

# Data Definition of DataStream Data:

Daily Return (in 1 year prior) – DAX Stocks and Index

## VARIABLES THAT USE THIS DATA:

From these daily returns, weekly aggregates have been calculated and these have been used for variables indicated with an asterix.

For Index:

- Comove as an Unexplained Return Premium, Robustness Tests, Alternative Indexes: Comove\*, and Beta.

For Stocks:

- Comove as an Unexplained Return Premium, Robustness Tests, Alternative Indexes: Comove\*, Beta and Return.

**DATATYPE:**  $X(RI) \sim E$

## COMMAND:

For Index: = DSGRID("DAXINDEX";"RI";"31-06-1999";"2022-12-31";"D";"RowHeader=true;ColHeader=true;Heading=true;Curn=true;DispSeriesDescription=true;YearlyTSFormat=false;QuarterlyTSFormat=false;MonthlyTSFormat=False";"")

For Stocks: = DSGRID("LDAXINDEX $MMYY$ ", "X(RI)~E", " $startDate$ ", " $endDate$ ", "D", "RowHeader=true;TimeSeriesList=true;ColHeader=true;Transpose=true;DispSeriesDescription=false;YearlyTSFormat=false;QuarterlyTSFormat=false;Clearself=y;MonthlyTSFormat=True")

- With  $MMYY$  the first month of each quarter, with the months ranging from 0700 until 1022.
- With  $startDate$  and  $endDate$  in YYYY-MM-DD format;  $startDate$  the first day of the year prior to  $MMYY$  and  $endDate$  the last day of two months after the  $MMYY$ . For example, for Jan 2002, 2001-01-01 and 2002-03-31.

**DEFINITION:** This is the theoretical absolute growth in value of a share holding over that day, assuming that dividends are re-invested to purchase additional units of the stock at the closing price applicable on the ex-dividend date. Note that these "prices" are converted to euro.

## RI - Total Return Index

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**Notes** A return index (RI) is available for individual equities and unit trusts. This shows a theoretical growth in value of a share holding over a specified period, assuming that dividends are re-invested to purchase additional units of an equity or unit trust at the closing price applicable on the ex-dividend date. .

For all countries except the USA and Canada detailed dividend payment data is only available on Datastream from 1988 onwards. Up to this time the RI is constructed using the annualised dividend yield. This method adds an increment of  $1/260$ th part of the dividend yield to the price each weekday. There are assumed to be 260 weekdays in a year, market holidays are ignored:

Method 1 (using annualised dividend yield)

RI on the basedate =100, then:

$$RI_t = RI_{t-1} * \frac{PI_t}{PI_{t-1}} * \left( 1 + \frac{DY}{100} * \frac{1}{N} \right)$$

Where:

$RI_t$  = return index on day t

$RI_{t-1}$  = return index on previous day

$PI_t$  = price index on day t

$PI_{t-1}$  = price index on previous day

$DY_t$  = dividend yield % on day t

$N$  = number of working days in the year (taken to be 260)

From 1988 onwards (and from 1973 for US and Canadian stocks), the availability of detailed dividend payment data enables a more realistic method to be used in which the discrete quantity of dividend paid is added to the price on the ex-date of the payment. Then:

Method 2 (using ex-dividend date)

$$RI_t = RI_{t-1} * \frac{P_t}{P_{t-1}}$$

except when  $t$  = ex-date of the dividend payment  $Dt$  then:

$$RI_t = RI_{t-1} * \frac{P_t + D_t}{P_{t-1}}$$

Where:

$P_t$  = price on ex-date

$P_{t-1}$  = price on previous day