

Event studies in R

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May 17, 2014

“eventstudies”: An R package to conduct event study analysis

- 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

- 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

- 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

- 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])
```

	Bajaj.Auto	BHEL	Bharti.Airtel	Cipla
2010-07-01	0.5277396	-1.23694369	0.51151007	-0.7578608
2010-07-02	-1.7309383	-1.66993809	0.09443763	0.4910359
2010-07-05	-0.2530097	-1.28213632	0.80850304	0.1335015
2010-07-06	-0.3167551	0.43342739	1.54235149	0.4437221
2010-07-07	-1.2771502	0.04851144	1.84530677	-1.1577983
2010-07-08	-0.2827092	0.57821252	1.66954780	1.2168128

```
> head(SplitDates)
```

	name	when
5	BHEL	2011-10-03
6	Bharti.Airtel	2009-07-24
8	Cipla	2004-05-11
9	Coal.India	2010-02-16
10	Dr.Reddy	2001-10-10
11	HDFC.Bank	2011-07-14

```
> es <- eventstudy(  
  firm.returns = StockPriceReturns,  
  eventList = SplitDates,  
  width = 10,  
  type = "None",  
  to.remap = TRUE,  
  remap = "cumsum",  
  inference = TRUE,  
  inference.strategy = "bootstrap"  
)
```



```

> es
Event study Mean response with bootstrap inference for CI:
      2.5%      Mean      97.5%
[1,] 0.0000000 0.0000000 0.0000000
[2,] -0.8005293 -0.30604637 0.3335896
[3,] -1.5176074 -0.51267578 0.5814512
[4,] -1.9786809 -0.38724167 1.0414997
[...]
```

Event outcome has 7 successful outcomes out of 22 events:

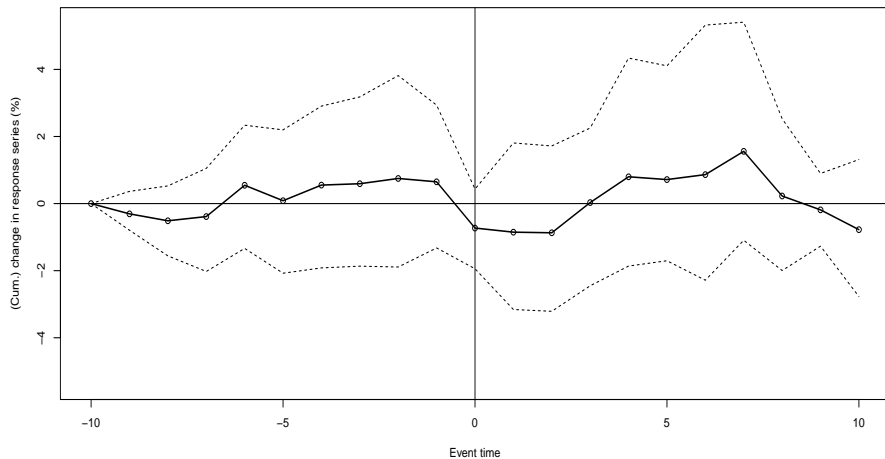
```

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

```

> plot(es)
```

Output



- **R-forge:** <https://r-forge.r-project.org/projects/eventstudies/>
- **CRAN:**
<http://cran.at.r-project.org/web/packages/eventstudies/index.html>

Thank you
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