

Datastream Event Study

Students and staff of the Erasmus University Rotterdam can use this tool, but please respect Arco van Oord's property rights.

Why use it?

The Datastream Event Study enables you to do an event study with Datastream data. It calculates the mean adjusted returns and the market model adjusted returns.

The tool is based on the article 'Event Studies in Economics and Finance', from A. Craig MacKinlay, published in Journal of Economic Literature, Vol 35 (1997), pp. 13-39. Click <http://www.jstor.org/stable/2729691> to download it (you need a VPN-connection to access it).

The tool was developed to do an event study with stock prices, but you can also enter bonds or indices instead of stocks. Of course, you have to decide yourself how to interpret the outcomes.

If you want to download data from Datastream for a list of companies, but you need the data (for example Market Value or Number of Shares Outstanding) for each company on different dates, we advise you to use the Datastream Event Study Matching Tool. You can find this tool at <http://www.eur.nl/ub/en/edsc/> > Tools.

Please note 1: to fully understand this manual and tool, a basic knowledge of Datastream is needed. You can find the manual at <http://www.eur.nl/ub/en/edsc/> > Manuals > Stock Prices > Datastream.

Please note 2: You can't use this tool to do an event study with the IPO date as the event date, due to limitations in the data (there are no stock prices before the IPO).

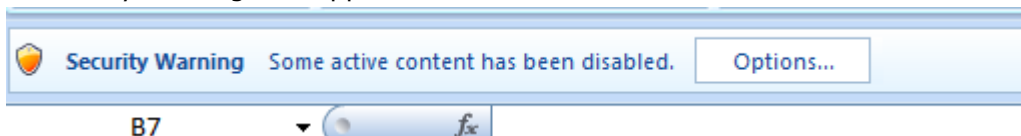
What do you need?

- A computer with a Datastream connection
- The Datastream Event Study Tool (you can download it from <http://www.eur.nl/ub/en/edsc/> > Tools; you need your ERNA-account)
- A list in Excel of the identifiers of the companies. That can be:
 - ISIN,
 - SEDOL (Please see the [remarks below](#)!),
 - DSMnemonic or
 - DSCode
- A list of the event dates
 - The format doesn't matter, as long as Excel recognizes the column as dates
- The identifier of the index you want to compare the stocks with
 - When you have several indices you have to give these indices a number as well.
 - In that case, make sure you use a list of sequential numbers for the indices, don't skip a number!
 - You can find the identifiers of indices in Datastream Navigator in the category Equity Indices. You can find more information at http://www.eur.nl/ub/en/edsc/get_started/indices/
- How many days is your estimation period?
- How many days is your event window?
- The mnemonic of the datatype
 - Price = P

- Price not padded = P#T
If you choose this datatype there will be no data after the stock goes dead, for example after a merger. When you use P Datastream will 'repeat' the last known value.
- Price in US Dollar = $X(P\#T) \sim U\$$
- Price in Euro = $X(P\#T) \sim E$

How to proceed

- Open Excel from the desktop of the Datastream-computer
- Open the downloaded Datastream Event Study Tool
- A security warning will appear:



- Click **Options**, mark **Enable this content** and click **OK**.
- Go to the sheet **EventStudy**
- Delete the information under Company - Date - Index (but leave these headers!)
- Paste your list of identifiers (ISINs, SEDOLs, Datastream codes or Datastream Mnemonics) under **Company**
- Paste the list of event dates under **Date**
- Are you comparing the stocks with the same index? Then put 1 in the cells under **Index**. Put the identifier of this index under **IndexCode**
- Are you using multiple indices? Then put the number of the index in the cell behind each company-date combination. Put the numbers in ascending order, starting with 1, and the corresponding identifiers of the indices under **IndexName** and **IndexCode**.

	Company	Date	Index		IndexName	IndexCode
8	UKB188XN6	10/16/07	1		1 S&PCOMP	
9	2553568	9/5/07	1		2 SPEUROP	
10	2016180	7/23/07	2		3 FAWRLD\$	
11	2692740	7/17/07	1			
12	UKB1313R4	6/11/07	3			
13	2350521	3/19/07	1			
14	2596604	2/7/07	2			
15	2436562	1/7/07	1			
16	UKB0VTVH8	9/22/06	1			
17	2395072	9/20/06	1			
18	2368193	8/28/06	2			
19	2179221	7/8/06	1			
20	2681403	7/6/06	3			
21	2490502	6/23/06	1			
22	2954558	6/22/06	1			

Example: How to use multiple indices

- In the left upper corner you have to enter the:
 - EstStart = the start of the estimation window (needed to calculate the 'normal' return). You have to enter the number of days before the event date.
For example -100 means 100 trading days before the event date.

Don't enter 0 as EstStart! If you enter 0 the return on this day can't be calculated.

- EstEnd = the last day of the estimation window.
- EvlStart = the start of the event window, the period over which the security prices of the companies involved in the event will be examined.

Don't enter 0 as EvlStart! If you enter 0 the return on this day can't be calculated.

- EvlEnd = the last day of your event window.
- Datatype = identifier of the datatype
- Before you run the macro, save the Excel file on the hard disk of the Datastream computer you are working on.

- Go to the sheet REQUEST_TABLE
- Click the button **Options**
- If the box before **No data string** is empty, then enter a value, for example NA (for not available)
- Click OK to close the screen
- Hit the button **Process Table** to start the downloading.

Please note: the more events you have, the longer it takes. We advise you to split up a large request in groups of 1000 events.

The downloading of the data starts when the Datastream connection is free.

The output

The macro will create a number of sheets, depending on the number of events you have entered.

- **Index** will contain the data of the index/indices
- In **SP1**, SP2, etc. the prices will be downloaded from Datastream. The macro checks the oldest date and the newest date in your event study and collects the data for all these dates for all companies (so that's more than you need!).
- In **Esoutput1**, Esoutput2 etc. the macro checks the event date and collects the requested information for each individual company.

	A	B	C	D
1	Name	2553568	2016180	2692740
2	EventDate	9/5/2007	7/23/2007	7/17/2007
3	Average	-0,001613821	0,001704	-0,00028
4	Intercept	-0,001227654	0,001314	-0,00032
5	Slope	1,114394341	0,554311	1,260763
6	EstimationDate0	6/26/2007	5/11/2007	5/7/2007
7	EstimationDate1	6/27/2007	5/14/2007	5/8/2007
8	EstimationDate2	6/28/2007	5/15/2007	5/9/2007
9	EstimationDate3	6/29/2007	5/16/2007	5/10/2007
10	EstimationDate4	7/2/2007	5/17/2007	5/11/2007
11	EstimationDate5	7/3/2007	5/18/2007	5/14/2007

In column A you'll find:

Name	Identifier of the company
EventDate	The entered event date
Average	The average return of the stock in the estimation period
Intercept	Alpha estimated over the estimation period in the market model
Slope	Beta estimated over the estimation period in the market

	model.
EstimationDate0	The event date minus the number of days behind EstStart
EvaluationDate0	The event date minus or plus the number of days behind EvlStart
PriceEstDay0	Price at the date behind EstimationDate0; it is the closing price of the last day before your estimation window.
PriceEvlDay0	Price at the date behind EvaluationDate0; it is the closing price of the last day before your evaluation window.
IndexExtDay0	Price index at the date behind EstimationDate0
IndexEvlDay0	Price index at the date behind EvaluationDate0
RetEstDay1	Return at day 1 of the estimation period: (Price at day 1 minus Price at day 0) / Price at day 0
RetEvlDay1	Return at day 1 of the evaluation period
RetIndEstDay1	Return of the index at day 1 of the estimation period
RetIndEvlDay1	Return of the index at day 1 of the evaluation period
MeanAdjRet1 (Mean adjusted return)	Stock return at day 1 of the evaluation period minus the average return in the estimation period. Stock return adjusted for the general trend in the stock itself.
MarketModelAdjRet1 (Market model adjusted return)	Stock return at day 1 of the evaluation period minus alpha minus the index return at day 1 multiplied by the stock's beta Stock return adjusted for the overall trend in the market.

Saving the data

After the macro has run, you can save the file on a USB-stick.

In Excel, click Formulas and click Calculation Options. Unmark automatic calculation, to stop the calculation each time you open the file. Another way to achieve this: copy and paste the results you need to a new file; use paste special, values, to reduce the size and calculation times of your file.

Cumulative abnormal returns (CAR)

You have to calculate the CARs yourself; they are not part of the output.

Cumulative means 'formed by accumulation', so you have to sum the adjusted returns in your event window.

Tips and possible errors

SEDOLs from the M&A module of Thomson

The SEDOL-codes from the M&A database are not always correctly displayed in Excel:

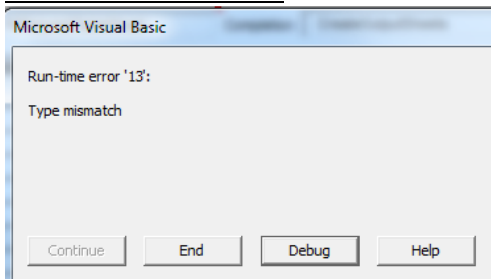
- The **comma's** within the codes – you can solve this by selecting the columns with the SEDOL-codes, use Format Cells, choose Custom and enter 7 zero's (0000000) under Type.
- SEDOL-codes starting with a **zero** or multiple zeroes are incomplete (you can see them, but Excel can't) – solving this is a bit more work:
 - Sort your data by the SEDOL-codes: the smallest on top (make sure the rest of your data is also sorted!).

- Then, add a new column and use the function Concatenate (in dutch: samenvoegen) to add extra zeroes.
- Copy the new SEDOL-codes and paste them with Paste Special > Values over the old codes. You can ignore the little green corners in the cells.

SEDOL-codes starting with a **B** are not recognized by Datastream. You can solve this by adding UK in front of them, also when the companies aren't UK-companies. The easiest way is to sort the list of SEDOL-codes by putting the largest on top. Then use the function Concatenate to add UK. Copy the new SEDOL-codes and paste them with Paste Special > Values over the old codes. Then you can delete the extra column and resort your data.

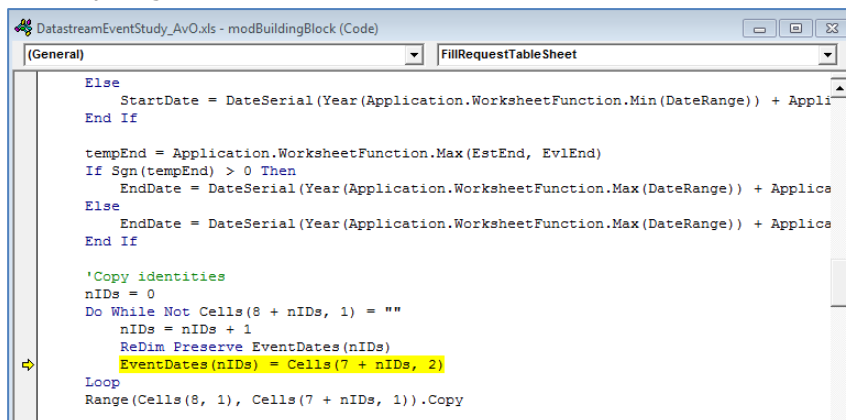
Errormessages

Run-time error: "13"



When you click Debug you can sort of see what's causing the error.

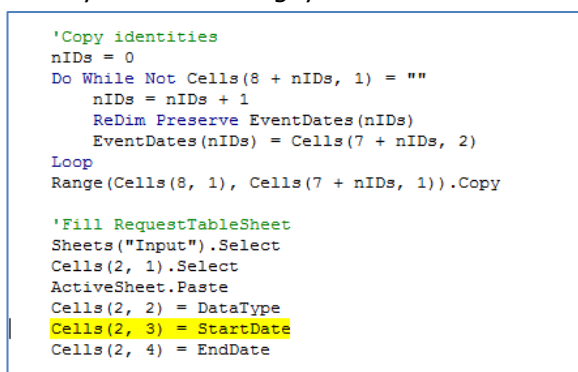
When you get this information:



you have to check the dates in your input – does Excel recognize them as dates? The format of the cells should be 'date'.

Run-time error: "1004"

When you click Debug you will see for example:



This means you have entered a, for Excel, wrong date, like 1/1/1900.

Run-time error: "9"

When you click Debug you will see for example:

```
For i = 1 To nIDs
    SheetNumber = Application.WorksheetFunction.Ceiling(i / COLS, 1)
    Sheets("S" & Trim$(str$(SheetNumber)) & DataType).Activate
    CurrentDate = Cells(4, 1)
    ColumnNumber = ((i - 1) Mod COLS) + 2
```

This means the datatype entered is not correct. In most cases you have to check and make sure there is no space behind the datatype. The human eye doesn't see this space, but Excel does.

Div/0

The price of the index is 0 or missing for at least one date in your estimation period. As a consequence there are no valid returns in your estimation period, because dividing by an old price of 0 is impossible. Solution: check the index you've used.

When you decide you want to use another index, you can download the Price Index of this index and paste the data in the Index-sheet. Excel automatically recalculates the results.

Empty column

There is not enough data available for that company to perform the event study; likely due to an event date that is too recent or missing prices (returns) for that particular company.

Questions?

Use the button **Ask the Datateam** at our website: <http://www.eur.nl/ub/en/edsc/>

We can run this tool for you, but only when we get a complete file:

- Download the tool from the website
 - Enter all information needed in the sheet Eventstudy (see page 2)
- Send the sheet Eventstudy to datastream@ubib.eur.nl