Event studies in R

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What is event studies?

Numerous applications

Analyse the impact of stock splits, merger/takeover announcements, or earning announcements

Tested and verified over the years
Available solutions

- One major solution on SAS: Eventus
- Proprietary software
- No support for Linux
- Low update frequency
Our solution

- Open source
- Easier to use
- Proven: used in several published journal articles
- Modern techniques – bootstrap inference, extreme events study
- More features are being planned
  - Intra-day events facilitation
  - Patell T test
Generality

- Support for all time units
- Intraday support in the pipeline
- All kinds of units of observations supported
- Multiple adjustment techniques
- Scalable: support for adding new techniques and inference procedures
Platform for research

- Utility package for research on event studies
- Recent work by Patnaik, Singh and Shah (2013) in *International Finance* stands on extending the eventstudies methods with bootstrap inference.
- Encourage researchers to also use this as a platform to extend and introduce new methods of inference in this context.
> head(StockPriceReturns[, 1:4])

<table>
<thead>
<tr>
<th>Date</th>
<th>Bajaj.Auto</th>
<th>BHEL</th>
<th>Bharti.Airtel</th>
<th>Cipla</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-07-01</td>
<td>0.5277396</td>
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<td>0.51151007</td>
<td>-0.7578608</td>
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<tr>
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<td>0.80850304</td>
<td>0.1335015</td>
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<td>0.43342739</td>
<td>1.54235149</td>
<td>0.4437221</td>
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<tr>
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<tr>
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<td>1.2168128</td>
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</table>

> head(SplitDates)

<table>
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<tbody>
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<td>BHEL</td>
<td>2011-10-03</td>
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<td>6</td>
<td>Bharti.Airtel</td>
<td>2009-07-24</td>
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<td>8</td>
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<td>9</td>
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<td>10</td>
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<td>11</td>
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<td>2011-07-14</td>
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</tbody>
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> es <- eventstudy(
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  eventList = SplitDates,
  width = 10,
  type = "None",
  to.remap = TRUE,
  remap = "cumsum",
  inference = TRUE,
  inference.strategy = "bootstrap"
)
Event study Mean response with bootstrap inference for CI:

<table>
<thead>
<tr>
<th></th>
<th>2.5%</th>
<th>Mean</th>
<th>97.5%</th>
</tr>
</thead>
<tbody>
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<td>0.00000000</td>
<td>0.00000000</td>
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<tr>
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</tbody>
</table>

Event outcome has 7 successful outcomes out of 22 events:

[1] "success" "wrongspan" "wrongspan" "wrongspan" "wrongspan" "wrongspan"
[7] "wrongspan" "wrongspan" "success" "wrongspan" "wrongspan" "wrongspan"
[13] "wrongspan" "wrongspan" "wrongspan" "success" "wrongspan" "wrongspan"
[19] "wrongspan" "success" "success" "success" "success"

> plot(es)
**Links**

- **R-forge:** [https://r-forge.r-project.org/projects/eventstudies/](https://r-forge.r-project.org/projects/eventstudies/)
- **CRAN:** [http://cran.at.r-project.org/web/packages/eventstudies/index.html](http://cran.at.r-project.org/web/packages/eventstudies/index.html)
Thank you

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