

3. Institutional Trading

Institutions and Market Impact - Who are institutional traders?

BCG (2010) estimated institutions manage approx 52.1 trillion in 2009 for tens of millions of clients. According to the ABS, the Australian managed funds industry in March 2014 approx \$2,338.8b

Among these Institutional investors are buy-side institutions such as mutual funds, pensions funds, life insurance companies, trust departments of banks and investment companies. Buy side institutions, the investment company, accept money from investors for the purpose of investing on their behalf. The investment company is composited with fees and, typically based on some combination of performance and investment portfolio size. Clients expect that the investment company will provide professional management services and pass on cost advantages resulting from economies of scale. The cost advantage include reduced transactions costs and managerial costs, as well as more efficient record keeping and improve diversification.

There are a number of different types of investment companies registered with the Securities and Exchange Commission (SEC). There are a variety of unregistered investment companies.

Institutional transactions are frequently executed by professional traders, either as employees of the institutions or acting as their agents, and these transactions provide opportunities and risk for other traders. Institutional transactions also have important effects on security liquidity, prices, and volatility. Institutional investors play crucial and varied roles in markets and are behind conditions that affect every trader.

Questions – what will be the reactions? What factors affect these reactions? Large blocks orders will result in dramatic price reactions. Which institutional transactions will have the most significant price impacts? Kraus and Stoll (1972) and Saar (2001) have documented asymmetric reaction to block trades. In particular, institutional block buy orders result in a much larger upward effect than the downward effect caused by comparable institutional sell orders. This raises the question: why are institutional buys associated with significantly larger price impact than institutional sells? Arguments offered by Chan and Lakonishok (1993) and Saar (2001) suggest that buy orders convey more information than sell orders because:

- Liquidity needs drive many sales.
- Most institutions have a much larger pool of stocks from which to buy than to sell.
- (Mutual funds) Restrictions on short selling – focus is on shares that the institution might buy.
- Mutual funds cannot borrow to invest – must be selective with their purchases.

Registered investment companies

The buy side institutions that execute the largest volume of transactions have an enormous impact on trading for all market participants. Such companies include mutual funds, unit investment trusts, real estate investment trusts (REITs).

- Investment companies manage sets on behalf of clients.
 - Assets include, but not limited to, publicly traded financial securities such as stock, bonds, and derivative instruments.
- Types of investment company types
 - Closed-end investment company – corporation that issues a specified number of shares that can be traded in secondary markets/the exchange such as the NYSE. One might purchase shares through a brokerage firm.
 - Open-end investment company (typically known as mutual funds) – accept additional funds directly from investors and are willing to repurchase (outstanding) shares directly from investments. The major markets in which mutual funds operate are equities, fixed income, money market and commodities, and FOREX.
 - Fixed income funds seek to provide stable interest income for their investment. One type is the high-yield fund, provide higher income by investing in a diverse portfolio of higher risk, higher return (junk) bonds.
 - Municipal bond funds purchase tax-free and local government bonds for their investors. These funds are attractive to investors in high income-tax brackets.

No-loads fund: mutual funds that accept investment directly from investors without a sales charge (investors buy and sell funds at net asset value).

Loads funds: institutions that charge a sale fee. The loads might be imposed when investors buy into a fund (front end load), sell out of a fund (back end load or redemption fee) or a combination of both.

- Exchange Traded Funds are funds whose shares are traded on exchange. The first was the S&P Depository Receipt (SPDR or Spider ticker). The spider fund is intended to mimic performance of S&P500 Index by maintaining the same portfolio of securities as is comprised by the index.

Unlike the case with most mutual funds, investors can trade shares of ETFs through the day at market prices that vary as the market index varies. Hence, the investors can more easily trade the market portfolio throughout the day rather than have to wait for closing net asset values as required for trading mutual funds. This ease of trading facilitates creation of options and other derivatives on indices, which not normally exist on mutual funds. Additionally because ETFs are not actively managed investors can benefit from low management expenses (typically investors have to pay brokerage expenses to trade fund and will be faced with bid-offer spread, potentially increasing costs).

Unregistered investment companies

Registered companies provide investment services functioning under the regulatory authority of the SEC.

- **Pension funds** – established by US employers to facilitate and organise the investment of employee's retirement funds. Defined benefit plans specify payments that employees will receive when they retire and defined contribution plans define employer and employee contributions. Pension funds clients cannot trade their fund investment.
- **Bank Trusts and Private Banking.** Banks provide asset management services including trust management. Trust are legal entities or vehicles for enabling settlors or grantors to accomplish various financial goals. Banks have the roles of trustees or asset management in behalf of grantors and their beneficiaries.
- **Private equity** – refers to asset managers who make equity investment in companies that are not publicly traded. They provide funding for start-up firms, management buyouts (MBOs), leveraged buyouts, firms in financial distress and public firms seeking buyout funding. Traditionally, private equity ownership is not publicly traded, not liquid, and exempt from SEC registration requirements.
- **Hedge funds** – unregistered private funds that allow investors to pool their investment assets. To avoid SEC registration and regulations, hedge funds only accept funds from small number of accredited investors, typically high net worth individuals and institutions. Most only have a small number of

managers and they focus on strategies. Many hedge funds seek investment opportunities or niches where other institutions are prohibited due to regulatory restrictions – e.g. Securities of distressed companies facing reorganisation or bankruptcy, conduct short sales and derivative to profit from market downturns, and arbitrage opportunities.

- **Insurance companies.**

Algorithmic Trading

- Estimated in 1994, institutional trading accounted for 75-80% of NYSE volume.
- Institutional orders are large.
 - About 80% of US institutional orders exceed half of the relevant stock's average daily trading volume (2004 research).
 - Most orders take longer than a day to execute – less than 50% take more than 4 days (Chan and Lakonishok, 1993).

Typical transaction sizes in many markets such as the NYSE are very small relative to the order sizes placed by institutional investors. Larger institutional traders can have a significant and unwanted impact on execution prices. This unwanted impact is called slippage. Slippage occurs when the market impact of a trader's buy order forces security prices to rise and sell orders force prices down. **Relation between trade slippage and transaction size is likely to be nonlinear.**

Algorithmic trading refers to automated trading with the use of live market data and rule-driven computer programs for automatically submitting and allocating trade orders among markets and brokers as well as over time so as to minimise the price impact of larger trades. AT executes orders without direct human intervention, using computers to directly interface with trading venues. It seeks to determine strategies for trade amounts, prices, timing, and venues of orders, in many cases, to avoid slippage. Many institutional traders use algorithmic trading to break up large orders into smaller orders (slice and dice) to reduce execution risk, preserve anonymity and to minimise trade slippage (market impact of trade).

AT has risk such as leaks, malfunctions and failure of program. Thus, human supervision and appropriate use of filters are crucial for AT.

Algo Strategies

These models seek to trade at or better than the average price over day (e.g. VWAP, volume weighted average price) and others seek to execute slowly to so as to have a minimal impact in the market price.

E.g. Iceberg orders: only a small part of an order is shown in the limit order book, while the larger part is hidden. As execution realised, successive part of the order are entered in the limit order book. Minimise trading costs by revealing minimal information about their trading intentions to the market. Institutions require transparency for anonymity, however they want to see orders of everyone else.

E.g. Simple time slicing: orders are split up and sent to markets at regular time intervals.

Stealth and Sunshine

Stealth trading: where privately informed traders fragment their large order, routing them to different markets and at different time to disguise their intentions.

- Large trades will reveal information.
- Small trades will incur excessive transaction costs.
- Medium trades will be used by informed traders.

Study by Campbell et al. In 2009 found that institutions use larger and smaller transactions. Why?

Institutions prefer small and medium transactions when trading on high volume days. Large transactions on high volatility days.

Sunshine trading: traders announce their intentions.

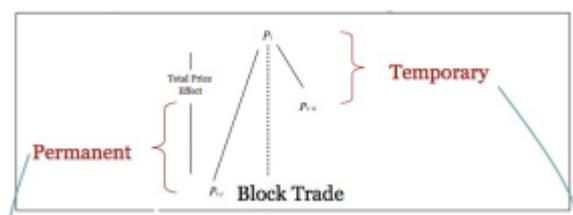
- Attempting to attract more liquidity providers to the market.
- If trades are not information driven, may get better prices than stealth trading. E.g. 2011 scenario when the US announced its plan to sell the bank shares that was accumulated during the 2008 crisis.
- Market fully aware.
- Minimal negative impact on shares prices.

What are the institutional trading needs?

- Volatility: share prices fluctuate with market uncertainty and also liquidity in the market.
- Transparency: everyone wants to see liquidity, but no one is actually going to put his order there. Everyone wants markets to be transparent, but nobody wants anyone else to see what they want to do.
 - Day traders, hedge funds, and others pilfered research done by institutional investors.
- Consolidation of order flow. It refers to the pooling of order flow in one market centre.
 - Increases order interaction and concentrates liquidity.
 - Improves accuracy of price discovery.
 - Fragmentation, both spatial and temporal due to "slice and dice" affects quantity and price discovery and increases intraday price volatility.

Price impact of institutional trading

Price changes are decomposed into two components:



- Change in the market's perception of the security's value (Permanent).
- Price movement necessary to provide liquidity to absorb the block (Temporary).

Kraus and Stoll (1972) and Saar (2001) documented asymmetric reaction to block trades. Buy orders see much larger upward effect than downward effect. Chan and Lako suggest that the reason was that buy orders are more informationally driven.

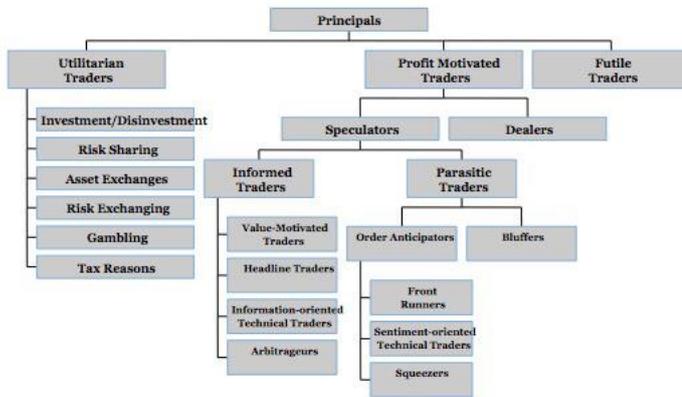
- **Liquidity needs drive many sales.**
- Most institutions have a much larger pool of stocks from which to buy than to sell.
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4. Price Formation Process (Lecture content)

Why do people trade?

Trading is a zero sum game where the total gains of the winners are exactly equal to the total loss of the losers. Return is positive for winners and negative for losers. This suggests some trade to make a profit (profit motivated), trade for other reasons (utilitarian) and trade to make profits but fail (futile).

Recap - Harris 2003 p199 Figure 8-1



Utilitarian Traders

Trade because they expect to obtain some benefit from trading besides trading profit.

- **Investment and disinvestment.** Individuals often need to manage their cash flow, moving money from one point in time to another. Investors are uninformed traders who use the markets to obtain an unconditional rate of return. Do they know the fundamental value of assets?
- **Borrowers**
- **Risk sharing.** Large projects are often too risky to be financed by individuals. They divide up projects among many owners to distribute risks. The pieces (shares and bonds) are marketed.
- **Asset exchange.** Traders use many markets to exchange one type of asset (usually money) for another that has some specific use. E.g. Commodities and currencies.
- **Risk exchange** (hedging). Hedgers use the financial markets to reduce their exposure to a financial risk. When two risks offset each other, one is said to be a hedge for the other. A hedge position has less risk than the separate components.
- **Gambling.** Securities markets allow people to take positions on uncertain future events – likely that some gamblers would also trade financial instruments. Gamblers hope to make money but have no rational reason to expect it.
- **Tax reasons.** The tax system provides opportunity for tax avoidance. Tax avoiders use the markets to minimise the taxes paid.
 - Differences in the tax rates on dividend and capital gain/losses.
 - Deferral of taxable income.

What do utilitarian traders look for in market structure? Liquid markets → low transaction costs

Profit motivated Traders

- **Speculators.** Speculators are informed traders who expect a conditional return $(R_f + R_{prem} + R_{info})$. Speculators collect, analysed and produce information that is then used to predict future price changes. Important difference between gamblers and speculators (gamblers are not informed, they speculate for fun). Speculators differ by the information they use to forecast future price changes.
 - **Informed traders.** They profit from knowing the fundamental value. The fundamental value of a security is the expected NPV of all future benefits and costs associated with holding the security. Informed traders trade when price differs from their estimates of fundamental underlying value. It can be undervalued or overvalued (overvalued to profit when the price reverts to their estimate of the fundamental value).

Informed Trading Strategies

Profit motivates informed traders and not a desire to make prices more informative. Informed traders try to minimise their price impact to maximise their profits. Trade aggressively to utilise the informational advantage before it becomes public knowledge. Trade slowly if they know the information will not become public knowledge.

What is the effect of informed trading on price? Trading by informed traders move price towards the security's fundamental value. Informed traders have different information, thus they form different estimates of value.

Styles of Informed Trading

- Value motivated: estimate fundamental values by using economic models.
- Headline traders: estimate changes in fundamental values.
- Information-oriented technical traders: try to forecast prices from past prices and other market data.
- Arbitrageurs: relative differences in fundamental values using fundamental and technical models.

Informed traders profits when they trade when they trade with uninformed traders. Actions of informed traders cause the market to have informative prices. Conjecture 6 from Grossman and Stiglitz, 1980 summarises the paradox: “In the limit, when there is no noise, price convey all information, and there is no incentive to purchase information. Hence, the only possible equilibrium is one with no information. But if everyone is uninformed, it clearly pays some individual to become informed. Thus there does not exist a competitive equilibrium.”

- **Parasitic Traders:** do not know fundamental value of securities. They act on information about other traders’ orders. They create information to fool others.
 - Order anticipators
 - Front Runner (Front running → inside information)
 - Sentiment-oriented technical traders predict trades that uninformed traders will decide to make.
 - Trade ahead of uninformed traders.
 - Profit when prediction is correct.
 - Squeezers monopolise
 - One side of a market buying up the supply thus controlling subsequent sale prices. Most common in commodity markets.
 - Buffers
- **Dealers** are profit-motivated traders who profit by supplying liquidity to other traders who wants to trade.
 - The liquidity services they sell – immediacy – is valuable to impatient traders.
 - Dealers often are known as specialists or market makers in stock exchanges and options exchanges.

Futile Traders

Noise traders: trade on what they falsely believe to be special information or misinterpret useful information. They based their decision on incorrect perceptions of the markets, perhaps creating opportunities for more sophisticated investors. If they trade in large numbers and if their trading behaviour is correlated, they may distort prices from fundamental value.

Market Efficiency

Prices are efficient with respect to a set of information if traders cannot profit from acquiring the information and trading on it. At the equilibrium: Cost of acquiring and trading on info = revenue from info.

What is the implication of this definition for market places and market efficiency? According to market efficiency definition, information is costly. An **efficient capital market is defined as the market where security prices reflect all available information.** In an efficient market, the expected price of a tradable asset, given the information available to the market and the information available to any investor, equals the expected price based on the information available to the market for all investors. Thus, the price of the asset reflects consensus evaluation of the market based on the information available to the market, regardless of private information held by investor.

If markets are perfectly efficient, then securities reflect all available information. One might argue that security prices will fluctuate only as new information differs.

5. Adverse selection, trading and spreads

The market for Lemons

Adverse selection originally refers to the **tendency of higher risk individuals to seek insurance coverage.** In financial trading context, adverse selection refers to when one trader with secret or special information, uses that information in advantage at a expense of the counterparts in trade. (Pre contractual opportunism where the one contracting party uses his private information to the counter party’s disadvantage).

Informed traders select the profitable side of the market on which to trade. The process is called adverse selection.

Adverse selection in dealer markets

A market where dealers or market makers stand by to provide liquidity to every trader who wishes to trade, losing on trades with informed traders but **recovering losses by trading with uninformed, noise,** or liquidity-motivated traders. (Informed traders: investors with special information or superior analytical skills). Uninformed traders will lose more than they make. These trading losses are reflected as informed trader profits. Market makers observe buying and selling pressure on prices and set prices accordingly.

Dealers and the bid-ask spread

- Recall: Dealers are profit motivated traders who profit by supplying liquidity to other traders.
- Dealers respond to demands for liquidity → Passive Traders
- Dealers quote prices at which they are willing to buy and sell.

Dealers must decide:

Where to bid and offer	Prices
The spread between the bid and offer	Bid-ask spread
The sizes that they are willing to trade	Quotes sizes

Dealer Quotes

The **quote bid-ask spread** can be different from the **effective** and **inside spread.**

- **Effective spread** is the different between the prices at which the dealers actually buy and sell.
- Traders trade with dealer at prices inside the quote.
- Dealers adjust their quotes between trades.

