exports and its imports.	If a country has more exports than imports, the balance of trade deficit can result in price changes for foreign goods.
Dow Jones Average, S&P 500, other stock market indexes	The relative value of stocks represented by the index.	These indexes provide an indication of the general movement of stock prices.

# Economic Conditions

## Consumer Prices.

- ***Inflation*** is a rise in the general level of prices.
- Rule of 72.
  - Divide 72 by the annual inflation (or interest) rate.
  - Example: An annual inflation rate of 4% means prices (or your savings) will double in 18 years ( $72/4 = 18$ ).
  - Can also be used for interest rates and rates of returns on investments.
- ***Deflation***, a decline in prices, can also have damaging economic effects.



# Economic Conditions

## Consumer Spending.

- Total demand for goods and services in the economy influences employment opportunities and the potential for income.

## Interest Rates.

- Represent the cost of money.

# Developing Personal Financial Goals

***LO1-3:***

**Develop personal financial goals.**

## FINANCIAL GOALS.

- Can be influenced by the time frame in which you want to achieve your goals.
- Can be influenced by the type of financial need that drives your goals.

# Types of Financial Goals

## TIMING OF GOALS.

- Short-term (within the next year).
- Intermediate (one to five years).
- Long-term (more than five years).
  - Long-term goals should be planned in coordination with short-term and intermediate goals.

## GOALS FOR DIFFERENT FINANCIAL NEEDS.

- Consumable-product goals (for example, groceries).
- Durable-product goals (for example, a car).
- Intangible-purchase goals (for example, investments).

# Goal-Setting Guidelines

Goals should be S-M-A-R-T:

**Specific:** know exactly what your goals are to create a plan.

**Measurable:** with a specific amount.

**Action-oriented:** identify the personal financial activities you will undertake.

**Realistic:** utilizing your income and life situation.

**Time-based:** identify the time frame to achieve the goal.

# Developing Personal Financial Goals

- Examples of actionable, measurable and time-bound plans
  - I want to go to Grad School in 3 years and save up \$30K, \$10K per year
  - I want to buy a home in 5 years and save for a \$75K down payment, \$15K per year

# Developing Personal Financial Goals

## In Class Exercise

### **TIMING OF GOALS/Stages of Life**

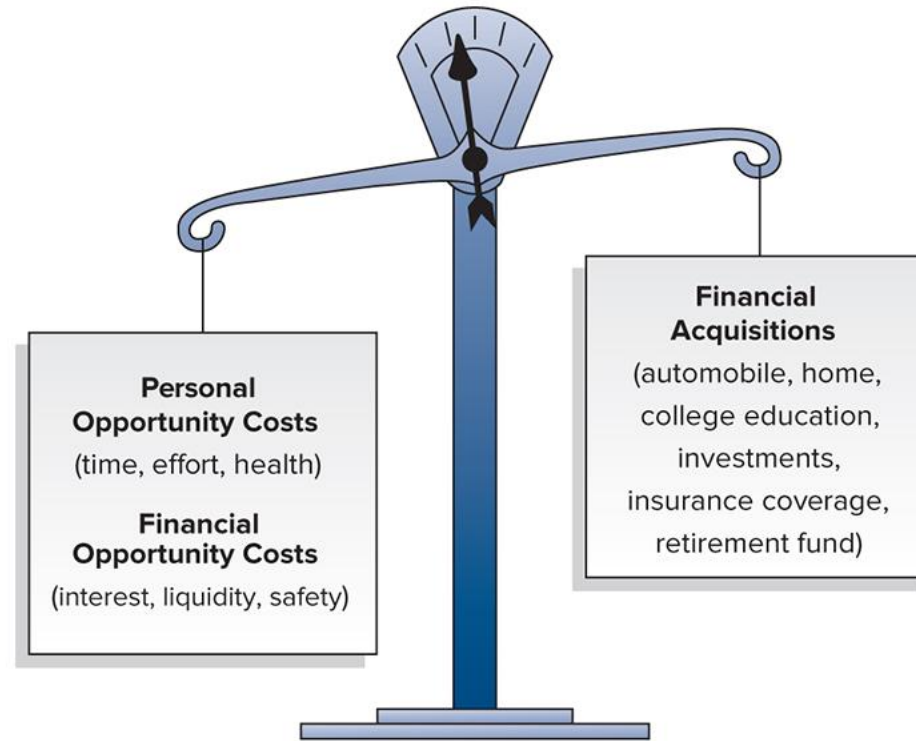
- Presume you are now 25, have a job and are supporting yourself
- Identify 2 short-term, intermediate and long-term goals
- Take several minutes and write them down



# Opportunity Costs and the Time Value of Money

**LO1-4:**

**Calculate time value of money to analyze personal financial decisions.**



## Personal Opportunity Costs

- Every financial decision involves giving up something to obtain something you consider more desirable.
- Personal resources, like financial resources, require careful management.
  - Example health, abilities, knowledge.

# Financial Opportunity Costs

Financial choices depend on current needs, future uncertainty, and current interest rates.

**Time Value of Money:** Increases in an amount of money as a result of interest earned.

- Saving (or investing) today means more money tomorrow. Spending means lost interest.
- Saving and spending decisions involve considering the trade-offs. Current needs can make spending worthwhile.

# Time Value of Money

## THE IMPORTANCE OF STARTING EARLY

- What is worth more in 40 years?
  - A. Saving \$2,000 per year for 10 years starting in year 1?
  - or
  - B. Saving \$2,000 per year for 30 years starting in year 11?
- Assume 9% rate of return on investment for both options.

## Exhibit 18-12

### Tackling the trade-offs (saving now versus saving later)

Saver Abe				Saver Ben			
Age	Years	Contributions	Year-End Value	Age	Years	Contributions	Year-End Value
25	1	\$ 2,000	\$ 2,188	25	1	\$ 0	\$ 0
26	2	2,000	4,580	26	2	0	0
27	3	2,000	7,198	27	3	0	0
28	4	2,000	10,061	28	4	0	0
29	5	2,000	13,192	29	5	0	0
30	6	2,000	16,617	30	6	0	0
31	7	2,000	20,363	31	7	0	0
32	8	2,000	24,461	32	8	0	0
33	9	2,000	28,944	33	9	0	0
34	10	2,000	33,846	34	10	0	0
35	11	0	37,021	35	11	2,000	2,188
36	12	0	40,494	36	12	2,000	4,580
37	13	0	44,293	37	13	2,000	7,198
38	14	0	48,448	38	14	2,000	10,061
39	15	0	52,992	39	15	2,000	13,192
40	16	0	57,963	40	16	2,000	16,617
41	17	0	63,401	41	17	2,000	20,363
42	18	0	69,348	42	18	2,000	24,461
43	19	0	75,854	43	19	2,000	28,944
44	20	0	82,969	44	20	2,000	33,846
45	21	0	90,752	45	21	2,000	39,209
46	22	0	99,265	46	22	2,000	45,075
47	23	0	108,577	47	23	2,000	51,490
48	24	0	118,763	48	24	2,000	58,508
49	25	0	129,903	49	25	2,000	66,184
50	26	0	142,089	50	26	2,000	74,580
51	27	0	155,418	51	27	2,000	83,764
52	28	0	169,997	52	28	2,000	93,809
53	29	0	185,944	53	29	2,000	104,797
54	30	0	203,387	54	30	2,000	116,815
55	31	0	222,466	55	31	2,000	129,961
56	32	0	243,335	56	32	2,000	144,340
57	33	0	266,162	57	33	2,000	160,068
58	34	0	291,129	58	34	2,000	177,271
59	35	0	318,439	59	35	2,000	196,088
60	36	0	348,311	60	36	2,000	216,670
61	37	0	380,985	61	37	2,000	239,182
62	38	0	416,724	62	38	2,000	263,807
63	39	0	455,816	63	39	2,000	290,741
64	40	0	498,574	64	40	2,000	320,202
65	41	0	545,344	65	41	2,000	352,427
		\$20,000				\$62,000	
Value at retirement*			\$545,344	Value at retirement*			\$352,427
Less total contributions			— 20,000	Less total contributions			— 62,000
Net earnings			\$525,344	Net earnings			\$290,427

### Rule of 72

- Abe \$ grew ~16 fold in 31 years
- \$34K to \$545K
- Doubled 4 times or once per 8 years at 9%.
- $72/9 = 8$

\*The table assumes a 9 percent fixed rate of return, compounded monthly.

# Time Value of Money

## Rule of 72

$72/x\% = Y$  years for \$ to double in value, where  $x\%$  rate of return is a whole number.

Example: at 10% rate of return, money will double in approximately 7 years.

$$72/10 = \sim 7.$$



# Time Value of Money

- Money increases and grows as a result of interest earned. The continual effect of this is compounding.
- Compound interest means interest on interest!
  - \$100 earning 10% compounded over 7 years =  $\$100 \times (1+10\%)^7$  or  $\$100 \times (1.1)^7$  or **\$200**
  - **Not**  $\$100 + 10\% \times 7 \times \$100$  or \$170
- Saving today means exponentially more money tomorrow. Spending means lost interest and lost interest on interest. Huge lost opportunity.
- Saving and spending decisions involve considering the trade-offs between now and later and much later.

# Time Value of Money

## INTEREST CALCULATIONS

Three amounts are required to calculate the time value of money:

**P** = Principal or amount invested

**I** = Interest rate

**T** = Time

# Time Value of Money

## COMPUTING SIMPLE INTEREST.

Amount in savings  $\times$  annual interest rate  $\times$  time period = interest amount.

For Example:

$$\begin{aligned} & \$500 \times 6\% \times 6 \text{ months}/12 \text{ months} \\ &= \$500 \times .06 \times \frac{1}{2} \text{ year} \\ &= \$15.00 \end{aligned}$$

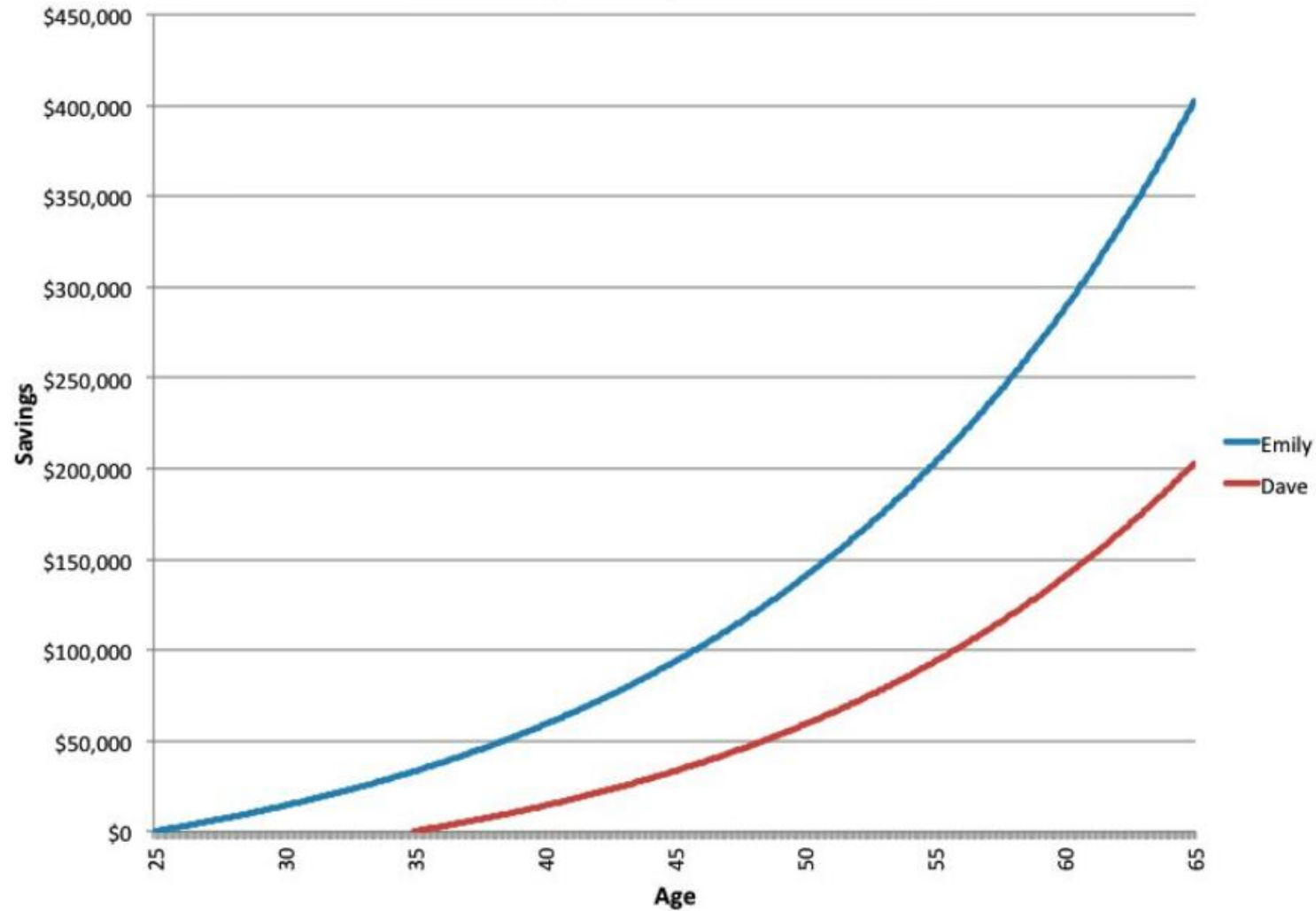
In six months, a \$500 deposit (principal) will earn \$15.00 interest. Therefore, you will have a total of \$515 at the end of six months.

# Time Value of Money

## TIME ELEMENT

- Can calculate FUTURE values, in other words, how much will money be worth  $x$  years from now
- Can calculate PRESENT values, in other words, given a future amount, what is it worth today?

# Time Value of Money



Business Insider/Andy Kiersz

# Time Value of Money

## 1) FUTURE VALUE OF A SINGLE AMOUNT

- Future value is the amount to which current savings will increase based on a certain interest rate and a certain time period
- Future value benefits from *compounding* - earning interest on previously earned interest
- How much is today's Starbucks worth X years from now assuming one invested the money instead?

## 2) FUTURE VALUE OF A SERIES OF DEPOSITS

- Future value can be computed for a single amount or for a series of deposits called an annuity (even payment stream over time)
- How much money is a Starbucks per day for 5 years worth, assuming one invested the money instead?



# Time Value of Money

## 3) PRESENT VALUE OF A SINGLE AMOUNT

- **Present Value** is the current value of a future amount based on a certain interest rate and a certain time period
- Present value calculations are also called discounting
- This is the opposite of compounding
- The present value of the amount you want in the future will always be less than the future value
- One Starbucks x years in the future is worth how much money today?

## 4) PRESENT VALUE OF A SERIES OF DEPOSITS

- Present value can be computed for a single amount or for a series of deposits
- Many Starbucks over a period of time is worth what amount of money today?

# Methods for Computing Time Value of Money

- Formulas
- Time value of money tables
- Financial calculators
- Spreadsheet software
- Time value of money web sites

# Methods for Computing Time Value of Money Formulas


- Future Value (FV) of a single amount
  - $FV = PV \cdot (1+i)^n$
- Future Value of a series
  - $FV = \text{Annuity amount} \cdot ((1+i)^n - 1) / i$
- Present Value (PV) of a single amount
  - $PV = FV / (1+i)^n$
- Present Value of a series
  - $PV = \text{Annuity amount} \cdot (1 - (1/(1+i)^n)) / i$

Where :

$i$  = interest rate

$n$  = number of  
periods

$\wedge$  = raise to  
power



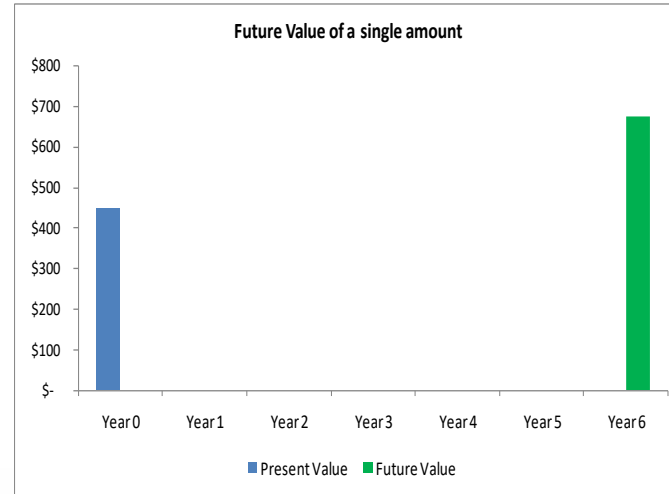
# Time Value of Money

## Four Calculations

1. FUTURE VALUE OF A SINGLE AMOUNT
2. FUTURE VALUE OF A SERIES OF DEPOSITS
3. PRESENT VALUE OF A SINGLE AMOUNT
4. PRESENT VALUE OF A SERIES OF DEPOSITS

# Time Value of Money

## 1) FUTURE VALUE OF A SINGLE AMOUNT



- Future value is the amount to which current savings will increase based on a certain interest rate and a certain time period
- Future value benefits from *compounding* - earning interest on previously earned interest
- How much is today's Starbucks worth X years from now assuming one invested the money instead?

*If you start with a dollar, how much will you have at the end of N periods?*

## Table Method - Future Value (single amount)

Year	5%	6%	7%	8%	9%
1	1.050	1.060	1.070	1.080	1.090
2	1.103	1.124	1.145	1.166	1.188
3	1.158	1.191	1.225	1.260	1.295
4	1.216	1.262	1.311	1.360	1.412
5	1.276	1.338	1.403	1.469	1.539
6	1.340	1.419	1.501	1.587	1.677
7	1.407	1.504	1.606	1.714	1.828
8	1.477	1.594	1.718	1.851	1.993
9	1.551	1.689	1.838	1.999	2.172
10	1.629	1.791	1.967	2.159	2.367
11	1.710	1.898	2.105	2.332	2.580
12	1.796	2.012	2.252	2.518	2.813
13	1.886	2.133	2.410	2.720	3.066
14	1.980	2.261	2.579	2.937	3.342
15	2.079	2.397	2.759	3.172	3.642
16	2.183	2.540	2.952	3.426	3.970
17	2.292	2.693	3.159	3.700	4.328
18	2.407	2.854	3.380	3.996	4.717
19	2.527	3.026	3.617	4.316	5.142
20	2.653	3.207	3.870	4.661	5.604



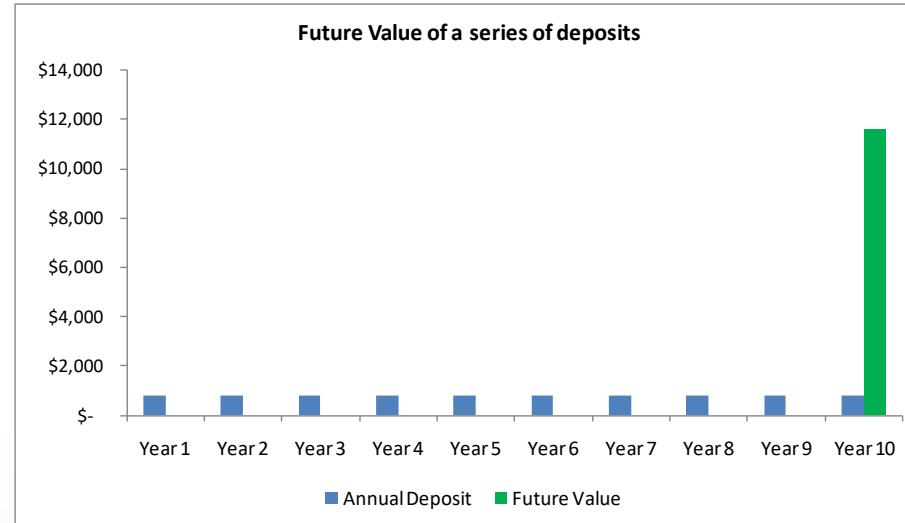
## Future Value of a Single Amount

- Assuming a Starbucks is \$5, and instead of buying one, you invest the \$5 and earn 6% interest or rate of return, how much would it be worth in 5 years?
- Answer: \$6.69 or  $\$5 \times 1.338$

Year	5%	6%	7%	8%	9%
1	1.050	1.060	1.070	1.080	1.090
2	1.103	1.124	1.145	1.166	1.188
3	1.158	1.191	1.225	1.260	1.295
4	1.216	1.262	1.311	1.360	1.412
5	1.276	1.338	1.403	1.469	1.539
6	1.340	1.419	1.501	1.587	1.677
7	1.407	1.504	1.606	1.714	1.828
8	1.477	1.594	1.718	1.851	1.993
9	1.551	1.689	1.838	1.999	2.172
10	1.629	1.791	1.967	2.159	2.367

# Time Value of Money

## 2) FUTURE VALUE OF A SERIES OF DEPOSITS



- Future value can be computed for a single amount or for a series of deposits called an annuity (even payment stream over time)
- How much money is a Starbucks per day for 5 years worth, assuming one invested the money instead?

*If you invest a dollar each period, how much will you have at the end of N periods?*

## Table Method - Future Value of a series of deposits

Year	5%	6%	7%	8%	9%
1	1.000	1.000	1.000	1.000	1.000
2	2.050	2.060	2.070	2.080	2.090
3	3.153	3.184	3.215	3.246	3.278
4	4.310	4.375	4.440	4.506	4.573
5	5.526	5.637	5.751	5.867	5.985
6	6.802	6.975	7.153	7.336	7.523
7	8.142	8.394	8.654	8.923	9.200
8	9.549	9.897	10.260	10.637	11.028
9	11.027	11.491	11.978	12.488	13.021
10	12.578	13.181	13.816	14.487	15.193
11	14.207	14.972	15.784	16.645	17.560
12	15.917	16.870	17.888	18.977	20.141
13	17.713	18.882	20.141	21.495	22.953
14	19.599	21.015	22.550	24.215	26.019
15	21.579	23.276	25.129	27.152	29.361
16	23.657	25.673	27.888	30.324	33.003
17	25.840	28.213	30.840	33.750	36.974
18	28.132	30.906	33.999	37.450	41.301
19	30.539	33.760	37.379	41.446	46.018
20	33.066	36.786	40.995	45.762	51.160

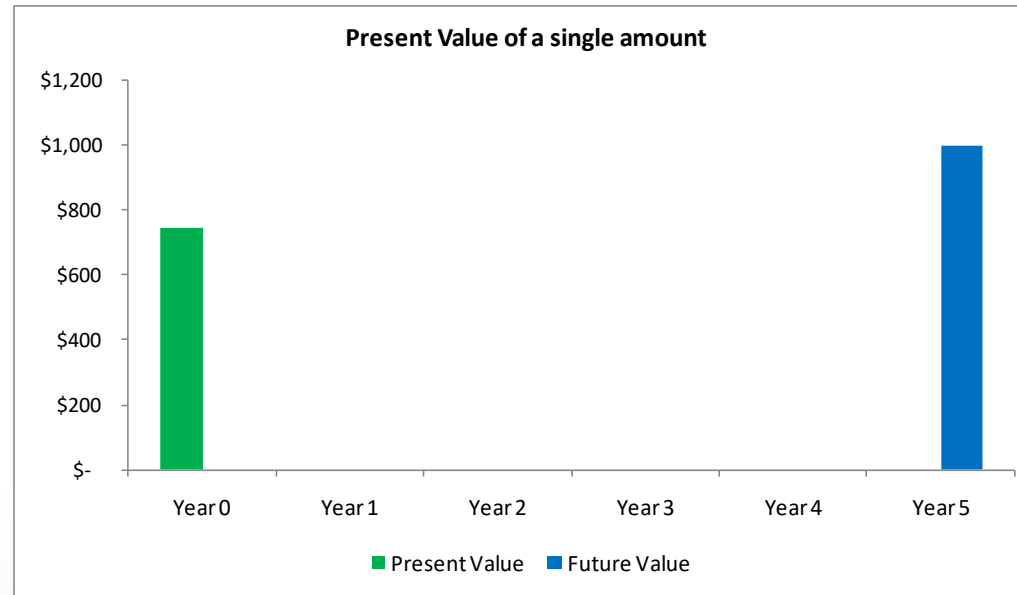
## Future Value of a Series of Deposits

- Assuming a Starbucks visit is \$5 and instead of doing 200 visits per year, one will save \$1,000 per year for 5 years, and earn 6% interest, how much would it be worth in 5 years?
- Answer: \$5,637 or  $\$1,000 \times 5.637$

Year	5%	6%	7%	8%	9%
1	1.000	1.000	1.000	1.000	1.000
2	2.050	2.060	2.070	2.080	2.090
3	3.153	3.184	3.215	3.246	3.278
4	4.310	4.375	4.440	4.506	4.573
5	5.526	5.637	5.751	5.867	5.985
6	6.802	6.975	7.153	7.336	7.523
7	8.142	8.394	8.654	8.923	9.200
8	9.549	9.897	10.260	10.637	11.028
9	11.027	11.491	11.978	12.488	13.021
10	12.578	13.181	13.816	14.487	15.193

# Time Value of Money

## 3) PRESENT VALUE OF A SINGLE AMOUNT



- **Present Value** is the current value of a future amount based on a certain interest rate and a certain time period
- Present value calculations are also called **discounting**
- The present value of the amount you want in the future will always be less than the future value assuming there is a positive interest rate

*How much do you need to start with to have a dollar at  
the end of N periods?*

### Table Method – Present Value (single amount)

Year	5%	6%	7%	8%	9%
1	0.952	0.943	0.935	0.926	0.917
2	0.907	0.890	0.873	0.857	0.842
3	0.864	0.840	0.816	0.794	0.772
4	0.823	0.792	0.763	0.735	0.708
5	0.784	0.747	0.713	0.681	0.650
6	0.746	0.705	0.666	0.630	0.596
7	0.711	0.665	0.623	0.583	0.547
8	0.677	0.627	0.582	0.540	0.502
9	0.645	0.592	0.544	0.500	0.460
10	0.614	0.558	0.508	0.463	0.422
11	0.585	0.527	0.475	0.429	0.388
12	0.557	0.497	0.444	0.397	0.356
13	0.530	0.469	0.415	0.368	0.326
14	0.505	0.442	0.388	0.340	0.299
15	0.481	0.417	0.362	0.315	0.275
16	0.458	0.394	0.339	0.292	0.252
17	0.436	0.371	0.317	0.270	0.231
18	0.416	0.350	0.296	0.250	0.212
19	0.396	0.331	0.277	0.232	0.194
20	0.377	0.312	0.258	0.215	0.178



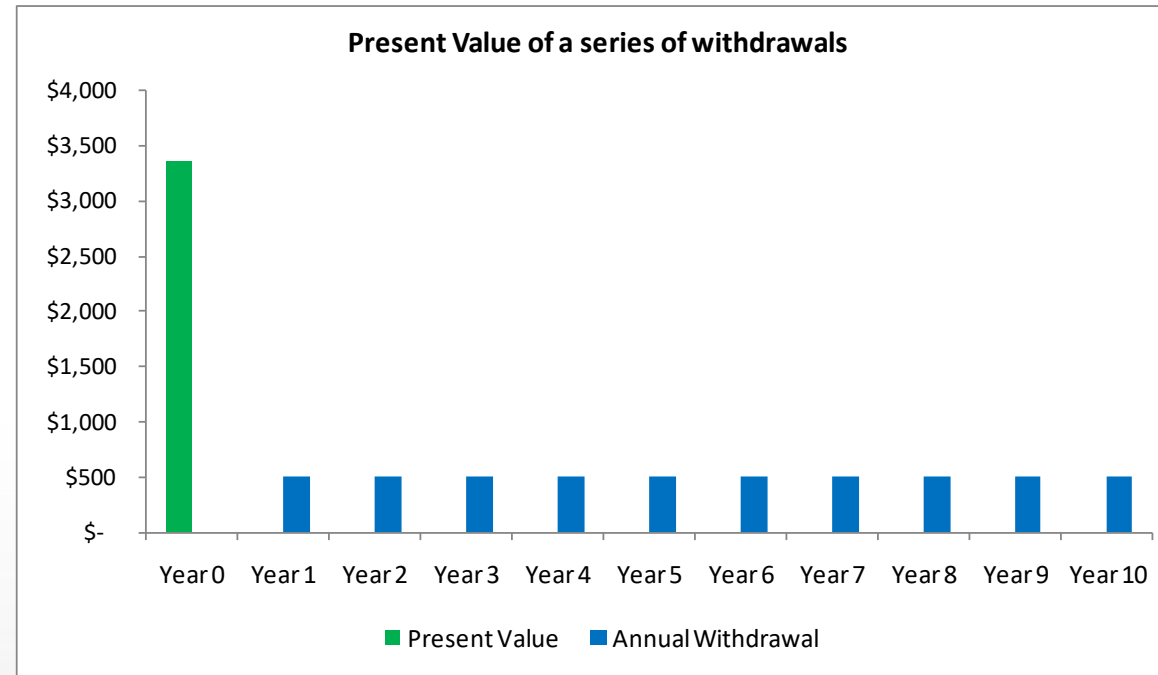
## Present Value of a Single Amount

- Assuming one wants \$5 in 5 years and invests the original amount at 6% interest, how much would one have to invest today?
- Answer: \$3.74 or  $\$5 \times 0.747$

Year	5%	6%	7%	8%	9%
1	0.952	0.943	0.935	0.926	0.917
2	0.907	0.890	0.873	0.857	0.842
3	0.864	0.840	0.816	0.794	0.772
4	0.823	0.792	0.763	0.735	0.708
5	0.784	0.747	0.713	0.681	0.650
6	0.746	0.705	0.666	0.630	0.596
7	0.711	0.665	0.623	0.583	0.547
8	0.677	0.627	0.582	0.540	0.502
9	0.645	0.592	0.544	0.500	0.460
10	0.614	0.558	0.508	0.463	0.422

# Time Value of Money

## 4) PRESENT VALUE OF A SERIES OF DEPOSITS



- Present value can be computed for a single amount or for a series of deposits
- Also known as an annuity

*How much do you need to start with to generate a dollar for  
N periods?*

Table Method – Present Value of a series of deposits

Year	5%	6%	7%	8%	9%
1	0.952	0.943	0.935	0.926	0.917
2	1.859	1.833	1.808	1.783	1.759
3	2.723	2.673	2.624	2.577	2.531
4	3.546	3.465	3.387	3.312	3.240
5	4.329	4.212	4.100	3.993	3.890
6	5.076	4.917	4.767	4.623	4.486
7	5.786	5.582	5.389	5.206	5.033
8	6.463	6.210	5.971	5.747	5.535
9	7.108	6.802	6.515	6.247	5.995
10	7.722	7.360	7.024	6.710	6.418
11	8.306	7.887	7.499	7.139	6.805
12	8.863	8.384	7.943	7.536	7.161
13	9.394	8.853	8.358	7.904	7.487
14	9.899	9.295	8.745	8.244	7.786
15	10.380	9.712	9.108	8.559	8.061
16	10.838	10.106	9.447	8.851	8.313
17	11.274	10.477	9.763	9.122	8.544
18	11.690	10.828	10.059	9.372	8.756
19	12.085	11.158	10.336	9.604	8.950
20	12.462	11.470	10.594	9.818	9.129

## Present Value of a Series of Deposits

- Assuming one wanted to have \$5 over 5 years or the equivalent of \$1 per year for 5 years earning 6% interest, how much would one need to invest today?
- Answer: \$4.21 or  $\$1 \times 4.212$

Year	5%	6%	7%	8%	9%
1	0.952	0.943	0.935	0.926	0.917
2	1.859	1.833	1.808	1.783	1.759
3	2.723	2.673	2.624	2.577	2.531
4	3.546	3.465	3.387	3.312	3.240
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7	5.786	5.582	5.389	5.206	5.033
8	6.463	6.210	5.971	5.747	5.535
9	7.108	6.802	6.515	6.247	5.995
10	7.722	7.360	7.024	6.710	6.418

## Time Value of Money – Brief Examples

**NOTE: Work these examples using time value of money tables**

- a. The future value of \$450 six years from now at 7 percent.
- b. The future value of \$800 saved each year for 10 years at 8 percent.
- c. The amount a person would have to deposit today (present value) at a 6 percent interest rate to have \$1,000 five years from now.
- d. The amount a person would have to deposit today to be able to take out \$500 a year for 10 years from an account earning 8 percent.

# Time Value of Money Tables

**Future Value of a Single Amount**

Year	5%	6%	7%	8%
1	1.050	1.060	1.070	1.080
2	1.103	1.124	1.145	1.166
3	1.158	1.191	1.225	1.260
4	1.216	1.262	1.311	1.360
5	1.276	1.338	1.403	1.469
6	1.340	1.419	1.501	1.587
7	1.407	1.504	1.606	1.714

**Present Value of a Future Amount**

Year	5%	6%	7%	8%
1	0.952	0.943	0.935	0.926
2	0.907	0.890	0.873	0.857
3	0.864	0.840	0.816	0.794
4	0.823	0.792	0.763	0.735
5	0.784	0.747	0.713	0.681
6	0.746	0.705	0.666	0.630
7	0.711	0.665	0.623	0.583

**Future Value of a Series**

Year	5%	6%	7%	8%
1	1.000	1.000	1.000	1.000
2	2.050	2.060	2.070	2.080
3	3.153	3.184	3.215	3.246
4	4.310	4.375	4.440	4.506
5	5.526	5.637	5.751	5.867
6	6.802	6.975	7.153	7.336
7	8.142	8.394	8.654	8.923
8	9.549	9.897	10.260	10.637
9	11.027	11.491	11.978	12.488
10	12.578	13.181	13.816	14.487

**Present Value of a Future Series**

Year	5%	6%	7%	8%
1	0.952	0.943	0.935	0.926
2	1.859	1.833	1.808	1.783
3	2.723	2.673	2.624	2.577
4	3.546	3.465	3.387	3.312
5	4.329	4.212	4.100	3.993
6	5.076	4.917	4.767	4.623
7	5.786	5.582	5.389	5.206
8	6.463	6.210	5.971	5.747
9	7.108	6.802	6.515	6.247
10	7.722	7.360	7.024	6.710

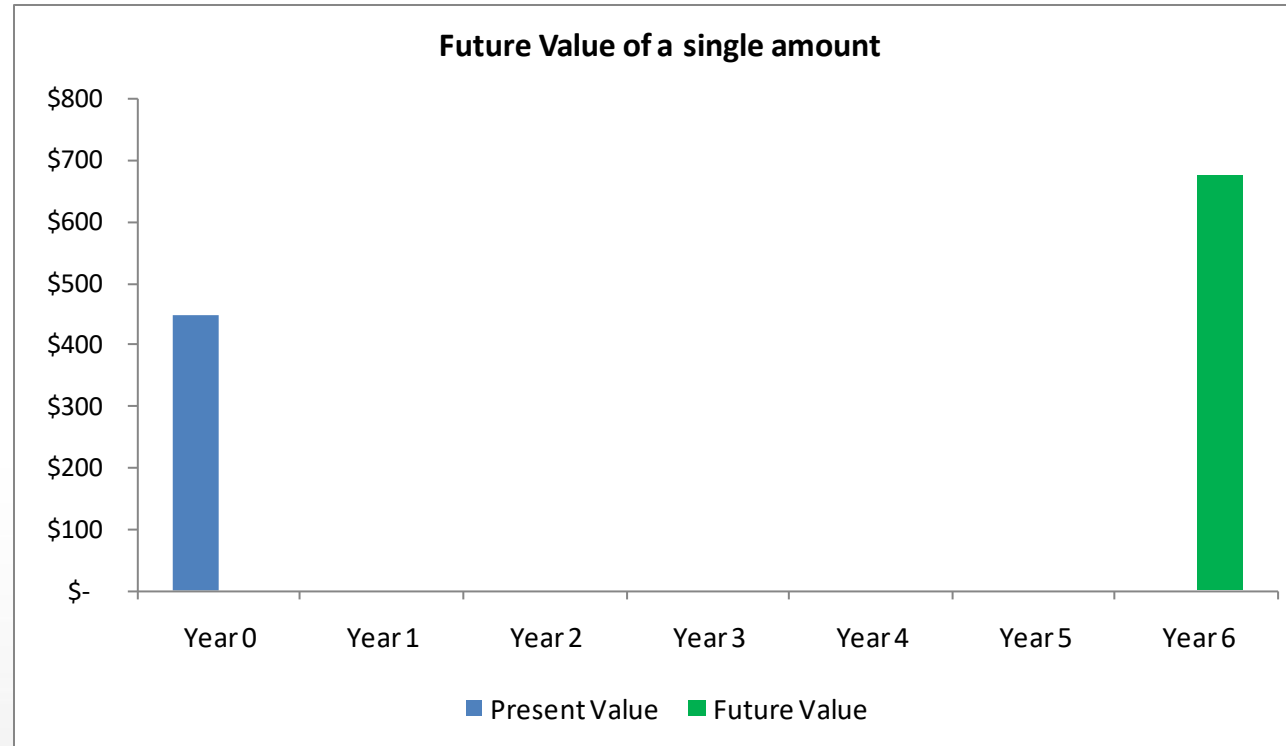


# Time Value of Money – Brief Examples

- a.* The future value of \$450 six years from now at 7 percent.

# FUTURE VALUE OF A SINGLE AMOUNT

The future value of \$450 six years from now at 7 percent.  $\$450 \times 1.501 = \$675.45$



- Future value is the amount to which current savings will increase based on a certain interest rate and a certain time period
- Future value benefits from **compounding** - earning interest on previously earned interest

## Time Value of Money – Brief Examples

- a. The future value of \$450 six years from now at 7 percent.

$$\$450 \times 1.501 = \$675.45$$

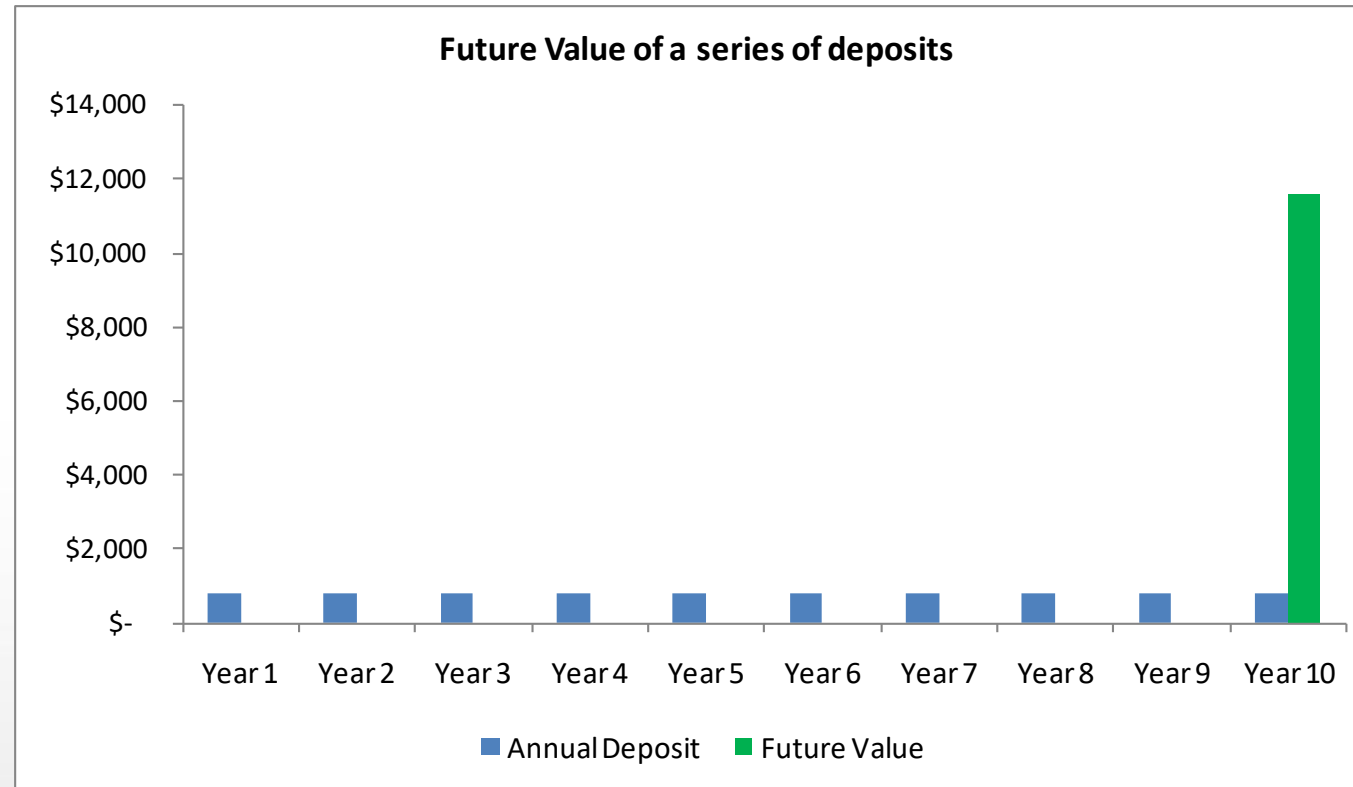
Year	5%	6%	7%	8%	9%
1	1.050	1.060	1.070	1.080	1.090
2	1.103	1.124	1.145	1.166	1.188
3	1.158	1.191	1.225	1.260	1.295
4	1.216	1.262	1.311	1.360	1.412
5	1.276	1.338	1.403	1.469	1.539
6	1.340	1.419	1.501	1.587	1.677
7	1.407	1.504	1.600	1.714	1.828
8	1.477	1.594	1.718	1.851	1.993
9	1.551	1.689	1.838	1.999	2.172
10	1.629	1.791	1.967	2.159	2.367

# Time Value of Money – Brief Examples

- b.* The future value of \$800 saved each year for 10 years at 8 percent.

# FUTURE VALUE OF A SERIES OF DEPOSITS

The future value of \$800 saved at the end of each year for 10 years at 8 percent.  $\$800 \times 14.487 = \$11,590$



- Future value can be computed for a single amount or for a series of deposits called an annuity

## Time Value of Money – Brief Examples

- b. The future value of \$800 saved each year for 10 years at 8 percent.

$$\$800 \times 14.487 = \$11,589.60$$

Year	5%	6%	7%	8%	9%
1	1.000	1.000	1.000	1.000	1.000
2	2.050	2.060	2.070	2.080	2.090
3	3.153	3.184	3.215	3.246	3.278
4	4.310	4.375	4.440	4.506	4.573
5	5.526	5.637	5.751	5.867	5.985
6	6.802	6.975	7.153	7.336	7.523
7	8.142	8.394	8.654	8.923	9.200
8	9.549	9.897	10.260	10.637	11.028
9	11.027	11.491	11.978	12.488	13.021
10	12.578	13.181	13.816	14.487	15.193

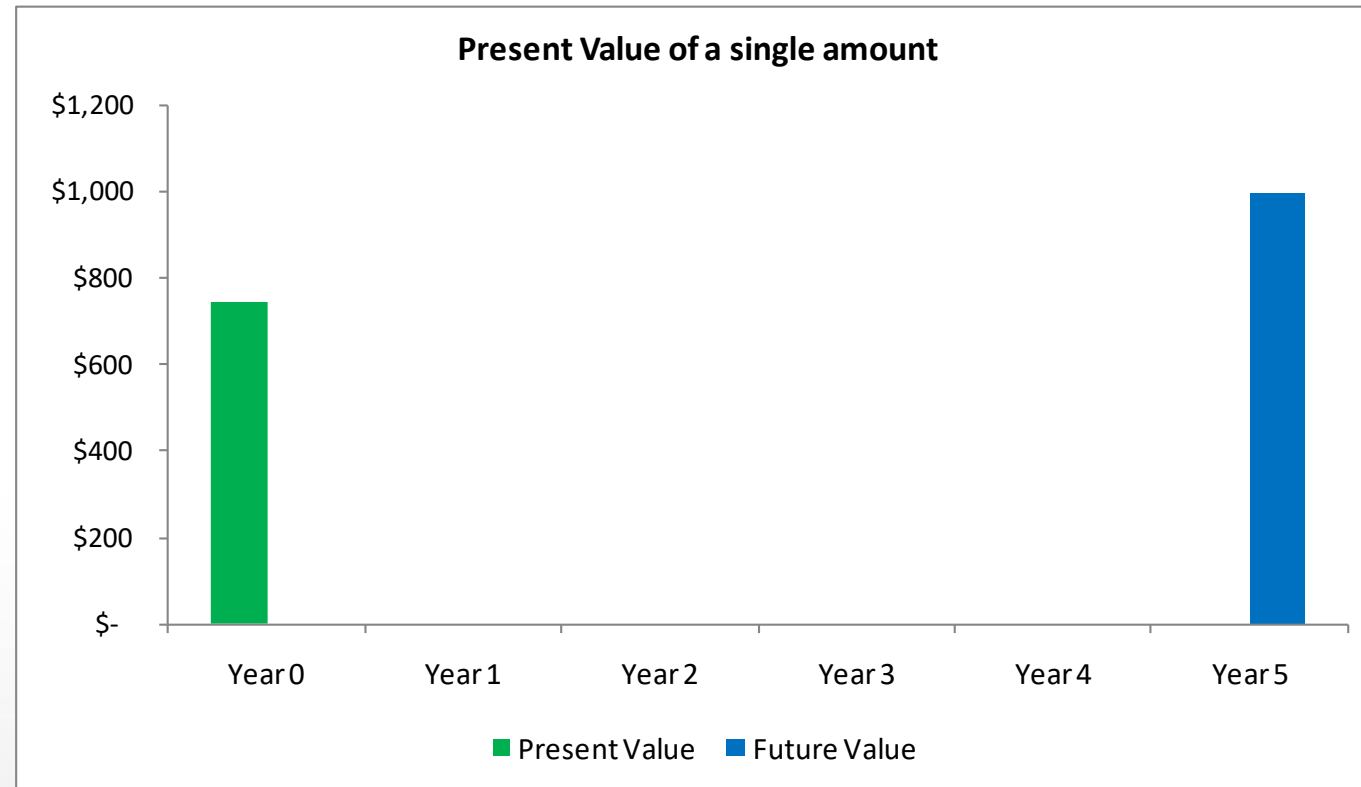


# Time Value of Money – Brief Examples

- c. The amount a person would have to deposit today (present value) at a 6 percent interest rate to have \$1,000 five years from now.

# PRESENT VALUE OF A SINGLE AMOUNT

The amount a person would have to deposit today (present value) at a 6 percent interest rate to have \$1,000 five years from now.  $\$1,000 \times 0.747 = \$747$



- **Present Value** is the current value of a future amount based on a certain interest rate and a certain time period
- Present value calculations are also called **discounting**
- The present value of the amount you want in the future will always be less than the future value assuming there is a positive interest rate

## Time Value of Money – Brief Examples

- c. The amount a person would have to deposit today (present value) at a 6 percent interest rate to have \$1,000 five years from now.

$$\$1,000 \times 0.747 = \$747$$

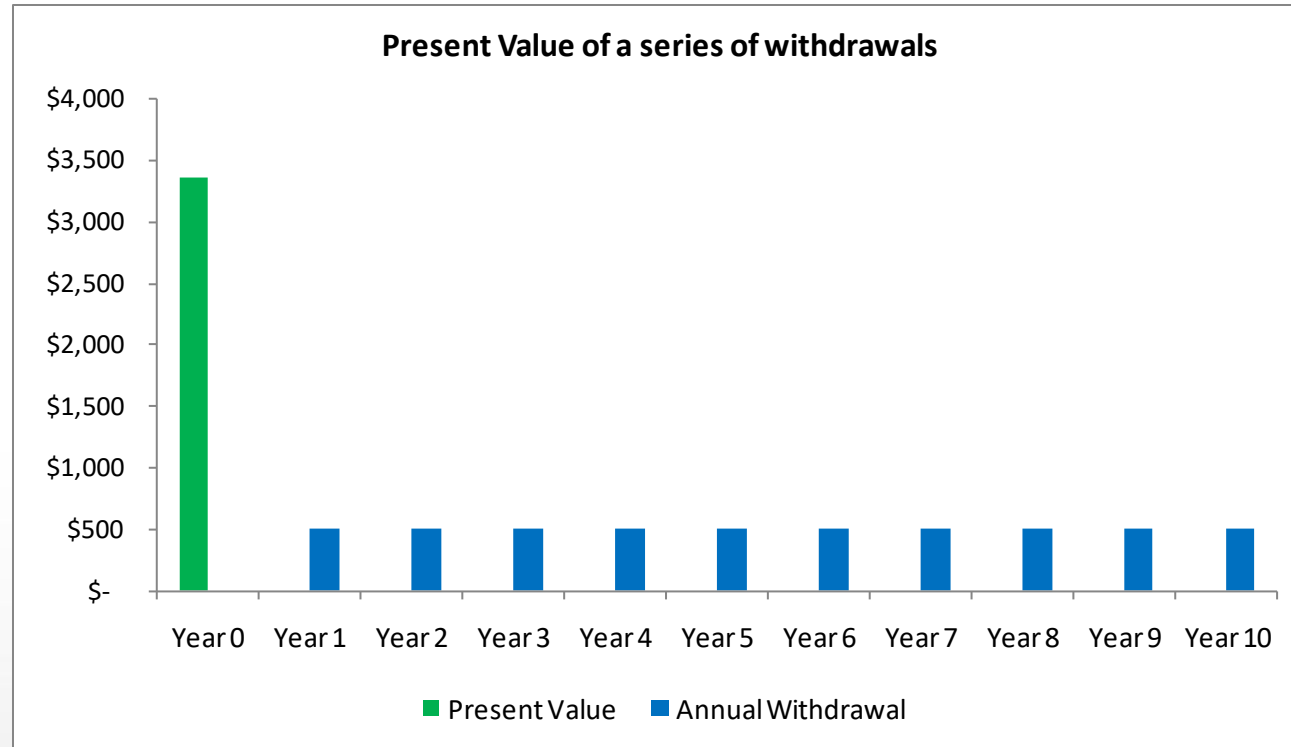
Year	5%	6%	7%	8%	9%
1	0.952	0.943	0.935	0.926	0.917
2	0.907	0.890	0.873	0.857	0.842
3	0.864	0.840	0.816	0.794	0.772
4	0.823	0.792	0.763	0.735	0.708
5	0.784	0.747	0.713	0.681	0.650
6	0.746	0.705	0.666	0.630	0.596
7	0.711	0.665	0.623	0.583	0.547
8	0.677	0.627	0.582	0.540	0.502
9	0.645	0.592	0.544	0.500	0.460
10	0.614	0.558	0.508	0.463	0.422

## Time Value of Money – Brief Examples

- d.* The amount a person would have to deposit today to be able to take out \$500 a year for 10 years from an account earning 8 percent.

# PRESENT VALUE OF A SERIES OF DEPOSITS

The amount a person would have to deposit today fund an annual payout of \$500 at the end of each year for 10 years from an account earning 8 percent.  $\$500 \times 6.710 = \$3,355$



- Present value can be computed for a single amount or for a series of deposits
- Also known as an annuity

## Time Value of Money – Brief Examples

- d. The amount a person would have to deposit today to be able to take out \$500 a year for 10 years from an account earning 8 percent.  $\$500 \times 6.710 = \$3,355$

Year	5%	6%	7%	8%	9%
1	0.952	0.943	0.935	0.926	0.917
2	1.859	1.833	1.808	1.783	1.759
3	2.723	2.673	2.624	2.577	2.531
4	3.546	3.465	3.387	3.312	3.240
5	4.329	4.212	4.100	3.993	3.890
6	5.076	4.917	4.767	4.623	4.486
7	5.786	5.582	5.389	5.206	5.033
8	6.463	6.210	5.971	5.747	5.535
9	7.108	6.802	6.515	6.247	5.995
10	7.722	7.360	7.024	6.710	6.418



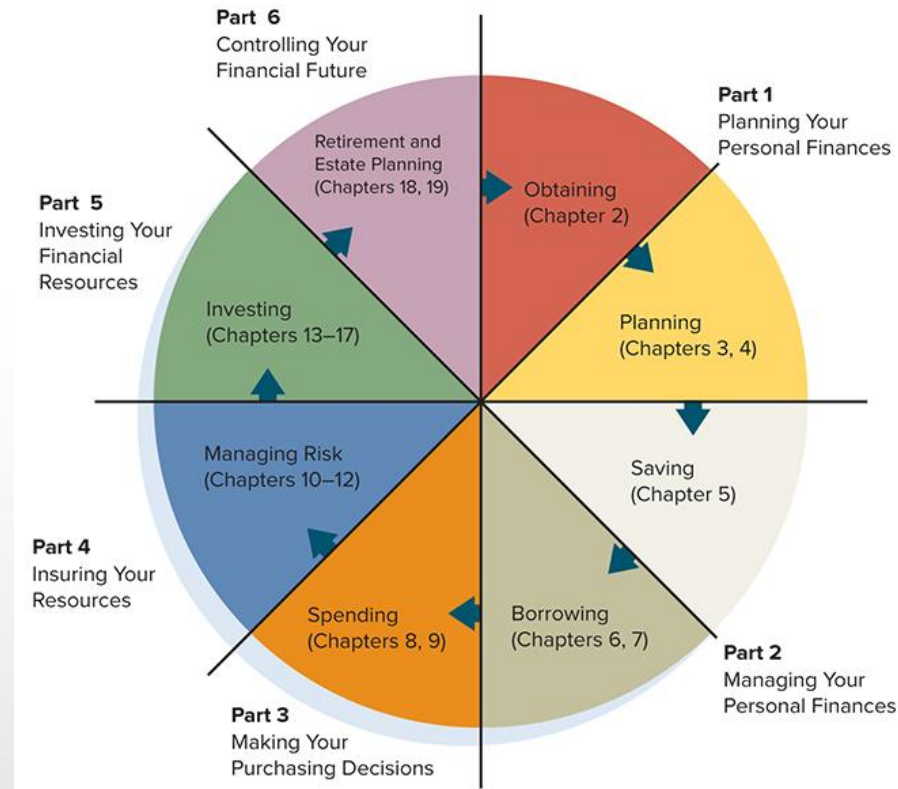
## Time Value of Money – Brief Examples

- a.* The future value of \$450 six years from now at 7 percent.  
 $\$450 \times 1.501 = \$675.45$
- b.* The future value of \$800 saved each year for 10 years at 8 percent.  
 $\$800 \times 14.487 = \$11,589.60$
- c.* The amount a person would have to deposit today (present value) at a 6 percent interest rate to have \$1,000 five years from now.  
 $\$1,000 \times 0.747 = \$747$
- d.* The amount a person would have to deposit today to be able to take out \$500 a year for 10 years from an account earning 8 percent.  
 $\$500 \times 6.710 = \$3,355$

# Achieving Financial Goals

## **LO1-5:**

**Identify strategies for achieving personal financial goals for different life situations.**





## Developing a Flexible Financial Plan

A **financial plan** is a formalized report that...

- Summarizes your current financial situation.
- Analyzes your financial needs.
- Recommends future financial activities.

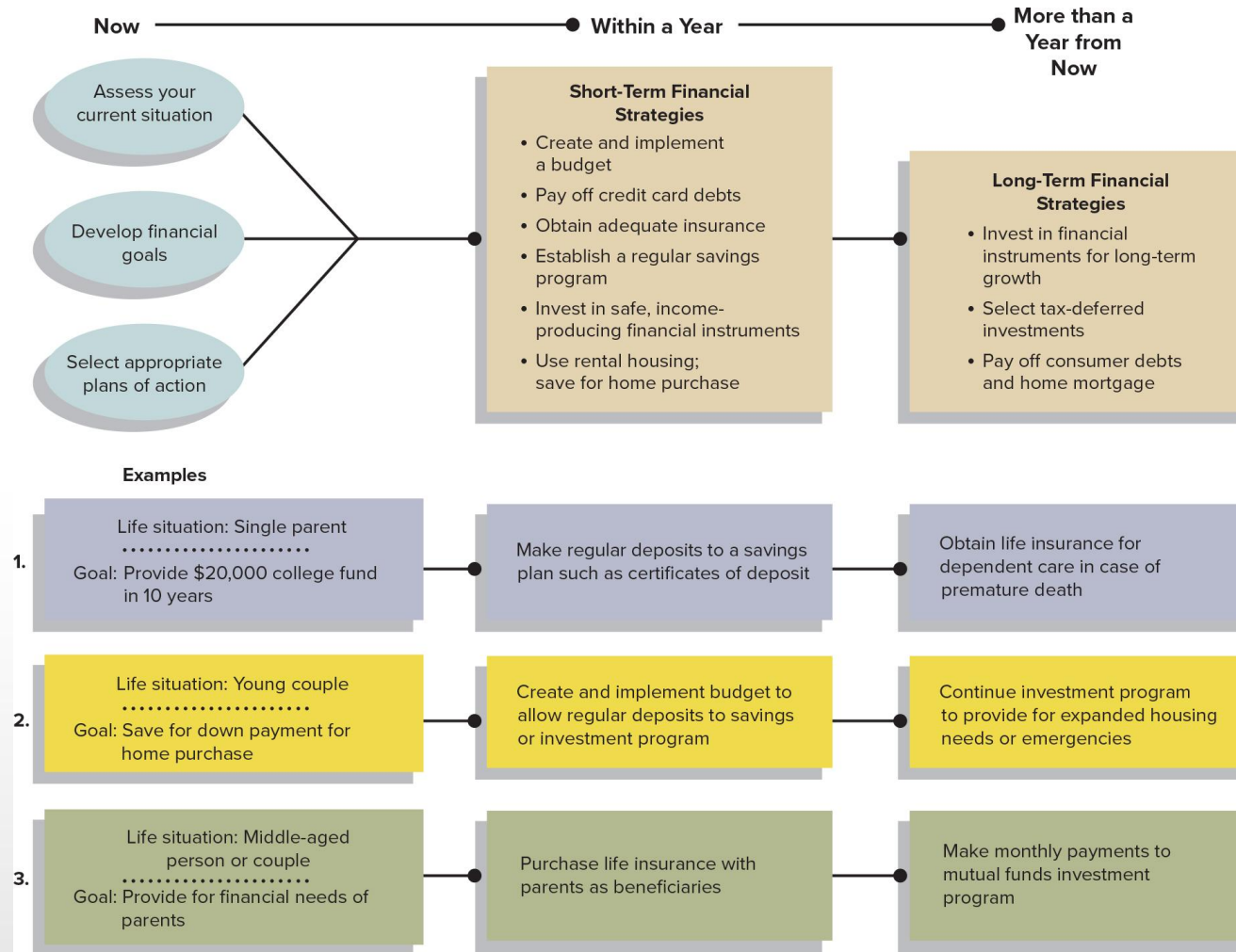
Your financial plan can be created by you, with assistance from a financial planner, or made using a money management software package.

# Implementing Your Financial Plan

Develop good financial habits.

- Use a well-conceived spending plan that helps you stay within your income while allowing you to save and invest for the future.
- Have appropriate insurance protection to prevent financial disasters.
- Become informed about taxes and investments to expand your financial resources.

# Financial Planning in Action for Different Life Situations



# Chapter 1

## Chapter Summary

- LO1-1 Analyze the process for making personal financial decisions.
- LO1-2 Assess personal and economic factors that influence personal financial planning.
- LO1-3 Develop personal financial goals.
- LO1-4 Calculate time value of money to analyze personal financial decisions.
- LO1-5 Identify strategies for achieving personal financial goals for different life situations.