Week 1 – Chapter 1: Globalisation and the Multinational Corporation

- Globalisation: increasing connectivity and integration of countries and corporations and the people within them in terms of their economic, political and social activities
- Two main trends on globalisation:
  - Countries continue to expand their trade in goods and services
  - Countries continue to reduce their barriers to capital flows

International Trade Growth

Trade liberalisation enables 'free' trade between countries. Benefits:

- Specialisation
- Comparative advantages
- Outsourcing (goods and labours)

Trade liberalisation happened due to trade agreements

- Free Trade Agreements
  - 1947: General Agreement on Tariffs and Trade (GATT) – signed by 23 nations, in effect until the WTO. Aims to encourage free trade between member states by regulating and reducing tariffs on traded goods and by providing a common mechanism for resolving trade disputes
  - 1986-1994: Word Trade Organisation – signed by 123 nations in 1994. Succeeded in lowering trade barriers in a multilateral, world-wide way
- Regional Trade Agreements
  - European Union – officially in 1993, but had roots in ECSC, 1952
  - North America Free Trade Agreement (NAFTA) – 1994
  - Association of Southeast Asian Nations (ASEAN) – 1967
  - Chinese Australian Free Trade Agreement (ChAFTA) – 2015

Globalisation of Financial markets

Trends in financial openness

- 1980s countries began to allow foreigners to invest in their markets
- Creation of new asset class – emerging markets

New financial landscape

- **Derivative security**: an investment whose payoff over time is derived from the performance of underlying assets (e.g. commodities, equities, bonds), interest rates, exchange rates or indices. Main types: futures, forwards, options and swaps
- Increased use of **securitisation** – repacking of 'pools' of loans or other receivables to create new financial instrument that can be sold to investors
  - Globalisation and securitisation happened around the same time
  - Positive: bank and corporations could hedge against risk, making them more likely to invest
  - Negatives: Complex instruments led to opaqueness in financial system – How risky were these things? How do we measure risk?
- Growth in derivatives and securitisation increased the complexity in the financial intermediation business. This also made it difficult for governments to regulate the domestic capital markets

Multinational Corporations (MNCs)

- MNC or transnational corporations: produces and sells goods or services in more than one nation
- It consists of a parent company in the firm's originating country and the operating subsidiaries, branches and affiliates it controls both at home and abroad
- How they enter foreign markets:
  - Exporting/importing
  - Licensing – gives local firms right to manufacture their products in exchange for a fee
  - Franchising – the firm provides sales or service strategies in exchange for fees
  - Joint venture – two or more firms form a new legal entity, jointly owned by all of the firms
  - Greenfield – setting up production and distribution facilities abroad by acquiring or merging with foreign companies, or by simply establishing new operations in the countries

Goals of a MNC:

- Maximise shareholder wealth
  - Australia, Canada, U.K. and U.S.
  - Appropriate time horizon is long
- Maximise stakeholder (management, labour, government, banks, suppliers, etc.) wealth
  - Europe and Asia
- How do owners and stakeholders make sure this happens?
  - **Agency Theory** – studies problems that arise from the separation of ownership and control
  - **Corporate governance**: legal and financial structure controlling the principal (shareholder) - agent (mgmt.) relationship. The principal must design contracts that motivate the agent to perform actions and make decisions that are in the best interests of the shareholders.
- Corporate fraud occurs because mgmt. does not always act in the interest of shareholders
- Methods of overcoming agency problems:

Method	Pros	Cons
Independent board of directors – role: appoint and compensate mgmt. with the goal of making the organisation accountable to its owners and authorities.	Protection of minority shareholders' interests. Increased risk sharing.	Often not sufficiently independent of management and therefore ineffective in representing shareholders' interest
Partial concentration of ownership and control in the hands of a large shareholder.	A large shareholder has the self-interest to monitor management's activities to prevent abuses. It also has the	Possible collusion between management and large shareholders against smaller shareholders.

Ownership concentration: block of stock is held by a wealthy investor or a financial intermediary (e.g. bank, holding company, hedge fund, pension fund).	power to implement changes in mgmt.	Stock may be more difficult to trade on the stock market if a substantial block of shares is withdrawn from the market but still available to be sold should the large shareholder want to sell it
Executive compensation with options or bonuses related to performance.	Provides a direct incentive to maximise stock price.	Rewards management for good luck. Subject to manipulation and possible short-term focus to allow management to get rich.
Clearly defined fiduciary duties for CEO's with class-action law suits.	Provides a complementary disciplining device.	Increases legal costs and enriches lawyers at the expense of stockholders.
Hostile takeovers and proxy contests.	Directly disciplines bad management.	Provides an incentive for raiders to expropriate wealth from creditors and employees.

- Foreign Direct Investment (FDI) is another way of entering foreign markets
  - When a company from one country buys at least 10% of a company in another country
  - Has grown 30-fold since 1980 to $18 trillion
  - M&A plays a huge role in this trend – i.e. when a corporation in one country merges with or acquires a corporation in another country

Other Important International Players

- International banks – major banks operate internationally to service their MNC clients.
- International institution
  - International Monetary Fund (IMF)
    - Goal: ensure stability of the international monetary and financial system through surveillance and technical assistance
  - The World Bank
    - Goals: development, poverty alleviation and advising
  - Multilateral Development Banks (MDBs)
    - Provides financial support and professional advice for economic and social development activities in developing countries
    - Typically referred to the World Bank Group and regional development banks (in Africa, Asia and Europe)
    - Provide financing and grants
  - World Trade Organisation (WTO)
    - Mediates trade disputes
  - Organisation for Economic Cooperation and Development (OECD)
    - Examines, devised and coordinates policies across 34 relatively wealthy nations
    - Goal: foster sustainable economic growth and employment, rising standards of living and financial stability
  - Bank for International Settlements (BIS)
    - Fosters international monetary and financial cooperation
    - Think of it as the central of central banks
  - European Union (EU)
    - Cooperation among countries in this region
    - (In most cases) adopt the same currency to promise international business and prevent war
    - Economic and monetary union (EMU) – when the EU introduces a single European currency, managed by a European central bank
- Government – sets regulatory environment in which MNCs operate. Also affects asset prices, such as interest rates and cost of debt
- Individual investors – they are shareholders of the company, hence mgmt. should act in the interest of these investors
- Institutional investors – the organisations invest pools of money on behalf of individual investors or other organisations. E.g. banks, insurance companies, pension funds, mutual funds, etc.
  - Individual and institutional investors determine bond and stock prices, implicitly determine the expected rates of return on these assets and thereby setting the MNC's cost of capital. Consequently, the cost of capital affects project valuations, which determines a company's investment
- Sovereign wealth funds – government-run investment pools
- Hedge funds – seek profits in all kinds of markets by pursuing speculative investment practices that may increase the risk of loss
- Private equity funds – raises money from rich individual investors and institutions and invest in numerous individual companies. Typically control the mgmt. of the companies, often bringing in new teams that focus on making the overall company more valuable

Is Globalisation Worth It

- Rise of protectionism, slowing trade liberalisation
  - Increasing tariffs and trade litigation/technical barriers to shield domestic industries from foreign competition (political benefits)
- Countries who had opened their markets to foreigners subsequently fell into crisis, as globalisation introduces additional risks and causes deeper recessions than a closed economy would face
- Benefits of openness:
  - Channels savings to most productive uses
  - Sharing of risk beyond what is possible domestically
  - Domestic recessions can be buffered through borrowing
  - Cost of capital decreases
- Costs of openness:

- ...

Week 3 – Ch 6: Interest Rate Parity

Intuition behind Interest Rate Parity

- **Interest rate parity** (IRP) relates the spot and forward exchange rates and the nominal interest rates denominated in the two currencies
- IRP holds if markets are efficient and there are no government controls to prevent arbitrage. Without these conditions, traders could make profit via **covered interest rate arbitrage**
- Two ways to buy a currency forward:
  1. Enter into a forward contract, or
  2. Borrow the domestic currency, buy foreign currency on spot market and invest for term
- How would that work (e.g. for a year)?
  - Borrow A$ at i_A
  - Exchange A$ for $ at current spot rate ($0.75/A$)
  - Invest $ at US risk-free rate for 1 year $(1 + i_{US})$
  - In 1 year you have

$$A\$ \times (1 + i_A) \qquad \text{liability}$$
$$A\$ \times (\$0.75/A\$) \times (1 + i_{US}) \quad \text{asset}$$

Tony sees that interest rates look good in Chile. He has A$2M to invest.

$i_{AUD} = 2.5\%$ $\qquad S = CHP484/A\$$

$i_{CHP} = 5\%$ $\qquad F_{1-yr} = CHP503/A\$$

1. Convert into forex using spot rate: $\text{A\$2M} \times \text{CHP484/A\$} = \text{CHP968M}$
2. Invest at foreign interest rate: $\text{CHP968M} \times 1.05 = \text{CHP1,016.4M}$
3. Convert back at forward rate: $\text{CHP1,016.4M} \times \frac{1}{\text{CHP503/A\$}} = \text{A\$2.021M}$
4. Compare to what you could have earned by investing in your own nation: $\text{A\$2M} \times 1.025 = \text{A\$2.05M}$

Investing in Australia is more profitable for Tony. But what if he could borrow/lend? Is the answer still the same?

1. Borrow 1,000M Chilean Pesos → will owe $\text{CHP1,000M} \times 1.05 = \text{CHP1,050M}$ in one year
2. Convert CHP to AUD: $\text{CHP1,000M} \times 1/(\text{CHP484/A\$}) = \text{A\$2.066M}$
3. Invest at AUD interest rate: $\text{A\$2.066M} \times 1.025 = \text{A\$2.118M}$
4. Convert back at forward rate: $\text{A\$2.118M} \times \text{CHP503/A\$} = \text{CHP1,065.35M}$

Tony would make $\text{CHP1,065.35M} - \text{CHP1,050M} = \text{CHP15.35M}$ profit for every CHP1,000M that is borrowed → Covered Interest Rate Arbitrage

This arbitrate activity would quickly eliminate the profit opportunity:

- The additional demand to borrow CHP would drive up the CHP interest rate
- The sale of CHP for A$ would lower the dollar-CHP spot exchange rate

Deriving Covered Interest Rate Parity

- Expressing that when the forward rate is priced correctly, an investor is indifferent between investing at home or abroad
- General expression for IRP where i_d = domestic interest rate and i_f = foreign interest rate

$$[1 + i_d] = \frac{1}{S_{d/f}} \times [1 + i_f] \times F_{d/f}$$

- IRP and forwards and discounts

$$\frac{F_{d/f}}{S_{d/f}} = \frac{[1 + i_d]}{[1 + i_f]} \quad \rightarrow \quad \frac{F_{d/f} - S_{d/f}}{S_{d/f}} = \frac{\overbrace{[i_d - i_f]}^{\text{IR differential between domestic and foreign currencies}}}{[1 + i_f]}$$

  - The foreign currency is at a premium (i.e. $F_{d/f} > S_{d/f}$), an individual buying foreign currency in the spot market and contracting to sell it forward locks in a domestic currency capital gain, which contributes an additional return on the foreign investment
  - When $i_d < i_f$, a domestic investor must suffer a capital loss when buying foreign currency in the spot market and selling it forward – this capital loss arises because the forward rate is less than the spot rate
  - $\frac{[i_d - i_f]}{[1+i_f]}$ is positive when $i_d > i_f$ (i.e. the foreign currency is at a forward premium)
  - $\frac{[i_d - i_f]}{[1+i_f]}$ is negative when $i_d < i_f$ (i.e. the foreign currency is at a forward discount)

The External Currency Market

- External currency market is a bank market for deposits and loans that are denominated in foreign currencies (from the perspective of the bank)
  - E.g.: pound-denominated deposits and loans made by banks in Frankfurt
- External currency market continues to prosper because the reserve requirements are often lower for foreign currency deposits than for domestic currency deposits – bank can lend out a larger part of these deposits and hence they are potentially more profitable
- Interest rates in the external currency market are lower than they would be due to the avoided regulations and increased competition i.e. supply of said currency (i.e. there is a very small spread between the deposits and loans interest rates)
- Influence over other markets
  - External currency market influences rates elsewhere
  - Loans to investors/corporations are based on these interbank rates
  - Most important of rates is London Interbank Offer Rate (LIBOR)
- What happens to the covered interest arbitrage when we introduce transaction costs?

- Covered interest rate parity with bid-ask rates: arbitrage must be impossible either by borrowing the domestic currency and lending the foreign currency or by borrowing the foreign currency and lending the domestic currency – in each case, transaction foreign exchange risk must be eliminated with the appropriate forward market transaction

The previous example with transaction costs and a 6 month investment

Borrow CHP1,000M to invest	Bid	Ask
Spot (CHP/A$1)	479	489
Forward (CHP/A$1)	498	508
AUD interest rate	2.0	3.0
CHP interest rate	4.0	6.0

- Borrow CHP1,000M at the de-annualised rate: $6.0 \times \frac{1}{100} \times \frac{180}{360} = 3.0\%$
- Convert CHP1,000M to AUD:

$$\text{CHP1,000M} \times \frac{1}{\text{CHP489/A\$}} = \text{A\$2.045M}$$

- Invest for 6 months at the de-annualised rate: $2.0 \times \frac{1}{100} \times \frac{180}{360} = 0.01$

$$\text{A\$2.045} \times 1.01 = \text{A\$2.065M}$$

- Sell forward (enter into forward contract)

$$\text{A\$2.065M} \times \text{CHP498/A\$} = \text{CHP1,028.4M}$$

- Compare to what we owe in Chile

$$\text{CHP1,028.4M} - (\text{CHP1,000M} \times 1.03) = -\text{CHP1.6M}$$

We lose money this way – no arbitrage. Even if we start with Australian Dollars, it will lead to losses.

Does Covered Interest Rate Parity Hold

- Prior to 2007, violations of IRP were very rare
- Frequency, size and duration of apparent arbitrage opportunities increase with market volatility (e.g. GFC)

Why Deviations from Interest Rate Parity May Seem to Exist

- **Default risks**: Risk that one of the counterparties may fail to honour its contract
- **Exchange controls:** Some governments periodically interfere with the buying and selling of forex (e.g. tax, limit or prohibit the buying and selling of foreign currency by residents)
- **Political risk:** A crisis in a country could cause its government to restrict any exchange of the local currency for other currencies
  - Investors may also perceive a higher default risk on foreign investments

Hedging Transaction Risk in the Money Market

- When IRP holds, there are two ways to hedge a transaction (either a liability or a receivable)
  - Real forward – mentioned last time
  - Synthetic forward – borrowing/lending foreign currency and making a transaction in the spot market
    - Money market hedge – if an underlying transaction gives you a liability, you use a money market asset to hedge the position, vice versa
- Reasons for using synthetic forward:
  - In some currency markets (e.g. developing countries), forward contracts may be unavailable
  - Individual companies are not able to borrow and lend at the IRs available in the interbank market, meaning that the two strategies may not be equivalent
  - When time horizons are long, forward contracts can be expensive as the bid-ask spread widens substantially

[Hedging a foreign currency liability] Zack's Wine and Spirit imports wine from France. The wine is valued at €4 million. You agreed to pay this amount when you receive the wine in 90 days.

Spot exchange rate: $1.10/€ — 90-day dollar IR: 6% pa

90-day forward exchange rate: $1.08/€ — 90-day euro IR: 13.519% pa

Because the underlying transaction gives you euro-denominated accounts payable, you are exposed to losses if you do not hedge and the euro appreciates relative to the dollar

Option 1 – eliminate the risk by **buying** euros forward. So, the dollar cost, which is paid in 90 days is:

$$€\,4{,}000{,}000 \times \$1.08/€ = \$4{,}320{,}000$$

Option 2 – money market hedging strategy

- Because you have a euro liability, you must acquire an equivalent euro asset. You can do this by buying the PV of your euro liability at the spot exchange rate and investing these euros in a money market asset. Then, use the principal + interest on this euro asset to offset the underlying euro liability at maturity
- PV of €4 million at 13.519% pa

$$\text{Deannualised rate} = 13.519 \times \frac{1}{100} \times \frac{90}{360} = 0.0337975$$

$$PV = \frac{€4{,}000{,}000}{1.0337975} = €3{,}869{,}229.71$$

- The amount of euros must be purchased in the spot forex market:

$$€3{,}869{,}229.71 \times \frac{\$1.10}{€} = \$4{,}256{,}152.68$$

- With the money market hedge, the payment is made today unless you borrow dollars. To compare the money market hedge to the forward market hedge, we must take the PV of the $4,320,000 at 6% pa

$$\text{Deannualised rate} = 6 \times \frac{1}{100} \times \frac{90}{360} = 0.015$$

$$PV = \frac{\$4{,}320{,}000}{1.015} = \$4{,}256{,}157.64$$

- At those IRs and exchange rates, the two strategies are basically equivalent. The dollar PV of the forward contract is only $4.96 more expensive
  - ...