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Financial Markets, Institutions, and Instruments [Midterm]

CH1: Introduction:
Fin mkts: 0. producing an efficient allocation of capital -> promoting economic efficiency & personal wealth, business firms, and economy through market activities
1. channels funds from surplus spending units (w/ inv opp) to deficit spending units.
* SSUs-saver: households (inc>spend), business firms, govt (tax>spend), foreign investors
* DSUs-borrower: households (spend>inc), busi firms, govt (spend>tax), foreign investors
2. improve the well-being of consumers, allowing them to time their purchases better.

[1] Direct Financing
> **Debt mkt**: debt instruments (bond), an obligation to pay CFs to the lender until maturity
> **Equity mkt**: equity instruments (common stock) are issued to investors (shareholders), who are entitled to receive leftover after obligations <not IOU>.
> **Primary mkt**: where new instruments are sold to initial buyers, involves investment bank
> **Secondary mkt**: where issued instruments are traded to promote liquidity and let us know the mkt values/prices of assets, involves brokers and dealers.
> **Money mkt**: instruments w/ maturity < 1 yr and it's debt securities by nature
> **Capital mkt**: instruments w/ maturity > 1 yr, it's long-term bond or stocks
> **Exchanges**: trading conducted in a central location with a set of rules and info is publicly available (e.g. New York Stock Exchange, Chicago Board of Trade, SET)
> **Over-the-Counter (OTC)**: trading with dealers or traders based on negotiations, no public info about previous transactions, (mkt for treasury securities, foreign exchange mkt)
> **Organized mkt**: trade according to rules set by the designated authority
> **Unorganized mkt**: transactions that take place outside a well-established exchange, involving indigenous bankers and private moneylenders while the demand comes from those who are unable to access the organized markets or fall short of their requirements
*Pros&Cons of fin mkt: Pros: low cost of fund for borrowers (no middleman) and higher expected return for savers-lenders // Cons: require a coincidence {of amount, maturity, return, riskiness} of demands and supply to make transaction occur, cost and risks are directly born by savers-lenders.

*Primary disadvantages: interest rate, default/counterparty, sovereign, foreign exchange risks.

[2] Indirect Financing: Fin intermediary [FI] (bank) plays as middleman
Fin intermediation: banks issue claims to SSUs and buy claims issued by DSUs, claims normally have *unmatched characteristics*:
- Match maturity of claim to planned investment period => lead to holding period return
- Longer maturity (borrower) but sell at end of period > price risk; banks offer low int rate
- Shorter maturity(depositor) then reinvests > reinvestment risk; banks charge higher int rat
Comparative advantage of intermediation: - Economies of scale: banks source funds from many depositors and then lend to many borrowers.// - Transaction cost control: banks have resources to acquire info (one-stop service)// - Risk management expertise
Competition pulls interest rates down: - financing less costly, - projects have higher NPVs (bank will lend money to +NPV project), - investment in real assets boosts economy
Functions of fin intermediation (FIs exist due to mkt imperfections from transaction & info costs): 1. FIs make profits by reducing transaction costs by developing expertise and taking advantage of economies of scale // 2. providing the means for individuals and businesses to diversify their asset holdings // 3. reduce the impact of asymmetric info
Asymmetric information: It is a problem in which one party (lender/buyer) lacks crucial info about another party (borrower/seller), impacting decision-making. Asym info can be explained by the **mkt for lemons** by George A. Akerlof. To begin with, in the mkt, there're peach sellers (considered as good quality sellers) and the lemon seller (bad). However, if there is no info regarding which seller sells peaches and which seller sells lemons, then the buyer cannot distinguish btw two sellers. To avoid loss, the buyer would pay the expected price (expected price drop as the probability of lemon sellers increases) or price of lemon. Thus, the peach seller will not sell in that mkt as they cannot raise funds with the expected amount and they will move to another mkt. In the end, only lemon sellers left, and this is considered as the market failure. This problem can be solved by having FIs e.g. banks and insurance firms.
- **Adverse selection:** *(occur before transaction)* those who possess more information tend to take advantage from the other side (of contract), who have less information e.g. health/car insurance, risky borrowers.
- **Moral hazard:** one side has incentives to engage in undesirable (immoral) activities
Types of financial intermediaries: depository institutions (banks) e.g. commercial banks, insurance comp, pension and government retirement funds, finance comp, mutual funds
Financial risks: *bond* - Credit or default risk, - Interest rate risk (fluctuations in a security's price or reinvestment income caused by changes in mkt interest rates), - liquidity risk, - FX risk, - political
Regulation of financial system: e.g. Securities and Exchange Commission (SEC)
1. Increase information and protect investors from abuses (disclose certain information about their sales, assets, and earnings to the public and restrict trading by the largest stockholders (known as insiders)
2. Ensure the soundness of financial intermediaries to stabilize the financial system (Restrictions on Entry, Disclosure, Restrictions on Assets and Activities, Deposit Insurance, Limits on Competition, Restrictions on Interest Rates)

CH2: Interest rate (YTM/discount rate/rate of return/hurdle rate) and term structure:
> **Computing YTM:** PV = -price, FV = +face value $1000, if semi: N = 2*Yr, PMT=+(coupon rate*face)/2, then compute I/Y => multiply by 2 to get annual rate.
> **Expected yield:** ex-ante/predicted yield for a given holding period(<maturity); FV=expected sold price // > **Realized yield:** the ex-post or hindsight actual rate of return, given the cash flows actually received and their timing; FV = actual sold price
> Interest rate change because 1. Supply&demand in bond mkt, 2. Changes in equilibrium int rates
> **Loanable funds theory:** If competitive forces operate in financial sector, laws of supply and demand will bring rates into equilibrium.
> **Determinants of asset demand (Pb-Qb):** Bd↑→ -> P↑, int rate↓, Bd↓← -> P↓, int rate(yield)↑
1. Wealth: total resources owned by individual: wealth↑ -> Bd↑→
2. Expected int rate: return expected over the next period, on one asset relative to alternative assets: expected return↑, Bd↑→
3. Risk: degree of uncertainty associated with the return: risk↑, Bd↓←
4. Liquidity: ease and speed with which an asset can be turned into cash: liquidity↑, Bd↑→
5. Expected interest rate: not invest now and wait: i^e↑, Bd↓←
6. Expected inflation [1]: π^e↑(bad for lender), Bd↓← -> int rate↑ bcs purchasing power giving CFs↓
> **Determinants of asset supply:** Bs↑→ -> P↓, int rate(yield)↑
1. Expected Profitability: expansion(issue more bond to inv)↑, Bs↑→→ -> cost of borrowing ↑
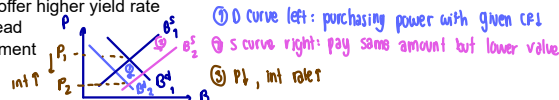2. Expected inflation [2]: π^e↑ (good for borrower), Bs↑→
3. Government activities: deficit(issue more bond)/surplus, Bs↑→/ Bs↓←
> **Response to business cycle (recession-> expansion):** Bs↑→→, Bd↑→ invest in bond but in lesser amount bcs still not confidence in economy -> P↑, int rate↓ as business has to compete for source of fund
Risk and term structure of interest rates: more risky bonds offer higher yield rate
> RISK STRUCTURE: depends on credit rating, rates and spread
> Bond Ratings by Moody's and S&P: Junk<Baa/BBB<=Investment

① D curve left: purchasing power with given CF
② S curve right: pay same amount but lower value
③ P↓, int rate↑

* From COVID-19 onwards, in terms of riskiness, credit spread/risk premium btw each type of bond decreased: In 2020, riskier firms paid higher credit spread as we don't know when business would be back to normal. In 2022, the Russia-Ukraine war caused high inflation-> int rate↑. In 2023, mkt worries about war and inflation.
> **Factors affecting the risk structure of interest rates:**

1. Default Risk: issuer is unable or unwilling to pay as agreed; Risk premium=$i_{default\ risk} - i_{def\ free}$
   Default risk↑ -> Bd(corporate bond)↓← and Bd(treasury bond)↑→ -> raises the price of treasury bonds and lowers the price of corporate bond, and therefore lowers int rate on T-bond and raises rate on corporate bond, increasing spread btw int rates on corporate versus treasury bonds.
   "Flight-to-quality" situation that shifts from risky to risk-free
2. Liquidity: T-bonds are more liquid than corporate bonds.; liquidity premium also reflects spread
3. Income Tax: municipal (munis) i is exempt from income tax. $i_m = i_t * (1 - Tax\ rate)$
> **Term structure of interest rate: different maturities**

$i^e\ or\ forward\ rate\ 1\ yr\ from\ now = \frac{(1+i_{long})^n}{(1+i_{short})} - 1$; we cannot rely on number but direction ok

EX1: 2021: $i_{s(1Yr)} = 0.05\%$ & $i_{L(2Yr)} = 0.25\% \to i^e = 0.49\%$ -> raising by 10 times compared to 0.05% -> we expect to see a very steep yield cure
EX2: 2022: $i_{s(1Yr)} = 2.9\%$ & $i_{L(2Yr)} = 2.95\% \to i^e = 3.06\%$ -> mkt expects higher ST yield
* As ΔST ↑> ΔLT ↑, **yield curve becomes flattener**. If yield↑, price↓ as Fed increases policy rate to slowdown economy or decrease inflation -> investors sell ST bond (yield↑, price↓ in higher amount) rather than LT bond.
* As ΔLT ↓> ΔST ↓, **yield curve becomes flattener**. If yield↓, price↑, people want to buy LT more because (1) inflation↓ -> demand in bond will rise probably LT bond -> LT yield↓ price↑ in higher amount than ST and (2) in extreme cases like recession, investors want to lock in rate.
* ST rate depends on policy rate by central e.g. FED wants to encourage economy by drop yield
* As ΔLT ↑> ΔST ↑, **yield curve becomes steeper** because inflation↑, liquidity & default premium
* As ΔST ↓> ΔLT ↓, **yield curve becomes steeper** because Fed cut rate.
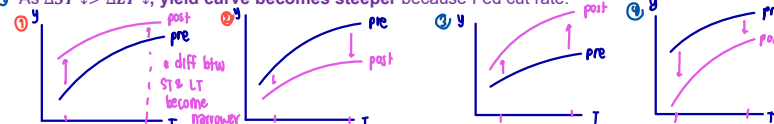
EX3: 2023: An **inverted yield curve** may be caused by too fast rising policy rate by the FED.
$i_{s(1Yr)} = 5.4\%$ & $i_{L(2Yr)} = 4.9\% \to i^e = 4.4\%$-> mkt yield curve expects ST rate to drop by 1% (a lot) because the central bank will cut the rate
*Behavior of yield curve: short maturity bonds should have a lower yield most of the time but not all the time -> is ST yield > LT yield, then the yield curve has a downward slope.
> **Three facts about term structure:** 1. Interest rates for different maturities move together. // 2. Yield curves tend to have a steep upward slope when short rates are low and a downward slope when short rates are high. // 3. The yield curve is typically upward-sloping.
> **Three theories explain the shape of the yield curve:**
1. Expectation theory (explains facts1,2 not 3): LT rate should be equal to average of ST rates;

$$i_{L(2Yr)} = \left((1 + i_{s(1Yr)})(1 + i^e)\right)^{0.5} - 1 \approx \frac{i_{S(1Yr)} + i^e}{2}$$

- Assume that bonds of different maturities are perfect substitutes// The expected return on bonds of different maturities is equal
*We don't observe i^e in reality. We observe an upward slope if mkt expects a higher int rate and a downward slope if mkt expects a lower int rate ($i_{short} > i^e$)
- fact 1/: If i_t ↑ today i_{t+1}^e, i_{t+2}^e, etc. ↑ => average future rate ↑=> i_{nt} ↑
- fact 2/: When short rates are low, they are expected to rise to normal level, and long rate = average of future short rates will be well above today's short rate; yield curve will have steep upward slope. In contrast, when short rates are high, they will be expected to fall in future, and long rate will be below current short rate; yield curve will have downward slope.
- fact 3 x: short rates are as likely to fall as rise, so average of expected future short rates will not usually be higher than current short rate: therefore, yield curve will be usually flat rather than upward sloping.
2. Market Segmentation (fact 3): Bonds of different maturities are not substitutes at all, the Preferred Habitat Theory (PH) is an extension, people typically prefer short holding periods and thus, have higher demand for short-term bonds (int rate of ST is lower)
- fact 3/: People typically prefer short holding periods and thus have higher demand for short-term bonds, which have higher prices and lower interest rates than long bonds
- facts 1,2 x: it assumes long-term and short-term rates are determined independently
* But! suppose institutional investors expect a recession in 1yr -> They will buy more LT bonds to lock in the rate for LT and sell ST bonds -> LT yield↓, ST yield↑ -> yield curve become downward slope (not consider default risk)
**3. Liquidity Premium (facts 1,2,3):** interest rate on a long-term bond will equal to average of short-term interest rates expected over the life of the long-term bond plus liquidity premium. Assumes bonds of different maturities are substitutes, but are not perfect substitutes

$$i_L = \left(average\ i_s\ or\ \frac{i_s + i^e}{2}\right) + liquidity\ premium$$; LP makes yield curve becomes steeper

- Expectation theory + Liquidity premium = Liquidity premium theory
- Slope can change due to changes in liquidity premium and i_{ST}^e. The main factor that changes i_{ST}^e is the central bank policy rate -> mkt reflects this by changing ST rate ; if Fed cuts rate a little bit than we see mild upward/flat slope ; if Fed cut rate a lot then we see downward slope
- fact 3: LP explains why the yield curve slopes upward most of the time. Yet the LP can change over time// - fact 1&2: same explanations as pure expectations theory because it has average of future short rates as determinant of long rate
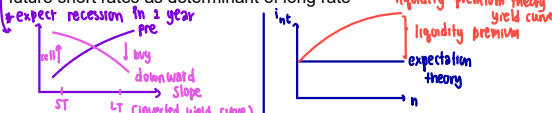
- ST depend on central bank policy (repo)// LT depend on the market risk (liquid, default, inflation)
> **How yield curve is important?**
- Slope is important in managing financial intermediaries // - Borrow funds in markets from surplus spending units, and after intermediation, lend funds to businesses and consumers. // - An upward-sloping is generally favorable because they borrow most of their funds in the short term (transaction accounts and time deposits) and lend the funds at longer maturities such as consumer, automobile and mortgages, the more steeply slopes upward, the wider the spread between the borrowing and lending rates and the greater profit for the fin. intermediaries. // - At the beginning of a period of economic expansion, interest rates tend to be low and the yield curve is upward sloping.
Note: QE (Quantitative Easing [int rate↓]), QT (Quantitative Tightening [int rate↑])

CH3: Bond markets:

> Bond specifications - Cash flows are at end of the period and reinvested at i // - Bond prices and interest rates move inversely // - Trade at par, market rate = coupon rate // - Premium, market rate < coupon rate //- Discount, market rate > coupon rate //- zero coupon/pure discount: issued at discount from par// - Yield rewards credit/default risk, reinvestment risk, and price risk.

> Bond Types by Issuers

1) Government/Treasury Notes (1-10 yrs) and Bonds (10-30 yrs)
- %debt/GDP doesn't tell anything about risk (may cause lower credit rating if govt unable to increase GDP with the same level of debt), we care about credit rating, which is better indicator.
- Credit default swap (CDS): an indicator of riskiness, it becomes more expensive for riskier debt.

> Primary markets for government bonds:
- Sold through auctions which are conducted periodically.
- Competition basis: Auction among designated institution investors (primary dealers) to offer amount and interest rate (yield) to the issuer. Bidding is pre-schedule -> everyone knows it
EX1: Treasury auctioned $1.0 billion par value T-bond, matured in 5 years and pay 3% semi-annual interest rate. -> rank the bidders that offer **lowest yield (highest price)** to highest yield

Bidder	Yield (L->H)	Amount (mm)	Allocated amount	Average return	Ex of compute price:
A	3.780	190	190	3.78*190/1000	Price
B	3.790	190	190	3.79*190/1000	$= \frac{15}{(1+\frac{3.78\%}{2})}$
C	3.790	150	150	3.79*150/1000	$+ \frac{15}{(1+\frac{3.78\%}{2})^2} + \dots$
D	3.790	100	100	3.79*100/1000	$+ \frac{1000+15}{(1+\frac{3.78\%}{2})^{10}}$
E	3.795	105	105	3.795*105/1000	$= 964.76$
F	3.800	100	100	3.8*100/1000	Or FV=1000,
G	3.810	200	165	3.81*165/1000	PMT=3%*1000/2,
Total			1000	Wt. Yield $=r_f$=3.793%	I/Y= 3.78/2 , N=5*2

- Multiple-price auctions (used by BOT): difference bidders get different rates as what they offer
- Uniform-price auctions (used by U.S. Treasury): all bidders pay the same price based on the highest rate accepted (stop-out rate)

> ThaiBMA: Bond Yield
- rate from auction should be close to the policy rate, especially the ST yield curve
- yield curve can tell expected rate -> Thai curve is not scaling
- if change (bp) of ST yield is (+) as mkt expects ST to be higher due to higher policy rate in the future, but LT is (-) price rise in LT due to higher demand in bonds as investors expect lower inflation/LT risk -> yield becomes flattener

2) State Owned Enterprises Bond
-Issued by the govt agencies or state enterprises such as EGAT, MRTA to finance their operations.
≠ govt ≠ risk-free; risk level is slightly greater than govt bonds but safer than corporate bonds.
- Typical they are straight bonds, fix-rate coupon, semi-annually, and denomination is ฿1,000.
- Auction through OTC (done privately)

3) Corporate bonds:
- Typical face value of $1,000 and semi-annually interest by default. Bonds cannot be redeemed, unless a specific clause states this (call option). Degree of risk varies with each bond, even from the same issuer. Required return varies with level of risk.
- Characteristics of Corporate Bonds
1. Secured (has collateral to back up in case of default) vs. Unsecured
2. Senior vs Subordinated (less priority in claim)
3. Investment (Baa3/BBB- or better) vs. Junk Bonds
4. Restrictive Covenants
5. Call vs. Put Provisions
*Claim:secured bond holder>unsecured+senior>unsecured+subordinate>preferred>common sto
- Primary market for corporate bonds: no auction issue bond at par (%coupon = yield)
* Subordinated perpetual debentures which payable upon dissolution with the issuer right to early redemption and unconditional int deferral = no maturity until dissolution of company -> similar to equity -> offer call option for issuer to redeem face value early. Typically, firm will redeem it after 5 years, because, up until 5 years, this bond can be considered as equity. However, after 5 years, according to accounting standards, firm must record this bond as debt -> higher D/E ratio
* put option -> let investors redeem-> issuer take risk not investors

> Compute yield given each credit rating's averaged spread (bp) ; 1 bp=0.01%
EX: Govt 3 yr yield = 2.3%, Govt 5 yr yield = 2.4%
AAA 3 yr yield = 2.3% + average spread (<=3yrs) 0.49% = 2.79%
AAA 5 yr yield = 2.4% + average spread (3-5yrs) 0.718% = 3.118%
* There's no average spread for >5Yrs for BBB and BBB- as no people trade credit rating with low credit rating with long maturity
* BBB+, BBB, BBB- have a very high spread, people may see them as junk bonds, there's gap jumps wide btw these ratings and A- ; spread is known as risk premium
> Sentiment of mkt: risk-off (flight to quality; people move from risky asset to risk-free asset; don't want to take risk -> credit spread is high) vs. risk on (flight to yield; willing to take risk and don't demand high premium -> credit spread is low)
* ST bond is considered safer than LT bonds
!!! credit rating is lacking indicator -> if you wait for mkt to confirm real effect on the bond issuer, it may be too late, like STARK and Thai Airways cases.
EX: JKN bonds, with no rating (riskier than issuer rating) have call (issuer can redeem money before maturity) and cross default amount feature: if 1 bond is default-> all other bonds are also default; there's only a limit amount of default at 300 mm
- financial ratios are not enough for investors to determine whether the firm has the ability to repay the debt -> they must look at the debt distribution of firm too -> if firm has a lot of ST debt -> firm may have a liquidity mismatch

> Secondary markets for corporate bonds: bonds are traded mostly in OTC markets where dealers are the major player.
> Risk of bonds: price risk and interest rate risk (longer the maturity, the larger price change when market interest rate changes)
> Sensitivity to interest rate: longer maturity and lower coupon rate lead to higher sensitivity (price drops more when yield increases)
> Interest rate risk and duration:
- Price risk vs. reinvestment risk (int rate ↑ -> price ↓, coupons are reinvested at higher return)
EX: vacation will cost $1,695.65 at 6 years from now, mkt yield now is 9.2%
A) Zero CB with 6 yrs maturity costing at $1000 -> $PV = -1000, N = 6, i = 9.2\% \rightarrow FV = 1695.65$
B) CB 6 yrs at 9.2% annual coupon payment , sold at par -> $FV = 92(1+i)^5 + 92(1+i)^4 + 92(1+i)^3 + 92(1+i)^2 + 92(1+i)^1 + 1092 = 1,695.65$ **!! if mkt yield ↓, there' risk that you may not get target**
C) CB 8 yrs at 9.2% annual coupon, sold at par; -> sell it in the mkt at the end of year 6
Price of bond at the end of yr 6(yield decrease to 8.9%) = $\frac{92}{(1+8.9\%)} + \frac{1092}{(1+8.9\%)^2} = 1,005.28 > 1000$

-> this is called match target by duration [duration of C is about 5.99 years]
> Duration measure the int rate risk = time-weighted aver of CF or actual maturity of bond

$$Macaulay's\ duration\ (D) = \frac{\sum_{t=1}^{n}\frac{CF_t * t}{(1+i)^t}}{\sum_{t=1}^{n}\frac{CF_t}{(1+i)^t}} = \frac{\sum_{t=1}^{n}\frac{CF_t * t}{(1+i)^t}}{bond\ price}$$ or use CF and NPV in fin cal

EX: 3Yr, 8% coupon annually, mkt yield 10%-> $D = \frac{\frac{80*1}{1.1} + \frac{80*2}{1.1^2} + \frac{1080*3}{1.1^3}}{\frac{80}{1.1} + \frac{80}{1.1^2} + \frac{1080}{1.1^3}} = 2.78\ years$

Treasury inflation-protected securities (TIPS): coupon = C rate* (par value*(1+inflation rate))
Treasury STRIPS: effective vehicles for immunizing portfolios against interest rate risk
- take away CF and treat it as zero CB-> resell it to clients at higher price than PV of each CF.

CH4: Equity markets: Common stock and preferred stock (higher priority in claim/no vote)
> Common stock: LT, no require on principal&div payment, dilution effect on ownership control
*DR enable domestic investors to invest oversea
> American Depository Receipts (ADR): fin institutions acts as an intermediary by purchasing stock from other countries and issuing ADR& also issuing dividend and sell ADR in local currency.
> Global Depository Receipts (GDRs) are negotiable receipts issued by financial intermediaries in developed countries other than the U.S.; liquidity and exchange rate cause diff in price btw DR and the stock; 1 DR = 1-5 common shares
- DR holders will not get voting right because the real stock holder is intermediary
* NVDR attracts foreign investors to invest in their country
> Non-Voting Depository Receipt (NVDR) is a new trading instrument issued by Thai NVDR. It let the foreign investors to earn benefits from a stock except voting right from NVDR, this will not violate the foreign ownership limit (FOL) of 49%. -> Let us know which stock foreign investors buy and sell (track activities)not just the aggregate amount
Valuing price of stocks
1) Gordon growth model (dividend): used for stock that pay consistent dividend
constant div: $price = \frac{D}{r}$ // Constant growth $price = \frac{D_1}{r-g} = \frac{D_0*(1+g)}{r-g}$

2) Multiple approach: use average industry as benchmark
* P/E ratio (price to earnings) = P/E average industry * firm EPS (annualized)
* P/BV ratio (price to book value) = P/BV average industry * firm BV per share
!! No correct price, trade price is where the buyer is willing to pay and seller is willing to accept it.
Primary Market for Equities:
1. IPO (Initial Public Offering): the price is set by the underwriter. Underwriters set low IPO prices because if they set the price too high -> investors may lose->nobody going to buy the IPO mkt (the sadness of investors when they're lose grows faster than the happiness that they get if they're wealthier (from behavior finance -> gain & loss domains have different utility function)
2. Private placement (PP): Sale to selected an investor or a group of investors. (few require SEC)
3. Right offering (RO): Rights issuing to existing shareholders by the proportion of shares holding.
Secondary Market for Equities: freely volatile by demand and supply, all bid/ask info is displayed in a single place
- Securities not listed are traded over-the-counter (OTC) = dealer mkt
- SET : no dealer
Continuous vs. Auction Methods
1. Call Auction Matching (9-T1 around 10AM & 2PM – T2 around 2.30PM): Used during the pre-opening and closing periods; not running this at the same time every day to prevent large quantity manipulation stock price.
EX: Price then time priority; offer the same price -> first come first serve

Time	Trader	Order side	Price	Size/Volume	Do trial and error find the optimal price with the highest matches (equilibrium price)
09.31	Bea	Buy	20.0	3	Mkt price = 20
09.35	Sam	Sell	20.1	2	Result : Buy 11 shares, Sell: 7 shares
09.38	Ben	Buy	20.0	2	
09.39	Sol	Sell	19.8	1	Buy (offer highest price) / Sell (offer lowest price)
09.40	Stu	Sell	20.2	5	Bif, Mkt, 4 / Soi, 19.8, 1
09.45	Bif	Buy	Market	4	Bob, 20.1, 2 / Sue, 20.0, 6
09.48	Bob	Buy	20.1	2	Bea, 20.0, 3 [1] / Sam, 20.1, 2
09.50	Sue	Sell	20.0	6	Ben, 20.0, 2 / Stu, 20.2, 5
09.52	Bud	Buy	19.8	7	Bud, 19.8, 7

*Mkt price order: whatever mkt price is; high price risk with low risk of execution
*Limited price: limit trading up to the stated price (at price specified or better/lower price) -> low price risk (limit price) with a high risk of execution
* The remaining unmatched orders will be carried to the continuous order-matching
ATO: mkt price at open, ATC: mkt price at close, MP: mkt price
2. Continuous Order Matching: Used during the regular trading sessions (closed at 5PM)

CH2 : Liquidity premium theory summary

(a) Steeply upward-sloping yield curve — Future short-term interest rates expected to rise

(b) Mildly upward-sloping yield curve — Future short-term interest rates expected to stay the same

(c) Flat yield curve — Future short-term interest rates expected to fall moderately

(d) Downward-sloping yield curve — Future short-term interest rates expected to fall sharply