Package ‘ivx’

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Type Package

Title Robust Econometric Inference

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License GPL-3

URL https://github.com/kvasilopoulos/ivx

BugReports https://github.com/kvasilopoulos/ivx/issues

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**R topics documented:**

- delta ........................................... 2
- ivx ............................................ 3
- ivx_fit ........................................ 4
- monthly ....................................... 5
- quarterly ..................................... 6
- summary.ivx .................................. 6
- vcov.ivx ...................................... 7

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**delta**

_Calculate the delta coefficient_

**Description**

Computes the long-run correlation coefficient between the residuals of the predictive regression and the autoregressive model for the regressor.

**Usage**

```r
delta(object)
```

**Arguments**

- **object** on object of class "ivx"

**Value**

A vector of the estimated correlation coefficients. This should have row and column names corresponding to the parameter names given by the coef method.

**Examples**

```r
mod <- ivx(Ret ~ LTY, data = monthly)
delta(mod)
```
ivx fits predictive regression models. The method allows standard chi-square testing for regressors with different degrees of persistence, from stationary to mildly explosive, and can be used for both short- and long-horizon predictive regressions.

Usage

```r
ivx(formula, data, horizon, na.action, contrasts = NULL, offset, ...)
```

## S3 method for class 'ivx'
print(x, digits = max(3L, getOption("digits") - 3L), ...)

Arguments

- **formula**: an object of class "formula" (or one that can be coerced to that class): a symbolic description of the model to be fitted. The details of model specification are given under ‘Details’.
- **data**: an optional data frame, list or environment (or object coercible by `as.data.frame` to a data frame) containing the variables in the model. If not found in data, the variables are taken from `environment(formula)`, typically the environment from which `lm` is called.
- **horizon**: is the horizon (default horizon = 1 corresponds to a short-horizon regression)
- **na.action**: a function which indicates what should happen when the data contain NAs. The default is set by the `na.action` setting of `options`, and is `na.fail` if that is unset. The ‘factory-fresh’ default is `na.omit`. Another possible value is `NULL`, no action. Value `na.exclude` can be useful.
- **contrasts**: an optional list. See the `contrasts.arg` of `model.matrix.default`.
- **offset**: this can be used to specify an *a priori* known component to be included in the linear predictor during fitting. This should be `NULL` or a numeric vector or matrix of extents matching those of the response. One or more `offset` terms can be included in the formula instead or as well, and if more than one are specified their sum is used. See `model.offset`.
- **...**: additional arguments to be passed to the low level regression fitting functions (see below).
- **x**: logicals. If TRUE the corresponding components of the fit (the model frame, the model matrix, the response, the QR decomposition) are returned.
- **digits**: the number of significant digits to use when printing.

Value

An object of class "ivx".
References


Examples

# Univariate
ivx(Ret ~ LTY, data = monthly)

# Multivariate
ivx(Ret ~ LTY + TBL, data = monthly)

# Longer horizon
ivx(Ret ~ LTY + TBL, data = monthly, horizon = 4)

ivx_fit

Fitter Functions for ivx Models

Description

Basic function called by ‘ivx’ to fit predictive models. These should only be used directly by experienced users.

Usage

ivx_fit(y, x, horizon = 1, offset = NULL, ...)

Arguments

y vector of observations of length n, or a matrix with n rows.
x design matrix of dimension n * p.
horizon is the horizon (default horizon = 1 corresponds to a short-horizon regression)
offset (numeric of length n). This can be used to specify an a priori known component to be included in the linear predictor during fitting.
... currently disregarded.

Examples

ivx_fit(monthly$Ret, as.matrix(monthly$LTY))
Description

- Date: year-month-date (monthly frequency)
- DE: dividend payout ratio
- LTY: long-term yield
- DY: dividend yield
- DP: dividend-price ratio
- TBL: T-bill rate
- EP: earnings-price ratio
- BM: book-to-market value ratio
- INF: inflation rate
- DFY: default yield spread
- NTIS: net equity expansion
- TMS: term spread
- Ret: S&P 500 value-weighted log excess returns

Usage

monthly

Format

A data.frame with 13 variables and 1,033 observations.

Source

https://drive.google.com/open?id=1FdT2STHo2Lnlweom4AwICVf-rpVMfgV4
Description

- Date: year-month-date
- DE: dividend payout ratio
- LTY: long-term yield
- DY: dividend yield
- DP: dividend-price ratio
- TBL: T-bill rate
- EP: earnings-price ratio
- BM: book-to-market value ratio
- INF: inflation rate
- DFY: default yield spread
- NTIS: net equity expansion
- TMS: term spread
- Ret: S&P 500 value-weighted log excess returns

Usage

quarterly

Format

A data.frame with 13 variables and 345 observations.

Source

https://drive.google.com/open?id=1FdT2STH02Lnlweom4AwiCVf-rpVMfgV4

Description

summary method for class "ivx".
vcov.ivx

Usage

    ## S3 method for class 'ivx'
    summary(object, ...)

    ## S3 method for class 'summary.ivx'
    print(x, digits = max(3L, getOption("digits") - 3L), signif.stars = getOption("show.signif.stars"), ...)

Arguments

    object          object of class "ivx", usually, a result of a call to ivx.
    ...             further arguments passed to or from other methods.
    x               an object of class "summary.lm", usually, a result of a call to summary.lm.
    digits          the number of significant digits to use when printing.
    signif.stars    logical. If TRUE, 'significance stars' are printed for each coefficient.

Examples

    mod <- ivx(Ret ~ LTY, data = monthly)
    summary(mod)

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**vcov.ivx**  
*Calculate Variance-Covariance Matrix for a Fitted Model Object*

Description

Calculate Variance-Covariance Matrix for a Fitted Model Object

Usage

    ## S3 method for class 'ivx'
    vcov(object, complete = TRUE, ...)

    ## S3 method for class 'summary.ivx'
    vcov(object, complete = TRUE, ...)

Arguments

    object          a fitted ivx and summary.ivx object.
    complete        logical indicating if the full variance-covariance matrix should be returned. When complete = TRUE, vcov() is compatible with coef().
    ...            additional arguments for method functions.
Value

A matrix of the estimated covariances between the parameter estimates of the model. This should have row and column names corresponding to the parameter names given by the coef method.

Examples

```r
mod <- ivx(Ret ~ LTY, data = monthly)

cov(mod)
```
Index

*Topic datasets
  monthly, 5
  quarterly, 6
as.data.frame, 3
delta, 2
formula, 3
ivx, 3
ivx_fit, 4
model.matrix.default, 3
model.offset, 3
monthly, 5
na.exclude, 3
na.fail, 3
na.omit, 3
offset, 3
options, 3
print.ivx(ivx), 3
print.summary.ivx(summary.ivx), 6
quarterly, 6
summary.ivx, 6
vcov.ivx, 7
vcov.summary.ivx(vcov.ivx), 7