Session: Teaching Period Two

Course		Title	Attempted	Passed	Mark	Grade
FINS	3616	International Business Finance	6.00	6.00	100	HD
FINS	3655	Behavioural Finance	6.00	6.00	89	HD

Chapter 1 – Introduction to Multinational Finance

Introduction

- Objective of international business finance: concerned with MNCs, take perspective of financial manager of MNC, provide framework for evaluating opportunities, costs and risks
- 3 phases in evolution of a firm: domestic - operations confined to 1 country; international trade - imports materials or exports products or both; multinational – overseas operations
- MNC: corporation with investment or financial operations in more than one country
- Structure of MNC: **p.3**
- Stakeholders: anyone with an interest in the company

(a) narrow definition: debt & equity holders

(b) broad definition: equity holders, debt holders, customers, suppliers, employees, government and anyone else with an actual or potential claim

- Claims on revenues: equity → dividends & capital gains, debt → interest & capital gains, suppliers (material) and employees (labour) → operating expenses, government → taxes, other claimants → litigants
- Stakeholder objectives : equity – maximise shareholder wealth, employees – wages and job security, managers have own objectives too which can lead to agency costs
- Agency costs: costs arising from conflict of interest b/w mgmt and other stakeholders, particularly shareholders.
- Countries differ in extent they protect stakeholders e.g. subsidisation to protect key industries (rice in Japan); price supports/tariffs (agriculture in US)

Opportunities

- Theoretical support for MNCs – theory of comparative advantage: a country should produce and export goods if it can produce with relative efficiency and import goods from other nations which can produce more efficiently
- MNCs have many opportunities not available to local firms:

Enhancing revenues:

- Global branding (McDonald's, Coca-Cola)
- Marketing flexibility
- Advantages of scale and scope

Reducing operating costs:

- Low-cost raw materials
- Low-cost labour
- Flexibility in global site selection
- Flexibility in sourcing and production
- Economies of scale and scope
- Economies of vertical integration

Business strategies

- Follow the customer: follow customers into foreign mkts
- Lead the customer: attract customers into domestic mkt
- Follow the leader: when competitors acquiring foreign assets, do the same to avoid falling behind in mkt share or prod costs (esp common in industries enjoying high profitability)
- Going local: build manufacturing capacity in foreign mkts to avoid quotas or tariffs

Financing opportunities

- Financial policy objective: maximise firm value through financial choices
- MNCs have great flexibility in making fin policy decisions:

→ mix of d/e; maturity structure of debt; mkts in which capital is raised; currency denomination; method of financing dom & foreign ops; fin risk mgmt

- Perfect financial market: rational investors have equal access to mkt prices and info in a frictionless mkt

i) frictionless mkt: no transaction costs, taxes, gov intervention, agency costs, costs of fin distress

ii) equal access to mkt prices: perfect competition, no barriers to entry → no single party can influence prices (assumption does not hold – govs, OPEC, hedge funds)

iii) rational investors: price assets on expected return and risk (investors not always rational)

iv) equal access to costless info: instantaneous and equal access to info → puts investors on equal footing (assumption does not hold: language is a communication barrier, differences in acct measurement and disclosure requirements, mgmt and insiders benefit from privileged access to info)

- Assumption i) = operational efficiency (no drain on funds); assumptions ii) – iv) = informational efficiency (prices fully reflect all relevant information); operational + informational efficiency = allocational efficiency (efficient allocation of capital towards most productive uses)
- In a perfect financial market, fin policy is irrelevant as individual investors can replicate firm's actions.

Conversely, if fin policy is to increase firm value, must increase firm's expected cflows or decrease discount rate in a way that cannot be replicated by ind investors
- Fin mkt imperfections more prominent in international than domestic markets so MNCs have more opportunities to create value through fin policies:
a) Fin mkt arbitrage: take advantage of cross-border differences in asset prices (currencies, IRs)
b) Hedging: create value by reducing drains on op cflows (e.g. by reducing expected bankruptcy costs)
c) MNC cost of capital with capital flow barriers: lower cost of capital by selling debt or equity to foreign investors willing to pay higher prices than dom investors
d) Reducing taxes through multinational ops: reduce tax burden through multinational tax planning (recognise income in low-tax countries and expenses in high-tax countries)
e) Barriers to free flow of capital across international mkts
f) Currency risk and the cost of capital

Firm Value
- Multinational investment policy: higher returns from existing investments; new investment opportunities
- Multinational financing policy: reduced capital costs through access to international mkts
- Potential increase in firm value: **P.12**

Challenges
- Risk: actual outcome differs from expectations
- Country risk: risk that business environment in host country will unexpectedly change --- 3 sources
a) Political: business environment in host country will unexpectedly change due to political events
b) Financial: fx risk, IR risk
c) Cultural: risk of dealing with unfamiliar culture
- Cultural differences: language, body language
- Business differences: legal, accounting, tax systems, personnel mgmt., marketing, distribution, fin markets, corporate governance

Chapter 6 – Currency Options and Options Markets

Introduction

- Difference to forwards: forwards both sides have obligation to perform, call one side has option, the other an obligation once exercised; forwards have symmetrical payoff, call has one-sided payoff
- Currency call option: right to buy the underlying currency at the exercise/strike price on a specified date
- Currency put option: right to sell the underlying currency at the exercise price on a specified date
- Call option writer: obligation to sell currency to holder upon exercise
- Put option writer: obligation to buy currency from holder upon exercise

Markets in Currency Options

- Currency options first traded on Philadelphia Stock Exchange in 1983; volume of options trading rising (non-US > US); most active exchanges by volume are Korea Exchange, CBOE, ISE, Eurex and Euronext, CME

Option Types

- OTC options: customised options with expiration dates and contract amounts specified by customer and price & fees quoted by bank; writers are commercial & investment banks; clients are firms & fin institutions
- European option: exercisable only at expiration; American option: exercisable before expiration

CONTRACT TERMS	PSE	CME
Contract	"British pound Dec 145 call"	"British pound Dec 1450 put"
Underlying asset	British pound	British pound
Type of option	Call	Put
Expiration date	Third Wednesday in December	Third Wednesday in December
Rule for exercise	European – exercisable at expiration	American – exercisable before expiration
Settlement	Spot currency	Nearest CME futures contract
Pounds-per-contract	31,250 pounds	62,500 pounds

Option Payoff Profiles

- Options are zero-sum game: any value gained by option holder is a loss to option writer

For a Call:

- In-the-money: spot rate above exercise price
- Out-of-the-money: spot rate below exercise price
- At-the-money: exercise price equals spot rate
- Long call on a currency is a long put on another currency
- A long forward is the same as a long call and a short put
- Option premium: price of an option

Put-Call Parity

- $Call^{d/f} - Put^{d/f} = ({F_T}^{d/f} - K^{d/f})/(1 + i^d)^T$

Option Values

- Option value = Intrinsic value + Time value

Intrinsic value:

- Value of option if exercised today

(1) $call\ intrinsic\ value = Max\ [({S_t}^{d/f} - K^{d/f}), 0]$

(2) $put\ intrinsic\ value = Max\ [(K^{d/f} - {S_t}^{d/f}), 0]$

Time value:

- Time value = market value – intrinsic value
- Two important determinants – volatility of exchange rate, time to expiration; as volatility or time to expiration increases, the values of American call and put options increase because the end-of-period exchange rate distribution is more dispersed

(1) Volatility – option holders gain on one side of exercise price and do not suffer continued losses on the other side, hence, option value increases as volatility increases

(2) Time – increased time to expiration increases the chances the option will be in the money

Determinant	**Call Value**	**Put Value**
Exchange rate	↑	↓
Exercise price	↓	↑
Risk-free interest rate in currency d	↑	↓
Risk-free interest rate in currency f	↓	↑
Volatility	↑	↑
Time to Expiration	↑	↑

Static Hedging With Options
- For individual transactions
- Hedge long pound with long pound put; hedge short euro exposure with long euro call

Dynamic Hedging Strategies With Rebalancing
- For hedging net exposures (once individual transactions are offset and netted)
- Option delta: sensitivity of option value to underlying asset
- Option delta is the hedge ratio: no. of options to offset one unit of underlying asset to minimise underlying variance of the hedged position
- Gamma: rate of change of delta
- Vega: sensitivity of option value to changes in volatility of underlying asset
- Theta: sensitivity of option value to change in time of expiration

Combinations of Options
- Long straddle = long call + long put (same exercise price, time to expiration, underlying asset)
- Short straddle = short call + short put (Nick Leeson's bet on Nikkei Index)

Exchange Rate Volatility
- Continuously compounded changes in exchange rates (***S)*** are related to holding period changes :

$$\boldsymbol{S} = \ln(1 + s)$$

- Volatility can be estimated through historical volatility and implied volatility

Chapter 7 – Currency Swaps and Swaps Markets

Introduction

- Swap: derivative instrument where counterparties exchange cash flow streams
- Swaps provide firm with flexibility → transform obligations at low cost without repurchasing or reissuing obligations, allow firm to separate form of debt offered to market from form of debt preferred by firm
- Interest rate swap: principal amounts are in same currency, only difference check exchanged

History of Swap Market

- Introduced 1970s, 1981 Salomon Brothers engineered currency swap b/w World Bank & IBM legitimising market, commercial & investment banks became major dealers, market went from low-volume high-margin to high-volume low-margin business, market for 'plain vanilla' swaps uses standardised contracts, huge growth → $402 trillion in OTC derivatives outstanding in 2007, most popular instruments: interest rate swaps, then IR options, FX swaps, CDS, equity derivatives

Necessity of Swaps

- Currency risk exposure: OCFs of foreign subsidiary in foreign currency BUT interest expense in domestic

Solutions:

(a) Borrow foreign currency in foreign market

- Hedge foreign OCF but foreign firms face higher info costs compared to local firms → higher borrowing costs

(b) Parallel Loan

- Each parent borrows domestic currency at domestic borrowing cost & loans to foreign subsidiary
- Advantages: circumvents UK tax on cross-border pound transactions, lower borrowing costs, reduced currency risk as subsidiary financed by local debt, parents can access new capital markets lowering cost of capital
- Disadvantages: default risk – each loan a separate agreement so default by one party does not release other from obligation (one solution is rights of set-off but not fool-proof because of issues over jurisdiction), b/s impact – two separate contracts, capitalised on B/S - higher debt to equity ratio, high search costs

Swaps to the Rescue

Fixes problems by:

- Default risk: package parallel loans in single agreement called swap contact, rights of set-off in single contract avoids legal issues and each party released from obligation if default
- B/S impact: mostly treated as off b/s transactions, neither side is capitalised
- Search costs: through bank

Swaps as Portfolios of Forward Contracts & Risk of Swaps

- Swap is a bundle of simultaneous forward contracts each with a different maturity date

Swaps compared with futures:

- No margin requirement
- Counterparty is bank not clearinghouse
- Performance period b/w payments longer and only current interest payment settled

→→→ So higher risk than futures

Swaps and forwards:

- Lower risk than the longest maturity forward contract in the swap contract

Swaps and Straight Debt:

- Less risky than straight debt because default by one side releases the other from obligations, entire principal not at risk like in a loan, interest payments depend on difference check between interest rates and not on the level of one interest rate

Currency Swaps

- Most common currency swap is currency coupon swap: fixed-for-floating non-amortising currency swap
- Swap pricing schedule: Bid = bank pays; Ask = bank receives; Difference = Spread
- Day count conventions: floating rate eurocurrency interest rates like LIBOR quoted on money market yield (MMY) basis: 'actual/360'; many fixed rate instruments quoted on bond equivalent yield: 'actual/365'
- Fully covered quote: when uncovered bank pays LIBOR flat; with fully covered, bank pays full floating rate

Interest Rate Swap

- Both sides of swap in same currency, only difference check exchanged
- Most common interest rate swap is the coupon swap: fixed-for-floating interest rate swaps

Other Types of Swaps

- Financial price risk: risk of unexpected changes in financial price (e.g. FX value, IR, commodity price)
- Swaptions: swap with option →→→ mirror-image option (fixed rate receiver option to cancel), right to terminate option (fixed rate payer option to cancel), extendible option (fixed rate side option to extend contract)
- CDS: manage credit risk, synthetically transfers it from one party to another; Equity swap: equity swapped for bond exposure; Commodity swap: on one (fixed-for-floating) or two commodities (any combination)
- Swap banks hedge net swap position of swap book internally w/n bank or externally