

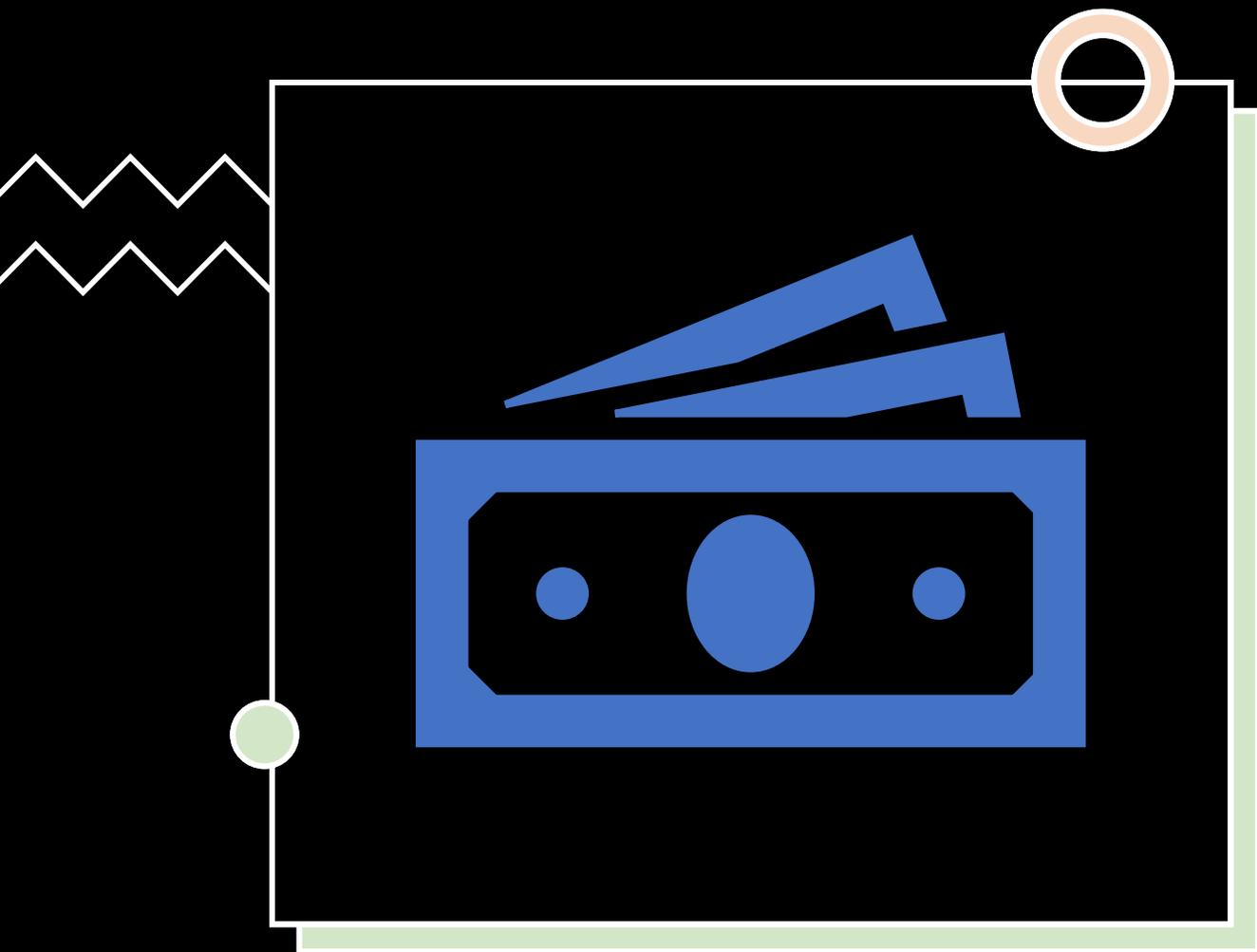
PLEASE GO THROUGH THE
PRESENTATION **AT THE**
END OF THIS COURSE



Finance for Non-Finance



Is Learning
Finance
Important?



MONEY IS NOT
EVERYTHING,
BUT MONEY IS
SOMETHING
VERY IMPORTANT



Significance of Money in Life's Key Moments

- Birthday
- Wedding
- Anniversary
- Promotion
- Religious Celebrations
- Valentine's Day
- Mother's Day
- Friendship Day
- Buying a Home
- Vehicle Purchase
- Engagement...



Money impacts your **emotions** and **self-belief**

- Fear
- Stress
- Joy
- Others' perception of you
- Your self-perception
- Confidence
- Security
- Motivation
- Personal relationships
- Career choices

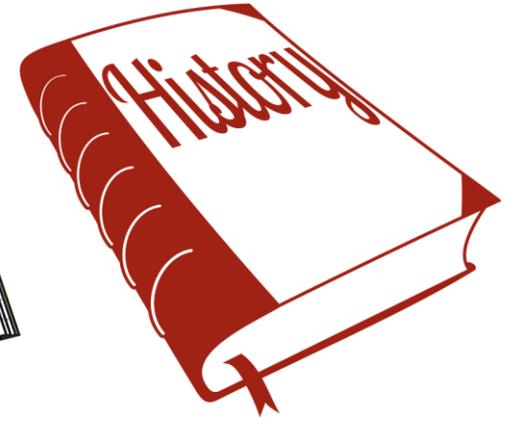
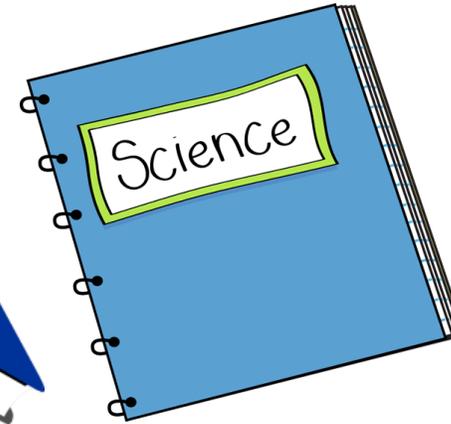
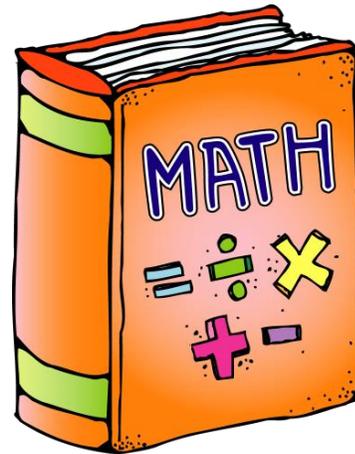




What is Finance?

FINANCE

STUDY OF MONEY



You might be..

Running your business

Marketing / HR

Creative field

Student

Anyone

Learning Finance...

VERY

IMPORTANT



Flow of the Course



1. Learn Types of Finance & Financial Statements

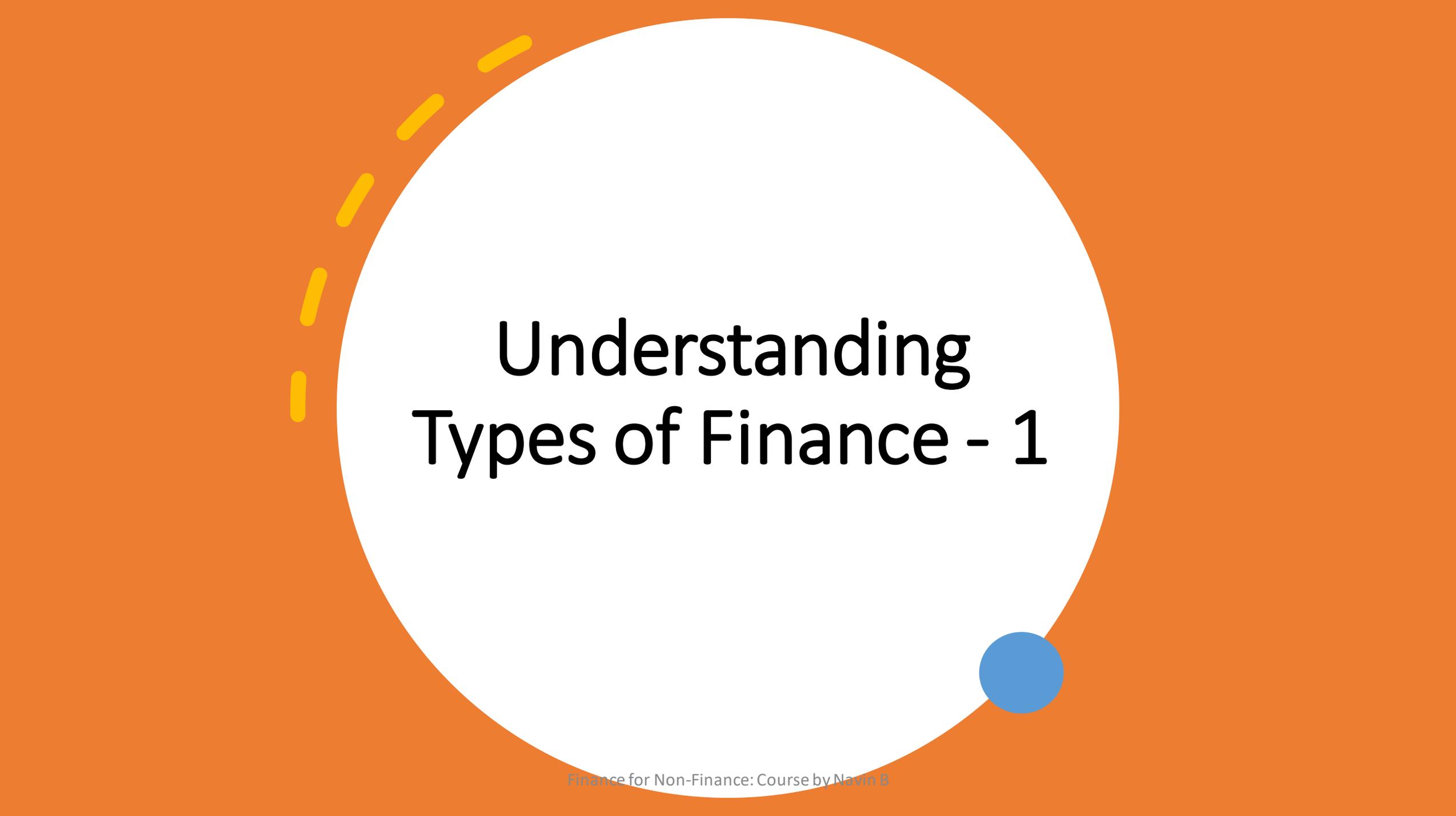


2. Decision Making and Analysis Concepts (Financial Ratios, Time Value of Money)



3. Apply the Knowledge

(Doubling Rate, Payback Period, Calculate Retirement Savings)



Understanding Types of Finance - 1



What is Finance?

FINANCE

STUDY OF MONEY

Money is a limited resource

Learn how to **Analyze**, **Allocate**, and **Manage** financial resources

- **Individual**
- **Company**
- **Country**

FINANCE

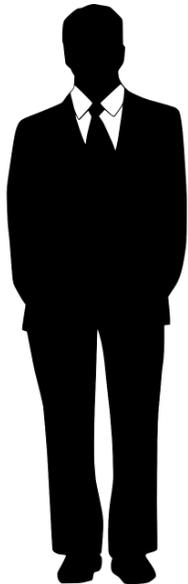
STUDY OF MONEY

Can be Divided into 3 Main Parts

Types of Finance

Individual

Personal Finance



Country

Public Finance



Company

Corporate Finance

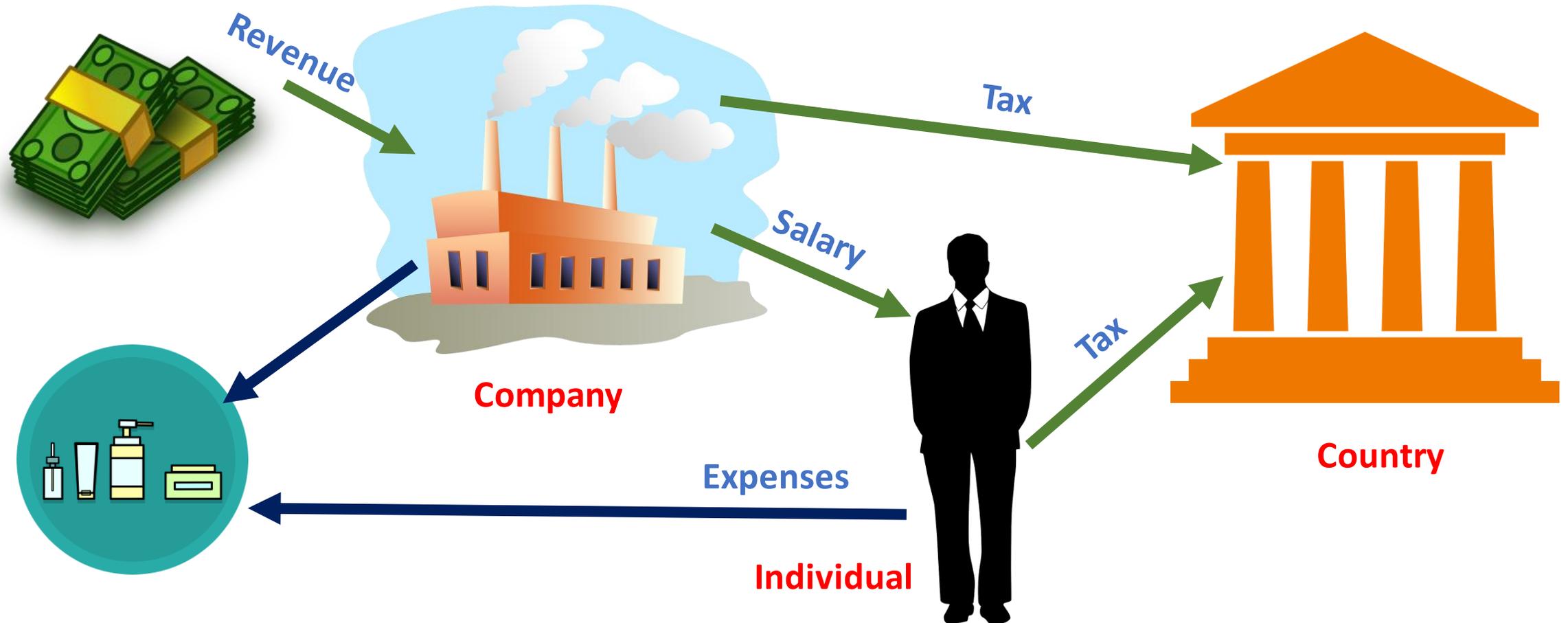


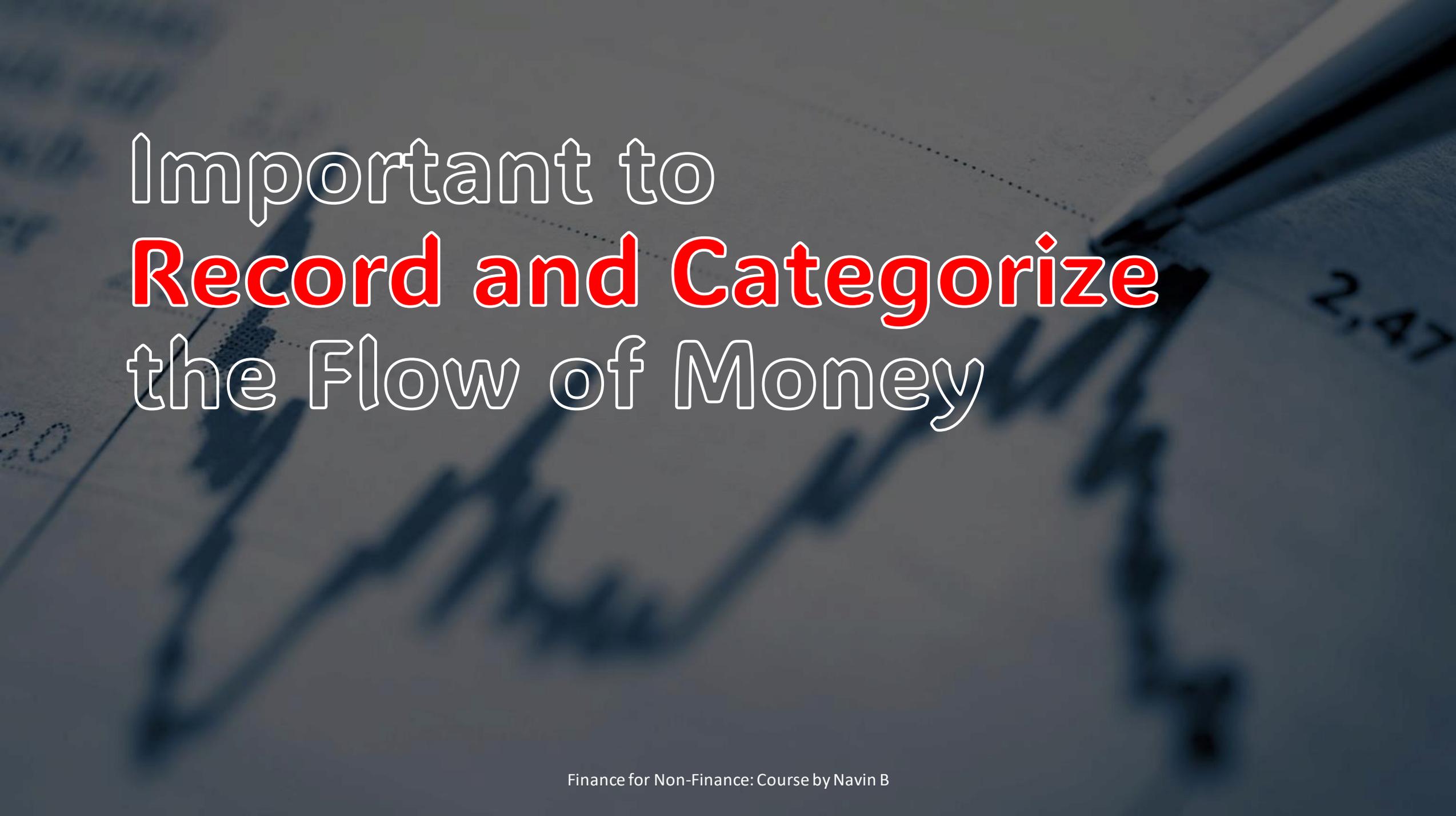


Financial Mindset

Financial Mindset

“Observe the flow of money from one hand to another”



The background of the slide is a dark, blurred image of a pen writing on a document. A line graph is visible, showing a fluctuating line. The text is overlaid on this background.

Important to **Record and Categorize** the Flow of Money

Record and Categorize Flow of Money



Income



Expenses



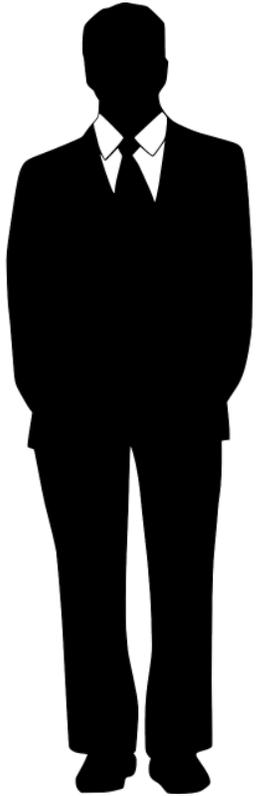
Assets



Liabilities

**4 FUNDAMENTAL
CATEGORIES**

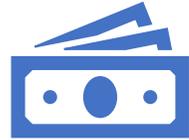
Personal Finance



Income

Money Earned

- Salary
- Income from investment



Expenses

Money Spent

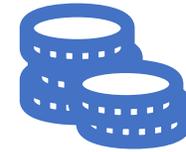
- Rent
- Electricity
- Grocery Expenses
- Netflix Payment..



Assets

Things You Own

- Cash in Hand
- Car
- Investment

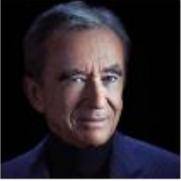


Liabilities

Things You Owe

- Student Debt
- Credit Card Debt..

Used For: Tax Calculation, Budgeting, Retirement Planning...

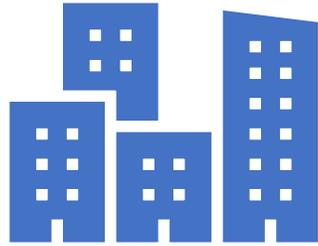
	RANK	NAME	NET WORTH
	1	Elon Musk	\$226.0 B
	2	Bernard Arnault & family	\$179.0 B
	3	Jeff Bezos	\$175.7 B
	4	Larry Ellison	\$136.8 B

Calculate Net Worth of Individual

Financial
value of an
individual or
a company

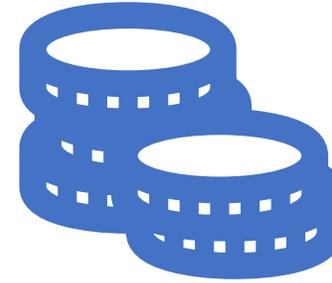
Net Worth = Asset - Liabilities

- Cash in Hand
- Car
- Property
- Investment



Assets

Anything of value that
can be converted into cash



- Home Loan
- Car Loan
- Student Debt
- Credit Card Debt..

Liabilities

Outstanding Loan Amount and
Financial Payment Obligations



Calculate Net Worth

Using **Net Worth Calculator**
(Find in Resource section)



William

Marketing Executive

Net Worth Calculator

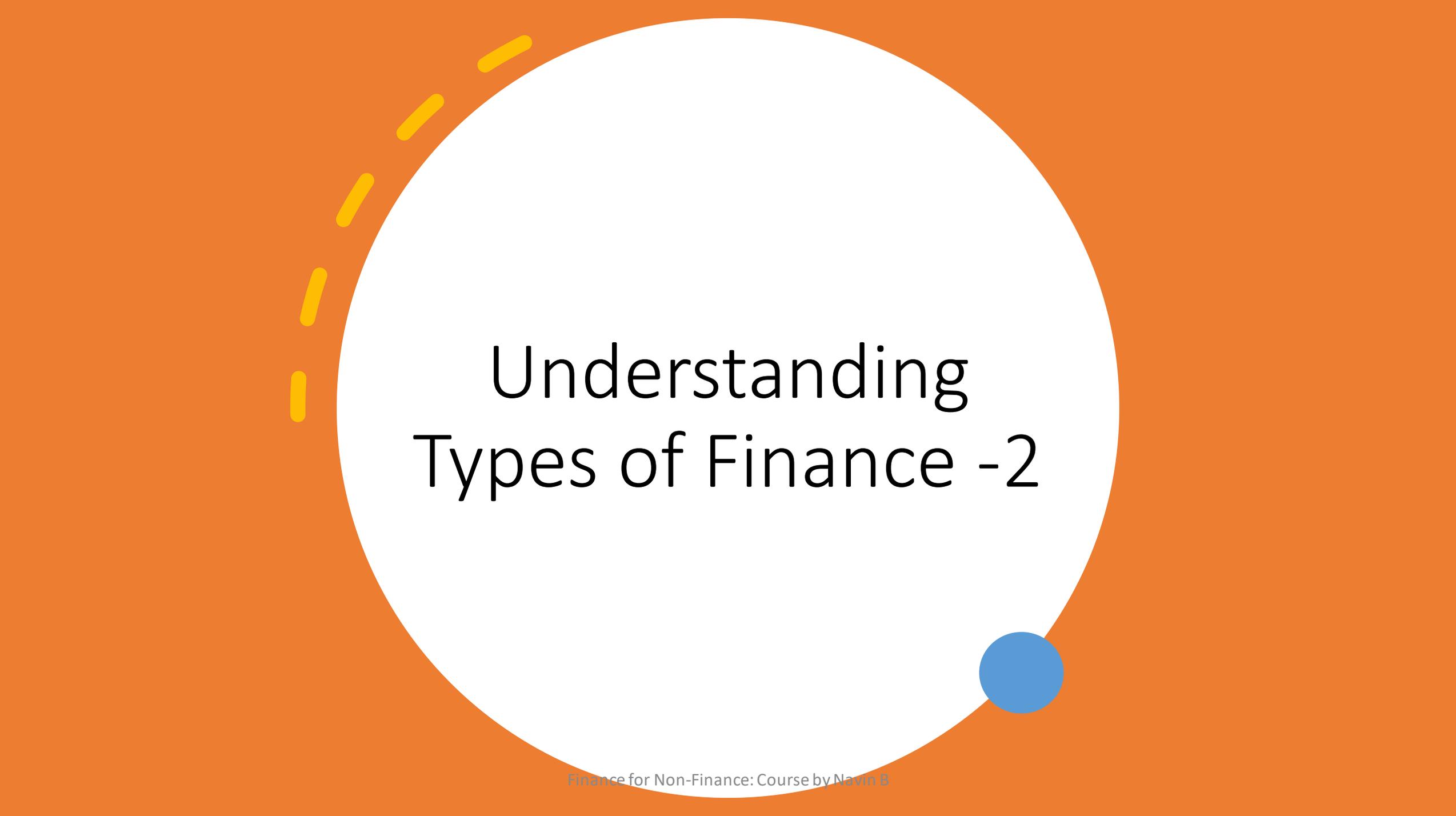
Asset	Amount	Liabilities	Amount
Real Estate	\$50,000	Personal Loans	
Cash In Bank	\$10,000	Student Loans	\$20,000
Retirement Account		Vehicle Loans	\$3,000
Vehicle	\$5,000	Real Estate Loans	
Investments		Credit Card Debt	\$2,000
Other Assets (Jewelry, Stocks, Bonds etc.)		Other Debt and Financial Obligations	
Total Asset	\$65,000	Total Liabilities	\$25,000

Net Worth **\$40,000**

Calculate Your Net Worth?

Quick Assignment 1

Net Worth Calculator			
Asset	Amount	Liabilities	Amount
Real Estate		Personal Loans	
Cash In Bank		Student Loans	
Retirement Account		Vehicle Loans	
Vehicle		Real Estate Loans	
Investments		Credit Card Debt	
Other Assets (Jewelry, Stocks, Bonds etc.)		Other Debt and Financial Obligations	
Total Asset	\$0	Total Liabilities	\$0



Understanding Types of Finance -2

FINANCE

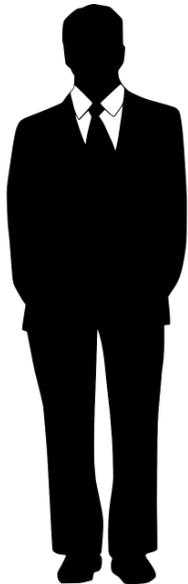
STUDY OF MONEY

Can be Divided into 3 Main Parts

Types of Finance

Individual

Personal Finance



Country, State, City..

Public Finance



Public Finance



Income

Money Earned

- Taxes
- Customs and Duties
- Investment Income



Expenses

Money Spent

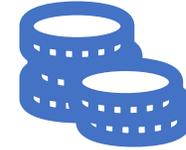
- Administration
- Public Service expenses
- Infrastructure expenses
- Interest payments



Assets

Things Govt. Owns

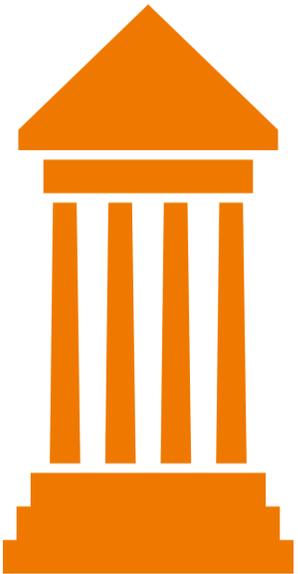
- Land
- Infrastructure Assets (Public buildings)
- State-Owned Enterprises



Liabilities

Things Govt. Owes

- Government Debt
- Pension obligations



How **Effectively** Does the Government **Handle Money?**



Fiscal Balance Indicators

Fiscal Deficit

Fiscal Surplus

Important Public Finance Indicators

Kuwait records first fiscal surplus in nearly a decade: ministry



US' fiscal deficit increases to 6.3% of GDP in FY23

24 Oct '23 • 1 min read

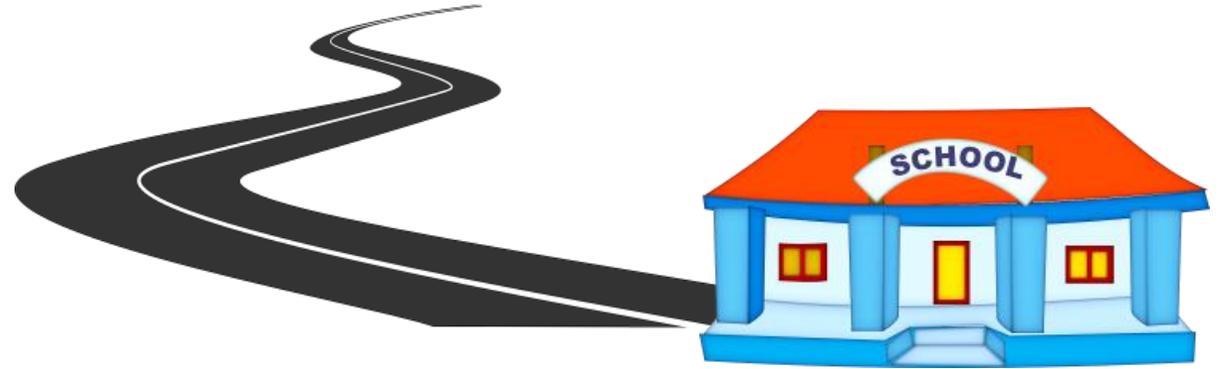


Fiscal Deficit



Earns Money Through Taxes

Government **Income**



Spends Money To Provide Services And Governance

Government **Expenses**

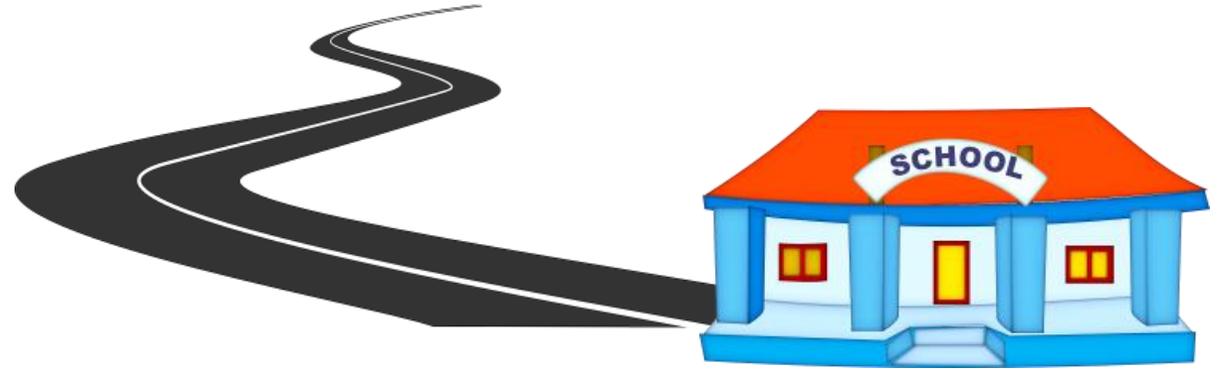
Government **Income** < Government **Expense**

Fiscal Surplus



Earns Money Through Taxes

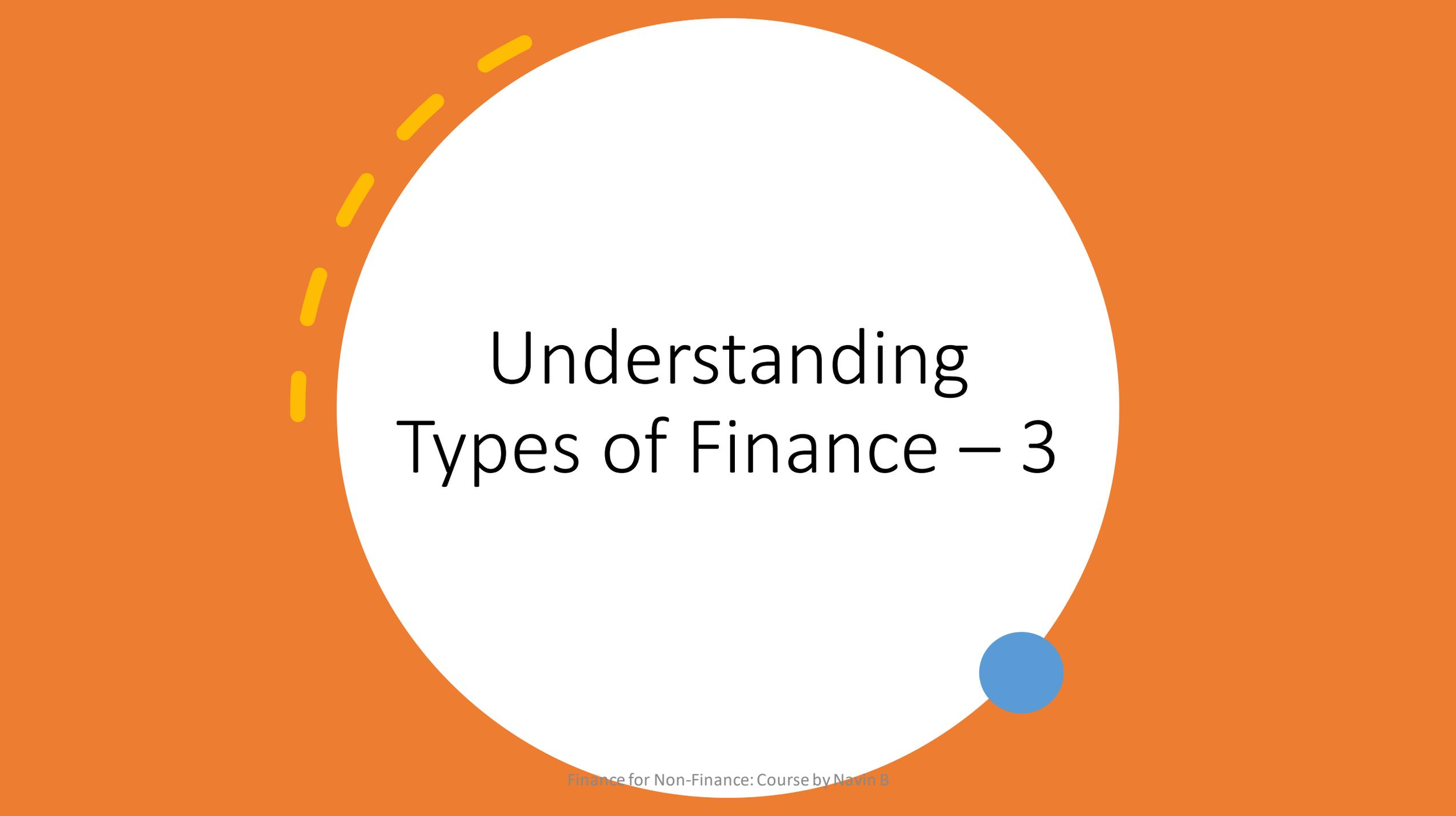
Government **Income**



Spends Money To Provide Services And Governance

Government **Expenses**

Government **Income** > Government **Expense**



Understanding Types of Finance – 3

FINANCE

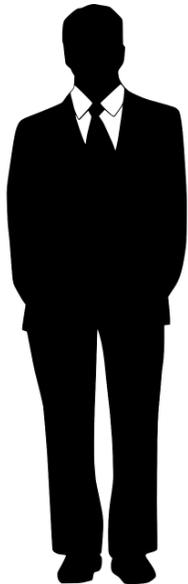
STUDY OF MONEY

Can be Divided into 3 Main Parts

Types of Finance

Individual

Personal Finance



Country

Public Finance



Company

Corporate Finance





**GENERATES MONEY THROUGH
SALE OF GOODS OR SERVICES**

Company **Income**

Corporate Finance



**REQUIRES MONEY FOR MANUFACTURING,
OPERATIONS & EXPANSION**

Company **Expenses**

4 Key Activities Done By Every Business

Establishing goals & developing strategy

Raising funds

Investing in resources

Conduct operations

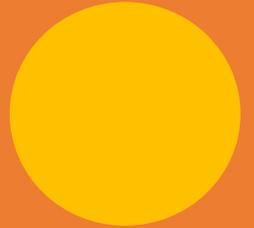


Good Day Shirts

Manufacturing Business

Key Business Activities

Learn with an example





Good Day Shirts

Manufacturing Business - Key business activity



1. Establishing goals & developing strategy

Types of shirts the company aims to manufacture (*casual, formal, party wear, etc.*)



Good Day Shirts

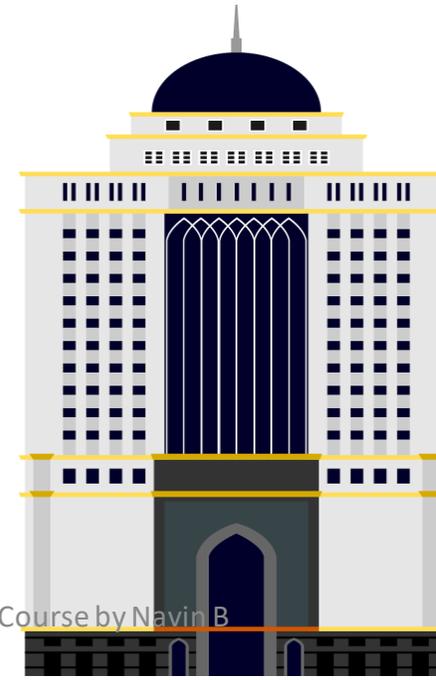
Manufacturing Business - Key business activity

2. Raising funds

Two main sources of financing

Equity / Share Capital

Owners



Debt / Loan

Bank / External Party



Good Day Shirts

Manufacturing Business - Key business activity



3. Investing in resources

Setting up a production facility, purchasing machinery..



Good Day Shirts

Manufacturing Business - Key business activity



4. Conduct operations

Actual production and delivery of goods and services

4 Key Activities Done By Every Business

Establishing goals & developing strategy

Raising funds

Investing in resources

Conduct operations



Good Day Shirts



ULTIMATE OBJECTIVE

Generating Profit

(For Profit Company)

= Generating
Money for Investors
or Owners



Understanding Financial Statements

Financial Statements





Can you Imagine Playing a Game **Without Keeping Scores?**

Why do we keep scores during a sporting match?



NUMBER OF POINTS	NICK NAME
0	LOVE
1	15
2	30
3	40
4	GAME

- Keep a **RECORD** of match-related activities
- Provide a **SNAPSHOT** of the current situation of the match



- Each Sport has its **OWN RULES**

NUMBER OF POINTS	NICK NAME
0	LOVE
1	15
2	30
3	40
4	GAME

Current assets:			
Cash and cash equivalents	\$	50,530	\$ 25,913
Marketable securities		44,084	40,388
Accounts receivable, net		14,148	23,186
Inventories		3,355	3,956
Vendor non-trade receivables		12,326	25,809
Other current assets		10,530	12,087
Total current assets		134,973	131,339
Non-current assets:			
Marketable securities		115,996	170,799
Property, plant and equipment, net		37,636	41,304
Other non-current assets		33,634	22,283
Total non-current assets		187,266	234,386
Total assets	\$	322,239	\$ 365,725
LIABILITIES AND SHAREHOLDERS' EQUITY:			
Current liabilities:			
Accounts payable	\$	29,115	\$ 55,888
Other current liabilities		31,673	33,327
Deferred revenue		5,434	5,966
Commercial paper		9,953	11,964
Term debt		13,529	8,784
Total current liabilities		89,704	115,929
Non-current liabilities:			
Term debt		84,936	93,735
Other non-current liabilities		51,143	48,914
Total non-current liabilities		136,079	142,649
Total liabilities		225,783	258,578
Commitments and contingencies			
Shareholders' equity:			
Common stock and additional paid-in capital, \$0.00001 par value: 12,600,000 shares authorized; 4,531,395 and 4,754,986 shares issued and outstanding, respectively		43,371	40,201
Retained earnings		53,724	70,400
Accumulated other comprehensive income/(loss)		(639)	(3,454)
Total shareholders' equity		96,456	107,147
Total liabilities and shareholders' equity	\$	322,239	\$ 365,725

Financial Statements



Keep **RECORD** of financial activity



Provide **SNAPSHOT** of the current financial situation of the company



Has its **OWN RULES**

Who Makes the Rules? - SPORTS

- Standardized **rules and regulations** are established by **governing bodies** for a particular sport
- International Tennis Federation (**ITF**) provide a **standardized framework for scoring** and playing



Financial Statement

Who Makes the Rules?

CONSOLIDATED STATEMENTS OF OPERATIONS

(In millions, except number of shares which are reflected in thousands and per share amounts)

	Years ended		
	September 26, 2020	September 28, 2019	September 29, 2018
Net sales:			
Products	\$ 220,747	\$ 213,883	\$ 225,847
Services	53,768	46,291	39,748
Total net sales	274,515	260,174	265,595
Cost of sales:			
Products	151,286	144,996	148,164
Services	18,273	16,786	15,592
Total cost of sales	169,559	161,782	163,756
Gross margin	104,956	98,392	101,839
Operating expenses:			
Research and development	18,752	16,217	14,236
Selling, general and administrative	19,916	18,245	16,705
Total operating expenses	38,668	34,462	30,941
Operating income	66,288	63,930	70,898
Other income/(expense), net	803	1,807	2,005
Income before provision for income taxes	67,091	65,737	72,903
Provision for income taxes	9,680	10,481	13,372
Net income	\$ 57,411	\$ 55,256	\$ 59,531
Earnings per share:			
Basic	\$ 3.31	\$ 2.99	\$ 3.00
Diluted	\$ 3.28	\$ 2.97	\$ 2.98

Shares used in computing earnings per share:

Two Standardized Framework / Accounting Standards)

1. Generally Accepted Accounting Principles

(GAAP) developed by the Financial Accounting Standards Board (FASB)

2. International Financial Reporting Standards

(IFRS) developed by the International Accounting Standards Board (IASB)

GAAP mainly used in USA

IFRS is widely adopted in many countries

A white calculator with a black display and a pen resting on a stack of papers. The calculator is the central focus, with its buttons and display clearly visible. The pen is positioned diagonally across the papers behind it. The papers appear to be financial statements or spreadsheets, with some text and numbers visible. The background is a soft, out-of-focus light gray.

What are the
Financial
Statement Rules?

– called as

**Accounting Model /
Accounting Principles**

Entity Concept

Record business as a **separate economic unit**, distinct from its owners or other entities



Money Measurement Concept

Record items that can be
**expressed in monetary
terms**



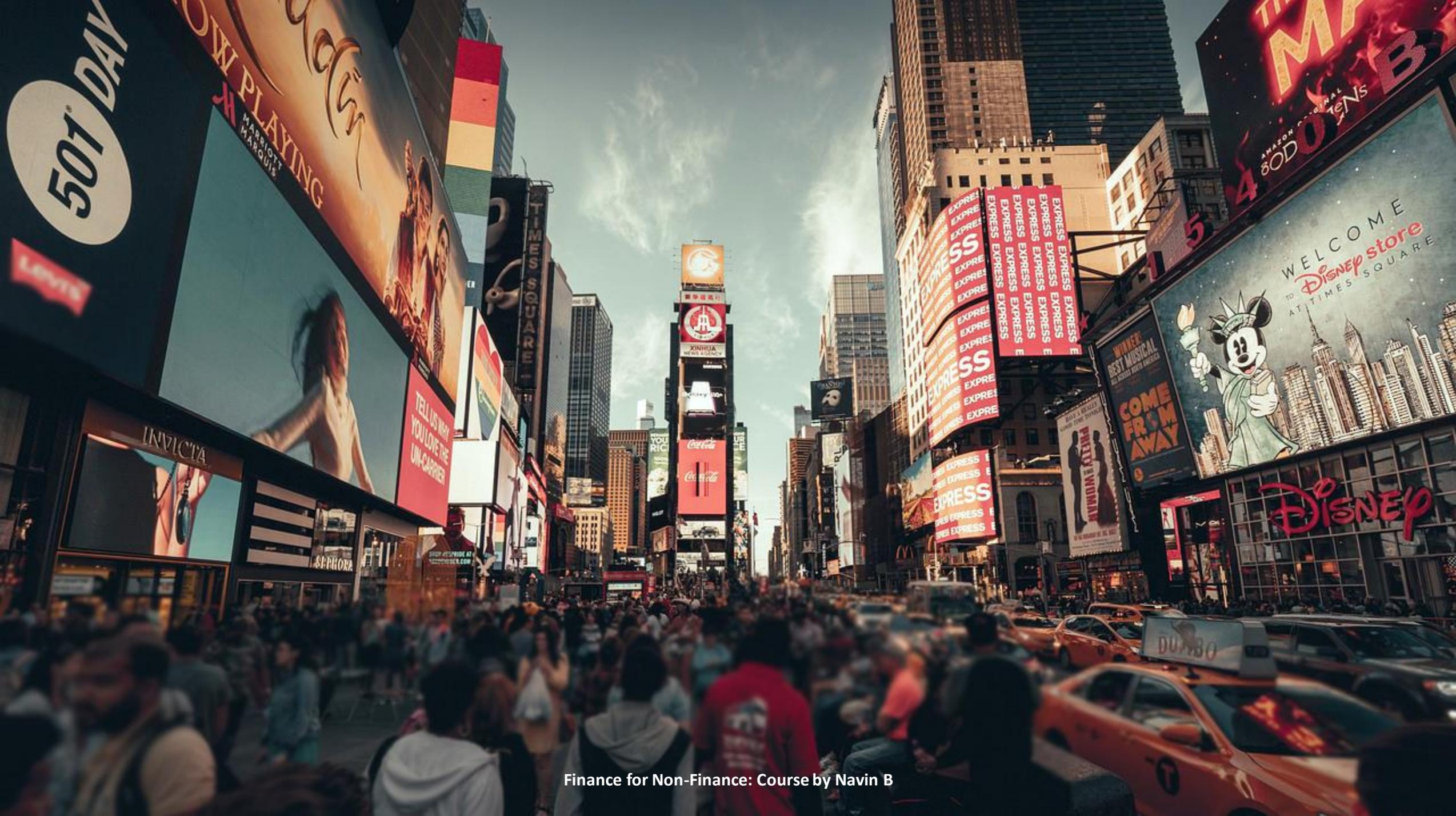
3 Most Important Financial Statements

- Balance Sheet
(Snapshot)
- Income Statement / Profit & Loss
(Operational Life Blood)
- Cash Flow
(Bank Account)





Balance Sheet





Snapshot / Image taken at Times Square, NY
at a specific moment in time

Balance Sheet



Snapshot showing financial position of the company
at a specific moment in time

Balance Sheet

Total Assets

Total Liabilities

**Total Shareholders'
Equity**

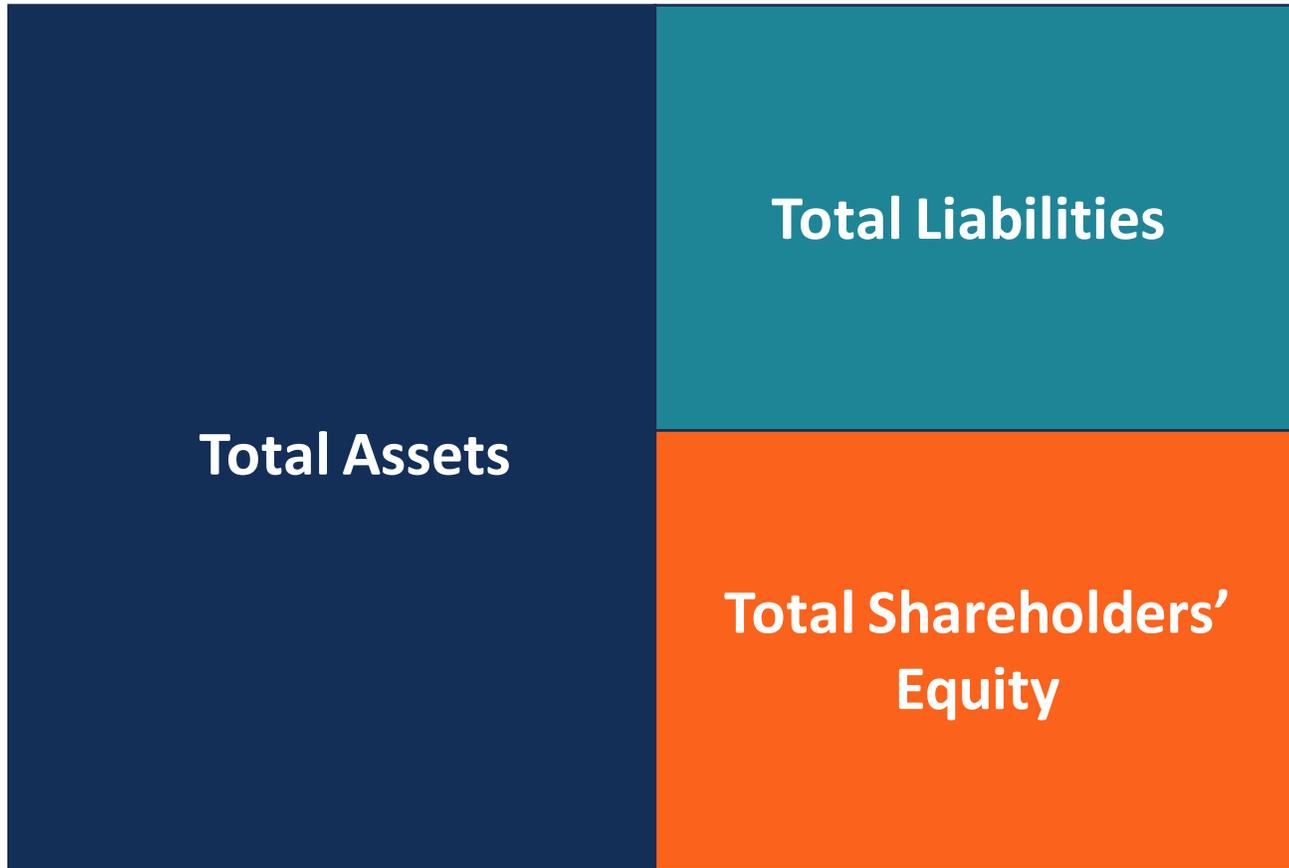
Entity Concept

Record business as a separate economic unit, distinct from its owners or other entities

Company Owns

Company Owes

Balance Sheet



Assets

= Liabilities + Equity



Total Assets

Current Assets

Current Asset

Assets business can convert into cash or use up **within a year**

Cash

Immediate **funds held by the company**



Accounts Receivable

Money **owed by customers** for goods or services delivered on credit, expected to be collected within a year



Total Assets

Current Assets

Current Asset

Inventory

Goods and products held by the company for sale or in the process of production



Short-term investment

Financial assets expected to be converted into cash or sold within a year



Prepaid Expenses

Payments made in advance for goods or services



Total Assets

Current Assets

+

Non- Current Assets

Non-Current Asset

Assets business owns for the **long term** and doesn't plan to turn into cash within a year.

Property, Plant, and Equipment (PP&E)

Tangible assets like land, buildings, machinery, and vehicles **used for long-term operations**



Total Assets

Current Assets

+

Non- Current Assets

Non-Current Asset

Long-term Investments

Financial assets **not expected to be converted into cash** or sold within a year.



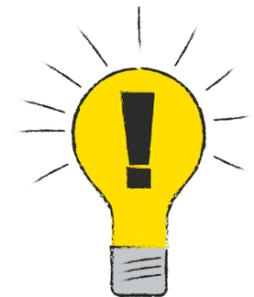
Long-Term Receivables

Money **owed by customers** for goods or services delivered on credit, **not expected to be collected within a year.**



Intangible Assets

Assets without physical presence, which can be valued monetarily



Intangible Assets

Patents

Exclusive rights granted for a new invention



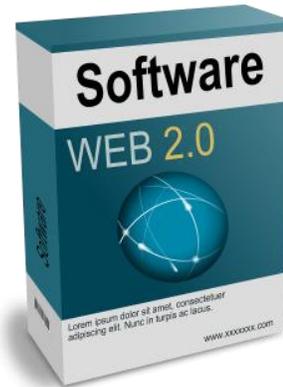
Goodwill

The premium paid to acquire a business



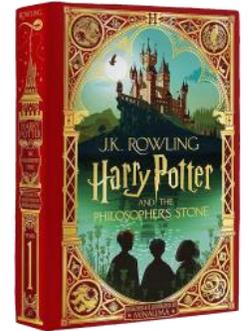
Intellectual Property

Non-physical creations of the mind. Like inventions, designs, or artistic works



Copyright

Exclusive rights granted for original artistic or literary works



Trademark

Distinctive signs identifying products or services



Balance Sheet



$$\text{Assets} = \text{Liabilities} + \text{Equity}$$



Total Liabilities

Current Liabilities

Current Liabilities

Bills and debts a business needs to pay **within a year**

Accounts Payable

Amounts **owed to suppliers or vendors** for goods and services purchased on credit.



Short-term Debt

Borrowings and **obligations that are due within one year**



Total Liabilities

Current Liabilities

Current Liabilities

Accrued Liabilities

Expenses that have been **incurred but not yet paid**, such as wages and utilities



Current Portion of Long-Term Debt

The portion of long-term **debt that is due within the next year**



Total Liabilities

Current Liabilities

Current Liabilities

Deferred Revenue / Unearned Revenue

Payments received in advance for goods or services not yet delivered



NETFLIX

Current liabilities:

Current content liabilities	\$	4,480,150
Accounts payable		671,513
Accrued expenses and other liabilities		1,514,650
Deferred revenue		1,264,661
Short-term debt		—
Total current liabilities		7,930,974

\$1.26 Bn - Consists of **gift and other prepaid memberships** that have not been fully redeemed

Total Liabilities

Current Liabilities

+

Non-Current
Liabilities

Non-Current Liabilities

Bills and debts a business does not expect to repay **within a year**

Long-Term Debt

Borrowings and obligations with a maturity date beyond one year



Deferred Tax Liabilities

Taxes that are expected to be paid in future periods



Total Liabilities

Current Liabilities

+

Non-Current
Liabilities

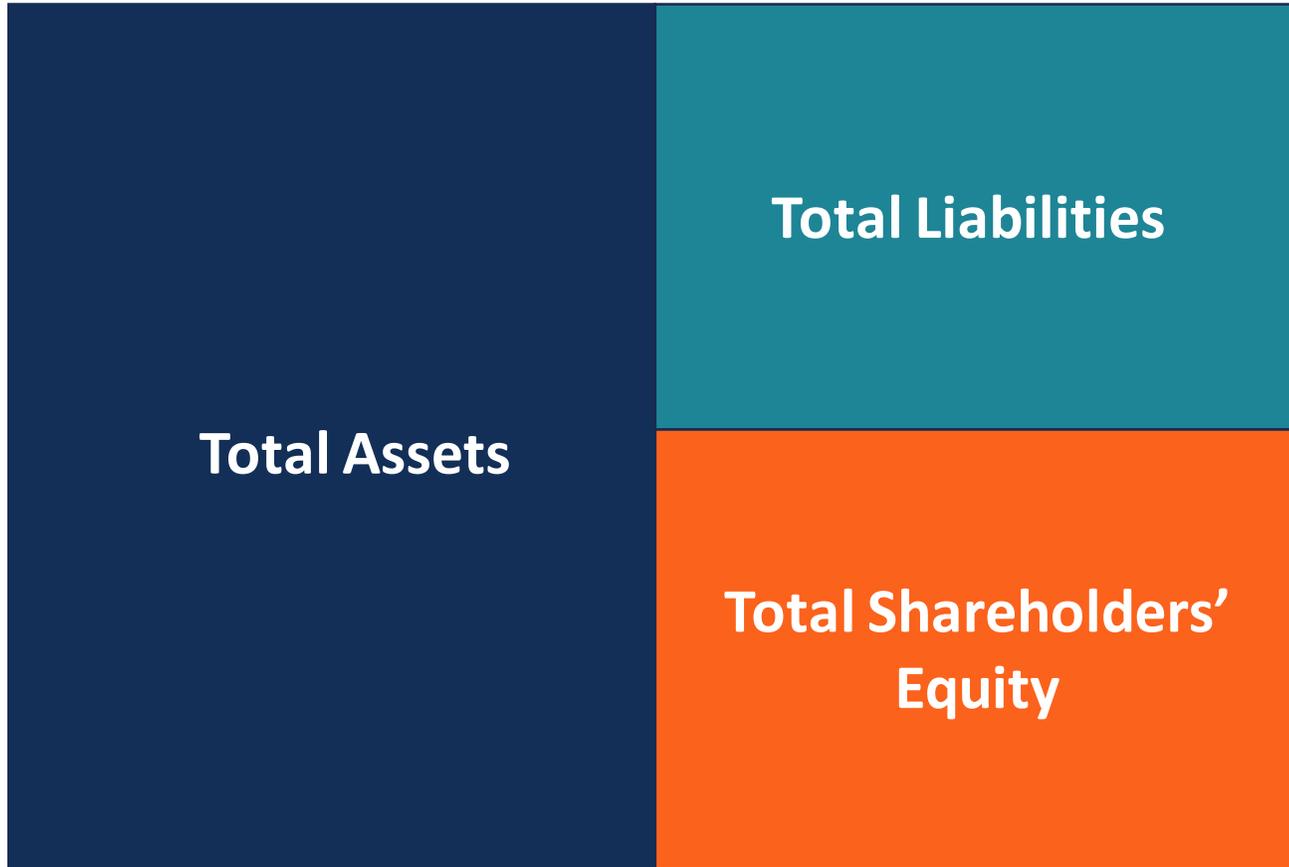
Non-Current Liabilities

Other Non-current Liabilities:

Includes lease or pension liabilities, anticipated warranty claims, etc., that are not classified in other categories



Balance Sheet



$$\text{Assets} = \text{Liabilities} + \text{Equity}$$



Total Shareholders' Equity

Share Capital

Total Shareholders' Equity

Represents **owner's claim** on company's assets

Share Capital / Equity

- Represents **total value of investments** made by shareholders



Common Stock: Basic ownership with voting rights

Preferred Stock: Special privileges, no voting rights

Additional Paid-In Capital: Extra money from shareholders, boosts company capital

Total Shareholders' Equity

Share Capital

+

Retained Earnings

Total Shareholders' Equity

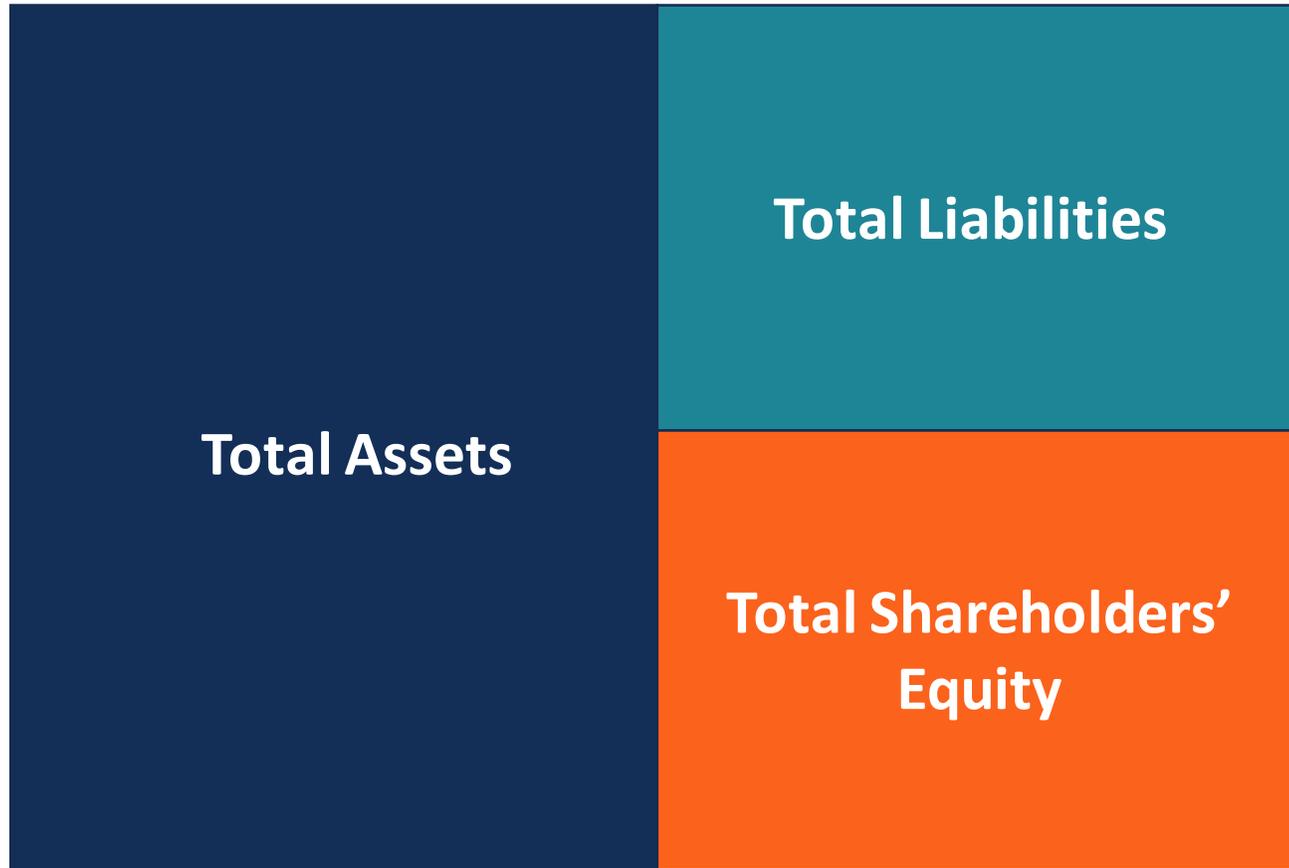
Represents **owner's claim** on company's assets

Retained Earnings

Represent **accumulated profits or losses** kept by the company



Balance Sheet



Net Worth = Asset - Liabilities

Equity = Asset - Liabilities

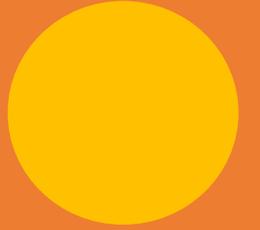
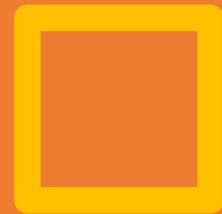
Shareholders' Equity =
Net worth of the company

Assets = Liabilities + Equity



Good Day Shirts Balance Sheet

Learn with an example



1.
The owner
invests **\$10,000**
of personal
funds in
Good Day Shirts



Assets	
Cash	
Machinery	
Raw Material	
Total Assets	
Liabilities	
Long Term Debt	
Accounts Payable	
Total Liabilities	
Owner's Equity	
Share Capital	
Reserves & Surplus	
Total Owner's Equity	

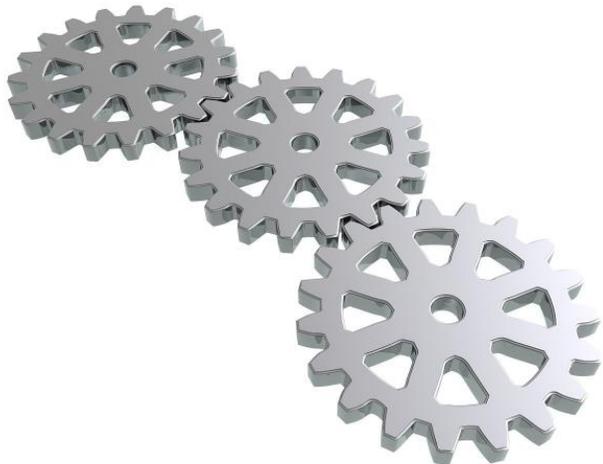
1.
The owner
invests **\$10,000**
of personal
funds in
Good Day Shirts



Assets	
Cash	\$10,000
Machinery	
Raw Material	
Total Assets	\$10,000
Liabilities	
Long Term Debt	
Accounts Payable	
Total Liabilities	
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

2.

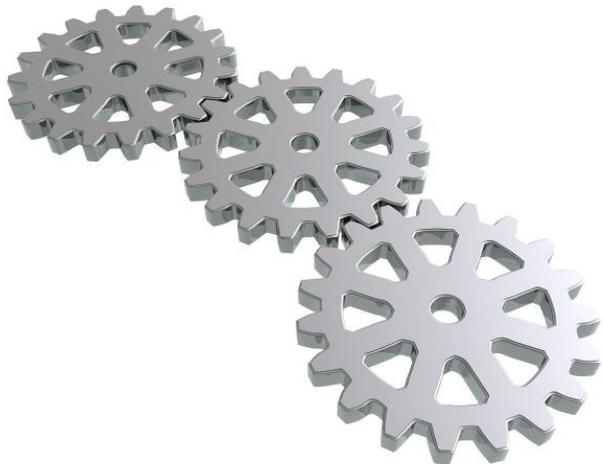
The company
purchases
machinery
worth \$2,000



Assets	
Cash	\$10,000
Machinery	
Raw Material	
Total Assets	\$10,000
Liabilities	
Long Term Debt	
Accounts Payable	
Total Liabilities	
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

2.

The company purchases machinery worth \$2,000



Assets	
Cash	\$8,000
Machinery	\$2,000
Raw Material	
Total Assets	\$10,000
Liabilities	
Long Term Debt	
Accounts Payable	
Total Liabilities	
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

3.

The company obtains a **\$1,000** loan from the bank



Assets	
Cash	\$8,000
Machinery	\$2,000
Raw Material	
Total Assets	\$10,000
Liabilities	
Long Term Debt	
Accounts Payable	
Total Liabilities	
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

3.

The company obtains a **\$1,000** loan from the bank



Assets	
Cash	\$9,000
Machinery	\$2,000
Raw Material	
Total Assets	\$11,000
Liabilities	
Long Term Debt	\$1,000
Accounts Payable	
Total Liabilities	\$1,000
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

Check:

Assets = Liabilities +
Owner's Equity

Assets	
Cash	\$9,000
Machinery	\$2,000
Raw Material	
Total Assets	\$11,000
Liabilities	
Long Term Debt	\$1,000
Accounts Payable	
Total Liabilities	\$1,000
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

Fill a Balance Sheet

Quick Assignment 2

Balance Sheet of TradeHub Wholesale Store

1. David, the owner of TradeHub, contributes \$50,000 in cash as equity capital.
2. TradeHub pays a \$5,000 deposit for hiring office premises, referred to as 'Premise Deposit.'
3. TradeHub purchases furniture and fixtures for \$5,000.
4. TradeHub acquires merchandise worth \$30,000 on credit.
5. TradeHub sells merchandise costing \$10,000 for \$12,000 in cash.

Fill a Balance Sheet

Quick Assignment 2 Answers

Balance Sheet of TradeHub Wholesale Store

1. David, the owner of TradeHub, contributes \$50,000 in cash as equity capital.
2. TradeHub pays a \$5,000 deposit for hiring office premises, referred to as 'Premise Deposit.'
3. TradeHub purchases furniture and fixtures for \$5,000.
4. TradeHub acquires merchandise worth \$30,000 on credit.
5. TradeHub sells merchandise costing \$10,000 for \$12,000 in cash.

Quick Assignment 2

Balance Sheet of TradeHub Wholesale Store

- 
1. David, the owner of TradeHub, contributes \$50,000 in cash as equity capital.

Assignment 2 (Answer)

TradeHub Wholesale Store - Balance Sheet

Transactions

	1	2	3	4	5	Final
Assets						
Cash	\$50,000					
Premise Deposit						
Furniture & Fixture						
Merchandise						
Total Assets	\$50,000					
Liabilities						
Long Term Debt						
Accounts Payable						
Total Liabilities	\$0					
Owner's Equity						
Share Capital	\$50,000					
Reserves & Surplus						
Total Owner's Equity	\$50,000					
Total Liabilities and Equity	\$50,000					
Check	\$0	\$0	\$0	\$0	\$0	\$0

Quick Assignment 2



Balance Sheet of TradeHub Wholesale Store

1. David, the owner of TradeHub, contributes \$50,000 in cash as equity capital.
2. TradeHub pays a \$5,000 deposit for hiring office premises, referred to as 'Premise Deposit.'

Assignment 2 (Answer)

TradeHub Wholesale Store - Balance Sheet

	Transactions					
	1	2	3	4	5	Final
Assets						
Cash	\$50,000	-\$5,000				
Premise Deposit		\$5,000				
Furniture & Fixture						
Merchandise						
Total Assets	\$50,000	\$0				
Liabilities						
Long Term Debt						
Accounts Payable						
Total Liabilities	\$0	\$0				
Owner's Equity						
Share Capital	\$50,000					
Reserves & Surplus						
Total Owner's Equity	\$50,000	\$0				
Total Liabilities and Equity	\$50,000	\$0				
Check	\$0	\$0	\$0	\$0	\$0	\$0

Quick Assignment 2

Balance Sheet of TradeHub Wholesale Store

1. David, the owner of TradeHub, contributes \$50,000 in cash as equity capital.
2. TradeHub pays a \$5,000 deposit for hiring office premises, referred to as 'Premise Deposit.'
3. TradeHub purchases furniture and fixtures for \$5,000.

Assignment 2 (Answer)

TradeHub Wholesale Store - Balance Sheet

	Transactions					Final
	1	2	3	4	5	
Assets						
Cash	\$50,000	-\$5,000	-\$5,000			
Premise Deposit		\$5,000				
Furniture & Fixture			\$5,000			
Merchandise						
Total Assets	\$50,000	\$0	\$0			
Liabilities						
Long Term Debt						
Accounts Payable						
Total Liabilities	\$0	\$0	\$0			
Owner's Equity						
Share Capital	\$50,000					
Reserves & Surplus						
Total Owner's Equity	\$50,000	\$0	\$0			
Total Liabilities and Equity	\$50,000	\$0	\$0			
Check	\$0	\$0	\$0	\$0	\$0	\$0

Quick Assignment 2



Balance Sheet of TradeHub Wholesale Store

1. David, the owner of TradeHub, contributes \$50,000 in cash as equity capital.
2. TradeHub pays a \$5,000 deposit for hiring office premises, referred to as 'Premise Deposit.'
3. TradeHub purchases furniture and fixtures for \$5,000.
4. TradeHub acquires merchandise worth \$30,000 on credit.

Assignment 2 (Answer)

TradeHub Wholesale Store - Balance Sheet

	Transactions					Final
	1	2	3	4	5	
Assets						
Cash	\$50,000	-\$5,000	-\$5,000			
Premise Deposit		\$5,000				
Furniture & Fixture			\$5,000			
Merchandise				\$30,000		
Total Assets	\$50,000	\$0	\$0	\$30,000		
Liabilities						
Long Term Debt						
Accounts Payable				\$30,000		
Total Liabilities	\$0	\$0	\$0	\$30,000		
Owner's Equity						
Share Capital	\$50,000					
Reserves & Surplus						
Total Owner's Equity	\$50,000	\$0	\$0	\$0		
Total Liabilities and Equity	\$50,000	\$0	\$0	\$30,000		
Check	\$0	\$0	\$0	\$0	\$0	\$0

Quick Assignment 2

Balance Sheet of TradeHub Wholesale Store

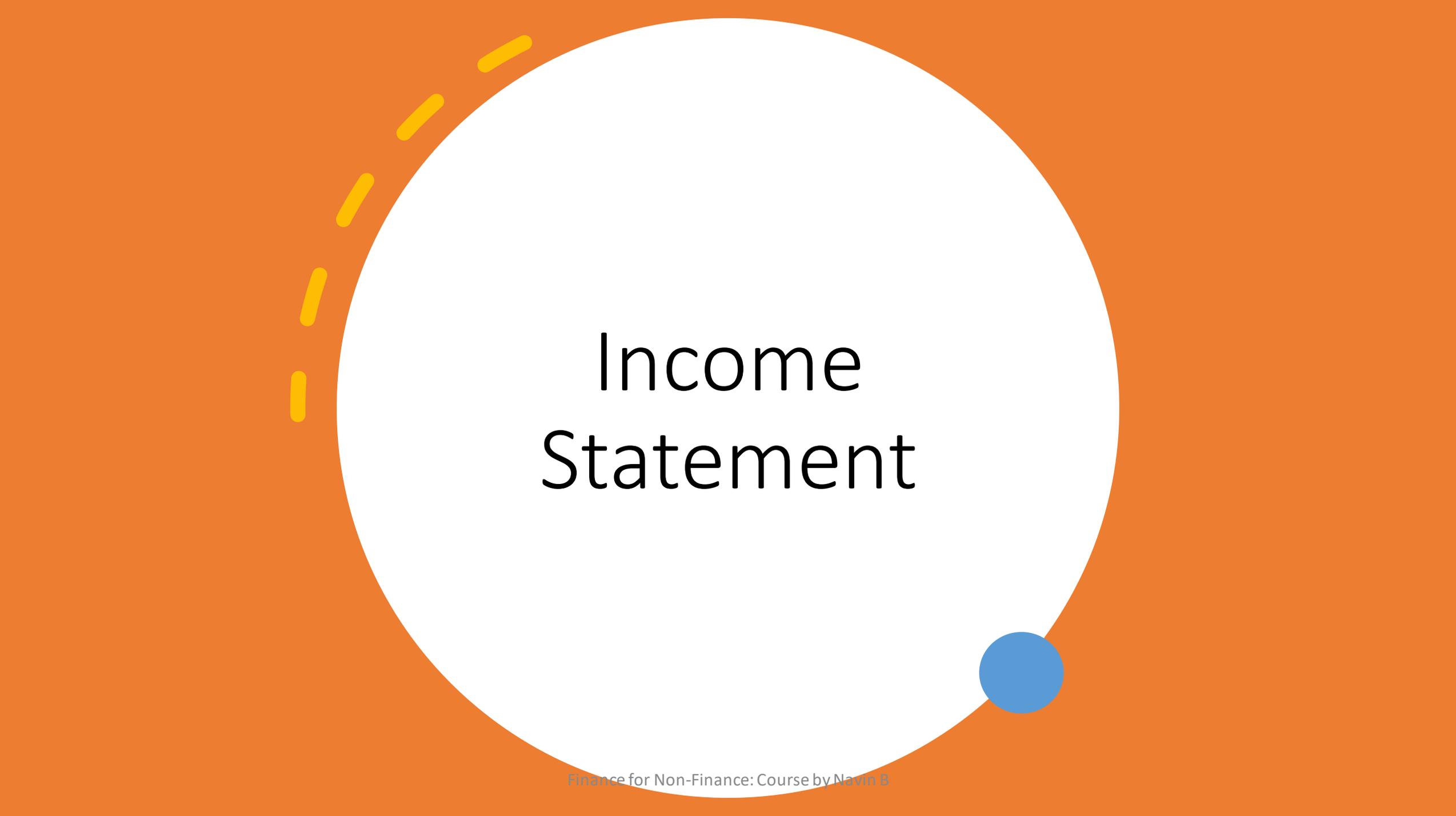
1. David, the owner of TradeHub, contributes \$50,000 in cash as equity capital.
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3. TradeHub purchases furniture and fixtures for \$5,000.
4. TradeHub acquires merchandise worth \$30,000 on credit.
5. TradeHub sells merchandise costing \$10,000 for \$12,000 in cash.

Assignment 2 (Answer)

TradeHub Wholesale Store - Balance Sheet

Transactions

	1	2	3	4	5	Final
Assets						
Cash	\$50,000	-\$5,000	-\$5,000		\$12,000	\$52,000
Premise Deposit		\$5,000				\$5,000
Furniture & Fixture			\$5,000			\$5,000
Merchandise				\$30,000	-\$10,000	\$20,000
Total Assets	\$50,000	\$0	\$0	\$30,000	\$2,000	\$82,000
Liabilities						
Long Term Debt						\$0
Accounts Payable				\$30,000		\$30,000
Total Liabilities	\$0	\$0	\$0	\$30,000	\$0	\$30,000
Owner's Equity						
Share Capital	\$50,000					\$50,000
Reserves & Surplus					\$2,000	\$2,000
Total Owner's Equity	\$50,000	\$0	\$0	\$0	\$2,000	\$52,000
Total Liabilities and Equity	\$50,000	\$0	\$0	\$30,000	\$2,000	\$82,000
Check	\$0	\$0	\$0	\$0	\$0	\$0



Income Statement

Income Statement

*(Profit and Loss Statement /
Statement of Operations)*



Is the company **profitable or loss making?**



Shows how much money the company is generating from its **regular business activities.**

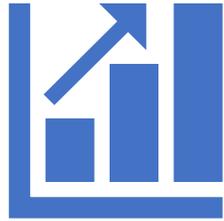


It covers a **specific time period**, often monthly, quarterly, or annually.

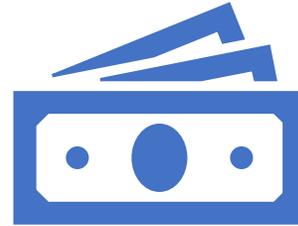
Income Statement

Revenue	
Raw Material	
Wages	
Depreciation	
Cost of Goods Sold	
Gross Profit	
S,G &A Expense	
Rent	
Operating Expense	
Operating Profit	
Interest Expense	
Profit Before Tax	
Income Tax	
Net Profit	

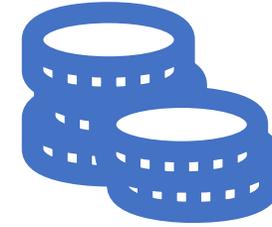
Income Statement



-



=



Revenue

Total sales or income generated by the business

Cost of Goods Sold

Direct costs associated with producing goods or service

Gross Profit

Profit remaining after deducting the direct costs of goods sold

Raw Material
Direct Labor / Wages

Depreciation

You want to buy a car



New Car



2-Year-Old Car

Same Model – Same Features – Same Brand - Same Condition

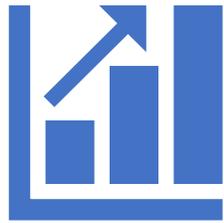
Will the price of both cars be the same ?



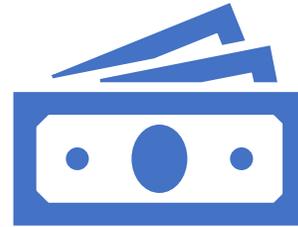
Depreciation

- Reflects **reduction in the value of an asset** over time, **mainly due to wear and tear**
- Allocate the cost of a long-term asset, such as machinery, over its **estimated useful life**

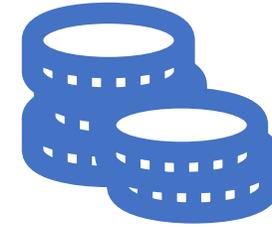
Income Statement



—



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Revenue

Total sales or income generated by the business

Cost of Goods Sold

Direct costs associated with producing goods or service

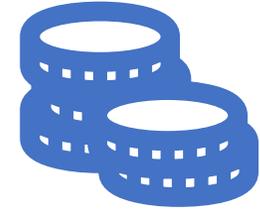
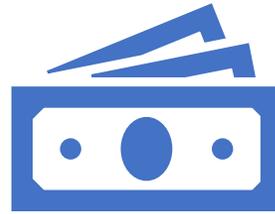
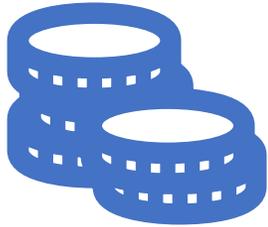
Gross Profit

Profit remaining after deducting the direct costs of goods sold.

Raw Material
Direct Labor / Wages

Depreciation

Income Statement



Gross Profit

Profit remaining after deducting the direct costs of goods sold.

Operating Expenses

Day-to-day costs of running the business

S, G & A Expense
Rent
Utilities

Operating Profit

Profit derived from the core business operations after deducting operating expenses.

Income Statement

Operating Profit

—

Interest Expense

= Profit Before Tax

—

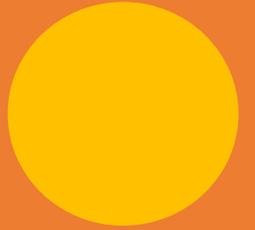
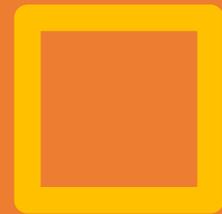
Income Tax

= Net Profit



Good Day Shirts Income Statement

Learn with an example



Good Day Shirts Balance Sheet

Assets	
Cash	\$9,000
Machinery	\$2,000
Raw Material	
Total Assets	\$11,000
Liabilities	
Long Term Debt	\$1,000
Accounts Payable	
Total Liabilities	\$1,000
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

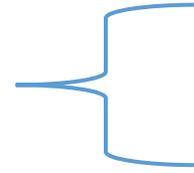
Good Day Shirts Balance Sheet

- Owns one machinery valued at **\$2,000**
- Company has a bank loan of **\$1,000**

Assets	
Cash	\$9,000
Machinery	\$2,000
Raw Material	
Total Assets	\$11,000
Liabilities	
Long Term Debt	\$1,000
Accounts Payable	
Total Liabilities	\$1,000
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

Revenue Drivers:

Core factors that directly impact a company's ability to generate income



**Machine
Output
Selling Price**

Income Statement

Revenue

Raw Material

Wages

Depreciation

Cost of Goods Sold

Gross Profit

S,G &A Expense

Rent

Operating Expense

Operating Profit

Interest Expense

Profit Before Tax

Income Tax

Net Profit

Net Profit Margin

1.
Good Day Shirts
made **3,000**
shirts and sold
them at **\$5** each



Machine	1
Output	3000
Selling Price	5
<hr/>	
Revenue	\$15,000
Raw Material	
Wages	
Depreciation	
Cost of Goods Sold	
Gross Profit	
S,G &A Expense	
Rent	
Operating Expense	
Operating Profit	
Interest Expense	
Profit Before Tax	
Income Tax	
Net Profit	
<hr/>	
Net Profit Margin	

2.
Raw materials
cost \$5,000, and
Wages were
\$8,000



Machine	1
Output	3000
Selling Price	5
<hr/>	
Revenue	\$15,000
Raw Material	
Wages	
Depreciation	
Cost of Goods Sold	
Gross Profit	
S,G &A Expense	
Rent	
Operating Expense	
Operating Profit	
Interest Expense	
Profit Before Tax	
Income Tax	
Net Profit	
<hr/>	
Net Profit Margin	

2.
Raw materials
cost \$5,000, and
Wages were
\$8,000



Machine	1
Output	3000
Selling Price	5
Revenue	\$15,000
Raw Material	\$5,000
Wages	\$8,000
Depreciation	
Cost of Goods Sold	
Gross Profit	
S,G &A Expense	
Rent	
Operating Expense	
Operating Profit	
Interest Expense	
Profit Before Tax	
Income Tax	
Net Profit	
Net Profit Margin	

3.
Machinery
valued at \$2,000
depreciates at
10% per annum



Machine	1
Output	3000
Selling Price	5
Revenue	\$15,000
Raw Material	\$5,000
Wages	\$8,000
Depreciation	\$200
Cost of Goods Sold	
Gross Profit	
S,G &A Expense	
Rent	
Operating Expense	
Operating Profit	
Interest Expense	
Profit Before Tax	
Income Tax	
Net Profit	
Net Profit Margin	

**Revenue – COGS
= Gross Profit**



Machine Output Selling Price	1 3000 5
Revenue	\$15,000
Raw Material	\$5,000
Wages	\$8,000
Depreciation	\$200
Cost of Goods Sold	\$13,200
Gross Profit	\$1,800
S,G &A Expense	
Rent	
Operating Expense	
Operating Profit	
Interest Expense	
Profit Before Tax	
Income Tax	
Net Profit	
Net Profit Margin	

4.
S, G & A
expenses
totaled \$1,000



	Machine Output Selling Price	1 3000 5
Revenue		\$15,000
Raw Material		\$5,000
Wages		\$8,000
Depreciation		\$200
Cost of Goods Sold		\$13,200
Gross Profit		\$1,800
S,G &A Expense		\$1,000
Rent		
Operating Expense		
Operating Profit		
Interest Expense		
Profit Before Tax		
Income Tax		
Net Profit		
Net Profit Margin		

Gross Profit –
Operating
Expenses =
Operating Profit



	Machine Output Selling Price	1 3000 5
Revenue		\$15,000
Raw Material		\$5,000
Wages		\$8,000
Depreciation		\$200
Cost of Goods Sold		\$13,200
Gross Profit		\$1,800
S,G &A Expense		\$1,000
Rent		
Operating Expense		\$1,000
Operating Profit		\$800
Interest Expense		
Profit Before Tax		
Income Tax		
Net Profit		
Net Profit Margin		

5.

Interest on the
\$1,000 bank loan
was paid at a **10%**
annual interest
rate



Machine Output Selling Price	1 3000 5
Revenue	\$15,000
Raw Material	\$5,000
Wages	\$8,000
Depreciation	\$200
Cost of Goods Sold	\$13,200
Gross Profit	\$1,800
S,G &A Expense	\$1,000
Rent	
Operating Expense	\$1,000
Operating Profit	\$800
Interest Expense	\$100
Profit Before Tax	
Income Tax	
Net Profit	
Net Profit Margin	

Operating Profit
 – Interest =
 Profit Before Tax



Machine	1
Output	3000
Selling Price	5
Revenue	\$15,000
Raw Material	\$5,000
Wages	\$8,000
Depreciation	\$200
Cost of Goods Sold	\$13,200
Gross Profit	\$1,800
S,G &A Expense	\$1,000
Rent	
Operating Expense	\$1,000
Operating Profit	\$800
Interest Expense	\$100
Profit Before Tax	\$700
Income Tax	
Net Profit	
Net Profit Margin	

6.
Income tax rate
for the company
is 20%



Machine	1
Output	3000
Selling Price	5
Revenue	\$15,000
Raw Material	\$5,000
Wages	\$8,000
Depreciation	\$200
Cost of Goods Sold	\$13,200
Gross Profit	\$1,800
S,G &A Expense	\$1,000
Rent	
Operating Expense	\$1,000
Operating Profit	\$800
Interest Expense	\$100
Profit Before Tax	\$700
Income Tax	\$140
Net Profit	
Net Profit Margin	

Profit Before Tax
 – Income Tax =
 Net Profit



Machine	1
Output	3000
Selling Price	5
Revenue	\$15,000
Raw Material	\$5,000
Wages	\$8,000
Depreciation	\$200
Cost of Goods Sold	\$13,200
Gross Profit	\$1,800
S,G &A Expense	\$1,000
Rent	
Operating Expense	\$1,000
Operating Profit	\$800
Interest Expense	\$100
Profit Before Tax	\$700
Income Tax	\$140
Net Profit	\$560
Net Profit Margin	

7.
Calculate Net
Profit Margin



Machine Output Selling Price	1 3000 5
Revenue	\$15,000
Raw Material	\$5,000
Wages	\$8,000
Depreciation	\$200
Cost of Goods Sold	\$13,200
Gross Profit	\$1,800
S,G &A Expense	\$1,000
Rent	
Operating Expense	\$1,000
Operating Profit	\$800
Interest Expense	\$100
Profit Before Tax	\$700
Income Tax	\$140
Net Profit	\$560
Net Profit Margin	3.73%

7.
Calculate Net
Profit Margin



Net Profit Margin

3.73%

$$\left(\frac{\text{Net Profit}}{\text{Revenue}} \right) \times 100$$

$$(\$560 / \$15,000) * 100 \approx 3.73\%$$

It means for each **\$100** of revenue *Good Day Shirts* earns **\$3.73** in net profit

Fill the Income Statement

Quick Assignment 3

Income Statement of **HarmonyTunes**

1. HarmonyTunes manufactured 3000 wireless earbuds and sold each for \$20
2. Raw materials accounted for 25% of the revenue
3. Wages constitute 40% of the revenue
4. The company's machinery, valued at \$5000, depreciates at 10% per annum
5. S, G &A expense was 10% of revenue (Selling, General and Administrative Expense)
6. Premise rent was \$500 per month
7. The company paid interest on a \$5000 bank loan at a 10% annual interest rate
8. The income tax rate for the company is 20%

Quick Assignment 3

Income Statement of HarmonyTunes

1. HarmonyTunes manufactured 3000 wireless earbuds and sold each for \$20
2. Raw materials accounted for 25% of the revenue
3. Wages constitute 40% of the revenue
4. The company's machinery, valued at \$5000, depreciates at 10% per annum
5. S, G &A expense was 10% of revenue (Selling, General and Administrative Expense)
6. Premise rent was \$500 per month
7. The company paid interest on a \$5000 bank loan at a 10% annual interest rate
8. The income tax rate for the company is 20%

Practical Test 3 (Answer)

HarmonyTunes Earbuds - Income Statement	
	Year 1
Total Output	3,000
Selling Price Per Unit	\$20
Revenue	\$60,000
Raw Material	\$15,000
Wages	\$24,000
Depreciation	\$500
Cost of Goods Sold	\$39,500
Gross Profit	\$20,500
S,G &A Expense	\$6,000
Rent	\$6,000
Operating Expense	\$12,000
Operating Profit	\$8,500
Interest Expense	\$500
Profit Before Tax	\$8,000
Income Tax	\$1,600
Net Profit	\$6,400
Net Profit Margin	10.67%

Calculate Net Profit Margin

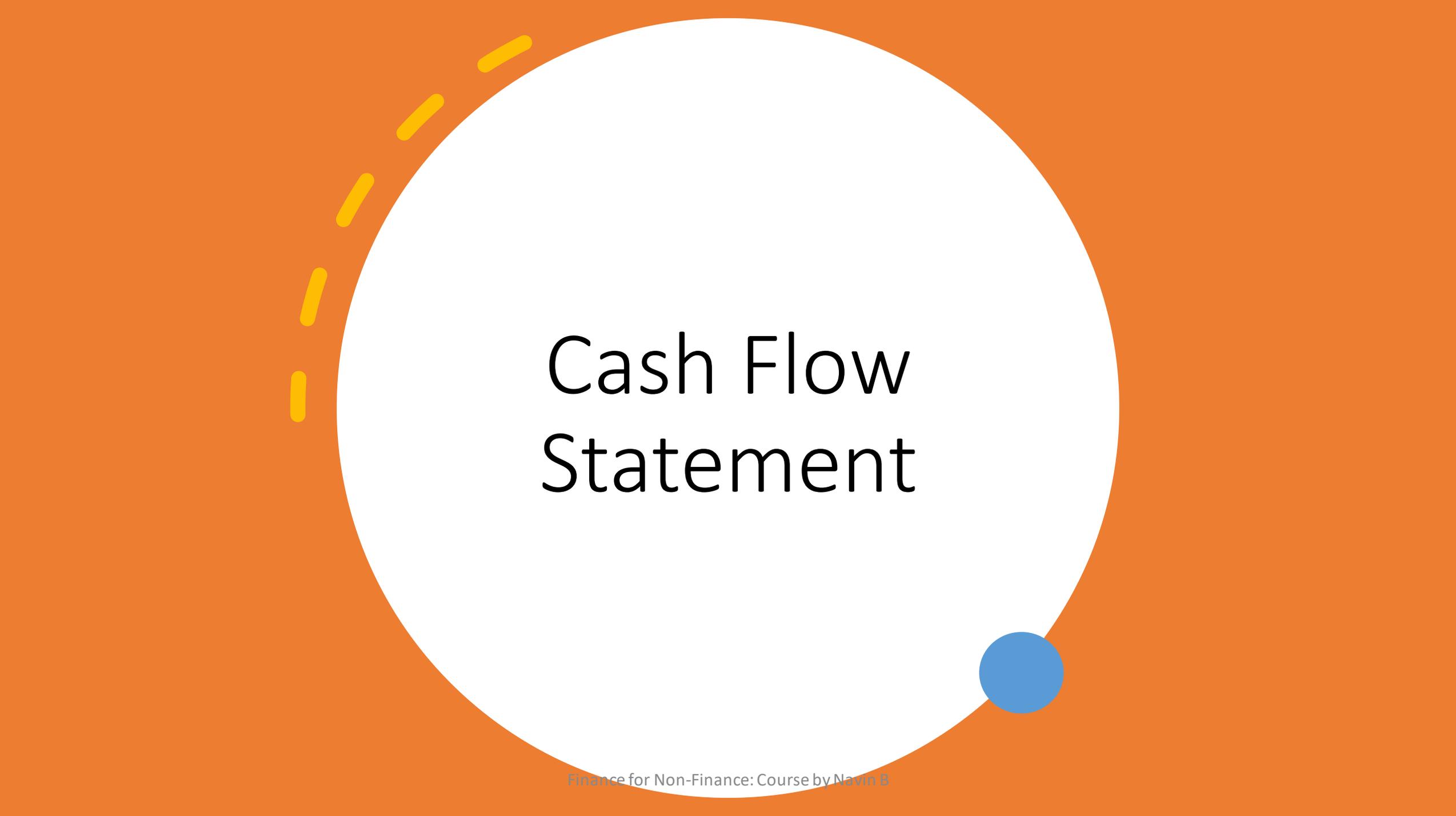


$$\left(\frac{\text{Net Profit}}{\text{Revenue}} \right) \times 100$$

$$(\$6,400 / \$60,000) * 100$$

Net Profit Margin

10.67%



Cash Flow Statement



CASH IS KING

BUSINESS NEEDS CASH

- Paying Salaries
- Paying Rent
- Paying Suppliers
- Paying Taxes

BUSINESS IS PROFITABLE

- There is a delay in payment from customers
- Lot of capital investment is required to survive

Cash flow the biggest problem facing during COVID-19 crisis

Micro and small enterprises worst affected by COVID-19 pandemic, says a survey of enterprises in 45 countries.

News | 27 November 2020



Tools

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How do we know business has enough cash to sustain?

Cash Flow Statement



Tracks **how cash is generated and used** by the company



Operating Activities: Shows **cash generated or used** in the core operations of the business, such as sales and expenses.



Investing Activities: Reveals **cash flows from investments in assets like property, equipment, or securities.**



Financing Activities: Reflects **cash flows related to the company's financing**, including debt, equity, and dividend payments.

Operating Activities:

Net Income \$50,000

Adjustments for non-cash items:

Add Depreciation and amortization \$10,000

Changes in working capital: (From Balance Sheet)

(Increase)/Decrease in accounts receivable **(\$5,000)**

(Increase)/Decrease in inventory \$3,000

Increase/(Decrease) in accounts payable \$2,000

Operating Cash Flow **\$60,000**



Operating Activities

Shows cash generated or used in the **core operations of the business**, such as sales and expenses

Investing Activities

Investing Activities:

Capital Expenditures (Capex)	(\$20,000)
Cash received from sale of assets	\$6,000
Other investing activities	

Investing Cash Flow (\$14,000)

Reveals **cash flows from investments** in assets like property, equipment, or securities.

Financing Activities

Reflects **cash flows related to the company's financing**, including debt, equity, and dividend payments.

Financing Activities:

Cash received from loans	\$30,000
Cash received from issuing stock	\$10,000
Cash used to repay loans	(\$15,000)
Cash used to repurchase stock	(\$5,000)
Dividends paid	(\$8,000)

Financing Cash Flow

\$12,000



Net Cash Flow

- Total amount of **cash generated or utilized** by a company
- Net Cash Flow **directly affects the 'Cash and Cash Equivalents'** on the balance sheet

Operating Cash Flow	\$60,000
---------------------	----------

Investing Cash Flow	(\$14,000)
---------------------	------------

Financing Cash Flow	\$12,000
---------------------	----------

Net Cash Flow	\$58,000
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Free Cash Flow

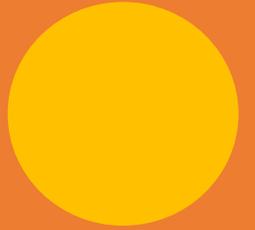
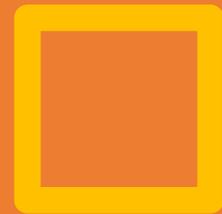
Operating Cash Flow	\$60,000
- Capex (Capital Expenditure)	(\$20,000)
= Free Cash Flow	\$40,000

- Key indicator of a **company's financial health**
- Amount of cash a business generates **after covering essential expenses**
- Indicates **capacity of the company for growth**, debt management, and rewarding investors



Good Day Shirts Cash Flow Statement

Learn with an example



Good Day Shirts

Cash Flow

Statement



Net Profit

+Depreciation

Operating Cash Flow

CAPEX

Investing Cash Flow

Share Issue

Loan

Financing Cash Flow

Opening Cash balance

Net Cash Flow



Closing cash balance

Good Day Shirts

Income Statement

	Machine Output Selling Price	1 3000 5
		Year 1
Revenue		\$15,000
Raw Material		\$5,000
Wages		\$8,000
Depreciation		\$200
Cost of Goods Sold		\$13,200
Gross Profit		\$1,800
S,G &A Expense		\$1,000
Rent		
Operating Expense		\$1,000
Operating Profit		\$800
Interest Expense		\$100
Profit Before Tax		\$700
Income Tax		\$140
Net Profit		\$560
	Net Profit Margin	3.73%

Cash Flow Statement

	Year 1
Net Profit	\$560
+Depreciation	\$200
Operating Cash Flow	\$760
CAPEX	
Investing Cash Flow	
Share Issue	
Loan	
Financing Cash Flow	
Opening Cash balance	
Net Cash Flow	
Closing cash balance	

Good Day Shirts Interim Balance Sheet

- Purchased machinery worth **\$2,000**

Assets	
Cash	\$9,000
Machinery	\$2,000
Raw Material	
Total Assets	\$11,000
Liabilities	
Long Term Debt	\$1,000
Accounts Payable	
Total Liabilities	\$1,000
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

Cash Flow Statement

	Year 1
Net Profit	\$560
+Depreciation	\$200
Operating Cash Flow	\$760
CAPEX	-\$2,000
Investing Cash Flow	-\$2,000
Share Issue	
Loan	
Financing Cash Flow	
Opening Cash balance	
Net Cash Flow	
Closing cash balance	

Good Day Shirts Interim Balance Sheet

- Purchased machinery worth \$2,000
- Owner's initial investment is **\$10,000**

Assets	
Cash	\$9,000
Machinery	\$2,000
Raw Material	
Total Assets	\$11,000
Liabilities	
Long Term Debt	\$1,000
Accounts Payable	
Total Liabilities	\$1,000
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

Cash Flow Statement

	Year 1
Net Profit	\$560
+Depreciation	\$200
Operating Cash Flow	\$760
CAPEX	-\$2,000
Investing Cash Flow	-\$2,000
Share Issue	\$10,000
Loan	
Financing Cash Flow	\$10,000
Opening Cash balance	
Net Cash Flow	
Closing cash balance	

Good Day Shirts Interim Balance Sheet

- Purchased machinery worth \$2,000
- Owner's initial investment is \$10,000
- Company has a bank loan of **\$1,000**

Assets	
Cash	\$9,000
Machinery	\$2,000
Raw Material	
Total Assets	\$11,000
Liabilities	
Long Term Debt	\$1,000
Accounts Payable	
Total Liabilities	\$1,000
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	
Total Owner's Equity	\$10,000

Cash Flow Statement

	Year 1
Net Profit	\$560
+Depreciation	\$200
Operating Cash Flow	\$760
CAPEX	-\$2,000
Investing Cash Flow	-\$2,000
Share Issue	\$10,000
Loan	\$1,000
Financing Cash Flow	\$11,000
Opening Cash balance	
Net Cash Flow	
Closing cash balance	

Cash Flow Statement

	Year 1
Net Profit	\$560
+Depreciation	\$200
Operating Cash Flow	\$760
CAPEX	-\$2,000
Investing Cash Flow	-\$2,000
Share Issue	\$10,000
Loan	\$1,000
Financing Cash Flow	\$11,000
Opening Cash balance	\$0
Net Cash Flow	\$9,760
Closing cash balance	\$9,760

Good Day Shirts Final Balance Sheet

- Net Cash Flow is **reflected as 'Cash'** on the balance sheet
- Depreciation of **\$200 is subtracted from machinery**
- Net Profit of **\$560 is added to Reserves and Surplus**

Assets	
Cash	\$9,760
Machinery	\$1,800
Raw Material	
Total Assets	\$11,560
Liabilities	
Long Term Debt	\$1,000
Accounts Payable	
Total Liabilities	\$1,000
Owner's Equity	
Share Capital	\$10,000
Reserves & Surplus	\$560
Total Owner's Equity	\$10,560

Free Cash Flow (FCF)

FCF = Operating Cash Flow
- CAPEX

$$FCF = \$760 - \$2,000$$

$$FCF = -\$1,240$$

Negative Free Cash Flow

Cash that's **truly 'free'** to use for other purposes, like dividends, investments, or debt reduction

	Year 1
Net Profit	\$560
+Depreciation	\$200
Operating Cash Flow	\$760
CAPEX	-\$2,000
Investing Cash Flow	-\$2,000
Share Issue	\$10,000
Loan	\$1,000
Financing Cash Flow	\$11,000
Opening Cash balance	\$0
Net Cash Flow	\$9,760
Closing cash balance	\$9,760

Fill the Cash Flow Statement

Quick Assignment 4

Cash Flow Statement of **HarmonyTunes**

1. HarmonyTunes generated a net profit of \$6,400
2. Purchased machinery for \$5,000
3. Depreciation on machinery for the year was \$500
4. The company acquired a \$5,000 bank loan
5. The owner invested \$10,000 as share capital (equity)
6. Calculate Free Cash Flow

Quick Assignment 4

Cash Flow Statement of HarmonyTunes

1. HarmonyTunes generated a net profit of \$6,400
 2. Purchased machinery for \$5,000
 3. Depreciation on machinery for the year was \$500
 4. The company acquired a \$5,000 bank loan
 5. The owner invested \$10,000 as share capital (equity)
 6. Calculate Free Cash Flow
-

Assignment 4 (Answer)

	Year 1
Net Profit	\$6,400
+Depreciation	\$500
Operating Cash Flow	\$6,900
CAPEX	-\$5,000
Investing Cash Flow	-\$5,000
Share Issue	\$10,000
Loan	\$5,000
Financing Cash Flow	\$15,000
Net Cash Flow	\$16,900

Assignment 4 (Answer)

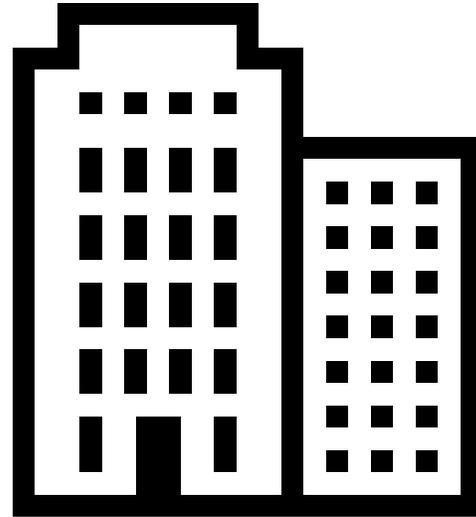
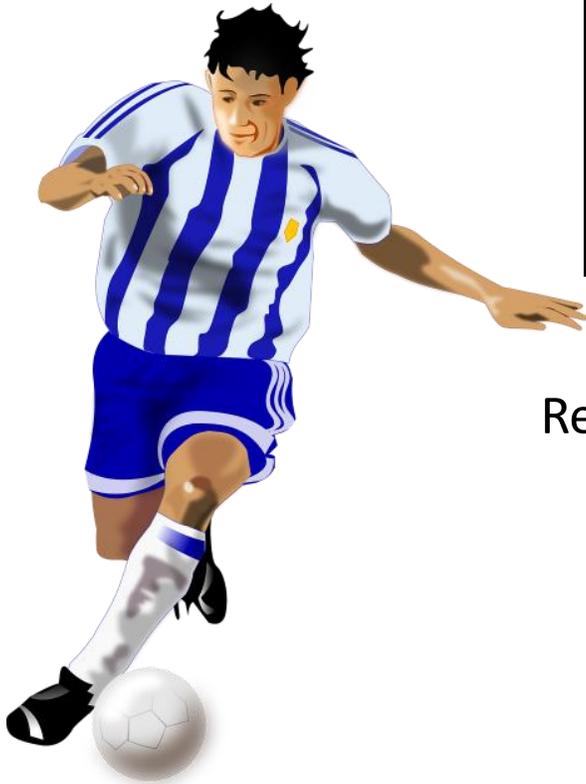
	Year 1
Net Profit	\$6,400
+Depreciation	\$500
Operating Cash Flow	\$6,900
CAPEX	-\$5,000
Investing Cash Flow	-\$5,000
Share Issue	\$10,000
Loan	\$5,000
Financing Cash Flow	\$15,000
Net Cash Flow	\$16,900

Operating Cash Flow	\$6,900
- CAPEX	-\$5,000
Free Cash Flow	\$1,900

Financial Ratios

Which Company is performing better?

Highest Goals



Company A

Revenue - \$682.21 Million



Company B

Revenue - \$5.8 Billion

Company with highest revenue is performing better?

2005



Revenue - \$682.21 Million



Revenue - \$5.8 Billion

Which Company is performing better?

Financial Ratios / Ratio Analysis

- Numbers **from financial statements** are used to assess a company's performance
- Used for **comparing a company's ratios** against industry norms or competitors

Net Profit Margin
Free Cash Flow

Net Profit Margin

Is the **percentage of revenue that represents a company's profit** after deducting all expenses

$$\left(\frac{\text{Net Profit}}{\text{Revenue}} \right) \times 100$$

Free Cash Flow

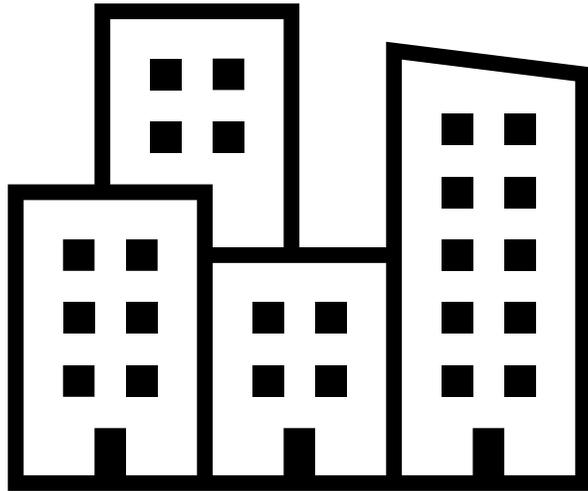
Amount of **free cash a company generates** after covering operating expenses and capital expenditures

Operating Cash Flow

- Capex (Capital Expenditure)

= Free Cash Flow

Where Will You Invest?



Company A

Net Profit Margin: **5%**

Free Cash Flow is **Negative**



Company B

Net Profit Margin: **25%**

Free Cash Flow is **Positive**

Financial Ratios / Ratio Analysis



1. PROFITABILITY
RATIOS



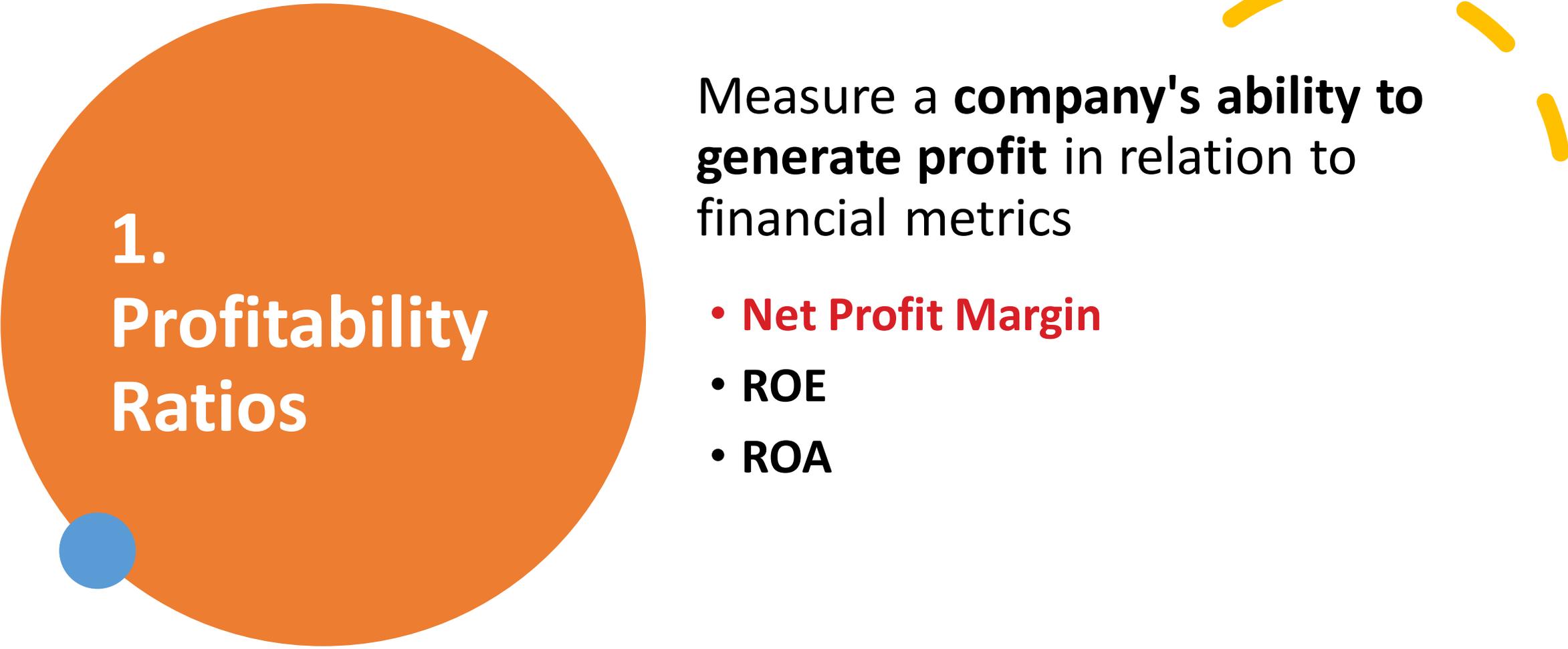
2. LIQUIDITY
RATIOS



3. SOLVENCY
RATIOS



4. VALUATION
RATIOS



1. Profitability Ratios

Measure a **company's ability to generate profit** in relation to financial metrics

- **Net Profit Margin**
- **ROE**
- **ROA**

Return on Equity (ROE)

- Analyzing a company's **efficiency in using shareholders' funds** to generate profits
- **Higher ROE** is generally considered favourable

$$ROE = \left(\frac{\text{Net Income}}{\text{Shareholders' Equity}} \right) \times 100$$

If ROE is **5%**....

That means for every **\$100** invested in the company, the company is **generating \$5 in net income**

Return on Equity (ROE)

EXAMPLES

Company A

Net Income: \$5 million

Shareholders' Equity: \$50 million

$$ROE = \left(\frac{5 \text{ million}}{50 \text{ million}} \right) \times 100 = 10\%$$

Company B

Net Income: \$8 million

Shareholders' Equity: \$40 million

$$ROE = \left(\frac{8 \text{ million}}{40 \text{ million}} \right) \times 100 = 20\%$$

Company C

Net Income: \$12 million

Shareholders' Equity: \$60 million

$$ROE = \left(\frac{12 \text{ million}}{60 \text{ million}} \right) \times 100 = 20\%$$

Company B & C have a higher return on equity, **indicating better efficiency** in utilizing shareholders' equity to generate profits

Return on Assets (ROA)

- Analyzes how well a business **converts its investments in assets** (property, equipment, inventory) into **earnings**

$$ROA = \left(\frac{\text{Net Income}}{\text{Total Assets}} \right) \times 100$$

↓ ROA = Deteriorating asset efficiency

↑ ROA = Improved efficiency and profitability

Return on Assets (ROA)

EXAMPLES

Company A

Net Income: \$4 million

Total Assets: \$50 million

$$ROA = \left(\frac{4 \text{ million}}{50 \text{ million}} \right) \times 100 = 8\%$$

Company B

Net Income: \$7 million

Total Assets: \$30 million

$$ROA = \left(\frac{7 \text{ million}}{30 \text{ million}} \right) \times 100 = 23.33\%$$

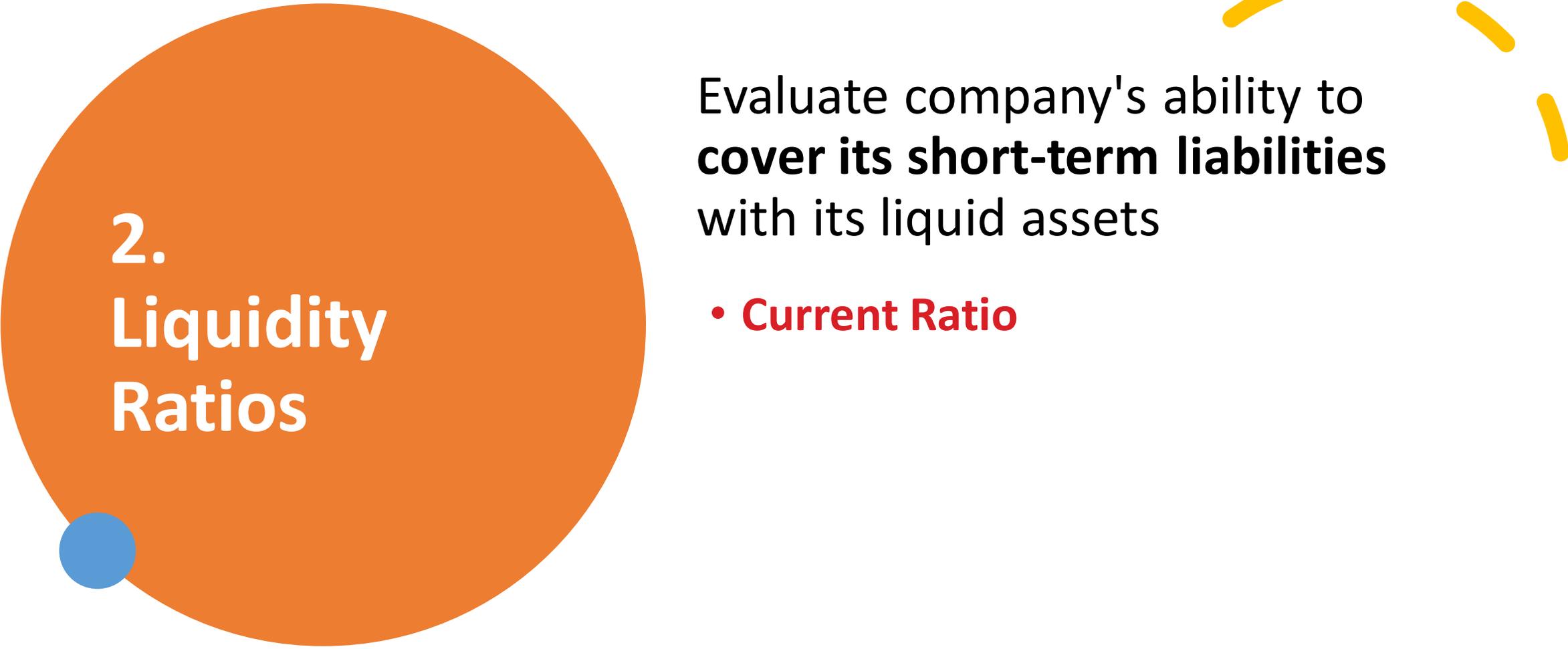
Company C

Net Income: \$10 million

Total Assets: \$80 million

$$ROA = \left(\frac{10 \text{ million}}{80 \text{ million}} \right) \times 100 = 12.5\%$$

Company B has the highest ROA indicating it is **more efficient in generating profit** relative to its total assets



2. Liquidity Ratios

Evaluate company's ability to **cover its short-term liabilities** with its liquid assets

- **Current Ratio**

Current Ratio

- Measures a company's ability to **cover its short-term obligations** with its short-term assets
- Good current ratio typically falls between **1.5 and 3**

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

CR < 1: Potential difficulty in meeting short-term obligations

CR > 3: Strong financial position; but can sometimes indicate inefficient utilization of current assets

Current Ratio

EXAMPLES

Company A

Current Assets: \$80 million

Current Liabilities: \$40 million

$$\text{Current Ratio} = \frac{80 \text{ million}}{40 \text{ million}} = 2$$

Company B

Current Assets: \$60 million

Current Liabilities: \$30 million

$$\text{Current Ratio} = \frac{60 \text{ million}}{30 \text{ million}} = 2$$

Company C

Current Assets: \$45 million

Current Liabilities: \$60 million

$$\text{Current Ratio} = \frac{45 \text{ million}}{60 \text{ million}} = 0.75$$

Company C's lower ratio of 0.75 indicates potential challenges in meeting short-term obligations



3. Solvency Ratios

Assess a company's **long-term financial stability** and debt management

- **Debt-to-Equity Ratio**

Debt to Equity Ratio

- Measures the proportion of a **company's debt to its equity**
- Assesses a **company's financial leverage** and risk

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Debt}}{\text{Shareholders' Equity}}$$

D/E < 1: More equity than debt, considered favorable

D/E > 1: More debt than equity, indicating higher financial risk

Debt to Equity Ratio

EXAMPLES

Company A

Total Debt: \$2,000,000

Shareholders' Equity: \$5,000,000

$$\text{Debt-to-Equity Ratio} = \frac{2,000,000}{5,000,000} = 0.4$$

Company B

Total Debt: \$10,000,000

Shareholders' Equity: \$15,000,000

$$\text{Debt-to-Equity Ratio} = \frac{10,000,000}{15,000,000} = 0.67$$

Company C

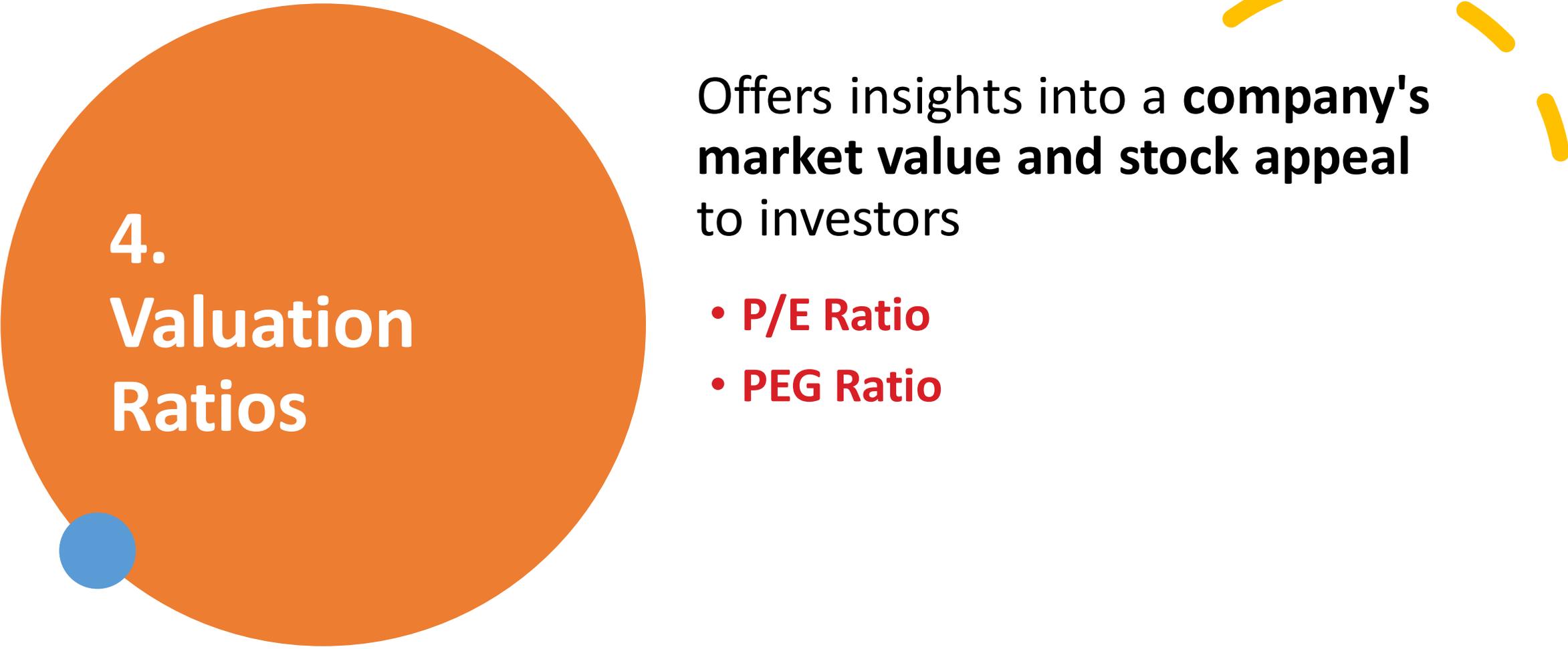
Total Debt: \$20,000,000

Shareholders' Equity: \$10,000,000

$$\text{Debt-to-Equity Ratio} = \frac{20,000,000}{10,000,000} = 2.0$$

Company A & B - Low to moderate debt levels, **considered favorable**

Company C – High debt levels, raises **financial risk** concerns



4. Valuation Ratios

Offers insights into a **company's market value and stock appeal** to investors

- **P/E Ratio**
- **PEG Ratio**

Earnings Per Share (EPS)

- Measure of how much profit a company generates **for each outstanding share** of its stock

$$\text{EPS} = \frac{\text{Net Income}}{\text{Number of Outstanding Shares}}$$

Company XYZ has a net income of **\$1 million** and has **500,000** outstanding shares

$$\text{EPS} = \frac{\$1,000,000}{500,000} = \$2$$

Price-to-Earnings (P/E) Ratio

- Measures the **price investors are willing to pay** for each dollar of earnings
- Influenced by factors like **growth, risk, and market conditions**

$$\text{P/E Ratio} = \frac{\text{Market Price per Share}}{\text{Earnings per Share (EPS)}}$$

It is compared to Historical, Industry, and Competitors' P/E

Lower P/E – Potential undervaluation

Higher P/E - Confidence in future earnings

Price-to-Earnings (P/E) Ratio

EXAMPLES

Company A

Market Price per Share: \$40

Earnings per Share (EPS): \$5

$$\text{P/E Ratio} = \frac{40}{5} = 8$$

Company B

Market Price per Share: \$60

Earnings per Share (EPS): \$7

$$\text{P/E Ratio} = \frac{60}{7} \approx 8.57$$

Company C

Market Price per Share: \$80

Earnings per Share (EPS): \$6

$$\text{P/E Ratio} = \frac{80}{6} \approx 13.33$$

Company A lower P/E (8) potentially indicates it's **undervalued compared to peers**

Challenges of P/E Ratio

- P/E ratio **doesn't factor in future earnings** growth; instead, it reflects past earnings

$$\text{P/E Ratio} = \frac{\text{Market Price per Share}}{\text{Earnings per Share (EPS)}}$$

Current Price

$$\text{EPS} = \frac{\text{Net Income}}{\text{Number of Outstanding Shares}}$$

Past Earnings

Price/Earnings to Growth (PEG) Ratio

- Relates a company's Price-to-Earnings (**P/E**) Ratio to its **expected earnings growth** rate
- Depends on the **accuracy of the earnings growth** forecast

$$\text{PEG Ratio} = \frac{\text{P/E Ratio}}{\text{Earnings Growth Rate}}$$

PEG Ratio < 1 : Generally considered favorable

PEG Ratio > 1 : Stock may be **overpriced** or has high **investor confidence**

Price/Earnings to Growth (PEG) Ratio

EXAMPLES

Company A

P/E Ratio: 20

Earnings Growth Rate: 15%

$$\text{PEG Ratio: } \frac{20}{15} = 1.33$$

Company B

P/E Ratio: 15

Earnings Growth Rate: 20%

$$\text{PEG Ratio: } \frac{15}{20} = 0.75$$

Company C

P/E Ratio: 25

Earnings Growth Rate: 10%

$$\text{PEG Ratio: } \frac{25}{10} = 2.5$$

Company B has the lowest PEG Ratio of 0.75, indicating **potential undervaluation**

Quick Assignment 5

Calculate Ratios

Net Profit Margin

ROE

ROA

Current Ratio

Debt-to-Equity Ratio

P/E Ratio

PEG Ratio

Company Financials	
Revenue	\$10,000,000
Net Profit	\$2,000,000
Total Assets	\$20,000,000
Shareholders' Equity	\$8,000,000
Current Assets	\$5,000,000
Current Liabilities	\$2,000,000
Debt	\$2,000,000
Share Price	\$50.00
Earnings Per Share (EPS)	\$5.00
Expected Earnings Growth Rate	15%

Quick Assignment 5

Calculate Ratios Answers

Net Profit Margin

ROE

ROA

Current Ratio

Debt-to-Equity Ratio

P/E Ratio

PEG Ratio

5. Ratios – Answer Sheet

1. Net Profit Margin:

$$\text{Net Profit Margin} = \left(\frac{\text{Net Profit}}{\text{Revenue}} \right) \times 100$$

$$\text{Net Profit Margin} = \left(\frac{2,000,000}{10,000,000} \right) \times 100$$

$$\text{Net Profit Margin} = 20\%$$

2. ROE (Return on Equity):

$$\text{ROE} = \left(\frac{\text{Net Profit}}{\text{Equity}} \right) \times 100$$

$$\text{ROE} = \left(\frac{2,000,000}{8,000,000} \right) \times 100$$

$$\text{ROE} = 25\%$$

3. ROA (Return on Assets):

$$\text{ROA} = \left(\frac{\text{Net Profit}}{\text{Total Assets}} \right) \times 100$$

$$\text{ROA} = \left(\frac{2,000,000}{20,000,000} \right) \times 100$$

$$\text{ROA} = 10\%$$

4. Current Ratio:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

(Let's assume Current Assets = \$5,000,000 and Current Liabilities = \$2,000,000)

$$\text{Current Ratio} = \frac{5,000,000}{2,000,000}$$

$$\text{Current Ratio} = 2.5$$

Quick Assignment 5

Calculate Ratios Answers

Net Profit Margin

ROE

ROA

Current Ratio

Debt-to-Equity Ratio

P/E Ratio

PEG Ratio

5. Debt-to-Equity Ratio:

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Debt}}{\text{Equity}}$$

$$\text{Debt-to-Equity Ratio} = \frac{2,000,000}{8,000,000}$$

$$\text{Debt-to-Equity Ratio} = 0.25$$

6. P/E (Price-to-Earnings) Ratio:

$$\text{P/E Ratio} = \frac{\text{Share Price}}{\text{Earnings per Share (EPS)}}$$

(Let's assume Share Price = \$50 and EPS = \$5)

$$\text{P/E Ratio} = \frac{50}{5}$$

$$\text{P/E Ratio} = 10$$

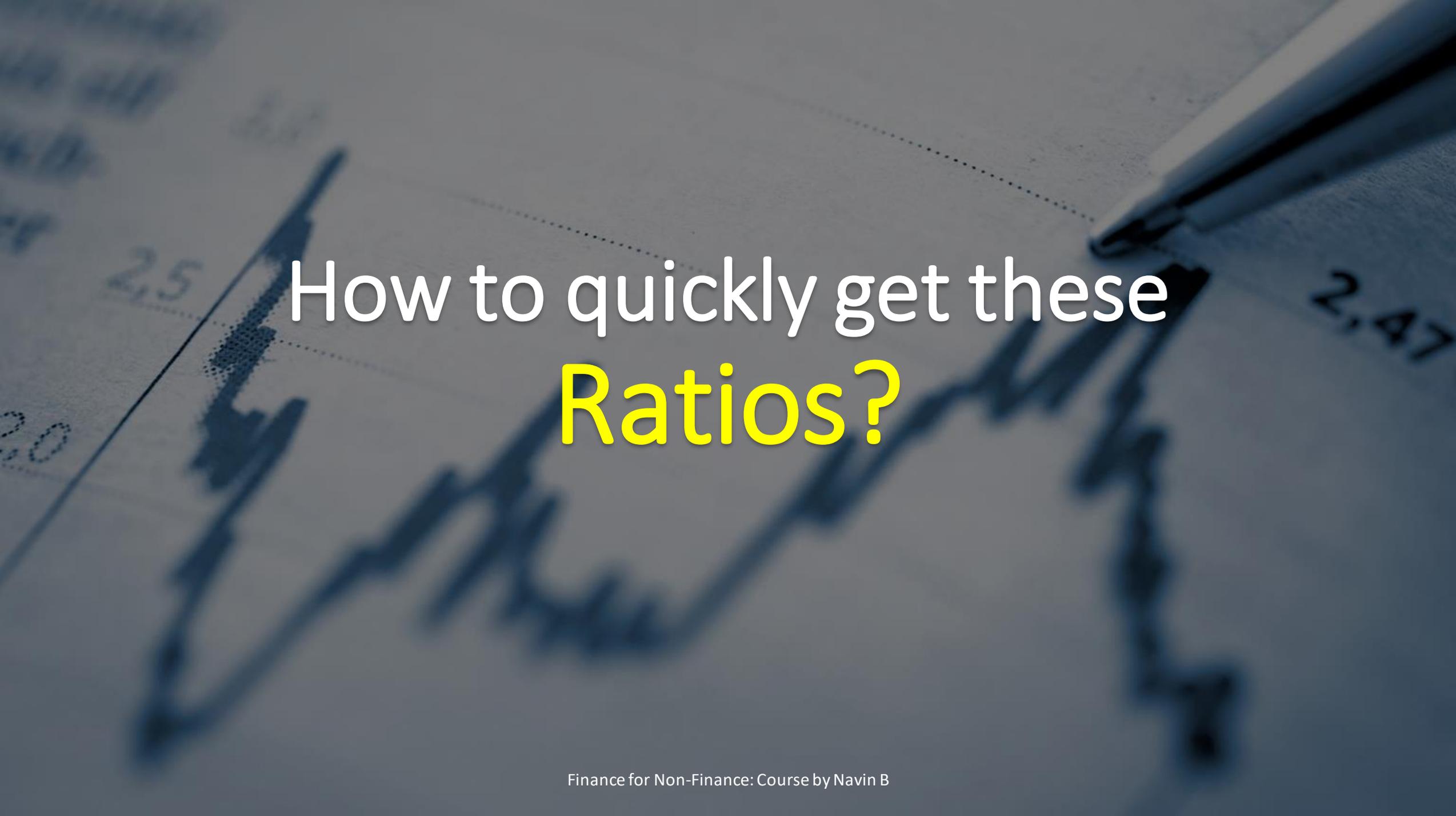
7. PEG (Price/Earnings to Growth) Ratio:

$$\text{PEG Ratio} = \frac{\text{P/E Ratio}}{\text{Growth Rate}}$$

(Let's assume Growth Rate = 15%)

$$\text{PEG Ratio} = \frac{10}{15}$$

$$\text{PEG Ratio} = 0.67$$

The background is a blurred image of a financial document. It features a line graph with a blue line showing an upward trend. A pen is visible in the upper right corner, pointing towards the graph. There are some numbers visible on the document, such as '2.5' and '2.47'.

How to quickly get these Ratios?

Apple Inc. (AAPL)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD

☆ Follow

195.47 +0.97 (+0.43%)

As of 10:59AM EST. Market open.

- Summary
- Chart
- Conversations
- Statistics**
- Historical Data
- Profile
- Financials
- Analysis
- Options
- Holders
- Sustainability

Currency in USD

Valuation Measures⁴

Market Cap (intraday)	3.01T
Enterprise Value	3.06T
Trailing P/E	31.73
Forward P/E	29.41
PEG Ratio (5 yr expected)	2.33
Price/Sales (ttm)	8.02
Price/Book (mrq)	48.39
Enterprise Value/Revenue	7.98
Enterprise Value/EBITDA	28.66

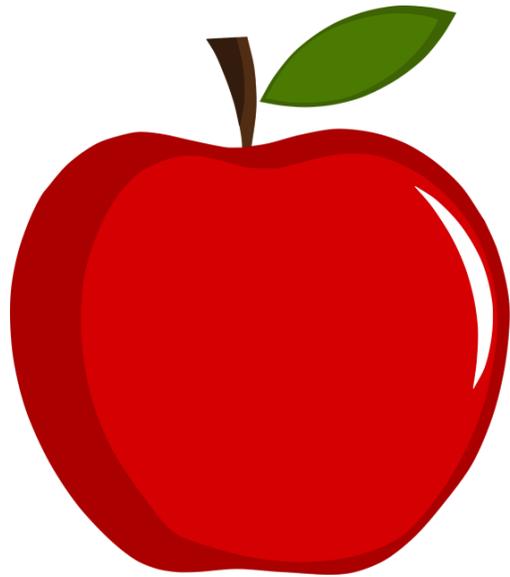
Management Effectiveness

Return on Assets (ttm)	20.26%
Return on Equity (ttm)	171.95%

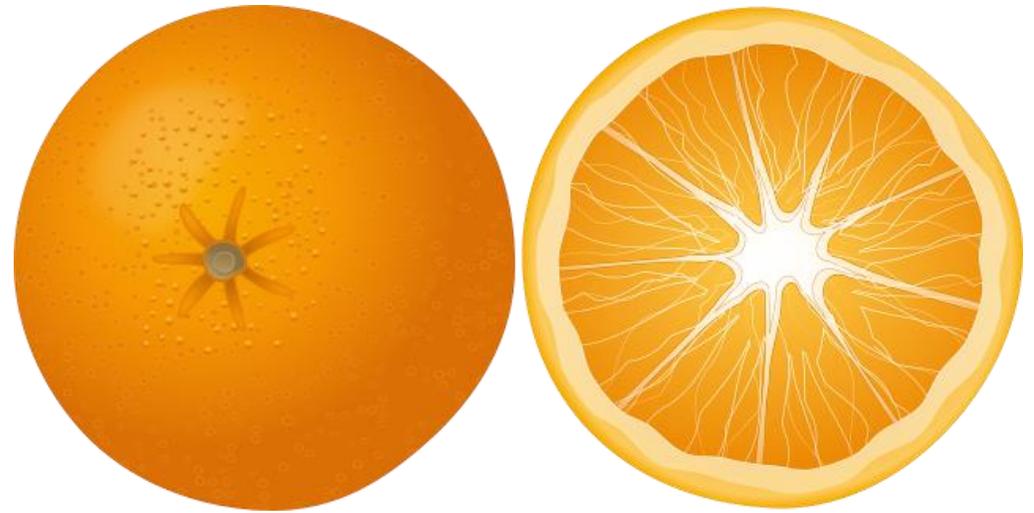
Balance Sheet

Total Cash (mrq)	61.55B
Total Cash Per Share (mrq)	3.96
Total Debt (mrq)	123.93B
Total Debt/Equity (mrq)	199.42%
Current Ratio (mrq)	0.99

Important Rules of Ratio Analysis



≠



“Never Compare Apples and Oranges”

Important Rules of Ratio Analysis



≠



**1. Never compare companies from
different industries**

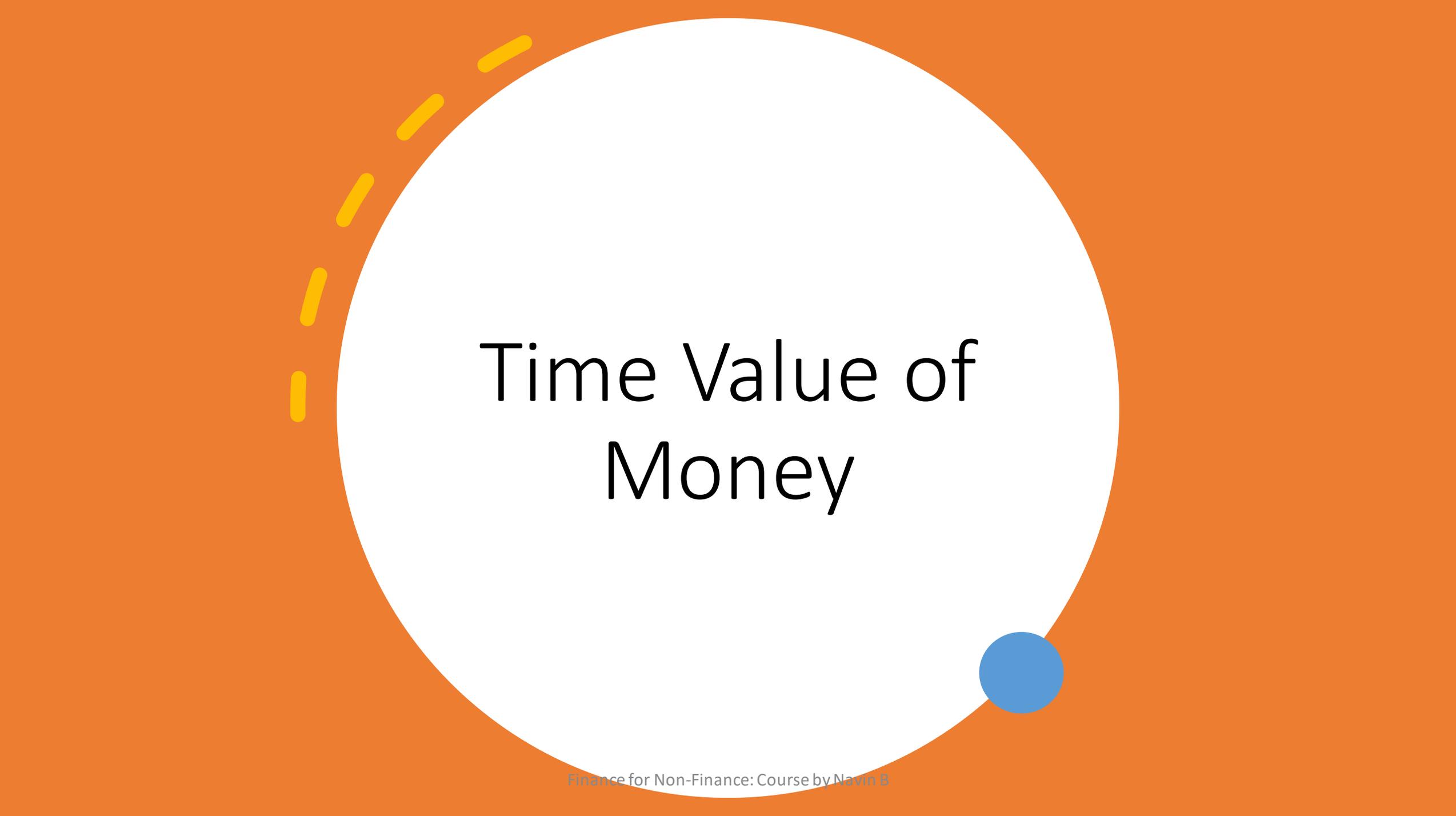
Important Rules of Ratio Analysis



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**2. Never compare companies with
different business models**



Time Value of Money

20 Years Ago



amazon.com



NOW



\$100

24.42% Annual interest rate
(or rate of return)

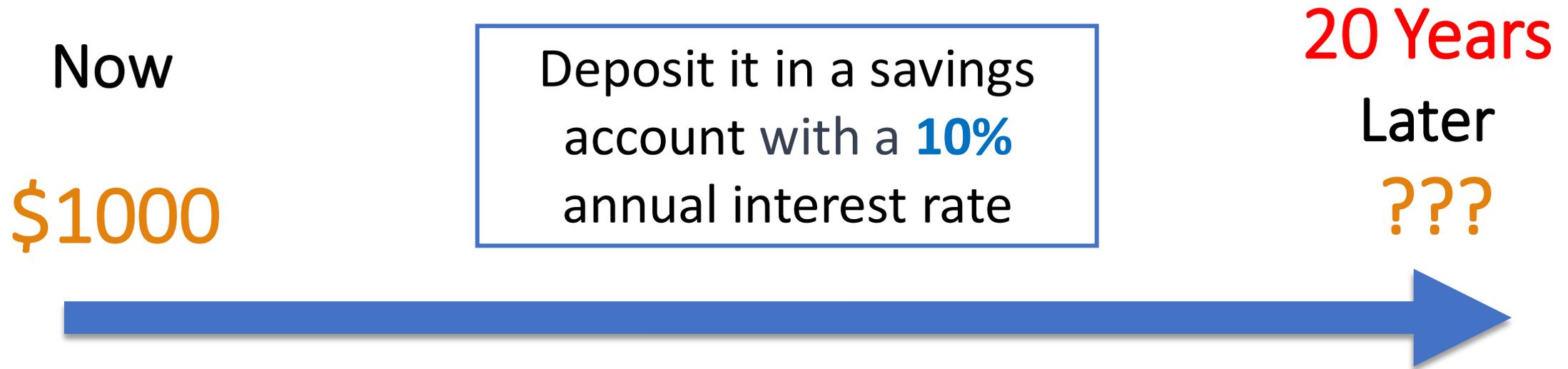
amazon.com

+\$7,900

Money left idle **loses value over time**

Inflation can **decrease the purchasing power** in the future

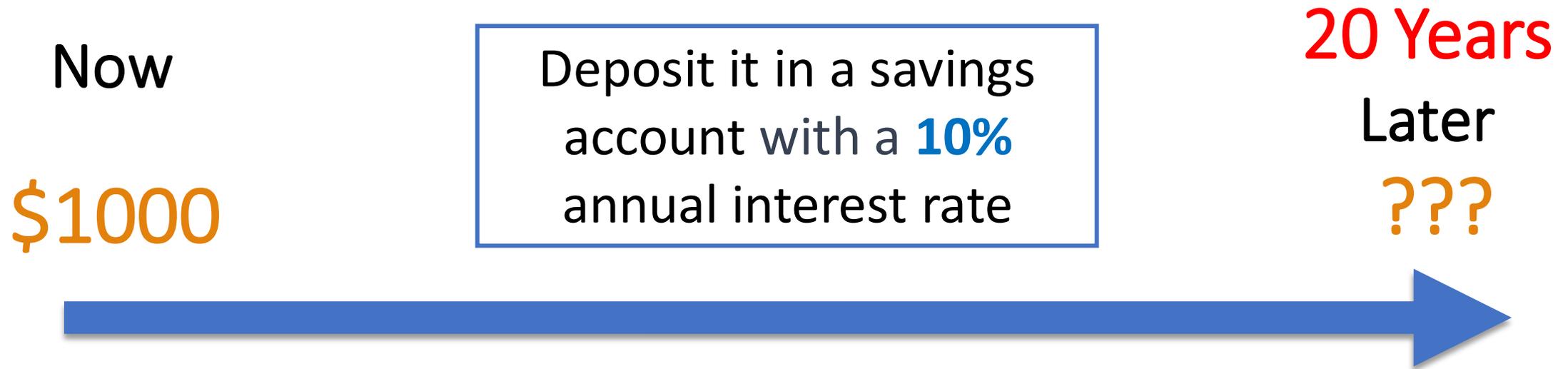
Time Value of Money - Question



Future Value

Value of money at a specific point in the future, considering a certain interest rate

Time Value of Money - Question



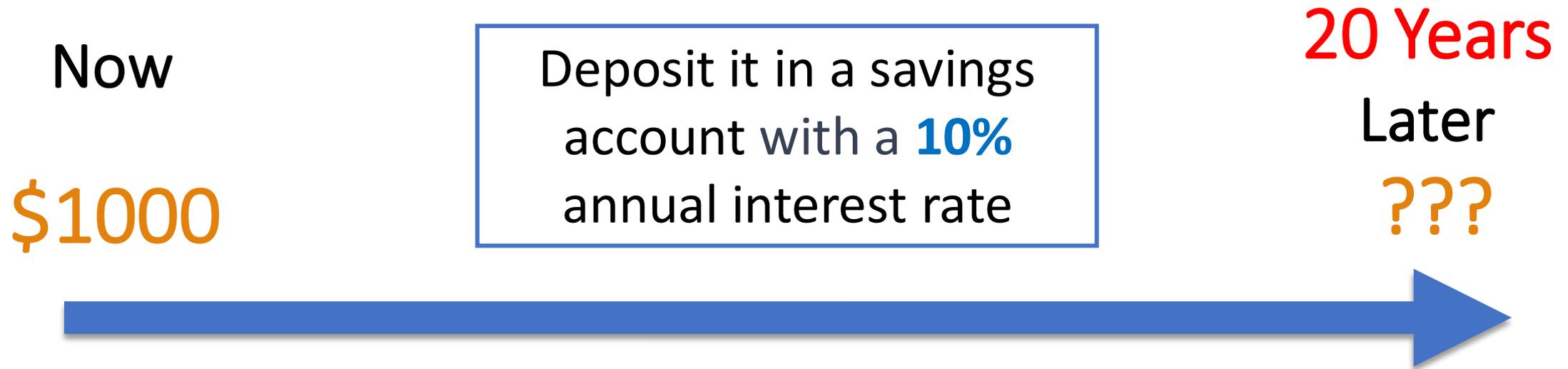
Future Value

$$FV = \text{Present Value} \times (1+r)^n$$

r is the interest rate

n is the number of periods over which compounding is done

Time Value of Money - Question



Future Value

$$FV = \text{Present Value} \times (1+r)^n$$

$$FV = 1000 \times (1 + 0.10)^{20}$$

Future Value Factor Table

Future Value Factor for single cash flow. Formula: $FV(r, n) = (1 + r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.110	1.120	1.130	1.140	1.150	1.160	1.200
2	1.020	1.040	1.061	1.082	1.103	1.124	1.145	1.166	1.188	1.210	1.232	1.254	1.277	1.300	1.323	1.346	1.440
3	1.030	1.061	1.093	1.125	1.158	1.191	1.225	1.260	1.295	1.331	1.368	1.405	1.443	1.482	1.521	1.561	1.728
4	1.041	1.082	1.126	1.170	1.216	1.263	1.311	1.361	1.412	1.464	1.518	1.574	1.631	1.689	1.749	1.811	2.074
5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539	1.611	1.685	1.762	1.842	1.925	2.011	2.100	2.488
6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772	1.870	1.974	2.082	2.195	2.313	2.436	2.986
7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949	2.076	2.211	2.353	2.502	2.660	2.826	3.583
8	1.083	1.172	1.267	1.369	1.478	1.594	1.718	1.851	1.993	2.144	2.305	2.476	2.658	2.853	3.059	3.278	4.300
9	1.094	1.195	1.305	1.423	1.551	1.690	1.839	1.999	2.172	2.358	2.558	2.773	3.004	3.252	3.518	3.803	5.160
10	1.105	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594	2.839	3.106	3.395	3.707	4.046	4.411	6.192
11	1.116	1.243	1.384	1.540	1.710	1.898	2.105	2.332	2.580	2.853	3.152	3.479	3.836	4.226	4.652	5.117	7.430
12	1.127	1.268	1.426	1.601	1.796	2.012	2.252	2.518	2.813	3.138	3.499	3.896	4.335	4.818	5.350	5.936	8.916
13	1.138	1.294	1.469	1.665	1.886	2.133	2.410	2.720	3.066	3.452	3.883	4.364	4.898	5.492	6.153	6.886	10.699
14	1.150	1.320	1.513	1.732	1.980	2.261	2.579	2.937	3.342	3.798	4.310	4.887	5.535	6.261	7.076	7.988	12.839
15	1.161	1.346	1.558	1.801	2.079	2.397	2.759	3.172	3.643	4.177	4.785	5.474	6.254	7.138	8.137	9.266	15.407
16	1.173	1.373	1.605	1.873	2.183	2.540	2.952	3.426	3.970	4.595	5.311	6.130	7.067	8.137	9.358	10.748	18.488
17	1.184	1.400	1.653	1.948	2.292	2.693	3.159	3.700	4.328	5.055	5.895	6.866	7.986	9.277	10.761	12.468	22.186
18	1.196	1.428	1.702	2.026	2.407	2.854	3.380	3.996	4.717	5.560	6.544	7.690	9.024	10.575	12.376	14.463	26.623
19	1.208	1.457	1.754	2.107	2.527	3.026	3.617	4.316	5.142	6.116	7.263	8.613	10.197	12.056	14.232	16.777	31.948
20	1.220	1.486	1.806	2.191	2.653	3.207	3.870	4.661	5.604	6.728	8.062	9.646	11.523	13.744	16.367	19.461	38.338

Future Value Factor Table

Future Value Factor for single cash flow. Formula: $FV(r, n) = (1 + r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.110	1.120	1.130	1.140	1.150	1.160	1.200
2	1.020	1.040	1.061	1.082	1.103	1.124	1.145	1.166	1.188	1.210	1.232	1.254	1.277	1.300	1.323	1.346	1.440
3	1.030	1.061	1.093	1.125	1.158	1.191	1.225	1.260	1.295	1.331	1.368	1.405	1.443	1.482	1.521	1.561	1.728
4	1.041	1.082	1.126	1.170	1.216	1.263	1.311	1.361	1.412	1.464	1.518	1.574	1.631	1.689	1.749	1.811	2.074
5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539	1.611	1.685	1.762	1.842	1.925	2.011	2.100	2.488
6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772	1.870	1.974	2.082	2.195	2.313	2.436	2.986
7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949	2.076	2.211	2.353	2.502	2.660	2.826	3.583
8	1.083	1.172	1.267	1.369	1.478	1.594	1.718	1.851	1.993	2.144	2.305	2.476	2.658	2.853	3.059	3.278	4.300
9	1.094	1.195	1.305	1.423	1.551	1.690	1.839	1.999	2.172	2.358	2.558	2.773	3.004	3.252	3.518	3.803	5.160
10	1.105	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594	2.839	3.106	3.395	3.707	4.046	4.411	6.192
11	1.116	1.243	1.384	1.540	1.710	1.898	2.105	2.332	2.580	2.853	3.152	3.479	3.836	4.226	4.652	5.117	7.430
12	1.127	1.268	1.426	1.601	1.796	2.012	2.252	2.518	2.813	3.138	3.499	3.896	4.335	4.818	5.350	5.936	8.916
13	1.138	1.294	1.469	1.665	1.886	2.133	2.410	2.720	3.066	3.452	3.883	4.364	4.898	5.492	6.153	6.886	10.699
14	1.150	1.320	1.513	1.732	1.980	2.261	2.579	2.937	3.342	3.798	4.310	4.887	5.535	6.261	7.076	7.988	12.839
15	1.161	1.346	1.558	1.801	2.079	2.397	2.759	3.172	3.643	4.177	4.785	5.474	6.254	7.138	8.137	9.266	15.407
16	1.173	1.373	1.605	1.873	2.183	2.540	2.952	3.426	3.970	4.595	5.311	6.130	7.067	8.137	9.358	10.748	18.488
17	1.184	1.400	1.653	1.948	2.292	2.693	3.159	3.700	4.328	5.055	5.895	6.866	7.986	9.277	10.761	12.468	22.186
18	1.196	1.428	1.702	2.026	2.407	2.854	3.380	3.996	4.717	5.560	6.544	7.690	9.024	10.575	12.376	14.463	26.623
19	1.208	1.457	1.754	2.107	2.527	3.026	3.617	4.316	5.142	6.116	7.263	8.613	10.197	12.056	14.232	16.777	31.948
20	1.220	1.486	1.806	2.191	2.653	3.207	3.87	4.64	5.60	6.728	8.062	9.646	11.523	13.744	16.367	19.461	38.338

\$1000 Deposit it in a savings account with a
10% annual interest rate for **20** years

$$\text{\$1000} \times 6.728 = \text{\$6728}$$

$$\text{FV} = \text{Present Value} \times (1+r)^n$$

r is the interest rate

n is the number of periods over which compounding is done

Future Value

EXAMPLE

\$100 invested for **15** years at a
8% compounded annual interest rate

Future Value Factor Table

Future Value Factor for single cash flow. Formula: $FV(r, n) = (1 + r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.110	1.120	1.130	1.140	1.150	1.160	1.200
2	1.020	1.040	1.061	1.082	1.103	1.124	1.145	1.166	1.188	1.210	1.232	1.254	1.277	1.300	1.323	1.346	1.440
3	1.030	1.061	1.093	1.125	1.158	1.191	1.225	1.260	1.295	1.331	1.368	1.405	1.443	1.482	1.521	1.561	1.728
4	1.041	1.082	1.126	1.170	1.216	1.263	1.311	1.361	1.412	1.464	1.518	1.574	1.631	1.689	1.749	1.811	2.074
5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539	1.611	1.685	1.762	1.842	1.925	2.011	2.100	2.488
6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772	1.870	1.974	2.082	2.195	2.313	2.436	2.986
7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949	2.076	2.211	2.353	2.502	2.660	2.826	3.583
8	1.083	1.172	1.267	1.369	1.478	1.594	1.718	1.851	1.993	2.144	2.305	2.476	2.658	2.853	3.059	3.278	4.300
9	1.094	1.195	1.305	1.423	1.551	1.690	1.839	1.999	2.172	2.358	2.558	2.773	3.004	3.252	3.518	3.803	5.160
10	1.105	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594	2.839	3.106	3.395	3.707	4.046	4.411	6.192
11	1.116	1.243	1.384	1.540	1.710	1.898	2.105	2.332	2.580	2.853	3.152	3.479	3.836	4.226	4.652	5.117	7.430
12	1.127	1.268	1.426	1.601	1.796	2.012	2.252	2.518	2.813	3.138	3.499	3.896	4.335	4.818	5.350	5.936	8.916
13	1.138	1.294	1.469	1.665	1.886	2.133	2.410	2.720	3.066	3.452	3.883	4.364	4.898	5.492	6.153	6.886	10.699
14	1.150	1.320	1.513	1.732	1.980	2.261	2.579	2.937	3.342	3.798	4.310	4.887	5.535	6.261	7.076	7.988	12.839
15	1.161	1.346	1.558	1.801	2.079	2.397	2.759	3.172	3.643	4.177	4.785	5.474	6.254	7.138	8.137	9.266	15.407
16	1.173	1.373	1.605	1.873	2.183	2.540	2.952	3.426	3.970	4.595	5.311	6.130	7.067	8.137	9.358	10.748	18.488
17	1.184	1.400	1.653	1.948	2.292	2.693	3.159	3.700	4.328	5.055	5.895	6.866	7.986	9.277	10.761	12.468	22.186
18	1.196	1.428	1.702	2.026	2.407	2.854	3.380	3.996	4.717	5.560	6.544	7.690	9.024	10.575	12.376	14.463	26.623
19	1.208	1.457	1.754	2.107	2.527	3.026	3.617	4.316	5.142	6.116	7.263	8.613	10.197	12.056	14.232	16.777	31.948
20	1.220	1.486	1.806	2.191	2.653	3.207	3.870	4.661	5.604	6.728	8.062	9.646	11.523	13.744	16.367	19.461	38.338

Future Value Factor Table

Future Value Factor for single cash flow. Formula: $FV(r, n) = (1 + r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.110	1.120	1.130	1.140	1.150	1.160	1.200
2	1.020	1.040	1.061	1.082	1.103	1.124	1.145	1.166	1.188	1.210	1.232	1.254	1.277	1.300	1.323	1.346	1.440
3	1.030	1.061	1.093	1.125	1.158	1.191	1.225	1.260	1.295	1.331	1.368	1.405	1.443	1.482	1.521	1.561	1.728
4	1.041	1.082	1.126	1.170	1.216	1.263	1.311	1.361	1.412	1.464	1.518	1.574	1.631	1.689	1.749	1.811	2.074
5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539	1.611	1.685	1.762	1.842	1.925	2.011	2.100	2.488
6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772	1.870	1.974	2.082	2.195	2.313	2.436	2.986
7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949	2.076	2.211	2.353	2.502	2.660	2.826	3.583
8	1.083	1.172	1.267	1.369	1.478	1.594	1.718	1.851	1.993	2.144	2.305	2.476	2.658	2.853	3.059	3.278	4.300
9	1.094	1.195	1.305	1.423	1.551	1.690	1.839	1.999	2.172	2.358	2.558	2.773	3.004	3.252	3.518	3.803	5.160
10	1.105	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594	2.839	3.106	3.395	3.707	4.046	4.411	6.192
11	1.116	1.243	1.384	1.540	1.710	1.898	2.105	2.332	2.580	2.853	3.152	3.479	3.836	4.226	4.652	5.117	7.430
12	1.127	1.268	1.426	1.601	1.796	2.012	2.252	2.518	2.813	3.138	3.499	3.896	4.335	4.818	5.350	5.936	8.916
13	1.138	1.294	1.469	1.665	1.886	2.133	2.410	2.720	3.066	3.452	3.883	4.364	4.898	5.492	6.153	6.886	10.699
14	1.150	1.320	1.513	1.732	1.980	2.261	2.579	2.937	3.342	3.798	4.310	4.887	5.535	6.261	7.076	7.988	12.839
15	1.161	1.346	1.558	1.801	2.079	2.400	2.752	3.172	3.643	4.177	4.785	5.474	6.254	7.138	8.137	9.266	15.407
16	1.173	1.373	1.605	1.873	2.183	2.540	2.952	3.426	3.970	4.595	5.311	6.130	7.067	8.137	9.358	10.748	18.488
17	1.184	1.400	1.653	1.948	2.292	2.693	3.159	3.700	4.328	5.055	5.895	6.866	7.986	9.277	10.761	12.468	22.186
18	1.196	1.428	1.702	2.026	2.407	2.854	3.380	3.996	4.717	5.560	6.544	7.690	9.024	10.575	12.376	14.463	26.623
19	1.208	1.457	1.754	2.107	2.527	3.026	3.617	4.316	5.142	6.116	7.263	8.613	10.197	12.056	14.232	16.777	31.948
20	1.220	1.486	1.806	2.191	2.653	3.207	3.870	4.661	5.604	6.728	8.062	9.646	11.523	13.744	16.367	19.461	38.338

\$100 invested for **15** years at a
8% compounded annual interest rate

$$\text{\$100} \times 3.172 = \text{\$317.2}$$

$$\text{FV} = \text{Present Value} \times (1+r)^n$$

r is the interest rate

n is the number of periods over which compounding is done

Now
\$500



Should you invest?

6 Years Later
\$1000

Present Value

Current value of a sum of money that is to be received or paid in the future



Should you invest?

Now

\$500

6 Years Later

\$1000



Present Value

$$PV = FutureValue \times \frac{1}{(1+r)^n}$$

r is the interest rate per period (discount rate)

n is the number of periods over which compounding is done

Should you invest?

Now

\$500

$PV > \$500$ – Invest
 $PV < \$500$ – Do not invest

6 Years Later

\$1000

Present
Value

$$PV = FutureValue \times \frac{1}{(1+r)^n}$$

r is the interest rate per period (discount rate)

n is the number of periods over which compounding is done



Should you invest?

Now

\$500

6 Years Later

\$1000



Present Value

$$PV = FutureValue \times \frac{1}{(1+r)^n}$$

r = Discount rate (interest rate) can be taken as **10%**

n = **6 years**

Present Value Factor Table

Present Value Factor for single cash flow. $PV(r, n) = 1/(1+r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.833
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783	0.770	0.756	0.743	0.694
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693	0.675	0.658	0.641	0.579
4	0.961	0.924	0.889	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636	0.613	0.592	0.572	0.552	0.482
5	0.952	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.594	0.567	0.543	0.519	0.497	0.476	0.402
6	0.942	0.888	0.838	0.790	0.746	0.705	0.666	0.630	0.596	0.565	0.535	0.507	0.480	0.456	0.432	0.410	0.335
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.584	0.547	0.513	0.482	0.452	0.425	0.400	0.376	0.354	0.279
8	0.924	0.854	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404	0.376	0.351	0.327	0.305	0.233
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361	0.333	0.308	0.284	0.263	0.194
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322	0.295	0.270	0.247	0.227	0.162
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.351	0.317	0.288	0.261	0.237	0.215	0.195	0.135
12	0.887	0.789	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257	0.231	0.208	0.187	0.169	0.112
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229	0.204	0.182	0.163	0.145	0.094
14	0.870	0.758	0.661	0.578	0.505	0.442	0.388	0.341	0.299	0.263	0.232	0.205	0.181	0.160	0.141	0.125	0.078
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183	0.160	0.140	0.123	0.108	0.065
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163	0.142	0.123	0.107	0.093	0.054
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146	0.125	0.108	0.093	0.080	0.045
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130	0.111	0.095	0.081	0.069	0.038
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.195	0.164	0.138	0.116	0.098	0.083	0.070	0.060	0.031
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104	0.087	0.073	0.061	0.051	0.026

Present Value Factor Table

Present Value Factor for single cash flow. $PV(r, n) = 1/(1+r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.833
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783	0.770	0.756	0.743	0.694
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693	0.675	0.658	0.641	0.579
4	0.961	0.924	0.889	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636	0.613	0.592	0.572	0.552	0.482
5	0.952	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.594	0.567	0.543	0.519	0.497	0.476	0.402
6	0.942	0.888	0.838	0.790	0.746	0.705	0.666	0.627	0.588	0.555	0.525	0.497	0.471	0.446	0.422	0.400	0.335
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.584	0.547	0.513	0.482	0.452	0.425	0.400	0.376	0.354	0.279
8	0.924	0.854	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404	0.376	0.351	0.327	0.305	0.233
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361	0.333	0.308	0.284	0.263	0.194
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322	0.295	0.270	0.247	0.227	0.162
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.351	0.317	0.288	0.261	0.237	0.215	0.195	0.135
12	0.887	0.789	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257	0.231	0.208	0.187	0.169	0.112
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229	0.204	0.182	0.163	0.145	0.094
14	0.870	0.758	0.661	0.578	0.505	0.442	0.388	0.341	0.299	0.263	0.232	0.205	0.181	0.160	0.141	0.125	0.078
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183	0.160	0.140	0.123	0.108	0.065
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163	0.142	0.123	0.107	0.093	0.054
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146	0.125	0.108	0.093	0.080	0.045
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130	0.111	0.095	0.081	0.069	0.038
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.195	0.164	0.138	0.116	0.098	0.083	0.070	0.060	0.031
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104	0.087	0.073	0.061	0.051	0.026

For an investment of \$500, you will receive **\$1,000** after **6** years. The discount rate is **10%**

$$PV = \$1000 \times 0.565 = \$565$$

Should you invest?

Net Present Value

$$NPV = PV(\text{Cashflow}) - PV(\text{Initial Investment})$$

$$NPV = \$565 - \$500$$

$$NPV = \$65$$

$NPV > 0$: Investment acceptable

Should you invest?

Now

\$500

Discount rate is 10%

8 Years Later

\$1000

Present
Value

$$PV = FutureValue \times \frac{1}{(1+r)^n}$$

r = Discount rate (interest rate) can be taken as 10%

n = 8 years

Present Value Factor Table

Present Value Factor for single cash flow. $PV(r, n) = 1/(1+r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.833
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783	0.770	0.756	0.743	0.694
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693	0.675	0.658	0.641	0.579
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Present Value Factor Table

Present Value Factor for single cash flow. $PV(r, n) = 1/(1+r)^n$

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1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.833
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783	0.770	0.756	0.743	0.694
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693	0.675	0.658	0.641	0.579
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For an investment of \$500, you will receive **\$1,000** after **8** years. The discount rate is **10%**

$$\text{\$1000} \times 0.467 = \text{\$467}$$

Should you invest?

Net Present Value

$$NPV = PV(\text{Cashflow}) - PV(\text{Initial Investment})$$

$$NPV = \$467 - \$500$$

$$NPV = -\$33$$

NPV < 0: Not economically justified

Calculate Present Value / Future Value

Quick Assignment 6

Calculate Present Value / Future Value

1. You deposit \$500 in a savings account that pays 3% interest annually. What will be the balance in 7 years? (Calculate Future Value)
2. If you invest \$800 today with an annual interest rate of 5%, what will be the future value in 4 years?
3. An investment promises \$1,200 in 3 years. If the discount rate is 6%, what is the present value?

Quick Assignment 6

Calculate Present Value / Future Value

1. You deposit \$500 in a savings account that pays 3% interest annually. What will be the balance in 7 years? (Calculate Future Value)

Practical Test 6 (Answer)

1. You deposit \$500 in a savings account that pays 3% interest annually.
What will be the balance in 7 years?
(Calculate **Future Value**)

Period n	1%	2%	3%
1	1.010	1.020	1.030
2	1.020	1.040	1.061
3	1.030	1.061	1.093
4	1.041	1.082	1.126
5	1.051	1.104	1.159
6	1.062	1.126	1.194
7	1.072	1.149	1.230
8	1.083	1.172	1.267

$$\text{\$500} \times \text{1.230} = \text{\$615}$$

Quick Assignment 6

Calculate Present Value / Future Value

1. You deposit \$500 in a savings account that pays 3% interest annually. What will be the balance in 7 years? (Calculate Future Value)

2. If you invest \$800 today with an annual interest rate of 5%, what will be the future value in 4 years?

Practical Test 6 (Answer)

2. If you invest \$800 today with an annual interest rate of 5%, what will be the **future value** in 4 years?

Period n	1%	2%	3%	4%	5%
1	1.010	1.020	1.030	1.040	1.050
2	1.020	1.040	1.061	1.082	1.103
3	1.030	1.061	1.093	1.125	1.158
4	1.041	1.082	1.126	1.170	1.216
5	1.051	1.104	1.159	1.217	1.276

$$\text{\$800} \times \mathbf{1.216} = \text{\$972.8}$$

Quick Assignment 6

Calculate Present Value / Future Value

1. You deposit \$500 in a savings account that pays 3% interest annually. What will be the balance in 7 years? (Calculate Future Value)
 2. If you invest \$800 today with an annual interest rate of 5%, what will be the future value in 4 years?
 3. An investment promises \$1,200 in 3 years. If the discount rate is 6%, what is the present value?
-

Practical Test 6 (Answer)

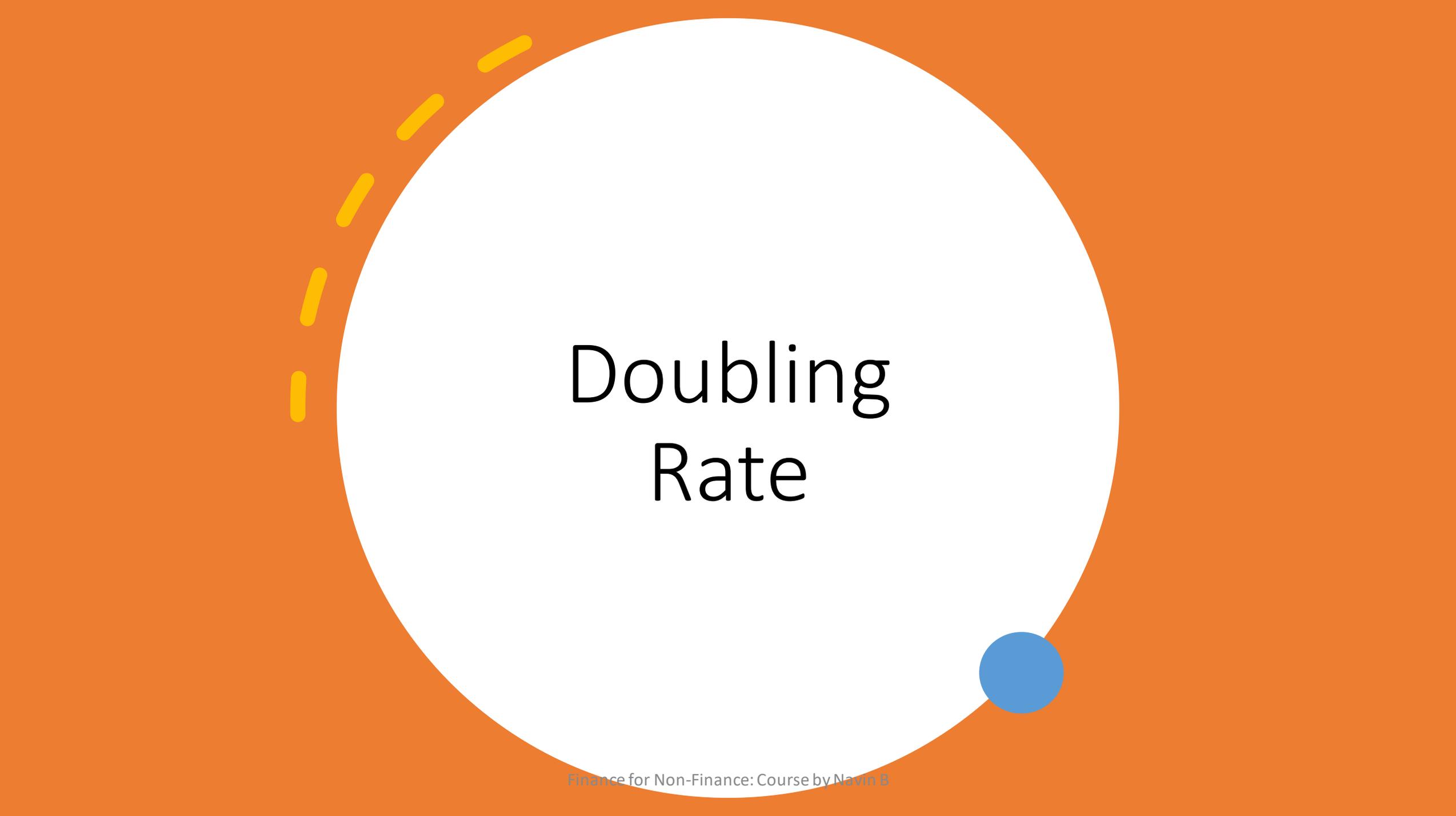
3. An investment promises \$1,200 in 3 years. If the discount rate is 6%, what is the **present value**?

Period n	1%	2%	3%	4%	5%	6%
1	0.990	0.980	0.971	0.962	0.952	0.943
2	0.980	0.961	0.943	0.925	0.907	0.890
3	0.971	0.942	0.915	0.889	0.864	0.840
4	0.961	0.924	0.889	0.855	0.823	0.792

$$\text{\$1200} \times \text{0.84} = \text{\$1008}$$



Real World Financial Concepts & Applications



Doubling Rate

William

“My investment is generating an 8% annual return. How long will it take for my investment to double?”

Invested **\$1,000**, In how many years it will become **\$2,000??**



Rule of 72

- Estimates how long it takes for an investment to double

$$\text{Number of years to double} = \frac{72}{r}$$

r = Annual rate of return

“My investment is generating an **8% annual return**. How long will it take for my investment to double?”

$$\text{Number of years to double} = \frac{72}{r}$$

$$72 / 8 = 9 \text{ Years}$$

Rule of 72

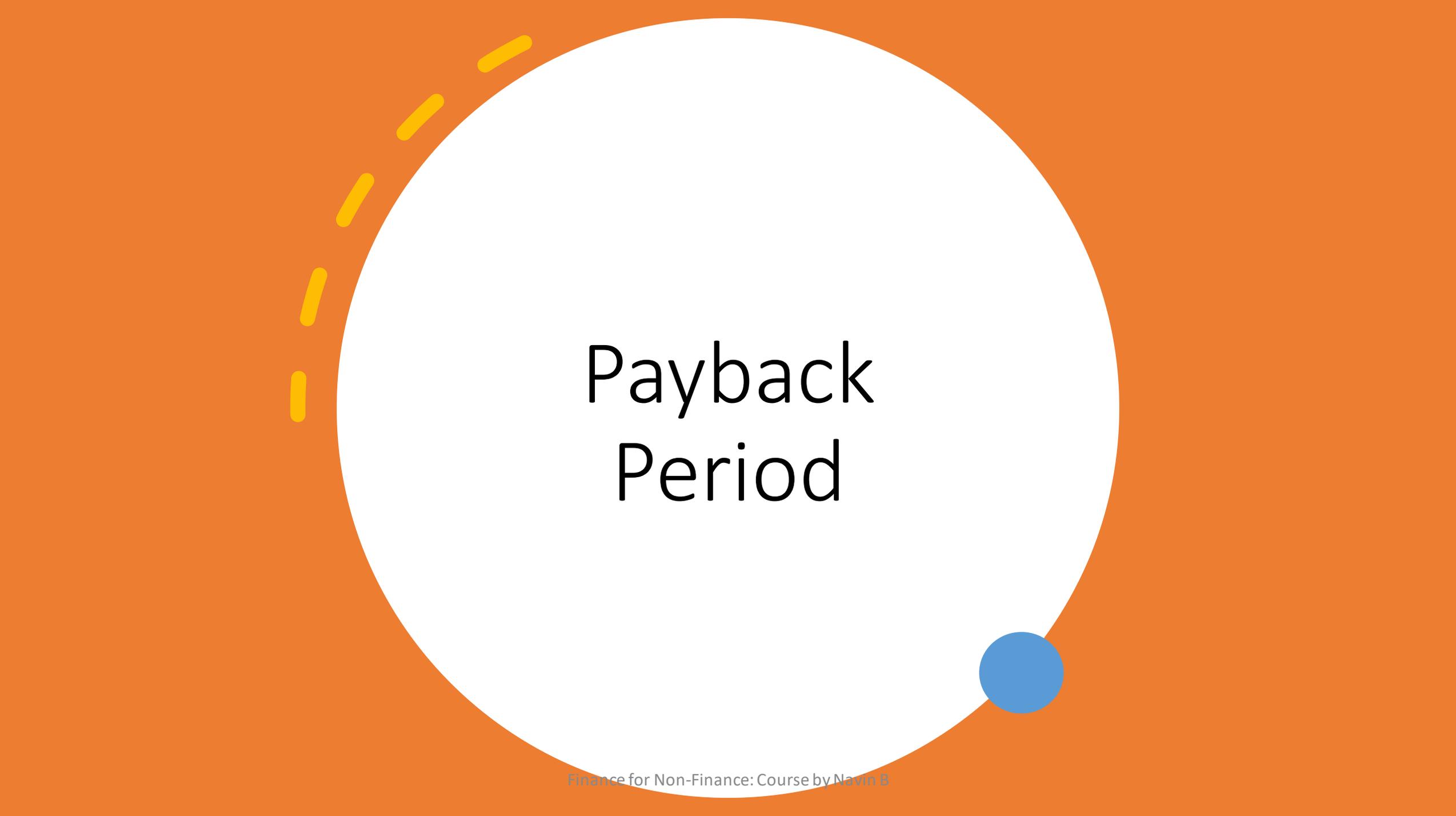
EXAMPLE

Your company has invested in a project generating a **12% annual return**. When will the **investment double**?

Your company has invested in a project generating a **12% annual return**. When will the **investment double**?

$$\text{Number of years to double} = \frac{72}{r}$$

$$72 / 12 = 6 \text{ Years}$$



Payback Period

*“Hey, I have put **\$50,000** into a new project. It'll make **\$15,000** a year for me. In how many years will I get my money back?”*

Payback Period



Payback Period

- Number of years required to recover the original investment
- Quick evaluation of a project's risk and liquidity

$$\text{Payback Period (PP)} = \frac{\text{Initial Investment (I)}}{\text{Annual Cash Inflow (CI)}}$$

I have put **\$50,000** into a new project. It'll make **\$15,000** a year for me. In how many years will I **get my money back**?

$$\text{Payback Period (PP)} = \frac{\text{Initial Investment (I)}}{\text{Annual Cash Inflow (CI)}}$$

$$50,000 / 15,000 \\ = 3.33 \text{ Years}$$

“I have put **\$50,000** into a new project. It'll make **\$15,000** a year for me. In how many years will I **get my money back?**”

$$50,000 / 15,000 = 3.33 \text{ Years}$$

$$\text{Months} = 0.33 \times 12 = 3.96$$

$$3.96 \approx 4 \text{ Months}$$

Payback Period = 3 Years and 4 Months

Payback Period

EXAMPLE

A company invests **\$75,000** in a new project, which will generate **\$20,000** annual return. In how many years will they **get their investment back?**

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$$\text{Payback Period (PP)} = \frac{\text{Initial Investment (I)}}{\text{Annual Cash Inflow (CI)}}$$

$$\begin{aligned} & \mathbf{75,000} / \mathbf{20,000} \\ & = \mathbf{3.75 \text{ Years}} \end{aligned}$$

A company invests **\$75,000** in a new project, which will generate **\$20,000** annual return. In how many years will they **get their investment back**?

$$75,000 / 20,000 = 3.75 \text{ Years}$$

$$\text{Months} = 0.75 \times 12 = 9$$

Payback Period = 3 Years and 9 Months



Retirement Planning

*“I am going to retire after 10 years. How much money should I **save for retirement?**”*

Retirement Planning



Rule of 25

- Estimate retirement savings **(Retirement Corpus)** quickly based on expected retirement expenses
- **Based on 4% Rule:** Withdraw 4% of retirement savings annually for sustainable income over a 30-year retirement period

“What is your desired **Annual Retirement Income?**”



\$24,000

Retirement Corpus =
Desired Annual Retirement
Income \times 25

Desired annual retirement income is **\$24,000**. How much money should be saved as a retirement corpus/savings fund?

$$\text{Retirement Corpus} = \text{Desired Annual Retirement Income} \times 25$$

$$= \$24,000 \times 25$$

$$\text{Retirement Corpus} = \$600,000$$

Limitation of Rule of 25

Fails to **account for inflation**, the gradual increase in prices of goods and services over time

Inflation can decrease the purchasing power in the future

Desired Annual Retirement Income

- **Now**

\$24,000

10 Years Later

???



How to Find Inflation Rate?

The screenshot shows a Google search interface. The search bar contains the text "average inflation rate in last 10 years Australia". Below the search bar are several filter buttons: News, Images, Graph, By year, Videos, Shopping, Books, Maps, and Flights. The search results show "About 6,01,00,000 results (0.44 seconds)". The main text of the result states: "Consumer price inflation in Australia averaged 2.3% in the ten years to 2022, slightly above the Asia-Pacific regional average of 2.1%. The 2022 average figure for Australia was 6.6%. For more inflation information, visit our dedicated page." Below this text is the FocusEconomics logo and the URL "https://www.focus-economics.com › country-indicator". At the bottom of the search result is the link "Australia Inflation Rate: Forecast & Data - FocusEconomics".

average inflation rate in last 10 years Australia

News Images Graph By year Videos Shopping Books Maps Flights

About 6,01,00,000 results (0.44 seconds)

Consumer price inflation in Australia averaged 2.3% in the ten years to 2022, slightly above the Asia-Pacific regional average of 2.1%. The 2022 average figure for Australia was 6.6%. For more inflation information, visit our dedicated page.

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[Australia Inflation Rate: Forecast & Data - FocusEconomics](#)

Consumer Price Index (CPI) is used to calculate inflation by measuring the average change over time

Rule of 25 – Considering Inflation

*“I am going to retire after **10 years**. How much money should I save for retirement?”*

2 Steps



Rule of 25 – Considering Inflation (Step 1)

*“I am going to retire after **10 years**. How much money should I save for retirement?”*

Inflation Rate – 3%

Desired Annual Retirement Income

- **Now**

\$24,000



10 Years Later

???

Find Future Value?

Rule of 25 – Considering Inflation (Step 1)

Future Value

$$FV = \text{Present Value} \times (1+r)^n$$

r is the inflation rate

n is the number of periods over which compounding is done

$$\text{Present Value} = \$24,000$$

$$r = 3\%$$

$$n = 10 \text{ Years}$$

$$FV = \$24,000 \times (1 + 0.03)^{10}$$



Future Value Factor Table

Future Value Factor for single cash flow. Formula: $FV(r, n) = (1 + r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.110	1.120	1.130	1.140	1.150	1.160	1.200
2	1.020	1.040	1.061	1.082	1.103	1.124	1.145	1.166	1.188	1.210	1.232	1.254	1.277	1.300	1.323	1.346	1.440
3	1.030	1.061	1.093	1.125	1.158	1.191	1.225	1.260	1.295	1.331	1.368	1.405	1.443	1.482	1.521	1.561	1.728
4	1.041	1.082	1.126	1.170	1.216	1.263	1.311	1.361	1.412	1.464	1.518	1.574	1.631	1.689	1.749	1.811	2.074
5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539	1.611	1.685	1.762	1.842	1.925	2.011	2.100	2.488
6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772	1.870	1.974	2.082	2.195	2.313	2.436	2.986
7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949	2.076	2.211	2.353	2.502	2.660	2.826	3.583
8	1.083	1.172	1.267	1.369	1.478	1.594	1.718	1.851	1.993	2.144	2.305	2.476	2.658	2.853	3.059	3.278	4.300
9	1.094	1.195	1.305	1.423	1.551	1.690	1.839	1.999	2.172	2.358	2.558	2.773	3.004	3.252	3.518	3.803	5.160
10	1.106	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594	2.839	3.106	3.395	3.707	4.046	4.411	6.192
11	1.116	1.243	1.384	1.540	1.710	1.898	2.105	2.332	2.580	2.853	3.152	3.479	3.836	4.226	4.652	5.117	7.430
12	1.127	1.268	1.426	1.601	1.796	2.012	2.252	2.518	2.813	3.138	3.499	3.896	4.335	4.818	5.350	5.936	8.916
13	1.138	1.294	1.469	1.665	1.886	2.133	2.410	2.720	3.066	3.452	3.883	4.364	4.898	5.492	6.153	6.886	10.699
14	1.150	1.320	1.513	1.732	1.980	2.261	2.579	2.937	3.342	3.798	4.310	4.887	5.535	6.261	7.076	7.988	12.839
15	1.161	1.346	1.558	1.801	2.079	2.397	2.759	3.172	3.643	4.177	4.785	5.474	6.254	7.138	8.137	9.266	15.407
16	1.173	1.373	1.605	1.873	2.183	2.540	2.952	3.426	3.970	4.595	5.311	6.130	7.067	8.137	9.358	10.748	18.488
17	1.184	1.400	1.653	1.948	2.292	2.693	3.159	3.700	4.328	5.055	5.895	6.866	7.986	9.277	10.761	12.468	22.186
18	1.196	1.428	1.702	2.026	2.407	2.854	3.380	3.996	4.717	5.560	6.544	7.690	9.024	10.575	12.376	14.463	26.623
19	1.208	1.457	1.754	2.107	2.527	3.026	3.617	4.316	5.142	6.116	7.263	8.613	10.197	12.056	14.232	16.777	31.948
20	1.220	1.486	1.806	2.191	2.653	3.207	3.870	4.661	5.604	6.728	8.062	9.646	11.523	13.744	16.367	19.461	38.338

Rule of 25 – Considering Inflation (Step 1)

$$FV = \$24,000 \times (1 + 0.03)^{10}$$

$$\$24,000 \times 1.344 = \$32,256$$



Present Value = \$24,000

$r = 3\%$

$n = 10$ Years

Rule of 25 – Considering Inflation (Step 2)

Desired annual retirement income is **\$32,256**. How much money should be saved as a retirement corpus/savings fund?

Retirement Corpus = Desired Annual Retirement Income × 25

= **\$32,256** × 25

Retirement Corpus = **\$806,400**



Rule of 25 – Considering Inflation

EXAMPLE



*“I am going to retire after **20 years**. My desired annual retirement income is **\$12,000**. How much money should I save as my **retirement corpus/savings fund?**”*

Rule of 25 – Considering Inflation (Step 1)

*“I am going to retire after **20 years**. How much money should I save for retirement?”*

Inflation Rate – 3%

Desired Annual Retirement Income

- **Now**

\$12,000

20 Years Later

???

Find Future Value?

Rule of 25 – Considering Inflation (Step 1)

Future Value

$$FV = \text{Present Value} \times (1+r)^n$$

r is the inflation rate

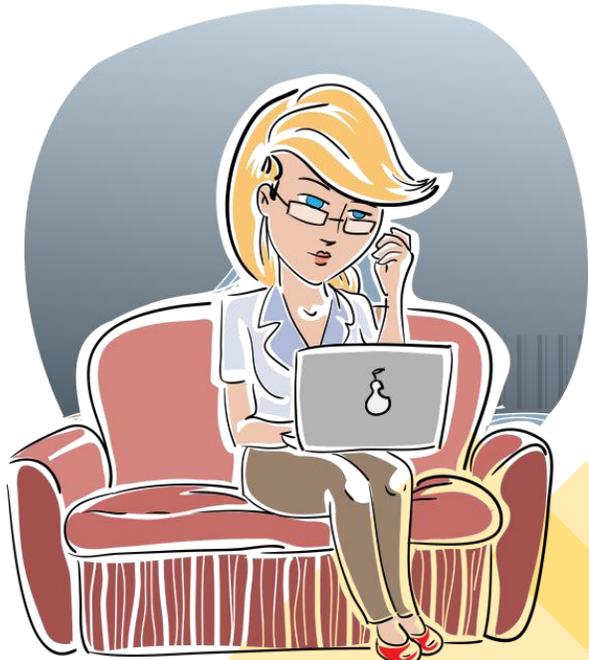
n is the number of periods over which compounding is done

$$\text{Present Value} = \$12,000$$

$$r = 3\%$$

$$n = 20 \text{ Years}$$

$$FV = \$12,000 \times (1 + 0.03)^{20}$$



Future Value Factor Table

Future Value Factor for single cash flow. Formula: $FV(r, n) = (1 + r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.110	1.120	1.130	1.140	1.150	1.160	1.200
2	1.020	1.040	1.061	1.082	1.103	1.124	1.145	1.166	1.188	1.210	1.232	1.254	1.277	1.300	1.323	1.346	1.440
3	1.030	1.061	1.093	1.125	1.158	1.191	1.225	1.260	1.295	1.331	1.368	1.405	1.443	1.482	1.521	1.561	1.728
4	1.041	1.082	1.126	1.170	1.216	1.263	1.311	1.361	1.412	1.464	1.518	1.574	1.631	1.689	1.749	1.811	2.074
5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539	1.611	1.685	1.762	1.842	1.925	2.011	2.100	2.488
6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772	1.870	1.974	2.082	2.195	2.313	2.436	2.986
7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949	2.076	2.211	2.353	2.502	2.660	2.826	3.583
8	1.083	1.172	1.267	1.369	1.478	1.594	1.718	1.851	1.993	2.144	2.305	2.476	2.658	2.853	3.059	3.278	4.300
9	1.094	1.195	1.305	1.423	1.551	1.690	1.839	1.999	2.172	2.358	2.558	2.773	3.004	3.252	3.518	3.803	5.160
10	1.105	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594	2.839	3.106	3.395	3.707	4.046	4.411	6.192
11	1.116	1.243	1.384	1.540	1.710	1.898	2.105	2.332	2.580	2.853	3.152	3.479	3.836	4.226	4.652	5.117	7.430
12	1.127	1.268	1.426	1.601	1.796	2.012	2.252	2.518	2.813	3.138	3.499	3.896	4.335	4.818	5.350	5.936	8.916
13	1.138	1.294	1.469	1.665	1.886	2.133	2.410	2.720	3.066	3.452	3.883	4.364	4.898	5.492	6.153	6.886	10.699
14	1.150	1.320	1.513	1.732	1.980	2.261	2.579	2.937	3.342	3.798	4.310	4.887	5.535	6.261	7.076	7.988	12.839
15	1.161	1.346	1.558	1.801	2.079	2.397	2.759	3.172	3.643	4.177	4.785	5.474	6.254	7.138	8.137	9.266	15.407
16	1.173	1.373	1.605	1.873	2.183	2.540	2.952	3.426	3.970	4.595	5.311	6.130	7.067	8.137	9.358	10.748	18.488
17	1.184	1.400	1.653	1.948	2.292	2.693	3.159	3.700	4.328	5.055	5.895	6.866	7.986	9.277	10.761	12.468	22.186
18	1.196	1.428	1.702	2.026	2.407	2.854	3.380	3.996	4.717	5.560	6.544	7.690	9.024	10.575	12.376	14.463	26.623
19	1.208	1.457	1.754	2.107	2.527	3.026	3.617	4.316	5.142	6.116	7.263	8.613	10.197	12.056	14.232	16.777	31.948
20	1.220	1.486	1.806	2.191	2.653	3.207	3.870	4.661	5.604	6.728	8.062	9.646	11.523	13.744	16.367	19.461	38.338



1.806

Rule of 25 – Considering Inflation (Step 1)

$$FV = \$12,000 \times (1 + 0.03)^{20}$$

$$\$12,000 \times 1.806 = \$21,672$$



Present Value = \$12,000

$r = 3\%$

$n = 20$ Years

Rule of 25 – Considering Inflation (Step 2)

Desired annual retirement income is **\$21,672**. How much money should be saved as a retirement corpus/savings fund?

Retirement Corpus = Desired Annual Retirement Income × 25

= **\$21,672** × 25

Retirement Corpus = **\$541,800**



Calculate the **retirement corpus** for **yourself** or for someone you know.
Quick Assignment 7

Note down:

1. Desired annual retirement income
2. Plan to retire after _____ years
3. Inflation rate (can be assumed as 3%)

Retirement Corpus Calculator

Name -

Retirement Income:

(Enter desired annual retirement income)

Years Until Retirement:

(Enter years until retirement)

Inflation Rate:

(Take last 10 years average inflation rate)

Future Value Factor:

(Find factor from the Future Value Table)

Future Value of Retirement Income

Retirement Corpus

Future Value Factor Table

Future Value Factor for single cash flow. Formula: $FV(r, n) = (1 + r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.110	1.120	1.130	1.140	1.150	1.160	1.200
2	1.020	1.040	1.061	1.082	1.103	1.124	1.145	1.166	1.188	1.210	1.232	1.254	1.277	1.300	1.323	1.346	1.440
3	1.030	1.061	1.093	1.125	1.158	1.191	1.225	1.260	1.295	1.331	1.368	1.405	1.443	1.482	1.521	1.561	1.728
4	1.041	1.082	1.126	1.170	1.216	1.263	1.311	1.361	1.412	1.464	1.518	1.574	1.631	1.689	1.749	1.811	2.074
5	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539	1.611	1.685	1.762	1.842	1.925	2.011	2.100	2.488
6	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772	1.870	1.974	2.082	2.195	2.313	2.436	2.986
7	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949	2.076	2.211	2.353	2.502	2.660	2.826	3.583
8	1.083	1.172	1.267	1.369	1.478	1.594	1.718	1.851	1.993	2.144	2.305	2.476	2.658	2.853	3.059	3.278	4.300
9	1.094	1.195	1.305	1.423	1.551	1.690	1.839	1.999	2.172	2.358	2.558	2.773	3.004	3.252	3.518	3.803	5.160
10	1.105	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594	2.839	3.106	3.395	3.707	4.046	4.411	6.192
11	1.116	1.243	1.384	1.540	1.710	1.898	2.105	2.332	2.580	2.853	3.152	3.479	3.836	4.226	4.652	5.117	7.430
12	1.127	1.268	1.426	1.601	1.796	2.012	2.252	2.518	2.813	3.138	3.499	3.896	4.335	4.818	5.350	5.936	8.916
13	1.138	1.294	1.469	1.665	1.886	2.133	2.410	2.720	3.066	3.452	3.883	4.364	4.898	5.492	6.153	6.886	10.699
14	1.150	1.320	1.513	1.732	1.980	2.261	2.579	2.937	3.342	3.798	4.310	4.887	5.535	6.261	7.076	7.988	12.839
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16	1.173	1.373	1.605	1.873	2.183	2.540	2.952	3.426	3.970	4.595	5.311	6.130	7.067	8.137	9.358	10.748	18.488
17	1.184	1.400	1.653	1.948	2.292	2.693	3.159	3.700	4.328	5.055	5.895	6.866	7.986	9.277	10.761	12.468	22.186
18	1.196	1.428	1.702	2.026	2.407	2.854	3.380	3.996	4.717	5.560	6.544	7.690	9.024	10.575	12.376	14.463	26.623
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20	1.220	1.486	1.806	2.191	2.653	3.207	3.870	4.661	5.604	6.728	8.062	9.646	11.523	13.744	16.367	19.461	38.338

Calculate the
retirement corpus for
yourself or for
someone you know.

Quick Assignment 7 Solution

Note down:

1. Desired annual retirement income
2. Plan to retire after _____ years
3. Inflation rate (can be assumed as 3%)

Retirement Corpus Calculator

Name -

Retirement Income:

(Enter desired annual retirement income)

Years Until Retirement:

(Enter years until retirement)

Inflation Rate:

(Take last 10 years average inflation rate)

Future Value Factor:

(Find factor from the Future Value Table)

Future Value of Retirement Income

Retirement Corpus

Retirement Corpus Calculator

Name -

Retirement Income:

(Enter desired annual retirement income)

Years Until Retirement:

(Enter years until retirement)

Inflation Rate:

(Take last 10 years average inflation rate)

Future Value Factor:

(Find factor from the Future Value Table)

Future Value of Retirement Income

Retirement Corpus

Retirement Corpus Calculator

Name - Mr. William Johnson

Retirement Income: \$20,000

(Enter desired annual retirement income)

Years Until Retirement: 10

(Enter years until retirement)

Inflation Rate: 3%

(Take last 10 years average inflation rate)

Future Value Factor: 1.344

(Find factor from the Future Value Table)

Future Value of Retirement Income \$26,880

Retirement Corpus \$672,000

Future Value Factor Table

Future Value Factor for single cash flow. Formula: $FV(r, n) = (1 + r)^n$

Period n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%
1	1.010	1.020	1.030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.110	1.120	1.130	1.140	1.150	1.160	1.200
2	1.020	1.040	1.061	1.082	1.103	1.124	1.145	1.166	1.188	1.210	1.232	1.254	1.277	1.300	1.323	1.346	1.440
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20	1.220	1.486	1.806	2.191	2.653	3.207	3.870	4.661	5.604	6.728	8.062	9.646	11.523	13.744	16.367	19.461	38.338



"The best thing money can buy
is financial freedom."

— Rob Berger

Thank You!