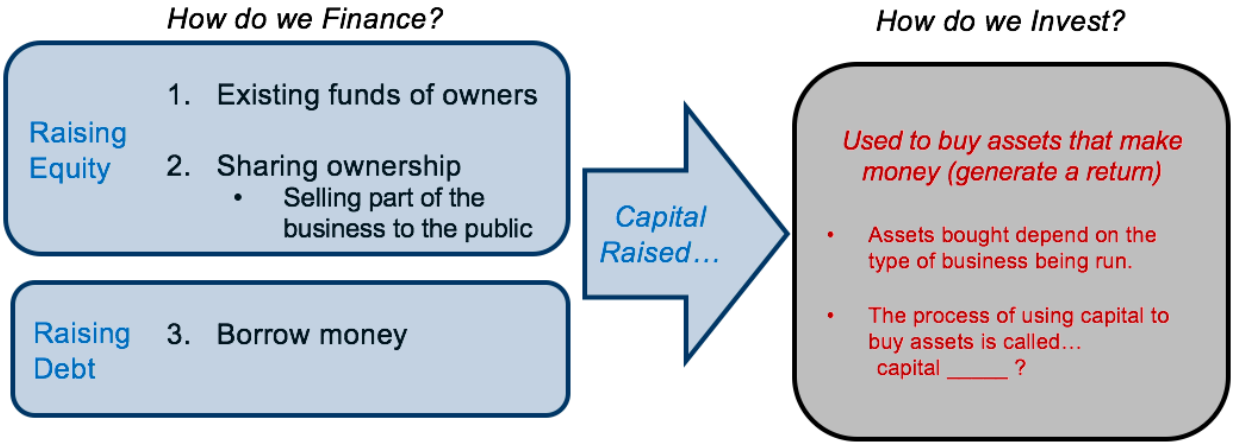
WEEK 1: WHAT IS FINANCE?

Finance = the raising of money (capital), to then invest
Investment= the making money by using capital to buy assets and generate more money

- Whole idea of finance= the make more money
- **Capital budgeting =** process of using capital to buy assets that will hopefully generate more money



Linking finance and investment using a balance sheet (BELOW)
Assets = Liabilities + O.E

$$E(R)_{Assets} > RRoR_{Capital}$$

Investment decision		**Financing Decision**	
Assets	$100	Liabilities/Debt	$50
		K_d= 5% (Cost of debt)	
		Equity	$50
		K_e= 5% (Cost of equity)	
			$100

What assets to buy?
How does a RRoR of 5%, which arises from raising $100 of capital, affect the Investment decision, aka how does having to pay 5% for capital, affect the choice of which assets the company should buy?

The asset bought must earn a return that is greater than the RRoR.

E(R) > 5%

E.g For every $100 of lemonade machinery I have, I should be earning $5 more
–That is the essential link between finance and investment.

$E(R)_{Assets} > RRoR_{Capital}$

The partition of capital between debt & equity is called **Capital Structure.** Knowing the capital structure; how much of capital is equity, how much of capital is debt, provides the weights used to calculate WACC

– Overall Cost of Capital = 5%
Use a weighted average of the above 2 components of capital

$$\frac{50}{100} \times 5\% + \frac{50}{100} \times 5\% = 5\%$$

This is called the weighted average cost of capital (**WACC**)
– WACC is a Required Rate of Return (**RRoR**).
– If the company does not pay 5% to its financiers, it cannot continue its business

Only assets that have an expected rate of return greater than WACC should be chose

A. Relationship between Finance & Investment

$$E(R)_{Assets} > RRoR_{Capital}$$

Expected rate of return of assets should be greater than me requiring them

- Capital is split into debt and equity
- To calculate the overall capital:
- Cost of capital- how much (%) needs to be paid for debt and equity
- **WACC=** measure of the cost of capital, using weighted average of debt and equity costs (overall cost of capital)
    - Bare minimum to cover= costs, need to cover our costs = RROR
    - WACC also = RROR
- **RROR (aka Hurdle rate)=** minimum (%) rate of return necessary to attract an investor to purchase or hold a security/asset. Also called the hurdle rate (bare minimum)?
    -
    - Investors use **RRoR** to decide where to invest their money
    - They compare the return of an investment to all other available options taking in account of risk-free return, inflation and liquidity.
- **Expected rate of return**= what is forecasted to be earned (%) on assets which will generate a return.
- **FORMULA: Expected rate of return of assets should be greater than me requiring them**

- Lower WACC is more preferred than higher WACC– Similar to paying interest rates
    - WACC = weighted average cost of capital
    - Lower the cost of capital = either K_e or K_d or both are cheaper
    - Lower WACC allows the company greater choices and flexibility of assets to buy
    - Higher WACC = costs more to use your capital
    - Lower WACC = may earn more profit
- **Example:** If I borrow $100, bank might charge us $5 to lend us the money, we want to be charged less to use the money we want to borrow, hence might try find a bank that will charge us $1 to use the $100. Hence compare the $101 and $105
- **Example:** If I get Yeezy's from a friend for $100 and resell for $110, the expected rate of return= 10/100 =10%. To get the $100 in the first place, my friend will charge me $5 to lend me that money so I will need to return him with $105. Required rate of return= 5%. However $E(R)_{assets} > RRoR_{Capital}$, I will still get $5 profit.
- **FORMULA: Expected rate of return of assets should be greater than me requiring them**

B. FLOW OF FUNDS

Flow of funds (FoF) = where capital (money) is transferred from surplus units to deficit units in the economy

- AKA: the movement of funds through the economy/ movement between surplus and deficit units
- This is important as it enables money to be transferred from those who have excess capital to those who need it.
- A well functioning and developed financial system allows for the efficient flows of funds.
- The efficient flow of funds takes money from savers and gets it to the individuals who can best put that money to use.
- **Capital markets=** all institutions that help a business raise long-term capital (and procedures that facilitate transactions in long-term financial instruments)
- **Surplus units =** who spend less money than they earn/ take in, hence are interested in lending money. (Can be individuals, companies and governments)

- **Deficit units =** spent more than it has earned over a period of time, consequently have the need for additional funding (federal government, etc.)
    - **E.g** Rebecca Swank- sole proprietor of the Sip and Stitch, a yarn and coffee shop who would like to open a second store but needs $100,000 to finance a second shop. Hence the money will come from surplus units in the economy- from those who spend less than they take in.

Why is the flow of funds in an economy important?
The flow of funds between surplus and deficit units is vital to efficient growth of the economy, because they result in employment, productivity and wage growth.
An **efficient** flow of funds means:

1) **Capital is not mispriced** (define mispriced)
    - **Mispriced=** price paid for capital is appropriate, not severely over/under capital's fair value. Value is defined later (price in market is fairly close to value of capital; capital should be fairly close to it's fair value)
        - **E.g** If I'm a deficit money, money is really important to me, money is worth something to me. If I think capital is worth $5, but it's placed at $10, not a fair value
2) **Surplus and deficit units have liquidity-**
    - **Liquidity=** deficit units are able to raise the capital they need and surplus units have enough capital to meet deficit units need
    - **E.g** If I need cash, I can get it easily. Enough of money out there that if I need it, I can get it and if I have excess, I can invest it.
3) **There is sufficient depth of financial market**
    - Has to be enough amount of money and participants, so that if one person fails, the market will still hold up
    - If one of the banks fail, the other banks can compensate for them so there's sufficient amount of money in the market. If I want money I can get it, if I want to invest, I can.
    - Full players in the market

Example 1 –

- You wish to buy a $500, 000 house and have a net income of $50, 000/ annum. Without being able to borrow money (flow of funds from surplus to deficit units), you would have to wait 10 years to save up enough to afford the house.
- With the availability of debt, if you can afford the debt repayments, you can buy the house now. $500, 000 of consumption is brought forward 10 years. This is good for the economy

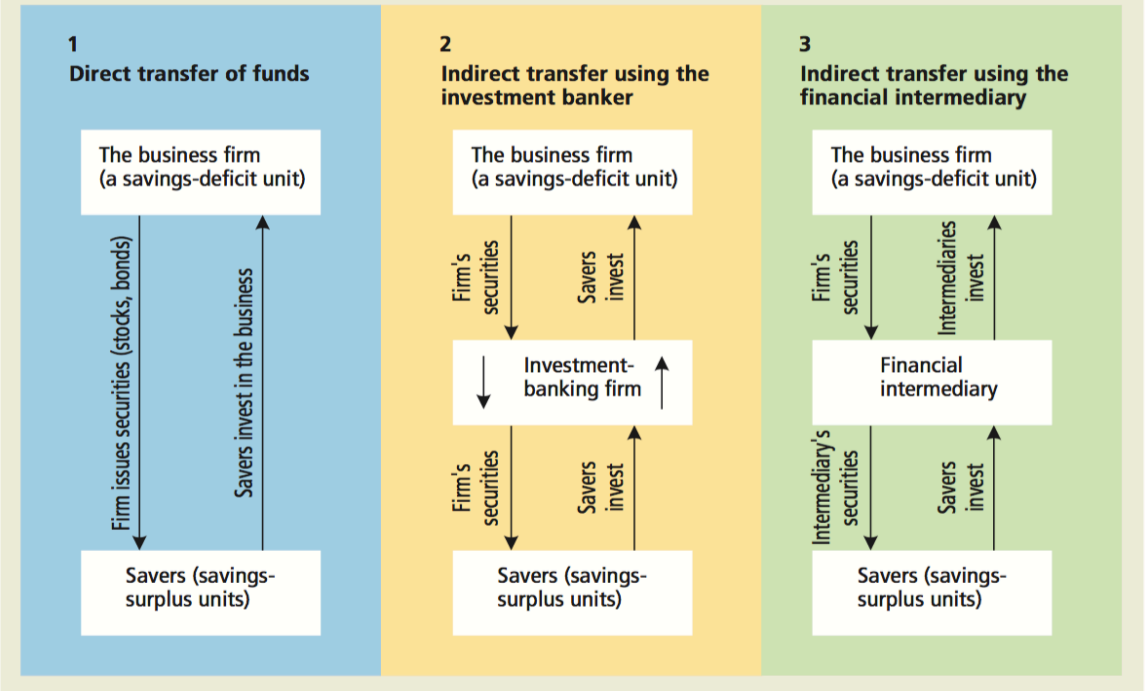
The same analogy can be applied to investment

Example 2 –

- You need $500, 000 to start a business and have a net income of $50, 000/ annum. Without being able to borrow money (flow of funds from surplus to deficit units), you would have to wait 10 years to save up enough to start the business.
- With the availability of debt, if you can afford the debt repayments, you can start the business now. $500, 000 of investment, purchases of equipment, hiring of staff and other economic stimulants are brought forward 10 years. This is good for the economy

There are **3 ways** for the flow of funds to occur in an economy: (**3 ways** that savings can be transferred (from surplus units) through the financial markets to those in need of funds (deficit units)– BELOW

FIGURE 2-1 Three Ways to Transfer Capital in the Economy



1. **Direct finance**= Direct transfer of funds between surplus & deficit units; funds flow directly through financial markets
    - Surplus units (lender-avers) deal directly with deficit units (borrower spenders)
    - Borrow-spender sell securities, such as shares and bonds to lender-savers in exchange for money
    - **E.g** Start up/ new business may go directly to a wealthy private investor called an **angel investor** (who provides capital for a business start-up or may go to a **venture capitalist** (an investment firm or individual that provides money to business start-ups) for early funding.

Finance indirectly through intermediation

2. **Indirect transfer** by using an investment banking firm (a type of financial intermediary)
    - **E.g** BHP decides to issue and sell new shares. Goldman Sachs is employed to underwrite the capital issue using private placement and a public offering.
    - **Investment banking firm=** financial institution that helps companies raise capital, trades in securities, and provides advice on transactions such as mergers and acquisitions. (Buying and selling of stocks, bonds and other investments **e.g Citigroup, Morgan Stanley)**
        - Investment bankers frequently work together with other investment bankers in a syndicate. They 1: Underwrite= assuming a risk, 2: Distribute and 3: Advise.
        - **Syndicate=** group of investment bankers who contractually assist in the buying and selling of a new security issue. First they will buy the entire issue of securities (tradable financial assets) from the firm that is in need of financial capital. They will then sell the securities at a higher price to the investing public (the savers) than it paid for them.

- **Commercial bank=** act as managers for deposit accounts for businesses and individuals, although they are primarily focused on business accounts, and they make public loans through deposit money that they hold. (Manage deposit accounts such as checking and savings accounts, and offers deposits, personal loans **e.g ANZ, HSBC)**

3. **Indirect transfer** by using a financial intermediary
   - Type of system in which life insurance companies, mutual funds and pension funds operate
   - **Financial intermediary =** An entity that acts as a middleman between 2 parties, such as a commercial bank, investment bank, pension funds, mutual funds, that holds funds from lenders in order to make loans to borrowers.
     - Collects savings of individuals and issues its own (indirect) securities in exchange for these savings. The intermediary then uses the funds collected from the individual savers to acquire the business firm's (direct) securities, such as stocks and bonds.

The flow of funds occur within the Financial System of an economy. The Financial System comprises of:

1. **Financial Institutions**: businesses that facilitate the flow and transfer of funds by <u>providing intermediation</u>. **(e.g ANZ, Bank of Melbourne, HSBC, RACV, Westpac)**
   - Institutions such as commercial banks invest in financial assets and provide financial services. Financial institutions collect money from lender-avers in small amounts, aggregate the funds, and make loans in larger amounts to consumers, businesses and government.
     - Depository financial institutions
     - Investment banks
     - Contractual saving institutions
     - Finance companies
     - Unit trusts

2. **Financial Instruments/ financial security**: primarily types of debt & equity that are vehicles for the flow/transfer of funds. **(e.g home loan)**
   - Equity
   - Debt
   - Derivative
   - Hybrid

3. **Financial Markets:** where financial instruments are created and traded **(e.g Australian stock exchange)**
   - Wholesale markets for the creation and sale of financial securities, such as shares, bonds and money market instruments Large corporations use the financial markets to sell securities directly to lenders

C. FINANCIAL INTERMEDIATION & DIRECT FINANCING

Flow of funds occurs through either financial **intermediation** or **direct financing**

- **Intermediation=** Use of a 3rd party to bring together surplus and deficit units and allows most of the preferences to both be met
- **E.g** If A needs to borrow money, and B has money to lend out, how do we know if both A and B will commit (i.e How do we know A will pay back the money or how do we know B will lend out the money). Therefore we can use a **3rd party= intermediary**, where we can transfer funds to the 3rd party and bring it together.

- **Direct financing=** Deficit and surplus units seek each other out and enact the flow of funds between them without the use of an intermediary

Key benefits of financial intermediation

- **Intermediation=** In between surplus and deficit units, there's a middle man, which can be a commercial bank or investment bank to facilitate the flows of funds

Benefits:

1) **Asset transformation=** turning deposits into loans
    - Takes money from surplus units (invest money because they have excess capital) and makes loans
2) **Credit risk transformation & diversification-** low risk deposits turned into higher risk loans and different types of loans
    - (safe money-deposit has a low risk, people are putting money in banks, not all going in at the same time)
    - Risk= chance of loss
3) **Liquidity transformation-** short-term debt (deposits) used to fund long-term assets (loans)
    - Savings accounts- withdraw money very often (short-term)
    - Where as longs are long-term (home loans)
4) **Economies of scale-** the larger banks are, the cheaper the intermediation becomes
    - Cheaper to engage in middleman activity, the more deposits it has, the more loans it can give out.
    - The easier it is the conduct your activities, people will trust you because you are big.

Not all economic units can successfully engage in direct financing

- Units need to possess a sufficient level of financial sophistication, market reputation, credit worthiness and economic size/ influence
    - Cost time and effort and money, especially small businesses do not have the time
    - Must be in the market long enough so people trust you
- **Example–** While a company like BHP can engage in direct financing, the local Milk Bar or Fish & Chips shop would not be able to borrow money or raise finance directly from surplus units

Advantages of direct finance: **(Points towards greater flexibility)**	**Disadvantages of direct finance:**
1) **Saves on the cost of intermediation**; hiring a 3rd party is not free (don't need to pay for them) **2)** Allows access to non-standard/unique products not offered by intermediaries ○ Surplus and deficit units come face to face with each other, can come up with their own deals that meets both parties' expectations. ○ Flexible enough to come up with your own agreements which suits surplus and deficit units **3)** Deficit units can issue finance that is unique to their specific funding requirements of relying	**1)** Difficulty in matching preferences between surplus and deficit units **2)** Higher risk of liquidity and marketability of direct finance instruments ○ You don't know who they are, higher risk= charge them higher amount because you might not trust them (risky proposition- don't know if they will take the money and run away). If you know them, then lower risk **3)** Higher search and transaction costs ○ Costs time, effort and money, need to spend money on business to grow your business **4)** Difficulty in assessing risk:

on a 'cookie-cutter' product. This allows for greater flexibility in funding. ○ Can have investment with different structures	○ How do you know that they are reliable and trustworthy? ○ How do I know I trust you, no proof that I'm trustworthy?

D. FINANCIAL MARKETS

Market= a place where buyers and sellers go to trade (buy and sell)

1. **Primary market=** where financial securities are created (sth new have been created)
   EXAMPLES–
   - Buying new car, directly go to BMW showroom, car dealer
   - First time shares are issued to the public because something new has been created
   - Property- buying off the new property plan, it's going to be constructed (new)

2. **Secondary market=** Where financial securities are traded after creation (second hand market, already been made)

- **E.g:** If a person who bought some shares of the Google stock and sells them, he or she does so in the secondary market. Those shares can go from investor to investor, and google never receives any money when they are traded.
- In effect, all transactions after the initial purchase in the primary market take place in the secondary market.
- **E.g** Shares– go on com bank to buy and sell shares
- **E.g** Go buy house that has already been built and owned by someone else

3. **Public market=** A central market place open to the public where buyers and sellers of meet to trade
   - (physical location, open to everyone, everyone can access it, they buy and sell
   - Can be commercial bank, investor or company

4. **Private market=** where buyers and sellers transact without open advertisement and inclusion of the public
   - Only few people can go in there
   - Buying a car= private market (going directly to BMW car dealers)
   - Advertised to a selected group of people who are interested

5. **Money market=** facilitates transactions that are short-term (< 1 year) instruments issued by borrowers
   - Dealings from bank to bank, deposits.
6. **Capital market=** Facilitates transactions in long term financial instruments (> 1 year
   - Dealing with something long-term (car loan, home loan)
   - Dealing with the bank
7. **Wholesale market=** a direct and private market where large fund flow transaction between government/ institutional/ corporate surplus and deficit units
   - Big companies, institutions, clients
8. **Retail market=** primarily an intermediary market where surplus and deficit units are individuals, households and small businesses involve small transactions
   - Small players, businesses and occasionally big businesses

E. RATE OF RETURN

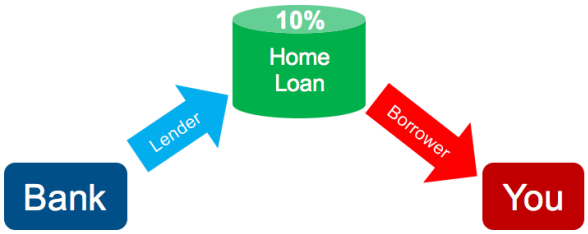
Rate of Return = Yield

Rate of Return = the percentage earned on the capital invested (%)

- **E.g** you invest $100, you earn $10 over 1 year. The rate of return is 10% p.a.
- Needs to be qualified over a time period. **E.g** per annum or over the holding period of the investment.
- **How is the rate of return relevant to finance?** It applies to financial instruments that are used to raise capital and assets that are bought as investments.
- A financial instrument can be both an asset and a liability **(E.g Home loan= financial instrument)**

EXAMPLE:

- The interest on the home loan is 10%.
- **Bank:** home loan is an **asset** that earns a Rate of Return of 10%
- **Borrower (You):** home loan is a **liability**, the cost of which is what the banks earns as interest.
- ∴ **The cost of debt is 10%**
- The home loan is both an asset and liability, an asset to the lender and a liability to the borrower.



- The Rate of Return is how to objectively compare and evaluate the performance of financial instruments; both as assets and liabilities by what it earns or what it costs, as a % on capital

RATE OF RETURNS:

- Can be split up into different pieces:
  (1) into risk-free premium; and
  (2) risk-premium
    - Split assets into risk-free= low risk, always promise it comes good (government bonds)
    - If borrow money from someone- at the very least, need to pay them the **risk-free** rate.
    - Also need to pay an extra premium= **risk-premium-** don't trust you, might be a chance I will lose my money- related to inflation etc.
- Our cost of equity and debt= risk free and some extra risk component we will charge
- All risky assets should earn E(R) > risk- free rate of return or R_f
- Expected rate of return= E(R)

THEORY:

- Investments and assets in the economy are recognised as ***risky* or *risk-free***.
- **Risk=**uncertainty of future cash flows (chance of loss).
- Most assets have risk, some element of future uncertainty in their earnings.
- **Government debt (treasury bonds and bills)=** a **risk-free** investment; as there will always be a government to make claims on.
- **T**he existence of a Risk-free asset which provides a risk-free rate of return
- As all other assets in the economy have some risk, a risk-free assets provides a benchmark for performance;
- **All risky assets should earn E(R) > Risk-free rate of return or R_f**
  Otherwise, why buy a risky asset, where you may loose some or all of your future return, when you can buy the risk-free asset and have a guaranteed future return.
- This leads to understanding the concept of a ***Premium***, which is a rate of return above a benchmark.
- **Risk premium = $E(R)_{Asset} - R_f$ =** The rate of return for bearing risk.

- **E.g. If you can earn 4% risk-free and earn 10% from a risky asset, 10% - 4% = 6% is what you earn for taking risk, i.e. the risk premium.**

This concept of a *Premium* allows us to understand other premiums for specific types of risk that discussed in the financial literature (e.g. the textbook)

- **Inflation premium=** rate of return added to compensate for inflation. Higher inflation = higher inflation premium
- **Default-risk premium=** rate of return added to compensate for default-risk (risk of a borrower defaulting, not making, debt repayments). Higher default risk = high default-risk premium
- **Maturity-risk premium=** rate of return added to compensate for assets that have longer-terms to maturity. The longer it takes to get your money back, the more risky it is. E.g. a loan of 30 years will have a higher maturity-risk than a loan of 1 year.
- **Risk premium =** $E(R)_{Asset} - R_f$ = Total Premium for all risks taken (see in the textbook how different premiums are added up)

- **Real risk-free interest rate=** the rate determined in the absence of inflation
- **Nominal interest rate=** the rate of interest unadjusted for inflation (for any loss in purchasing power)
- **Premium**
- **Inflation=** the rate at which the general level price for goods and services is rising and, consequently the purchasing power of currency is falling
- **Inflation premium=** a premium to compensate for anticipated inflation that is equal to the price change expected to occur over the life of the bond or investment instrument
- **Default-risk premium=** the additional return required by investors to compensate them for the risk of default. It is calculated as the difference in rates between a US treasury bond and a corporate bond of the same maturity and marketability
- **Maturity-risk premium=** the additional return required by investors in longer-term securities to compensate them for the greater risk of price fluctuations on those securities caused by interest rate changes
- **Liquidity-risk premium=** the additional return required by investors for securities that cannot be quickly converted into cash at a reasonably predictable price
    - **Liquidity=** the ability to convert an asset into cash quickly without significant loss of its value

Nominal interest rate= Real risk-free interest rate (R)
+ Inflation premium (I)
+ Default-risk premium (D)
+ Maturity-risk premium (M)
+ Liquidity-risk premium (L)