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# Information Trading

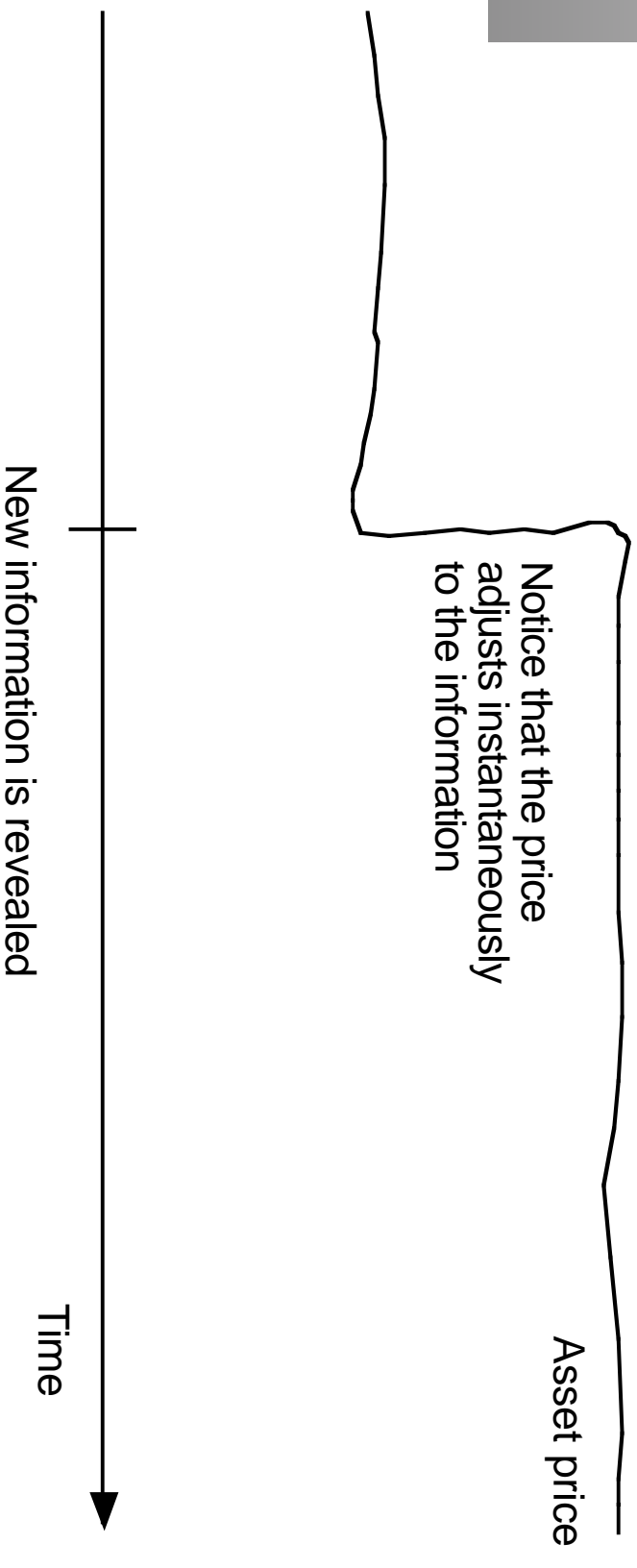
Aswath Damodaran

# Information and Value

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- Investors attempt to assess the value of an asset based upon the information that they have about that asset at that point in time.
- At the same time, different investors will arrive at different assessments of value for the same asset
  - Because the information they have is different
  - Because they have different ways of processing the same information
- The price is determined by demand and supply.

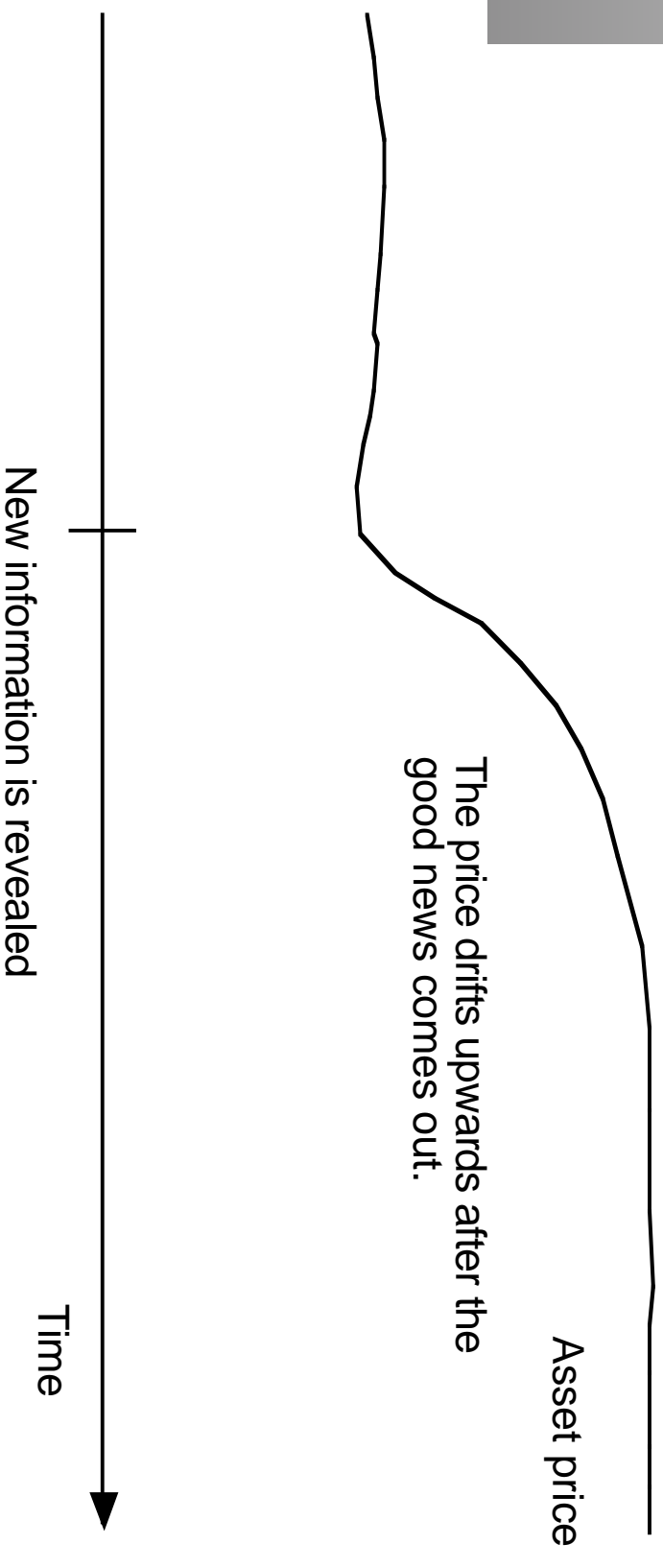
# Information and Prices in an Efficient Market



*Figure 10.1: Price Adjustment in an Efficient Market*

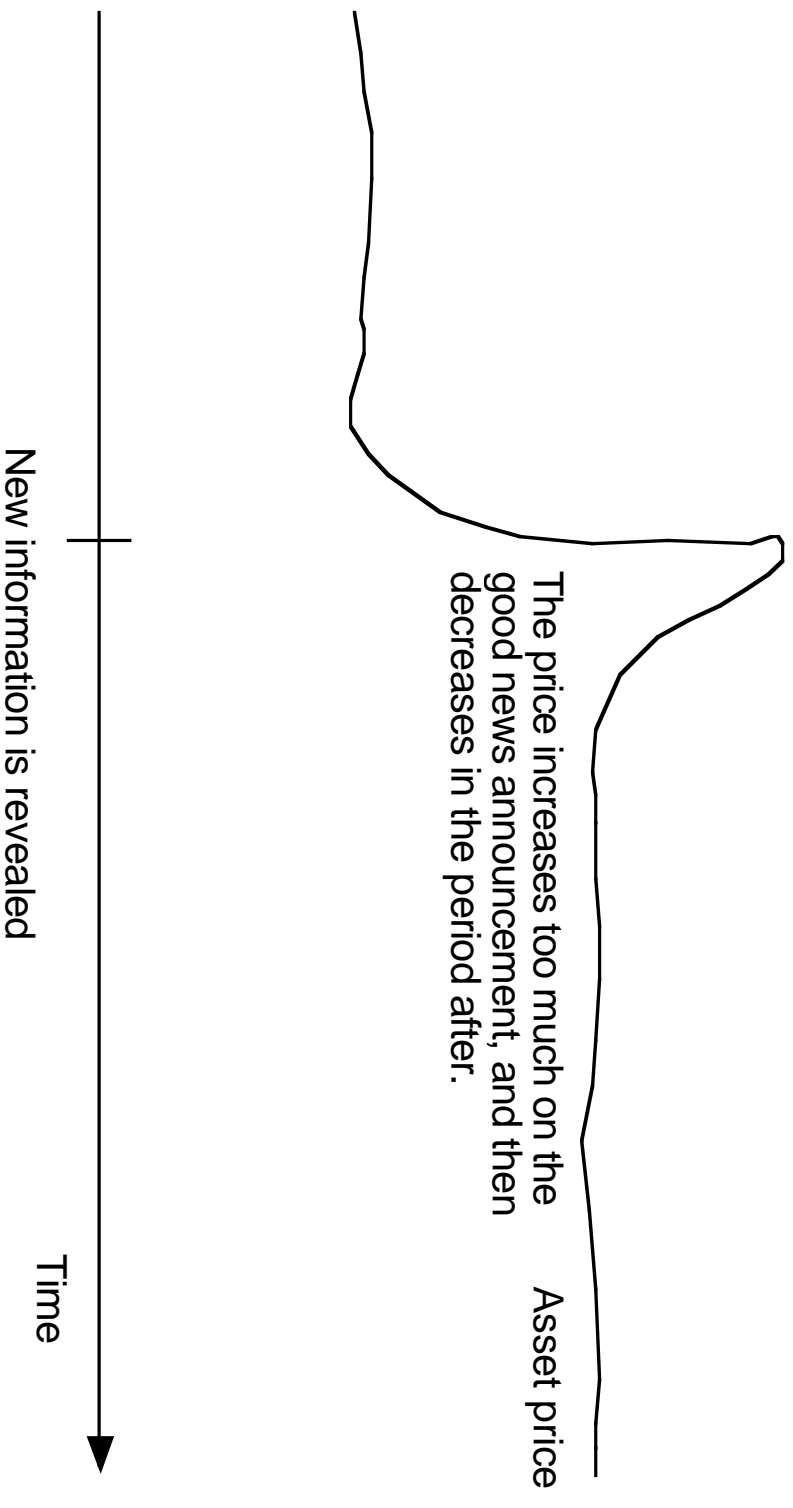
# A Slow Learning Market...

*Figure 10.2 A Slow Learning Market*



# An Overreacting Market

*Figure 10.3: An Overreacting Market*



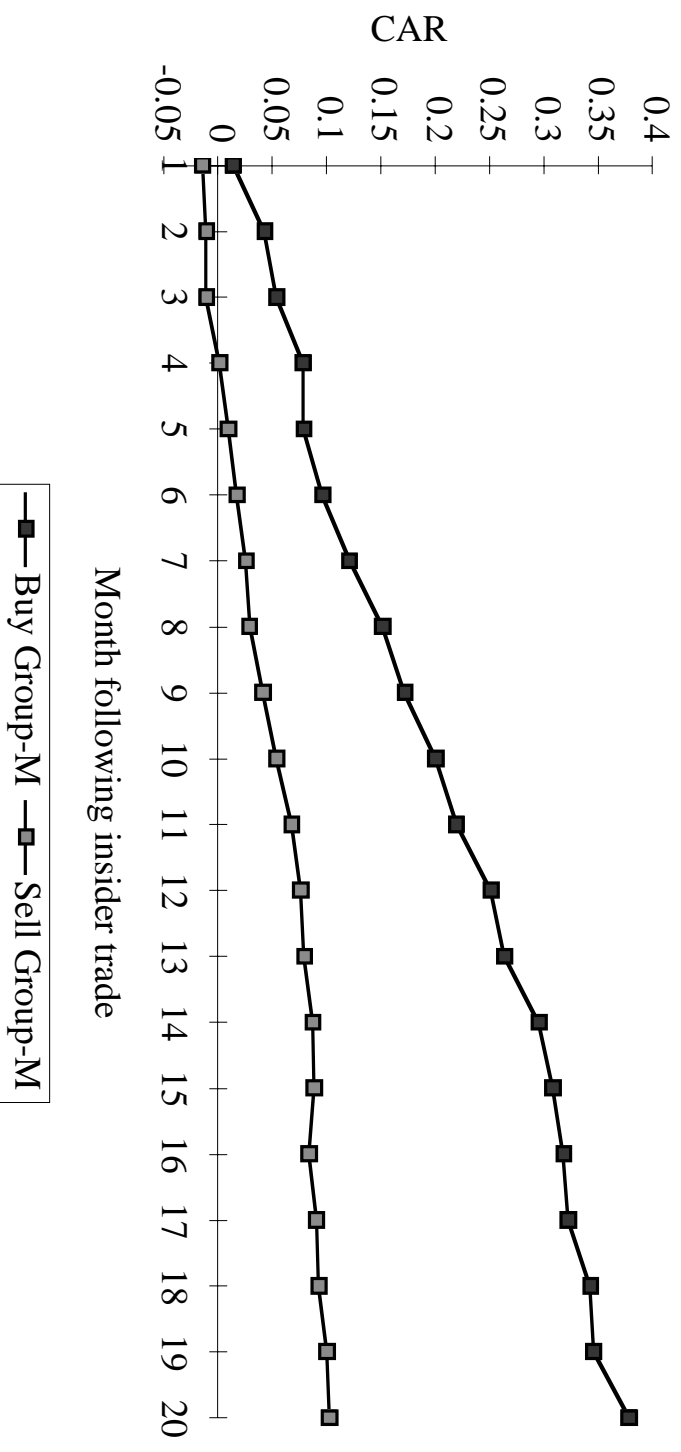
# Trading on Private Information

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- Insiders are managers, directors or major stockholders in firms.
- Analysts operate at the nexus of private and public information.
- One way to examine whether private information can be used to earn excess returns is to look at whether insiders and analysts earn excess returns.

# Insider Trading as a Leading Indicator of Stock prices..

Figure 10.4: Cumulative Returns Following Insider Trading: Buy vs Sell Group

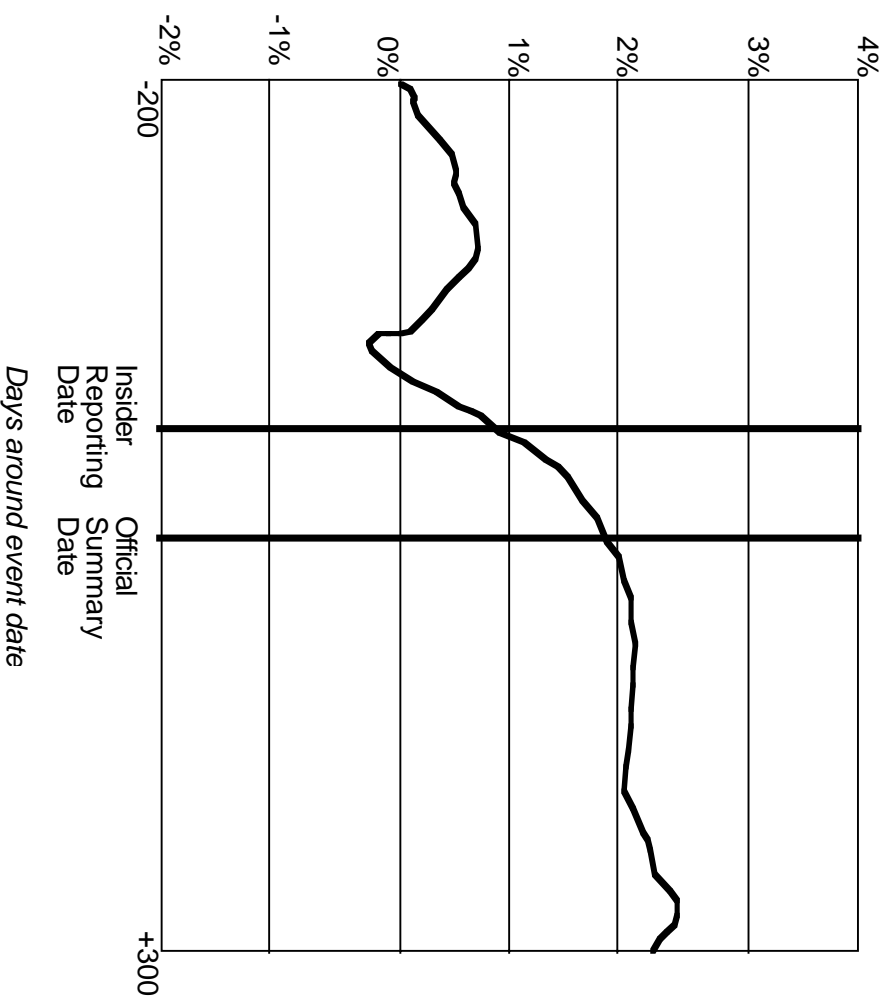


## More on insider trading...

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- Studies since support this finding, but it is worth noting that insider buying is a noisy signal – about 4 in 10 stocks where insiders are buying turn out to be poor investments, and even on average, the excess returns earned are not very large.
- In a study in 1998, Lakonishok and Lee take a closer look at the price movements around insider trading. They find that firms with substantial insider selling have stock returns of 14.4% over the subsequent 12 months, which is significantly lower than the 22.2% earned by firms with insider buying.
- However, they find that the link between insider trading and subsequent returns is greatest for small companies and that there is almost no relationship at larger firms.

# Can you follow insiders and make money?



## Are some insiders more inside than others?

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- Not all insiders have equal access to information. Top managers and members of the board should be privy to much more important information and thus their trades should be more revealing. A study by Bettis, Vickrey and Vickery finds that investors who focus only on large trades made by top executives, rather than total insider trading may, in fact, be able to earn excess returns.
- As investment alternatives to trading on common stock have multiplied, insiders have also become more sophisticated about using these alternatives. As an outside investor, you may be able to add more value by tracking these alternative investments. For instance, Bettis, Bizjak and Lemmon find that insider trading in derivative securities (options specifically) to hedge their common stock positions increases immediately following price run-ups and prior to poor earnings announcements. In addition, they find that stock prices tend to go down after insiders take these hedging positions.

## Illegal Insider Trading: Is it profitable?

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- When insiders are caught trading illegally, they almost invariably have made a killing on their investment. Clearly, some insiders made significant returns off their privileged positions.
- Almost all major news announcements made by firms are preceded by a price run-up (if it is good news) or a price drop (if it is bad news). While this may indicate a very prescient market, it is much more likely that someone with access to the privileged information (either at the firm or the intermediaries helping the firm) is using the information to trade ahead of the news. In fact, the other indicator of insider trading is the surge in trading volume in both the stock itself and derivatives prior to big news announcements.
- In addition to having access to information, insiders are often in a position to time the release of relevant information to financial markets. One study find that insiders sell stock between 3 and 9 quarters before their firms report a break in consecutive earnings increases. They also find, for instance, that insider selling increases at growth firms prior to periods of declining earnings.



# Analysts

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- Analysts have access to public information and to the managers of the firm (and thus to private information).
- Analysts make earnings forecasts for firms (and revise them) and recommendations on buy and sell.

# Who do analysts follow?

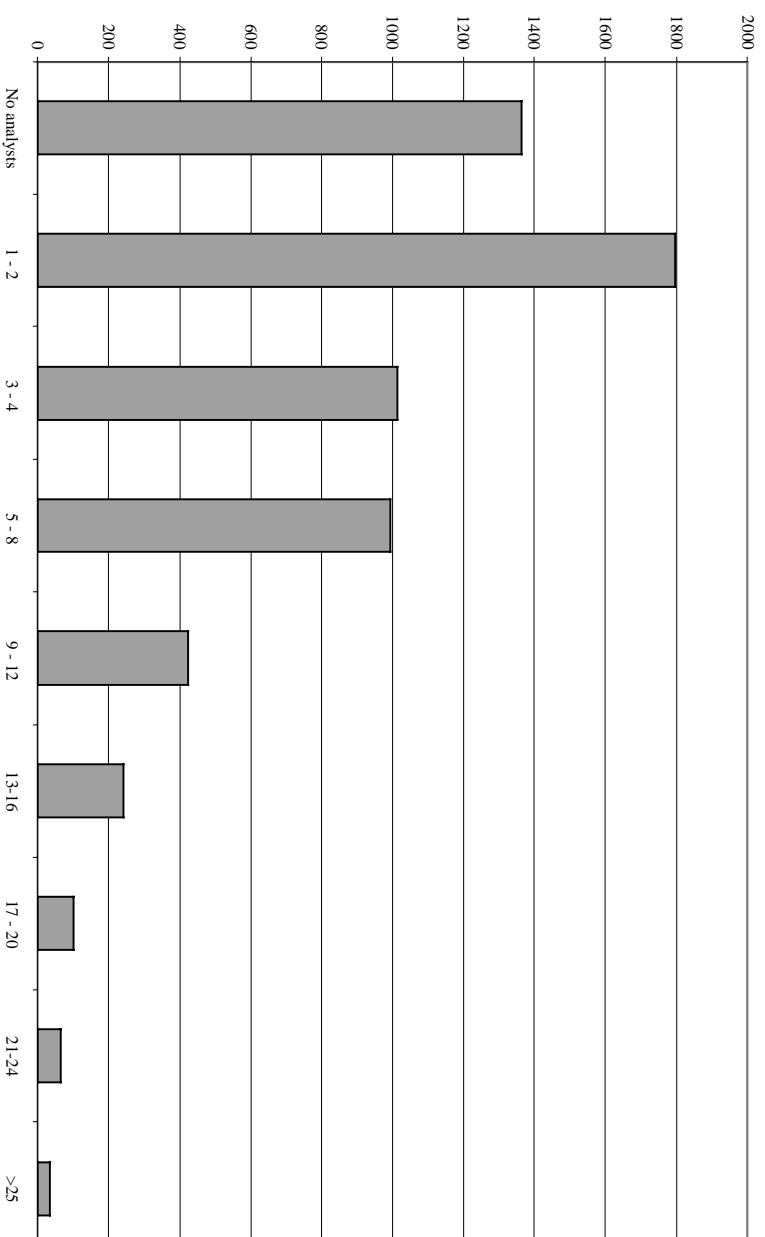


Figure 10.6 : Number of analysis estimating earnings per share: U.S. firms in January 2001

## Determinants of analyst following...

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- *Market Capitalization*: The larger the market capitalization of a firm, the more likely it is to be followed by analysts.
- *Institutional Holding*: The greater the percent of a firm's stock that is held by institutions, the more likely it is to be followed by analysts. The open question, though, is whether analysts follow institutions or whether institutions follow analysts. Given that institutional investors are the biggest clients of equity research analysts, the causality probably runs both ways.
- *Trading Volume*: Analysts are more likely to follow liquid stocks. Here again, though, it is worth noting that the presence of analysts and buy (or sell) recommendations on a stock may play a role in increasing trading volume.

# I. Earnings Forecasts

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- Analysts spend a considerable amount of time estimating the earnings per share that companies will report in the next quarter. They also provide forecasts of earnings further out - up to 5 years.
- Analysts also constantly update these forecasts as new information comes out. To the extent that there is information in these revisions, stock prices should react.

# Information in Earnings Forecasts

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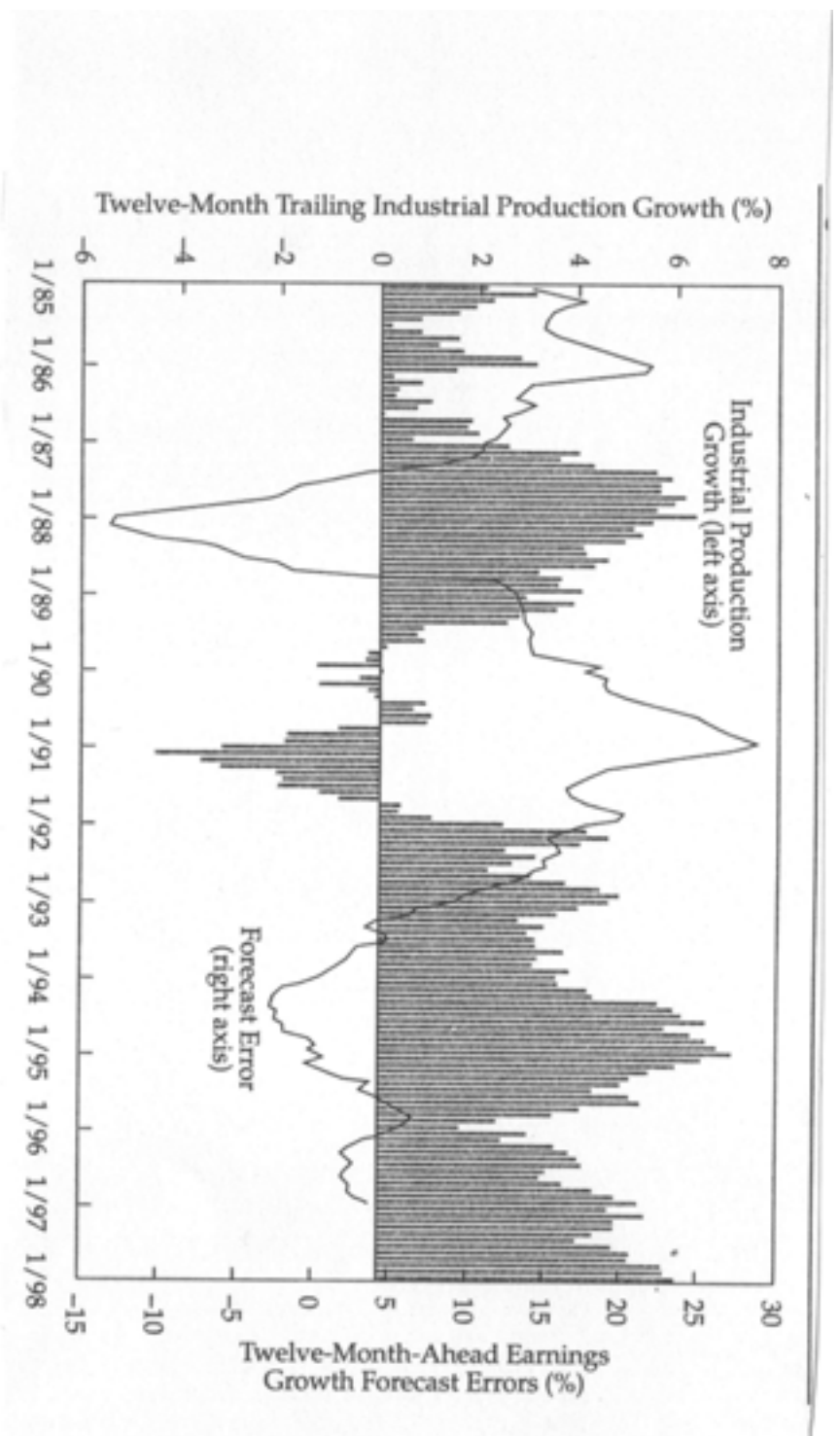
1. Firm-specific information that has been made public since the last earnings report: Analysts can use information that has come out about the firm since the last earnings report, to make predictions about future growth.
2. Macro-economic information that may impact future growth : Analysts can update their projections of future growth as new information comes out about the overall economy and about changes in fiscal and monetary policy.
3. Information revealed by competitors on future prospects: Analysts can also condition their growth estimates for a firm on information revealed by competitors on pricing policy and future growth.
4. Private information about the firm: Analysts sometimes have access to private information about the firms they follow which may be relevant in forecasting future growth.
5. Public information other than earnings: It has been shown, for instance, that other financial variables such as earnings retention, profit margins and asset turnover are useful in predicting future growth. Analysts can incorporate information from these variables into their forecasts.

# The Quality of Earnings Forecasts

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- The general consensus from studies that have looked at short-term forecasts (one quarter ahead to four quarters ahead) of earnings is that analysts provide better forecasts of earnings than models that depend purely upon historical data. The mean relative absolute error, which measures the absolute difference between the actual earnings and the forecast for the next quarter, in percentage terms, is smaller for analyst forecasts than it is for forecasts based upon historical data.
- A study in 1978 measured the squared forecast errors by month of the year and computed the ratio of analyst forecast error to the forecast error from time-series models of earnings. It found that the time series models actually outperform analyst forecasts from April until August, but underperform them from September through January.
- The other study by O'Brien (1988) found that analyst forecasts outperform the time series model for one-quarter ahead and two-quarter ahead forecasts, do as well as the time series model for three-quarter ahead forecasts and do worse than the time series model for four-quarter ahead forecasts.

Analyst Errors seem to be related to macroeconomic conditions...



## How about long term forecasts?

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- There is little evidence to suggest that analysts provide superior forecasts of earnings when the forecasts are over three or five years. An early study by Cragg and Malkiel compared long-term forecasts by five investment management firms in 1962 and 1963 with actual growth over the following three years to conclude that analysts were poor long term forecasters.
- This view was contested in 1988 by Vander Weide and Carleton who found that the consensus prediction of five-year growth in the I/B/E/S was superior to historically oriented growth measures in predicting future growth.

## Market Reaction to Earnings Revisions...

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- In one of the earliest studies of this phenomenon, Givoly and Lakonishok created portfolios of 49 stocks in three sectors, based upon earnings revisions, and reported earning an excess return on 4.7% over the following four months on the stocks with the most positive revisions.
- Hawkins, in 1983, reported that a portfolio of stocks with the 20 largest upward revisions in earnings on the I/B/E/S database would have earned an annualized return of 14% as opposed to the index return of only 7%.
- In another study, Cooper, Day and Lewis report that much of the excess returns is concentrated in the weeks around the revision – 1.27% in the week before the forecast revision, and 1.12% in the week after, and that analysts that they categorize as leaders (based upon timeliness, impact and accuracy) have a much greater impact on both trading volume and prices.
- In 2001, Capstaff, Paudyal and Rees expanded the research to look at earnings forecasts in other countries and concluded that you could have earned excess returns of 4.7% in the U.K, 2% in France and 3.3% in Germany from buying stocks with the most positive revisions.

## Potential Pitfalls and possible use...

- The limitation of an earnings momentum strategy is its dependence on two of the weakest links in financial markets –earnings reports that come from firms (where accounting games skew earnings)and analyst forecasts of these earnings (which are often biased).
- To the extent that analysts influence trades made by their clients, they are likely to affect prices when they revise earnings. The more influential they are, the greater the effect they will have on prices, but the question is whether the effect is lasting.
- It is a short-term strategy that yields fairly small excess returns over investment horizons ranging from a few weeks to a few months.
- One way you may be able to earn higher returns from this strategy is to identify key analysts and build an investment strategy around forecast revisions made by them, rather than looking at consensus estimates made by all analysts. While forecast revisions and earnings surprises by themselves are unlikely to generate lucrative portfolios, they can augment other more long-term screening strategies.

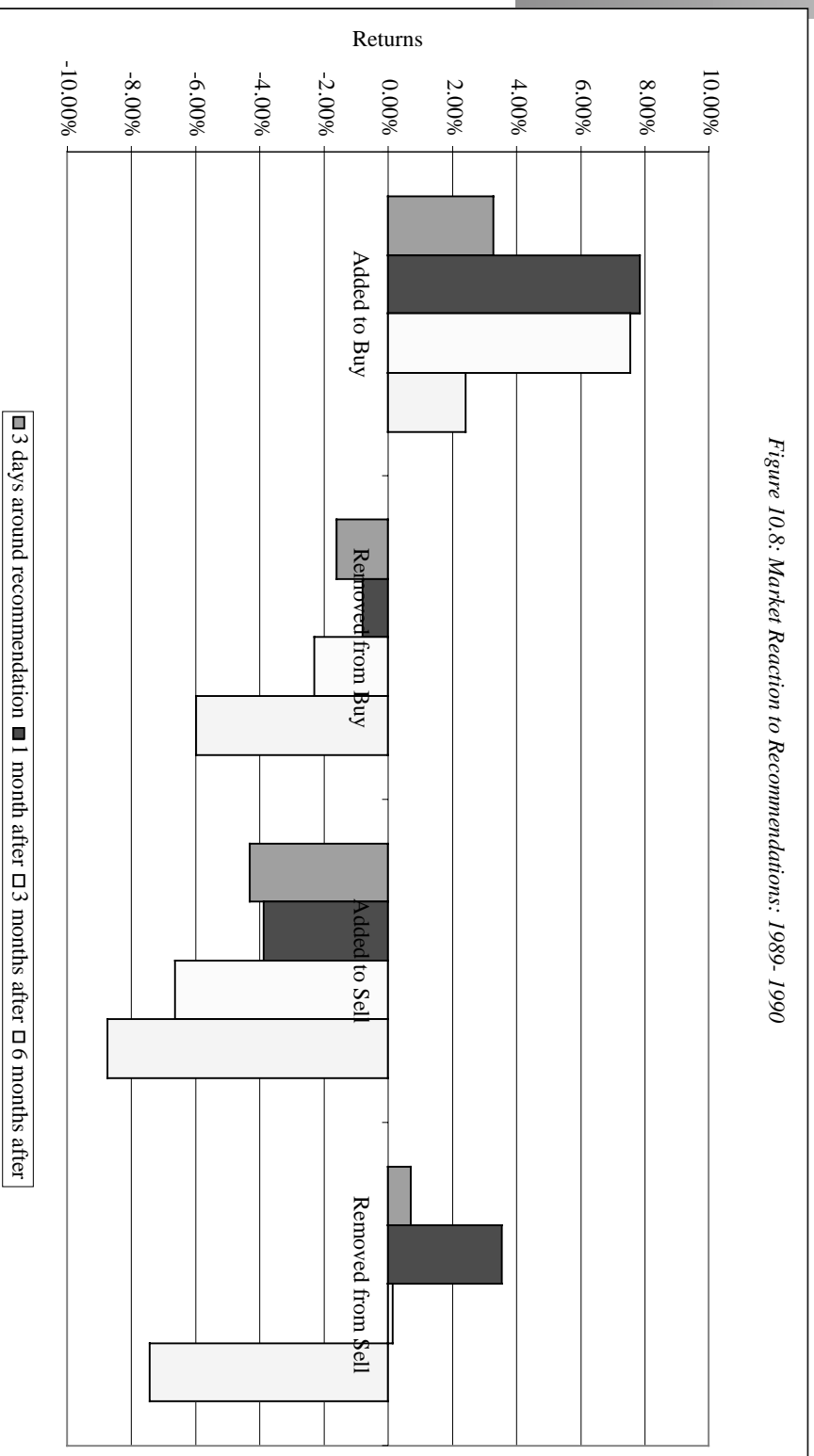
## II. Recommendations: Some background

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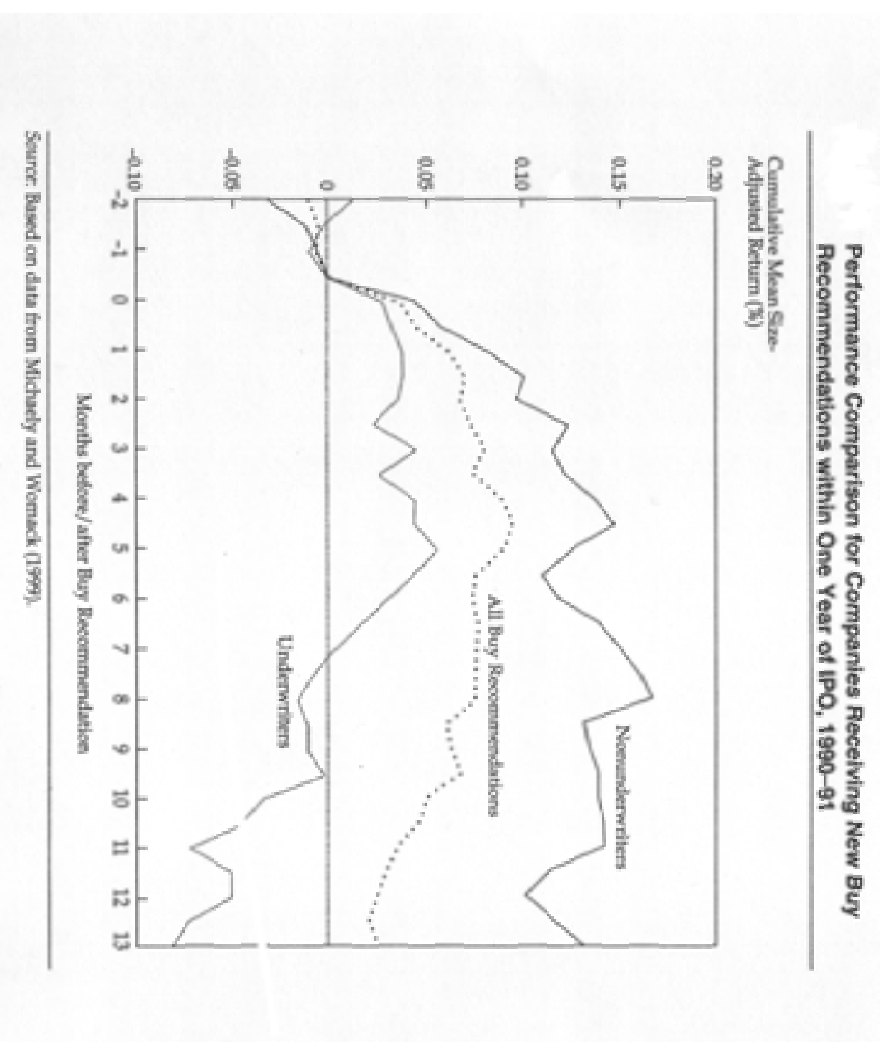
- If we categorize analyst recommendations into buy, sell and hold, the overwhelming number are buy recommendations. In 2001, for instance, buy recommendations outnumbered sell recommendations 7 to 1, but that was actually a drop from the late 1990s, where sell recommendations were often outnumbered by more than 25 to 1.
- Part of the reason for this imbalance between buy and sell recommendations is that analysts often have many more layers beyond buy, sell and hold. What this allows them to do is not only rate stocks more finely, but also to send sell signals without ever saying the word. Thus, an analyst downgrading a stock from a strong buy to a weak buy is sending a sell signal on the stock.
- As with earnings forecasts, there is herd behavior when it comes to recommendations. Thus, when one analyst upgrades a stock from a weak buy to a strong buy, there tends to be a rush of other analyst upgrades in the following days.

# Market Reaction...

Figure 10.8: Market Reaction to Recommendations: 1989-1990



# Tempered by fears of bias...



## Using Analyst Recommendations...

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- Can you make money off analyst recommendations? Even if there were no new information contained in recommendations, there is the self-fulfilling prophecy created by clients who trade on these recommendations, pushing up stock prices after buy recommendations and pushing them down after sell recommendations. If this is the only reason for the stock price reaction, though, the returns are not only likely to be small but could very quickly dissipate, leaving you with large transactions costs and little to show for them.
- You should begin by identifying the analysts who are not only the most influential but also have the most content (private information) in their recommendations. In addition, you may want to screen out analysts where the potential conflicts of interest may be too large for the recommendations to be unbiased. You should invest based upon their recommendations, preferably at the time the recommendations are made. Assuming that you still attach credence to the views of the recommending analysts, you should watch the analysts for signals that they have changed or are changing their minds. Since these signals are often subtle, you can easily miss them.

# Trading on Public Information

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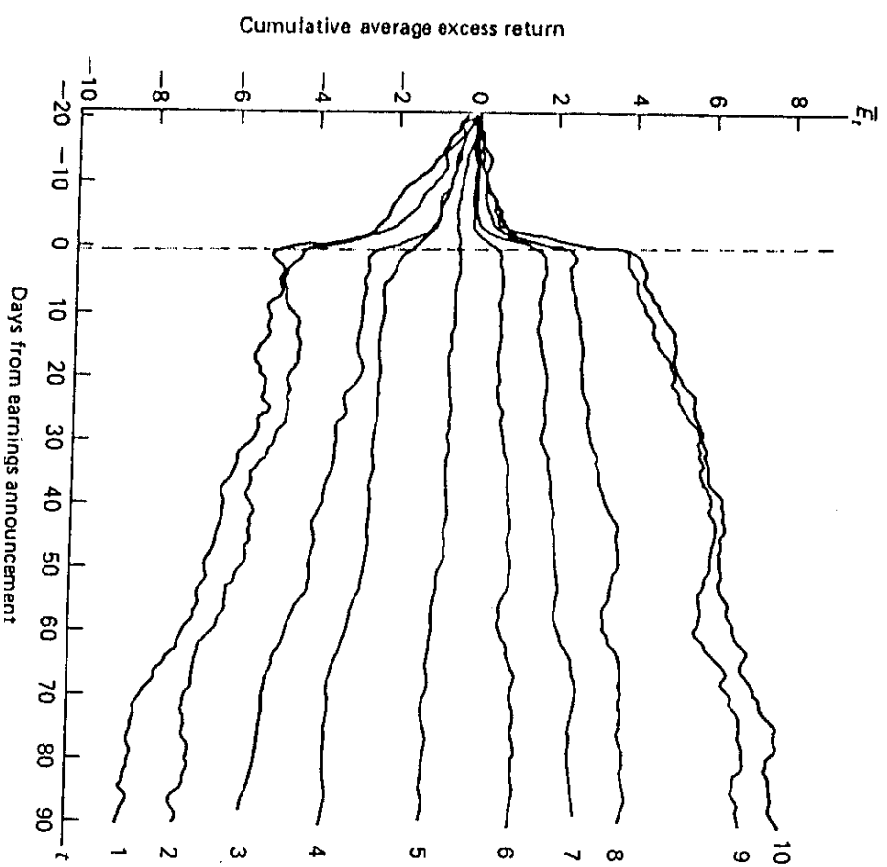
- There is substantial information that comes out about stocks. Some of the information comes from the firm - earnings and dividend announcements, acquisitions and other news - and some comes from competitors.
- Prices generally react to this information.

# I. Earnings Announcements

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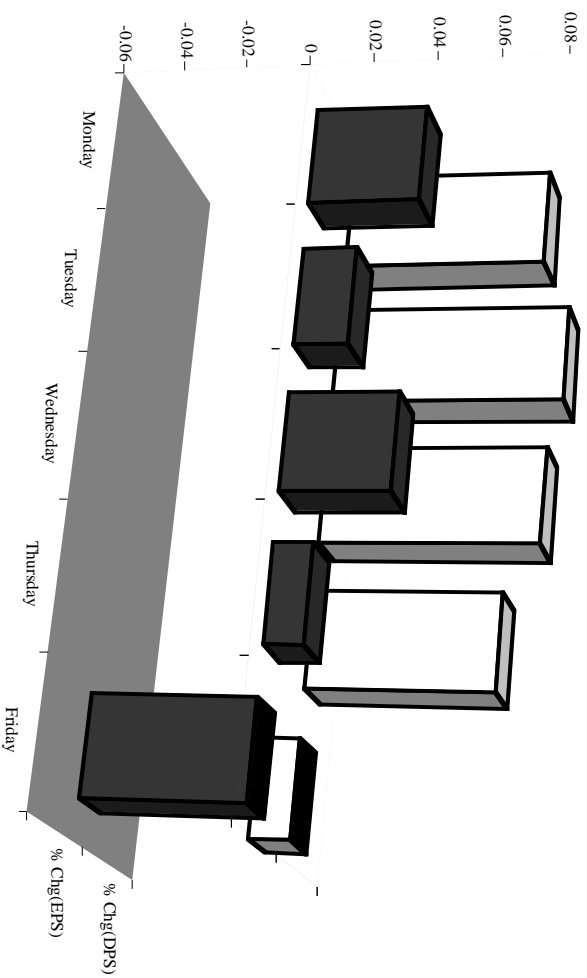
- Every quarter (in the U.S) and less frequently elsewhere, firms report their earnings for the most recent period.
- When firms make earnings announcements, they convey information to financial markets about their current and future prospects. The magnitude of the information, and the size of the market reaction, should depend upon how much the earnings report exceeds or falls short of investor expectations.
- In an efficient market, there should be an instantaneous reaction to the earnings report, if it contains surprising information, and prices should increase following positive surprises and down following negative surprises.

# Market Reaction to Earnings Reports



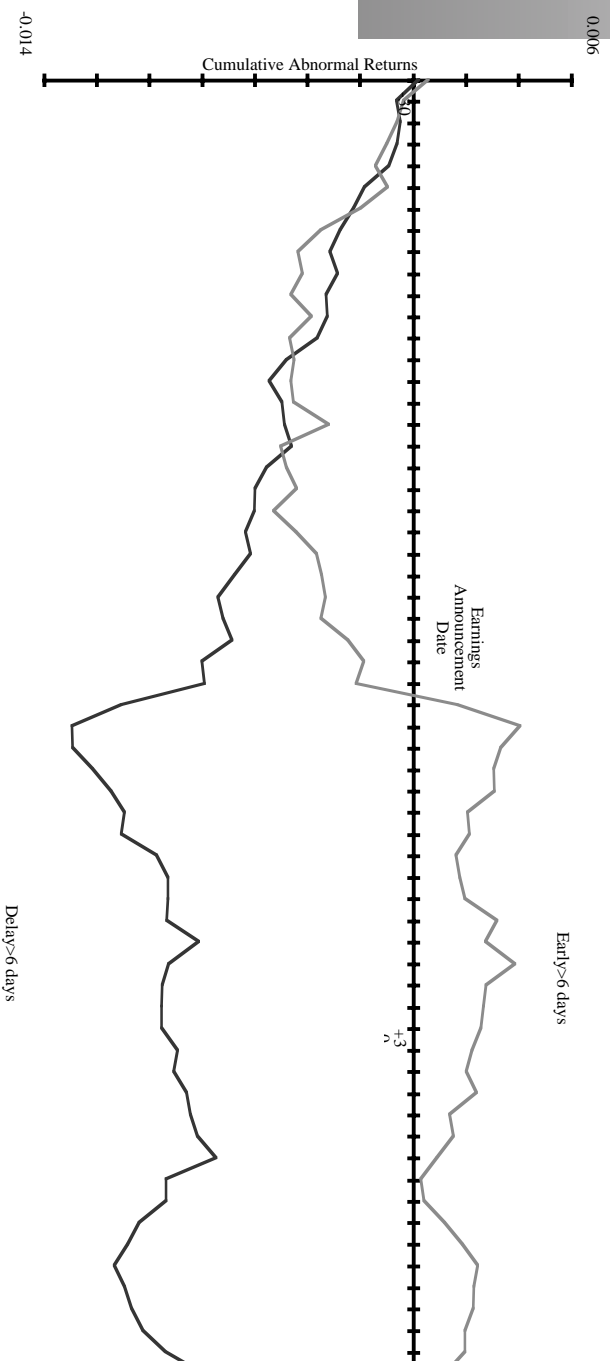
# By day of the week...

Figure 10.11: Earnings and Dividend Reports by Day of the Week



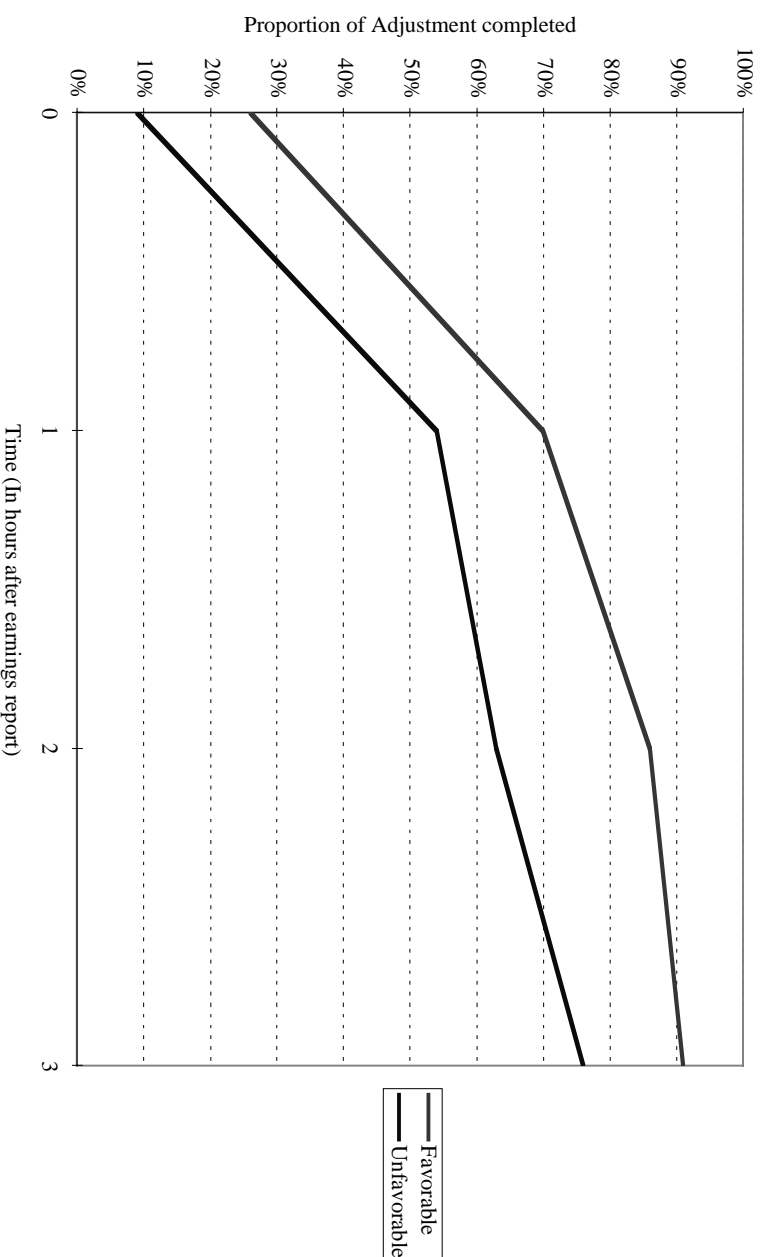
# The Consequence of Delays...

FIGURE 10.12: Cumulated Abnormal Returns around Earnings Reports: Day 0 is Earnings Announcement Date



# The Intraday reaction..

Figure 10.13 : Price Adjustment by Hour after Earnings Report



## And earnings quality matters...

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- As firms play the earnings game, the quality of earnings has also diverged across companies. A firm that beats earnings estimates because it has more efficient operating should be viewed more favorably than one that beats estimates because it changed the way it valued inventory.
- Chan, Chan, Jegadeesh and Lakonishok examined firms that reported high accruals – i.e. the difference between accounting earnings and cash flows and argued that firms report high earnings without a matching increase in cashflow have poorer quality earnings. When they tracked a portfolio composed of these firms, they discovered that the high accrual year was usually the turning point in the fortunes of this firm, with subsequent years bring declining earnings and negative stock returns.

# Can you make money of earnings announcements?

- One strategy is to buy stocks that report large positive earnings surprises, hoping to benefit from the drift. The evidence indicates that across all stocks, the potential for excess returns from buying after earnings announcements is very small.
- You can concentrate only on earnings announcements made by smaller, less liquid companies where the drift is more pronounced. In addition, you can try to direct your money towards companies with higher quality earnings surprises by avoiding firms with large accruals.
- Your biggest payoff is in investing in companies before large positive earnings surprises. You may be able to use a combination of quantitative techniques (time series models that forecast next quarter's earnings based upon historical earnings) and trading volume (insiders do create blips in the volume) to try to detect these firms. Even if you are right only 55% of the time, you should be able to post high excess returns.

# Acquisitions

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- Acquisitions involve large investments and tend to have large price impact. Consequently, information-based strategies are often focused on acquisitions and market reactions to them.

# The Effect on Target Firms

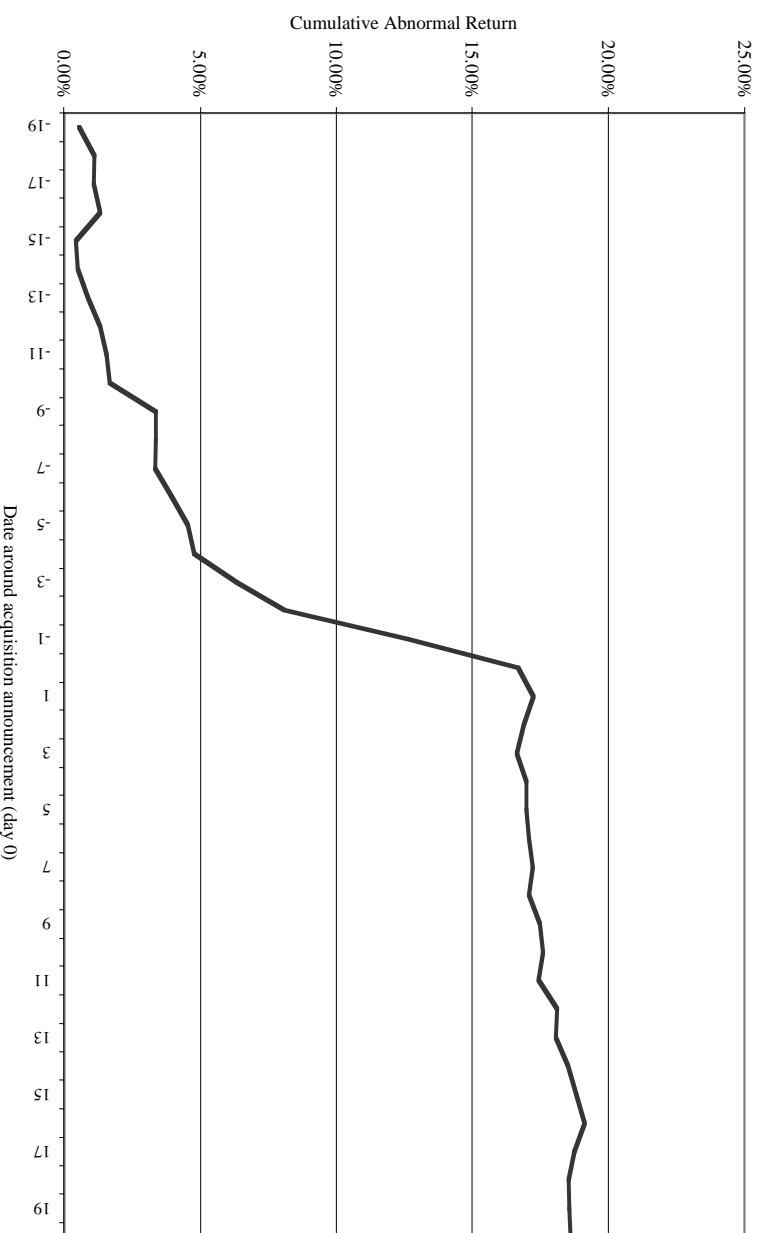
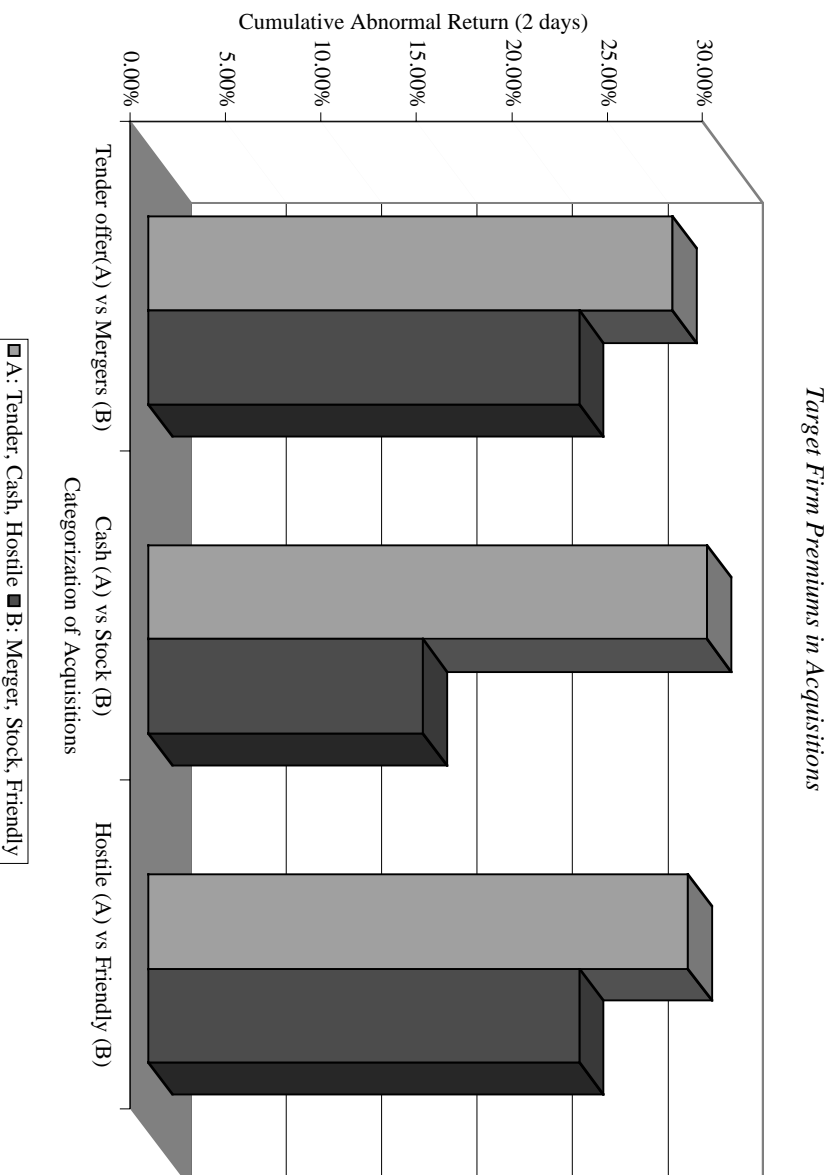


Figure 10.14: Cumulative Excess Return to Target Company Stock

# Across different types of acquisitions...



## The Effect on Acquirers..

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- Jensen and Ruback report excess returns of 4% for bidding firm stockholders around tender offers and no excess returns around mergers. Jarrell, Brickley and Netter, in their examination of tender offers from 1962 to 1985, note a decline in excess returns to bidding firm stockholders from 4.4% in the 1960s to 2% in the 1970s to -1% in the 1980s.
- Other studies indicate that approximately half of all bidding firms earn negative excess returns around the announcement of takeovers, suggesting that shareholders are skeptical about the perceived value of the takeover in a significant number of cases.

## After the acquisition... Operating Evidence

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- McKinsey and Co. examined 58 acquisition programs between 1972 and 1983 for evidence on two questions: (1) Did the return on the amount invested in the acquisitions exceed the cost of capital? (2) Did the acquisitions help the parent companies outperform the competition? They concluded that 28 of the 58 programs failed both tests, and six failed at least one test.
- In a follow-up study of 115 mergers in the U.K. and the U.S. in the 1990s, McKinsey concluded that 60% of the transactions earned returns on capital less than the cost of capital, and that only 23% earned excess returns.
- In 1999, KPMG examined 700 of the most expensive deals between 1996 and 1998 and concluded that only 17% created value for the combined firm, 30% were value neutral and 53% destroyed value.

## After the acquisition... Divestitures

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- The most damaging piece of evidence on the outcome of acquisitions is the large number of acquisitions that are reversed within fairly short time periods. Mitchell and Lehn note that 20.2% of the acquisitions made between 1982 and 1986 were divested by 1988. In a study published in 1992, Kaplan and Weisbach found that 44% of the mergers they studied were reversed, largely because the acquirer paid too much or because the operations of the two firms did not mesh.
- Studies that have tracked acquisitions for longer time periods (ten years or more) have found the divestiture rate of acquisitions rises to almost 50%, suggesting that few firms enjoy the promised benefits from acquisitions do not occur. In another study,

## Takeover based investment strategies

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- The first and most lucrative, if you can pull it off, is to find a way to invest in a target firm before the acquisition is announced.
- The second is to wait until after the takeover is announced and then try to take advantage of the price drift between the announcement date and the day the deal is consummated. This is often called risk arbitrage.
- The third is also a post-announcement strategy, but it is a long-term strategy where you invest in firms that you believe have the pieces in place to deliver the promised synergy or value creation.

# Preannouncement Trading

- Research indicates that the typical target firm in a hostile takeover has the following characteristics:
  - It has under performed other stocks in its industry and the overall market, in terms of returns to its stockholders in the years preceding the takeover.
  - It has been less profitable than firms in its industry in the years preceding the takeover.
  - It has a much lower stock holding by insiders than do firms in its peer groups.
  - It has a low price to book ratio & a low ratio of value to replacement cost.
- There are two ways in which we can use the findings of these studies to identify potential target firms.
  - Develop a set of screens that incorporate the variables mentioned above. You could, for instance, invest in firms with market capitalizations below \$ 5 billion, with low insider holdings, depressed valuations (low price to book ratios) and low returns on equity.
  - The second and slightly more sophisticated variant is to estimate the probability of being taken over for every firm in the market using statistical techniques

# Post-Announcement Trading

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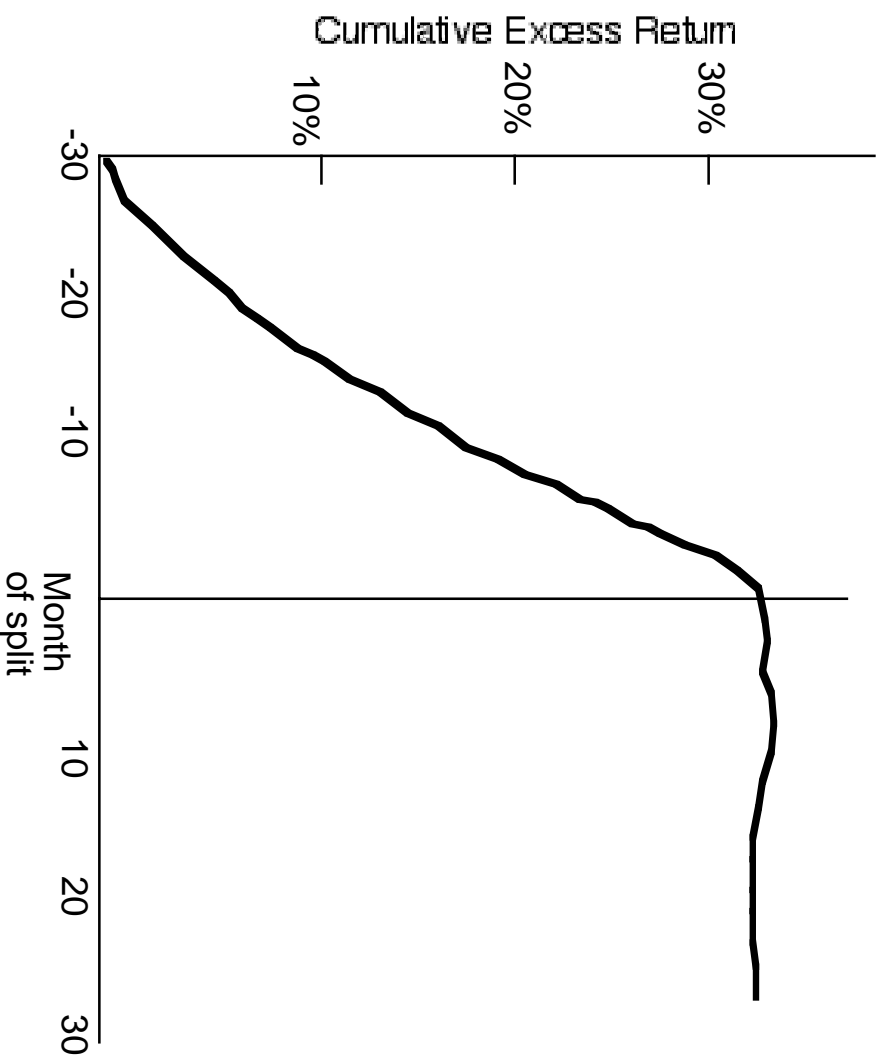
- In this strategy, you buy companies after acquisitions or mergers are completed because you believe that they will be able to deliver what they promise at the time of the merger – higher earnings growth and synergy.

- The likelihood of success seems to be greater

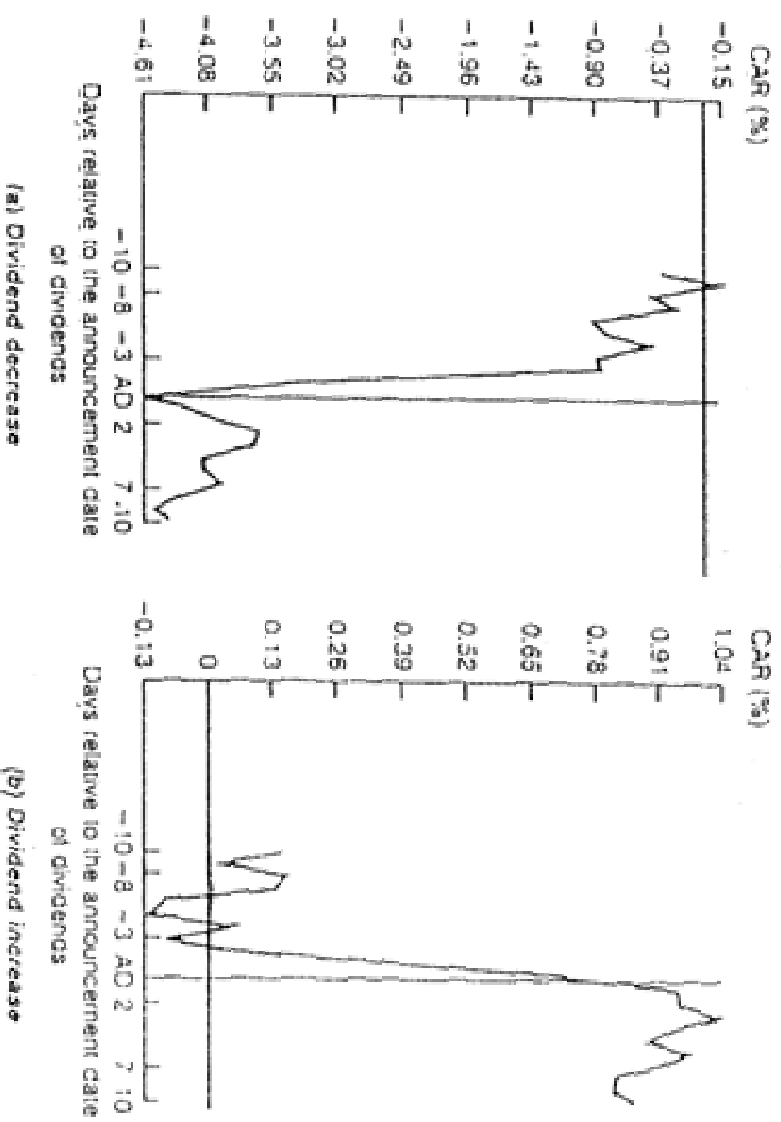
- In hostile acquisitions, where the management is replaced.
- In mergers of like businesses than in conglomerate mergers
- In cost-saving mergers than in growth-oriented mergers
- In mergers where plans for synergy are made before the merger
- In acquisitions of small companies by larger companies (as opposed to mergers of equals)

# Other Information

## 1. Stock Splits



## 2. Dividend Changes



# Implementing an Information Based Strategy: Determinants of Success

- *Identify the information around which your strategy will be built:* Since you have to trade on the announcement, it is critical that you determine in advance the information that will trigger a trade.
- *Invest in an information system that will deliver the information to you instantaneous:* Many individual investors receive information with a time lag – 15 to 20 minutes after it reaches the trading floor and institutional investors. While this may not seem like a lot of time, the biggest price changes after information announcements occur during these periods.
- *Execute quickly:* Getting an earnings report or an acquisition announcement in real time is of little use if it takes you 20 minutes to trade. Immediate execution of trades is essential to succeeding with this strategy.
- *Keep a tight lid on transactions costs:* Speedy execution of trades usually goes with higher transactions costs, but these transactions costs can very easily wipe out any potential you may see for excess returns).
- *Know when to sell:* Almost as critical as knowing when to buy is knowing when to sell, since the price effects of news releases may begin to fade or even reverse after a while.



