

# Analytics Platform Requirements

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# Events

- Categories of events
  - Company-specific news (e.g. CEO resigned)
  - Industry-specific news (e.g. oil price drop)
  - Social news (e.g. pessimism about economy)
  - Reaction events (e.g. increased sales)

# Relationships with companies share prices

- Everything is linked
  - Good/bad news can drive share price of some companies down/up (e.g. oil producers) or up/down (e.g. transport companies)
  - There could be dependencies linked to trading between different countries (e.g. US tariffs against China)
  - There are indirect relationships between events and company prices

# Analytics Platform (1)

- User
  - An investor in Australian companies
  - Wants to understand how share price influenced by events
- You can make any assumption
  - Australian or foreign companies
  - Focus on 1 industry sector
  - Can be extended later
- Characteristics
  - Ability to access data from different sources (via APIs)
  - Ability to visualize and determine events of interest
  - Ability to infer relationships between events of interest and share prices

# Analytics Platform (2)

- Example
  - Every time there is an earthquake in China
  - More wheat is exported and wheat prices goes up
  - Share price of wheat exporter goes up
- Data initially used
  - News data
  - Social network data
  - Companies share data
- Other data can be provided on demand
  - Weather data
  - Economic indicators (e.g. interest rates, exchange rates)
- The platform only help analysts determining relationships
  - Acting/trading on these relationships is out of scope

# Event Study methodology

- How do we:
  - determine that a particular event had an impact on the share price ?
  - How do we determine this impact ?
- Over the years, **event study methodology** has been applied to a large number of events including:
  - Dividend increases and decreases
  - Earnings announcements
  - Mergers
  - Capital Spending
  - New Issues of Stock
- In this project, we are looking at events linked to news

# The context

- Problem statement
  - We have a *type of event* (e.g. earthquake)
  - We have a *target* (stock price)
  - We want to find out if the event has an *impact* on the target
- Method selected
  - *Event study* method
- Expected Outputs
  - *Efficient market* reaction to news
  - Want to know about *deviations* from efficient market reaction

# Role of Event Studies

- Over the years, event study methodology has been applied to a large number of events including:
  - Dividend increases and decreases
  - Earnings announcements
  - Mergers
  - Capital Spending
  - New Issues of Stock
- The studies generally support the view that the market is semistrong form efficient.
- Studies suggest that markets may even have some foresight into the future, i.e., news tends to leak out in advance of public announcements.



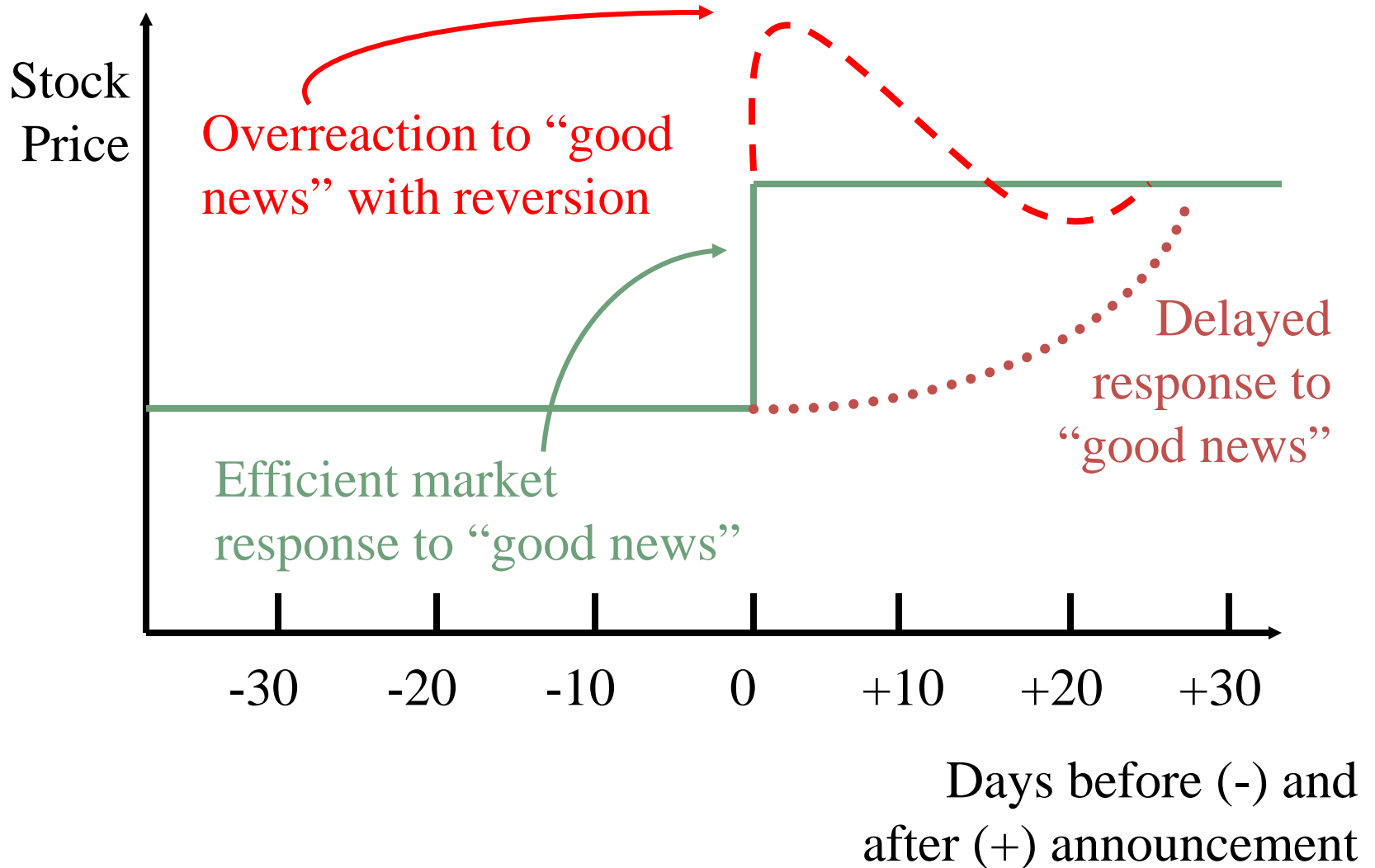
# The context

- Problem statement
  - We have a *type of event* (e.g. corporate action)
  - We have a *target* (stock price)
  - We want to find out if the event has an *impact* on the target
- Method selected
  - *Event study* method
- Expected Outputs
  - *Efficient market* reaction to news
  - Want to know about *deviations* from efficient market reaction

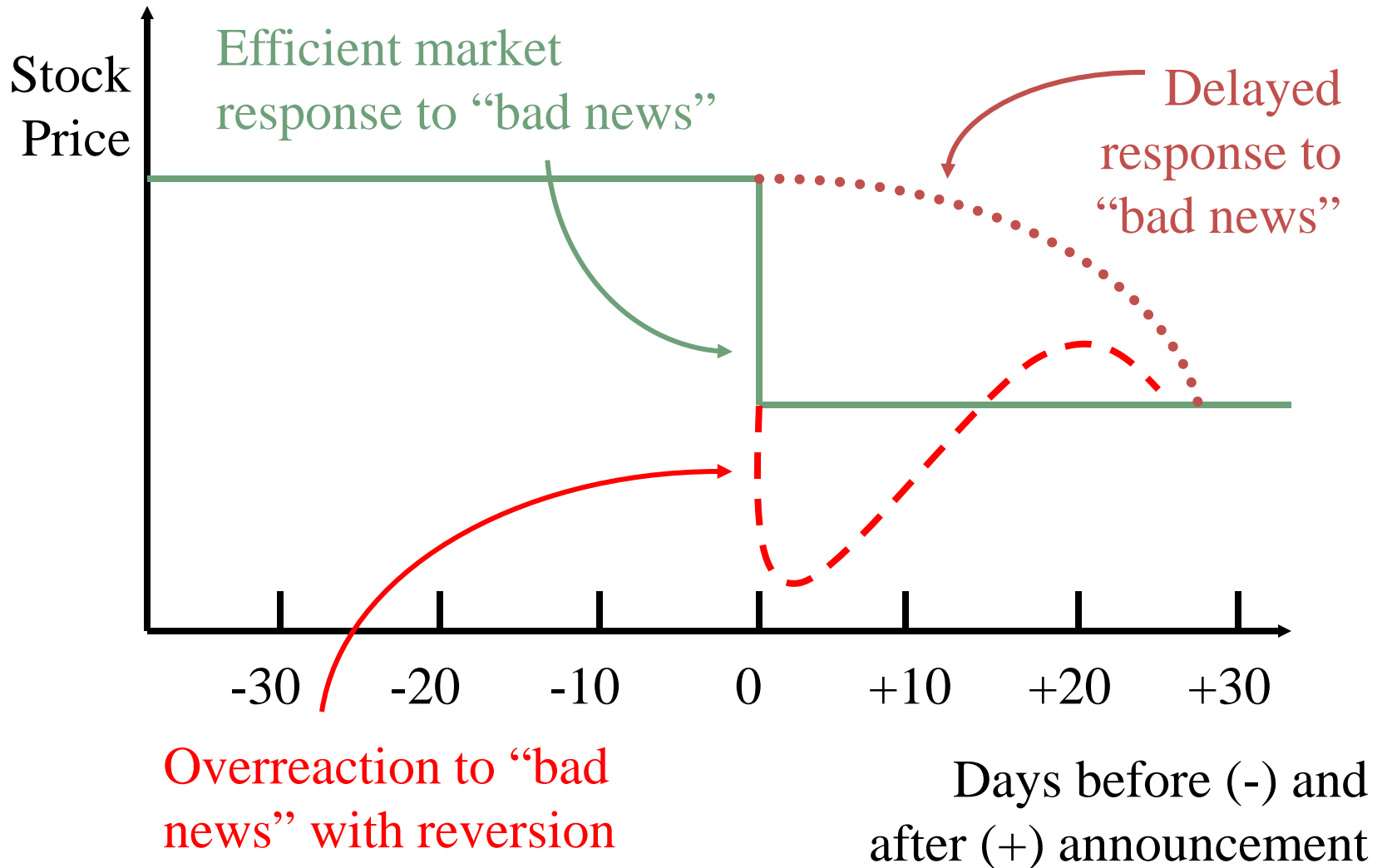
# Implementation

- The steps for an event study are as follows:
  - Event Definition: we need for every stock, an event date
  - Selection Criteria: we need for every stock some way of filtering stocks of interest
  - Cumulative Return Measurement: we need share price data, to compute cumulative returns for every stock
  - Visualisation (see next)
  - Interpretation

# Stock Price Reactions

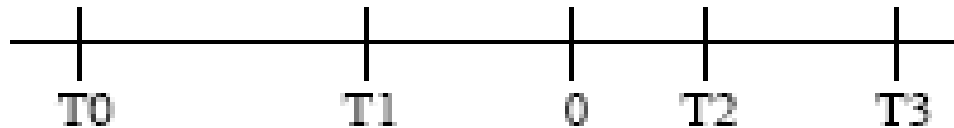


# Stock Price Reactions



# Time-line

- The time-line for a typical event study is shown below in event time:



- The interval T0-T1 is the estimation period (not used)
- The interval T1-T2 is the event window
- Time 0 is the event date in calendar time
- The interval T2-T3 is the post-event window (not used)

# What's next

- Have a look at the posted spec
- Each team starts working on the first part
- Each team starts thinking about the second part
- Ask questions during mentoring