

FINANCE 1A ACST101

Finance

Finance is about how individuals, companies and governments raise money and invest it to maximize wealth.

- Corporate finance: finance of business decisions, projects
- Asset-pricing: calculating value
- Financial markets: ie money, capital markets
- Behavioural finance: analysis

Finance context for decision-making (Economic Context of decisions)

Economy plays a role in finance

- Data: employment, GDP, inflation, exchange rates, national debts, commodity prices, growth projections,
- Sources: RBA, ABS, World Bank
- Consistency in basis: basis of calculations are the same to compare
- Protectionism, political uncertainty (Trump, Brexit), Demographic changes (ageing population), Technology Advances etc.

Money and Currency – What is the difference?

Money has intrinsic value. It is a Fiat currency (by order currency) as the government has decreed it a “form of money”. History:

1. Barter/exchange, ‘coincidence of wants’
2. Commodity based currencies
3. Gold standard – ability to convert money to Gold

4. Fiat Currency: no intrinsic value – currency has value because the government says so.
5. Crypto currency: encoded, traded online

Price vs Value

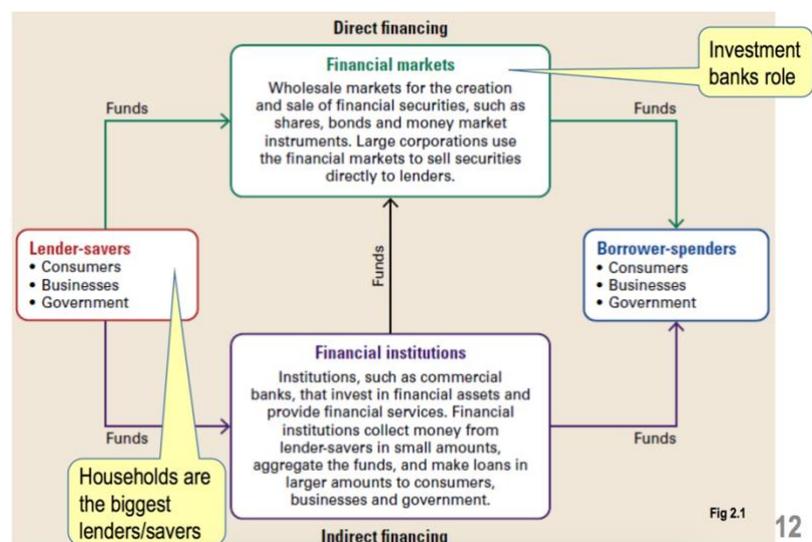
- Price: What you pay, price deviates from value due to confidence
- Value: decide based on factors, higher value than price = buy
- In financial decision-making we assess value eg. Houses

The Financial System

A marketplace for money, enabling transfer of purchasing power between market participants and present and future time. Role: gathers money from surplus funds and channels it to those who need it.

Sources and Uses of Funds

- Sources: Lenders and Savers
- Uses: Borrowers and Spenders
- Funds flow directly (in financial securities) or indirectly (through an intermediary eg. bank)



Direct Financing

- Whole sale markets: transaction >\$1 mil
- Main participants are financial institutions eg. superannuation, mutual funds, insurance companies
- “credit worthy companies”
- To borrow money they issue bonds
- Bond: agreement, pay back + interest
- Through market: ASX
- Without market: agreement
- Investment banks: underwrite new security issues and provide broker-dealer services, two tasks:
 - o Origination: preparing for sale
 - o Underwriting: investment banker guarantees company will raise funds. Stand-by underwriting: guarantees money it plans to raise

Financial Institutions (intermediaries) and Indirect Financing

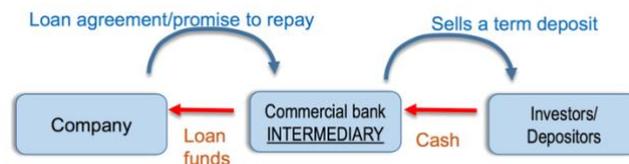
- Commercial banks
- Insurance companies
- Superannuation Funds
- Investment Funds eg. Black Rock
- Finance Companies (fund businesses of high credit risk) eg. Capital finance

Companies and the Financial System

Indirect financing

- Accessing finance through an intermediary
- Maturity transformation: the practice by financial institutions of borrowing money on shorter timeframes than they lend money out.
- Positive: less risk, large group responsible, regulated
- Long term funds: Initial public offerings
- Short term funds: getting line of credit from bank. Selling commercial paper

in the money markets → inflow from assets which is reinvested and paid in cash dividends



Types of financial markets

1. Primary: new security issues are sold directly to initial investors, Initial public offerings (IPOs)
 2. Secondary: owners of outstanding securities can sell them to other investors
Why important to businesses: investors are willing to pay higher prices for securities in primary markets if the securities have active secondary market = lower funding costs for companies
- Marketability: ease with which a security can be sold and converted into cash. Factors: readily available, cost of trading, transaction costs
 - Liquidity: ability to convert an asset into cash quickly without loss of value. When security is sold, value will be preserved
 - Brokers: market specialists who bring buyers and sellers together, usually for a commission, they bear no risk of owning securities.
 - Dealers: market specialists who ‘make markets’ for securities by buying and selling from their own inventories of securities
3. Money markets: where short-term financial instruments are traded, maturities of less than a year, wholesale market (minimum \$1mil), lower risk because of high liquidity and low default risk

4. Public markets: public through stockbrokers eg. ASX
5. Private market: sale of a security direct transactions between two parties. Low transaction costs but dilute value of shares as private placements are normally at a discount

2. INFLATION

- Fisher Effect: $\text{real interest} = \text{nominal interest} - \text{expected inflation}$

For a project to be accepted, return on investment must exceed cost of funds.

The Real Rate of Interest/The Fisher Equation

- $r = i - \Delta P_e$ (approx..)
- $r = \frac{1+i}{1+\Delta P_e} - 1$ (exact)
- As interest increases, inflation increases (positive correlation)

Cyclical and Long-Term Trends in Interest Rates

- CPI: consumer price index, changes in prices of market-based g/s
 - Recession: output decreases, unemployment increases, period of 6 months
1. Level of interest rates tend to rise and fall with changes in the actual rate of inflation: positive relationship
 2. Level of interest rates tends to rise during periods of economic expansion and decline during periods of economic contraction: discourage or encourage spending by businesses and customers by increasing or decreasing interest rates

Determinants of Interest Rate Levels

Definitions

- Nominal (market) Interest rate: not adjusted for inflation, inflation included what we see advertised, compromises real rate and expected inflation. AKA quoted rate, stated rate, annual percentage rate (APR)
- Real Interest Rate: without inflation (inflation adjusted)

Determinants of Interest Rates:

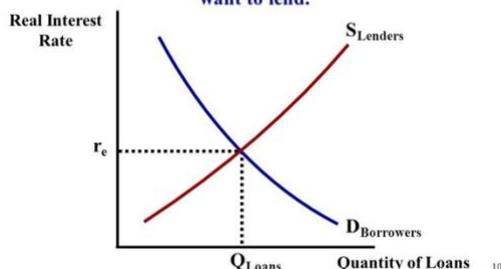
Return on capital investments (demand) and individuals time preference for consumption (supply)

1. SUPPLY AND DEMAND
 - Demand: return on investment – invest in new projects = borrow more when economy is strong
 - Supply: time preference – consumption now rather than later when interest rates are low (positive time preference)

Equilibrium rate of interest is when desired savings is equal to desired borrowings. As interest rates increase, we save more and borrow less.

Loanable Funds Market

At the equilibrium real interest rate the amount borrowers want to borrow equals the amount lenders want to lend.



Time Value of Money (TVM)

Definitions TVM and Time Lines

- TVM: the difference in value between a dollar today and a dollar in the future
- Time line: identifies rate of interest, magnitude and timing of cash flows, important for analysing cash flows over time

- Future Value: accumulated value, after interest
- Present Value: equivalent value at earlier date
- Simple Interest: interest on original principle only - linear
- Compound interest: interest earned on original principle and interest earned (interest on interest)
- Compounding: interest earned on an investment is reinvested – exponential
- Discounting: how present value is calculated (backwards to compounding)

Example

- Investment lasts 5yrs, is it worthwhile? Analysis has to be done to compare money at same time as the value changes

Future and Present Value

Simple Interest

$$FV_n = PV_0(1 + (i \times n))$$

Compound Interest

- Greater interest rate, greater FV (accumulated value)
- Longer time period = greater effect

$$FV_n = PV_0(1 + i)^n$$

Or

$$FV_n = PV_0\left(1 + \frac{i}{m}\right)^{n \times m}$$

Interest on interest	=	compound total	-	simple interest	-	initial investment
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Compounding Frequency

Effective annual rate (EAR): rate compounded annually that is equivalent to a rate compounded more than once a year

- NOTE: 10%p.a. compounded 2 times a year → 5% every 6month period

FV Factor

- FVI interest growth factor: the factor we multiple a PV by to get the FV

Present Value

- Reversible transactions (to find PV rather than FV)
- how much do you need to set aside today for your goal “Discounting”
- $PV_0 = \frac{FV_n}{(1+i)^n}$

Compound Growth Rate

- Replace “i” with “g” (growth rate per period)
- Example: population growth (exponential)

Multiple Cash Flows

MCF: group of single cash flows, Unequal amounts = separate calculations

Future Value of MCF

$$FV = \sum_{t=0}^n CF(1 + i)^{n-t}$$

Present Value of MCF

$$PV = \sum_{t=0}^n CF/(1 + i)^t$$

Effective Annual Rate of Interest

Comparing Interest Rates

- Effective Rate: annual interest rate that reflects compounding within a year (comparing like terms)
- Nominal interest rate: simple interest charged per period*number of periods per year (aka quoted rate)
- Financial institutions often use annual quoted rates (APR)
- If compounding monthly we know effective month rate = $i/12$

-	$EAR = \left(1 + \frac{\text{quoted interest rate}}{m}\right)^m - 1$
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