Financial Trading

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Lecture 1
The Basics of Modern Securities Markets

This course

- In this course, you will learn about
  - Various venues in which trades occur,
  - The pricing mechanisms in these venues,
  - Advantages and disadvantages of various methods that you communicate your trading intentions to a trading venue,
  - Trader types, price, liquidity, and arbitrage,
  - Price manipulation.
- You will read newspaper articles to connect our learnings to the real world.
- You will use simulation-based trading cases to implement what you have learned in your finance courses.
- You will read a practitioner book to better understand the practical aspects of financial trading.

This course (cont.)

- At the end of the term, you will be able to answer questions like:
  - What are optimal trading strategies for typical trading problems?
  - What are the trading mechanisms in the equity market in the United States?
  - Exactly how is information impounded in the price?
  - How do we avoid market failures?
  - What can market/trading data tell you about the informational environment of the firm?
  - What concerns you may have if you are trading in a dark pool?

This course (cont.)

- This is an advanced finance course. You should not take this course if you have not taken its prerequisites.
- There is no guidelines or instructions on how to play the trading games in the course. You should bring in a creative and problem-solving mentality to play each game.
- Trading games are independent projects meaning that you and your group members work as a team to complete them. I and Kai will only make sure that you have access to the platform so that you can play the games. You should play the games many times and adjust your trading strategies based on the inputs from your team members.
- You will be very frustrated in this course if you bring in the mentality of:
    - "Which equation I should use?"
    - "What the correct answer is?"
    - "Which chapter of the book tells me how I should play this game?"

The NOTs of this course

- In this course, you will NOT learn which stocks to buy, which ones to sell, when to buy and when to sell.
- In this course, you will NOT learn what the fair price of Tesla is.
- If you have ever bought a stock, after taking this class, you will learn what happened in the financial market after you submitted your buy order.
- In this course, you will NOT learn why DoorDash price jumped over 80% when the stock began trading on NYSE but you will learn how the designated market maker (DMM) at NYSE set the opening price at $182.
- This course is NOT technical.

The NOTs of this course (cont.)

- In this course, you will learn the microstructure of equity markets and we will NOT discuss the markets for bonds, currencies, futures, etc.
- This course can be useful to you if you are planning to get a job in
  - Sales and trading,
  - Asset management,
  - Purchasing/hedging.

Agenda and objectives of the lecture

- Agenda
  1. Who are the major market participants?
  2. What instruments are traded?
  3. Where instruments are traded?
  4. Who are the regulators?
- Objectives
  1. Understand the organization of the trading industry and identify how its components are related.
  2. Be able to identify the roles that various traders, institutions, and organizations play in the markets.
  3. Recognize the names of the institutions and know what they do.

Motivation: To get through the course you must know some vocabulary and recognize some relationships.

Relevant article

Article 1-A: Citadel Securities to Buy NYSE Market-Making Unit of Smaller Rival IMC

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Citadel Securities to Buy NYSE Market-Making Unit of Smaller Rival IMC

Deal would solidify Citadel Securities' status as exchange's top designated market maker, potentially raising concentration concerns

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Two sides of the trading industry

The two sides of the trading industry

1. People and institutions who use financial services are on the buy-side.
2. Those who provide financial services are on the sell-side.

These sides have nothing to do with whether you are a buyer or seller of a specific security.

Buy-side players

Buy-side is a segment of the trading industry made up of investing institutions that trade securities for money-management purposes.

- Individuals
- Corporate pension fund sponsors
- Charitable trusts
- Legal trusts
- Endowments
- Corporate investment funds
- Insurance reserve funds
- Governmental funds

Sell-side players

The sell-side is a segment of the trading industry that is involved in the creation, promotion, and sale of stocks, bonds, foreign exchange, and other financial instruments.

- Dealers: Securities dealers include individuals or firms that specialize in security market transactions by
  1. assisting firms in issuing new securities through the underwriting and market placement of new security issues,
  2. trading in new or outstanding securities on their own account, i.e., the dealer stands ready and willing to buy a security for its own account (at its bid price) or sell from its own account (at its ask price).

  - A dealer is different from a trader. While a dealer buys and sells securities as part of its regular business, a trader buys and sells securities for his or her own account and not on a business basis.

Sell-side players

- Brokers trade for other people's accounts (think about a broker that sells your house).
  - A broker acts as an intermediary between an investor and the financial market.
  - Because securities exchanges only accept orders from individuals or firms who are members of that exchange, individual traders and investors need the services of exchange members. Brokers provide that service and are compensated in various ways.
- Broker-dealers do both: Fidelity, Vanguard, Goldman Sachs, etc. (over 3000 of them)
  - In the U.S., broker-dealers are regulated under the Securities Exchange Act of 1934 by the Securities and Exchange Commission (SEC).
  - Many states also regulate broker-dealers under separate state securities laws (called "blue sky laws").

The consultants

Consultants provide information to sell- and buy-sides.

- Transaction cost measurement
- Performance evaluation
- Risk identification and management

Trade facilitators

- Exchanges provide systems that help traders arrange their trades.
- Clearing houses facilitate the exchange (i.e., clearance) of payments, securities, or derivatives transactions.
- Depositories and custodians hold securities.
  - The main securities depository is Depository Trust Company, a subsidiary of the Depository Trust & Clearing Corporation (DTCC).

A typical set of relationships

- A sponsor owns funds.
- An investment manager makes portfolio decisions.
- A broker implements trade decisions.
- A dealer supplies the security.
- A clearing house guarantees the trade.
- A depository holds the security.
- Consultants advise everyone.

What instruments are traded?

- Terminology: Asset = Security = Instrument = Contract.
- Real instruments represent ownership of tangible things.
- Derivative instruments derive their values from other instruments' values.
    - Derivatives are usually zero-sum instruments that sellers create.

Real instruments: Stocks

- Stock shares represent partial ownership of a corporation.
- The owner of a share gets:
  - A slice of corporation's net income.
  - A vote in electing the corporation's directors.
- Corporation first sells stock to the public in the initial public offering (IPO).
  - Additional sales are follow on or seasoned equity offerings (SEO).
- After the offering, most shares trade on exchanges.

Real instruments: Bonds

- A bond is a security sold (issued) by governments and corporations to raise money from investors today in exchange for a promised future payment.
- The terms of the bond are described as part of the bond certificate, which indicates the amounts and dates of all payments to be made.
- Payments on the bond are made until a final repayment date called the maturity date of the bond.
- Generally, bonds are traded on the OTC (over-the-counter) market.

Derivative instruments

- Options contracts give holders rights that they do not have to exercise.
  - Calls are rights to buy at a set (strike) price.
  - Puts are rights to sell.
- Forward contracts are contracts to trade at a set price in the future and they are traded on OTC markets.
- Futures are forward contracts traded on an exchange.
- Swaps are contracts to exchange cash flows.

Trading markets

- Various securities are traded on various markets.
- These markets generally have vastly different organizations and mechanisms, e.g., trading rules, pricing rules, etc.
- Types of markets
  1. Dealers
     - Over-the-counter
  2. Brokers
     - Exchanges

Dealers market

- A dealer market operates with a dealer that acts as a counterparty for both buyers and sellers of a security.
- The dealer sets bid and ask prices for the security in question.
- Dealer will trade with any investor willing to accept those prices.
- Dealer markets are less common in stocks, but more common in bonds, derivative securities and currencies.

Broker market

- A broker market operates by finding a counterparty to both buyers and sellers.
- Traditionally, stock markets were brokered and brokers were people. Stockbrokers would try to find an appropriate counterparty for their clients on the trading floor. This is the stereotypical image that Wall Street used to be known for, with men and women in suits yelling at each other while holding pieces of paper noting their clients' orders.
- Broker markets are used for many types of securities, especially those with initial issues. An IPO (initial public offering), for example, will usually be launched through an investment bank, who brokers the issue trying to find subscribers. This is also similar for new bond issues.
- Brokered markets are also appropriate for tailored or custom products.

Exchanges

- Exchanges are mainly automated brokered markets. Trades are executed based on order books that match buyers with sellers.
- Dealers may also participate in the market (hybrid markets).
- The advantage of the exchange is the provision of a central location (physical of computer network) for buyers and sellers to find their counterparties.
- Exchanges are automated, requiring no dealer intermediary.
- Exchanges are most appropriate for standardized securities. These include stocks, futures, contracts, and options.
- Exchanges will typically specify characteristics for the securities traded on the exchange.

The largest stock exchanges

Capitalization, trading volume and Turnover, 2019.

Exchange	Market cap ($B, US equiv.)	Volume ($B, US equiv.)	Annual turnover	Implied holding period (years)
NYSE	24,480	9,305	0.380	2.6
Nasdaq - US	13,002	15,910	1.224	0.8
Japan Exchange Group (Tokyo)	6,191	5,099	0.824	1.2
Shanghai Stock Exchange	5,106	7,790	1.526	0.7
Hong Kong Exchanges and Clearing	4,899	1,877	0.383	2.6
Euronext	4,702	1,920	0.408	2.4
LSE Group (London)	4,183	2,000	0.478	2.1
Shenzhen Stock Exchange	3,410	11,255	3.301	0.3
TMX Group (Tornonto)	2,409	1,445	0.600	1.7

Market capitalization is as of the end of 2019. Volume reflects only EOB (electronic order book) trades.

Source: World Federation of Exchanges (http://world-exchanges.org)

Consolidated vs. fragmented markets

- Consolidated: all trading happens in one place.
  - One "trading floor" or one computer system.
  - There are many futures contracts, but each contract usually trades on only one exchange.
- Fragmented: trading is dispersed
  - Multiple trading locations or computer systems.
  - Most stocks markets.

Consolidated vs. fragmented markets (cont.)

- The "home" for trading a stock is the stock's primary listing exchange.
- The primary listing exchange:
  - Provides trading facilities/procedures.
  - May arrange for a dealer to assist trading.
  - Coordinates openings and trading halts.
  - But does not have a monopoly on trading.
- BAC is listed on NYSE and it is traded on both NYSE (a broker market) and Nasdaq (a dealer market).

Who are the regulators?

- Governmental agencies enact and enforce law.
- Self regulating organizations (SRO's) regulate their members.
- International regulatory bodies try to coordinate regulation across borders.
- Private regulators try to create respected standards.

U.S. governmental regulators

- The U.S. Congress makes federal law.
  - House finance and telecommunications committee
  - Senate banking and finance committee
  - Senate agricultural committee
  - Government accounting office
- Regulatory agencies write and enforce specific regulations to implement the law.
  - The Securities and Exchange Commission (SEC) regulates the securities markets.
  - The Commodity Futures Trading Commission (CFTC) regulates futures markets.
  - The Federal Reserve Board sets margins.
- Various state regulators primarily enforce their anti-fraud statutes.

Self-regulating organizations

- Exchanges
- Dealer associations
- Clearing houses

Private regulators

- The Financial Accounting Standards Board (FASB)
- Securities Investor Protection Corporation (SIPC)
- Association for Investment Management and Research (AIMR)
- Various rating agencies

Example of the regulatory rules-making process

- Congress gives the SEC the right to regulate markets.
- The NYSE writes a regulation to restrict program trading (Rule 80a).
- The SEC must approve the regulation before it goes into effect.

Example of regulatory enforcement

- Congress makes insider trading illegal.
- Exchanges monitor market activity to identify suspicious trading.
- Exchanges report suspect behavior to the SEC.
- The SEC and/or the Department of Justice may prosecute.