
CONNOR-KORAJCZYK RESIDUAL

Description of the Measure:

The Connor-Korajczyk Residual is an absolute measure of performance. It is given by the annualized return of the fund, deducted the yield of an investment without risk, minus the sum of returns on the arbitrage portfolios (mimicking risk factors) multiplied by the fund's sensitivities to risk factors (see risk indicator) during the same period.

Interpretation:

The Connor-Korajczyk Residual gives the excess return obtained by the manager which is not explained by his/her current risk positions. It generalizes the Jensen's alpha in a multifactorial framework.

Use:

The magnitude of the Connor-Korajczyk Residual depends upon two key variables: the return of the fund and the risk sensitivities. This indicator represents the part of the mean return of the fund that cannot be explained by the factorial risk exposures.

Potential Misuse:

As it is an absolute measure, this measure does not reflect completely risks taken by the manager of the fund. It is then easier for a more risky fund to have a greater Connor-Korajczyk Residual

than for a less risky fund. Moreover, the validity of this measure depends crucially on the hypothesis that the risk sensitivities of the fund are stable, i.e. that the manager of the fund does not adapt his/her portfolio's weight according to his/her expectation on the future factor of risk. The validity of this hypothesis has to be tested before focusing on the value of this indicator.

Formula:

$$\hat{\gamma}_{p,t} = [E_t(R_{p,t}) - R_f] - \sum_{i=1}^I \hat{\beta}_{p,i} [E_t(F_{it})]$$

where:

$E_t(R_{p,t})$ is the annualized mean return on the fund considered over period;

R_f is a proxy for the riskless rate;

$\hat{\beta}_{p,i}$ is the sensitivity to factor i ;

$E_t(F_{it})$ is the annualized mean return on a portfolio perfectly correlated with factor i evolution.

Two year data of weekly series is considered.

References:

- ✦ Connor G. and R. Korajczyk, (1986), "Performance Measurement with the Arbitrage Pricing Theory: A New Framework for Analysis", *Journal of Financial Economics* (15), 1986, 373-394.
- ✦ Morris P. and P. Pope, (1981), "The Jensen Measure of Portfolio Performance in an Arbitrage Pricing Theory Context", *Journal of Business, Finance and Accounting* 8, 1981, 203-220.