High Frequency Trading

chapter 2:< Evolution of High-Frequency Trading>

- Many years ago, securities markets were run in an entirely manual fashion.

  ➔ his sales representative in person or via messengers and later via telegraph and telephone when telephony became available

1. Markets could move significantly between the time the market price was set on an exchange and the time the client received the quote.
2. Errors were introduced in multiple levels of human communication, as people misheard the market data being transmitted.

- For development of electronic dealing system: increase of automated funds
- In 2010 already, equities, futures, options, forex, and fixed income are traded in electronic trading capabilities over 90% ~60%
- Exchanges are the centralized marketplaces for transacting and clearing securities orders.
- During late 90s, broker-dealer get high commission rate and are located in center of trading system. They have clients from small individuals to enormous institutional investors.

Evolution of High-Frequency Trading

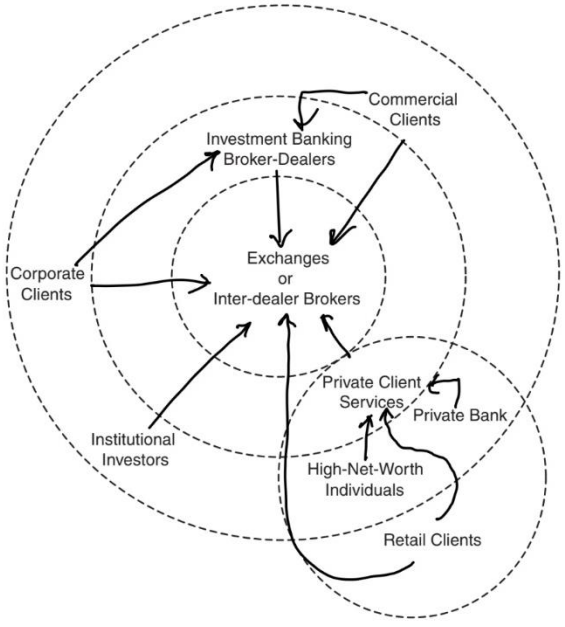

FIGURE 2.3 Twentieth-century structure of capital markets.

➔ Dealer trade large lots by aggregating their client orders.

- Liquidity pools: the networks are flattening, and exchanges and inter-dealer brokers are gradually giving way to electronic communication networks (ECNs).
- Technical analysis:

1) combination of the moving average and standard deviation of the price.
2) security prices in conjunction with current market events or general market conditions to obtain a fuller idea of where the prices may be moving next.

➔ Prospered through the first half of the 20th century. At that time, the trading complexity of major securities was considerably lower than it is today. The inability to transmit information quickly limited the number of shares that changed hands,

➔ Today, technical analysis at low frequency is self-fulfilling prophecy and is marginalized to work only for the smallest, least liquid securities, which are traded at very low frequencies.

➔ moving averages, "stochastics" and relative strength indicators (RSI) may succeed in generating profitable trading signals on intra-day data sampled at hourly intervals.

➔ vs HFT

- both market microstructure and technical analysis work to infer market supply and demand from past price movements.
- But, high-frequency trading models are built on probability-driven econometric inferences, often incorporating fundamental analysis, not as a particular patterns used to technical analysis.

- fundamental analysis

➔ include pricing of securities with no obvious cash flows based on expected economic variables.

➔ many high-frequency trading models, alongside market microstructure.

- Quant trading

➔ a mathematical model–fueled trading methodology that was a radical departure from established technical and fundamental trading styles.

➔ statistical arbitrage stat-arb became the new stars in the money-making arena.

➔ Algorithmic trading may determine how to process an order given current market conditions: order aggressively, passively.

- Trading decisions at high speeds and keeping no positions overnight.
- from replacing expensive trader headcount with less expensive trading algorithms along with other advanced computer technology.
- Lack of overnight positions has translated into immediate savings due to reduction in overnight position carry costs
- Order-execution processes: optimization of execution -> generation of trading signals.
- Stealth execution allows large investors to hide their trading intentions from other market participants, thus deflecting the possibilities of order poaching and increasing overall profitability.
- from identification of underpriced or overpriced securities, through optimal portfolio allocation, to best execution.

➔ Signal + optimal execution

- Some markets are not yet suitable for high-frequency trading, in as much as most trading in these markets is performed over the counter (OTC).