Market Organization and Structure

FI = Financial Intermediaries
IB = Investment Bank

MP = Market Price
NAV = Net Asset Value

- People use the financial system for the following purposes:
  - Save & borrow money, manage risks, trade information and exchange assets & raise equity capital.
- The three main functions of financial system are:
  - Determine equilibrium returns (interest rates) ($\uparrow$ rate of return, $\uparrow$ savings, $\downarrow$ borrowings & vice versa).
  - Achievement of the purpose of the financial system.
  - Most efficient uses of capital.
- Financial system works best when markets are liquid, $\downarrow$ transaction cost & information is readily available.
- Usually, risk can be hedged through derivatives.
- Investors weight risk/return of different investments to determine their most preferred investments.

- Financial assets $\Rightarrow$ stocks, bonds, derivative contract & currencies.
- Real assets $\Rightarrow$ real estate, equipment, commodities & other physical assets.
- Financial derivative contracts $\Rightarrow$ based on debt & equity indexes or other financial contracts.
- Physical derivative contracts $\Rightarrow$ derive their value from physical assets (e.g. gold, silver etc.).
- Primary market $\Rightarrow$ market for newly issued securities
- secondary market $\Rightarrow$ where subsequent sale of securities occurred.
- Money markets $\Rightarrow$ markets for debt securities with maturities of one year or less.
- Capital markets $\Rightarrow$ markets for debt & equity securities with longer-term maturities.

Securities

- Fixed Income Securities
  - Debt securities that promise to repay borrowed money in future.
  - Short term < 1 year, medium term $\Rightarrow$1-5 years, long term longer than 5 to 10 years.
  - Bonds $\Rightarrow$ long-term debt; notes $\Rightarrow$ intermediate term debt; commercial papers $\Rightarrow$ short term-debt.
  - Repurchase agreements $\Rightarrow$ borrower sells an asset with obligation to repurchase (at $\uparrow$ price) in the future.
  - Convertible debt $\Rightarrow$ debt that can be converted into a specified no. of equity shares of issuing firm.
- Equity Securities
  - Common Stock
    - Residual claim on firm's assets.
    - Dividend paid after interest to debt holders.
  - Preferred Stock
    - Fixed dividend & paid before common stock dividend.
  - Warrants
    - Similar to options (right of holder to buy a firm's equity shares at a fixed exercise price).
- Pooled Investment Vehicles

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Pooled Investment Vehicles

Mutual Funds

Investors can purchase shares either from fund itself (open-end funds) or in primary & secondary markets (closed-end funds).

ETFs

- Trade like closed-end funds.
- MP close to NAV.

Asset-Backed Securities

- Claim to a portion of the pool of financial assets (e.g. mortgages, car loans etc.).
- Different classes of claims (tranches) with different risk & return.

Hedge Funds

- Organized as limited partnerships (investors are limited partners, fund manager as general partner).
- Often use leverage.

Currencies

- Issued by govt's central bank
- Reserve currencies ⇒ held by govt & central banks worldwide.
- Spot currency markets ⇒ currencies are traded for immediate delivery.

Contracts

- Forward, futures, swap & option contracts are discussed in derivative portion.
- Insurance contracts ⇒ pay a cash amount if a future event occurs.
- Credit default swaps ⇒ form of insurance (a payment if an issuer defaults on its bond).

Commodities

- Metals, agricultural products, energy products etc.
- Trade in spot, forward & futures markets.

Real Assets

- Real estate, equipment & machinery etc.
- Holding real assets directly provides certain benefits (income, tax, diversification etc.) but these are illiquid & require due diligence.

- FI = facilitate exchange of assets, capital & risk (stand b/w buyers & sellers).
- Allow greater efficiency & well functioning economy.

Financial Intermediaries

Brokers, Dealers & Exchanges

- Brokers ⇒ help clients in buying & selling securities by finding counterparties.
- Block brokers ⇒ assist in large placements.
- Investment banks ⇒ help corporations in selling securities.
- Exchanges ⇒ venue where traders can meet (sometimes act as brokers by providing electronic order matching).
- Alternative trading systems (ATS) ⇒ same trading function as exchanges but no regulatory function.
- Dark pools ⇒ ATS that do not reveal current client orders.
- Dealers ⇒ buying for or selling from their own inventory (provide liquidity & earn spread b/w bid/ask).
- Broker-dealer ⇒ dealer also act as broker (inherent conflict of interest).
- Primary dealers ⇒ trade with central bank which influences money supply.

Securitizers

- Pool large amount of securities or other assets & then sell interests in the pool to other investors.
- Create liquidity & economies of scale.
- CF from securitized assets can be segregated by risk (tranches).

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Financial Intermediaries

Depository Institutions

- Include commercial banks, credit unions, savings & banks loans.
- Expertise in evaluating credit quality & risk management.
- Payday advance corporations and factors ⇒ provide credit secured by future paychecks, accounts receivables etc.

Insurance Companies

- Collect insurance premium in return for providing risk reduction to the insured.
- Moral hazard ⇒ insured may take more risk when protected against losses.
- Adverse selection ⇒ those with ↑ probability of losses are the insurance buyers.
- Fraud ⇒ fictitious loss claims.

Arbitrageurs

- Try to exploit mispricing for similar instruments.
- Replication ⇒ similar positions using different assets.

Clearinghouses & Custodians

- Clearinghouse ⇒ limit counterparty risk (risk that other party will default).
- Custodians ⇒ hold client securities (improve market integrity) & prevent their loss due to fraud.

Positions in an Asset

Long, Short & Hedger

- Long ⇒investor who owns an asset or right to purchase an asset.
- Short ⇒borrowing an asset & selling with the obligation to replace it in the future or party who must sell an asset.
- Hedgers ⇒ use short positions to hedge existing long positions (inversely correlated assets).

Short Sale & Positions

- Short seller;
  - Simultaneously borrow & sell securities through broker.
  - Must return securities to lender.
  - Portion of short sale proceeds as collateral.
- Payment-in-lieu ⇒ dividends or interest on short sale securities (borrower pay to the lender).
- Short rebate rate ⇒interest earned on collateral (paid to short seller).

Leveraged Positions

- Use of borrowed fund.
- Margin loan ⇒ borrowing from broker.
- Call money rate ⇒ interest rate on margin loan.
- Initial margin requirement ⇒ minimum fraction of purchase price that must be trader's equity.
- Financial leverage ⇒additional risk from

- Leverage ratio ⇒ value of assets/value of equity.
- Maintenance margin requirement ⇒ minimum equity % the investor must maintain to ensure that the loan is covered by the value of assets.
- Margin call ⇒ request to bring equity % back to maintenance margin %.
- Margin call price ⇒ $P_o\left[\frac{1-initial\ margin}{1-maintenance\ margin}\right]$.
- In a short sale margin call will be triggered in case of ↑ in price.

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- Make a market ⇒ traders who post bids & offers.
- Take the market ⇒ investors who trade at posted prices.

Order Includes Three Things

Execution Instructions

- Market order ⇒ executes trade immediately at the best possible price ⇒ appropriate when trader wants to execute quickly & believes that the information is not reflected in market prices.
  Disadvantage ⇒ may execute at unfavorable price.
- Limit order ⇒ minimum execution price on sell orders & maximum on buy orders.
  - Advantage ⇒ reduces price uncertainties.
  - Disadvantage ⇒ order might not be filled.
  - Marketable ⇒ above the best ask or below the best bid.
  - Behind the market ⇒ placing a: buy order below the best bid price OR sell order above the best ask price.
  - Standing limit orders ⇒ limit orders waiting to execute.
- All-or-nothing orders ⇒ execute only if the whole order can be filled.
- Hidden orders ⇒ only the broker or exchange knows the trade size.
- Display size ⇒ some of trade is visible to the market (also known as iceberg orders).

Validity Instructions

- Specify when an order should be executed.
- Day orders ⇒ expire if unfilled by the end of the trading day.
- Good-till-cancelled orders ⇒ orders last until they are filled.
- Fill or kill orders ⇒ cancelled unless filled in part or whole immediately.
- Good-on-close orders ⇒ only filled at the end of trading day.
- Stop orders ⇒ not executed unless stop price condition has been met.
- Stop sell orders ⇒ triggers when price falls from specified price.
  - Stop buy orders ⇒ trigger when price is above the specified stop price.
    - Used to limit losses on a short position (when price↑).
  - Stop orders reinforce market momentum.
  - Execution prices are often unfavorable.

Clearing Instructions

- How to clear & settle a trade.
- Investors can use prime brokers for prime brokerage services & custodial services & other brokers for specialized execution.

Markets

Primary Capital Markets

- Initial public offerings ⇒ first time issues (not currently publicly traded).
- Seasoned offerings ⇒ new shares issued by firms whose shares are already trading in the market.
- Primary market: public offerings
  - Stock or bond issues are almost sold with the assistance of an investment banking firm.
  - Book building ⇒process of gathering indication of interest.
  - Underwritten offering ⇒ IB agrees to buy the entire issue at a price that is negotiated b/w issuer & bank.
  - Best effort basis ⇒ bank is not obligated to buy unsold portion.

Secondary Financial Markets

- Securities trade after their initial issuance.
- Provide liquidity & price/value information.
- Better secondary markets allow firms to raise external capital at lower cost (due to liquidity).

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Markets

Primary Capital Markets

- Primary market: private placements & other transactions
  - Private placement ⇒ securities sold directly to qualified investors.
  - Shelf registration ⇒ firms issue the registered directly into secondary markets when it needs capital & when the markets are favorable.
  - Dividend reinvestment plan ⇒ use dividends to buy new shares of the firm at a slight discount.
  - Rights offering ⇒ right to buy new shares at a discount to MP by existing shareholders.

- Call markets ⇒ stock is only traded at specific times.
  - Very liquid when in session & illiquid b/w sessions.
  - Used in smaller markets & to set opening prices & prices after trading halts on major exchanges.
- Continuous markets ⇒ trades occur at any time the market is open.
  - Price is set by either auction process or by dealer bid-ask quotes.

Market Structure

Quote-Driven Markets

- Traders transact with dealers who post bid-ask prices.
- Also called dealer, price-driven or over-the-counter markets.
- Electronic trading.

Order-Driven Markets

- Order-driven markets ⇒ orders executed using trading rules.
- Traders are usually anonymous.

Type of trading rules

Order matching rules

- Establish an order precedence hierarchy.
- Price priority ⇒ highest priced buy and lowest priced sell orders are given the highest priority.
- Secondary precedence rule⇒ Priority to non-hidden & earliest arriving orders (same prices).

Trade pricing rules

- Used to determine the trade price.
- Uniform pricing rules & discriminatory pricing rules.

Brokered Markets

- Broker finds the counterparty in order to execute a trade.
- Valuable for unique or illiquid securities

Market Information

- Pre-trade transparent ⇒ investors can obtain pre-trade information regarding quotes & orders.
- Post-trade transparent ⇒ post trade information regarding completed trade prices & sizes.
- Transactions costs are higher & bid-ask spreads are wider in opaque markets.

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- Complete markets fulfill the following:
  - Fair rate of return for future savings.
  - Creditworthy borrowers can obtain funds.
  - Hedgers can manage their risks & traders can obtain needed assets.
- Operationally efficient markets ⇒ low trading costs.
- Informationally efficient markets ⇒ security prices reflect all information associated with fundamental value.
- Allocationally efficient markets ⇒ capital is allocated to its most productive use.

- Market regulations are used to prevent fraud & theft, insider trading, defaults & costly information.
- Regulations can be provided by govt. as well as self-regulatory organizations.
- When regulations fail to address problems, liquidity ↓, new ideas go unfunded & growth slows.

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