

FACTSET | Online Assistant

Calculating Total Return Page 8748

FactSet provides several request codes that calculate total return. Use the tables below to determine which formula will return the data you want to calculate.

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Notes The prices used in the total return calculations are adjusted for special cash dividends (i.e., special cash dividends are not being reinvested on the ex-date).

For indices, you may have to use a different identifier in order to return price change vs. total return data. For example, using the request codes below with the identifiers SP50 or 180555 will return *price change* information for the S&P 500 and FTSE 100 respectively. Using the identifiers SP50.R or 181247 will return *total return* data for these indices (including dividends). See [Calculating S&P .D and .R Indexes](#) for more information. *Not all index identifiers have a corresponding total return identifier.*

For custom composites (based on OFDBs), use the [PCOMP](#) function to calculate total return.

For money market funds, the total returns function will always return NA. The pricing database only contains 7-day yields (not prices) for money market funds.

Mutual fund distributions are typically available in FactSet within 12-48 hours of their announcement. When fund distribution is reported on or after its effective date, the fund return will reflect a simple price change until the distribution is updated in the product. This delay is particularly common for monthly frequency fund distributions.

Codes

Daily Pricing Database (11/5/1984 - present, daily)

Return codes, based on closing price:

Request Code	Dividend Treatment	Description
P_PRICE_CHANGE, P_PRICE_RETURNS, P_PRICE_RETURNS_PR	Excluded	Price appreciation between two dates. View the calculation.
P_TOTAL_RETURN, P_PRICE_RETURNS, P_PRICE_RETURNS_PR	Added on ex-date	Simple return between two dates. View the calculation.

P_TOTAL_RETURNC, P_PRICE_RETURNS, P_PRICE_RETURNS_PR	Reinvested on ex-date	Compound return between two dates. View the calculation.
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Examples

Total return codes can be used with Screening and FQL Downloading syntax.

FQL Downloading:

P_PRICE_CHANGE, P_TOTAL_RETURN, and P_TOTAL_RETURNC:

$\wedge = X(\text{start_date}, \text{end_date}, \text{frequency}, \text{div_date}, \text{currency}, \text{split})$ where X is the price change or total return code.

$\wedge = \text{P_TOTAL_RETURNS}(\text{divd}, \text{start_date}, \text{end_date}, \text{frequency}, \text{currency}, \text{split})$

By default, the *frequency* is RANGE, which calculates the return between the *start_date* and the *end_date*. If you enter a frequency (e.g., D, W, M, etc.), the return for that frequency will be calculated. For example, $\wedge = \text{P_TOTAL_RETURNS}(1, 0, -5, M)$ returns the monthly return for each of the last six months with dividends included.

The *div_date* is, by default, the EXDATE. You can specify PAYDATE to calculate the return with dividends re-invested on the pay-date. This parameter only applies to returns including dividends.

The *divd* is, by default is excluding dividends, therefore a simple price change. You can specify 1 to calculate the return with dividends included for a simple return or specify 2 to include and reinvest the dividends on the Exdate for a compounded return.

The *currency* is LOCAL by default. You can enter an [ISO code](#) to calculate the return in another currency.

Tip For more information on FQL Downloading, see [FQL and =FDS Syntax](#).

Examples:

To calculate the price appreciation between June 2008 and June 2009:

$\wedge = \text{P_PRICE_CHANGE}(6/30/2008, 6/30/2009)$

To calculate the simple total return between June 2008 and June 2009:

$\wedge = \text{P_TOTAL_RETURN}(6/30/2008, 6/30/2009)$

To calculate the compound total return between the end of December 2008 and December 2009:

$\wedge = \text{P_TOTAL_RETURNC}(12/2008, 12/2009)$

To calculate the compound total return on a calendar quarterly frequency, between the end of December 2008 and December 2009:

$\wedge = \text{P_TOTAL_RETURNC}(12/2008, 12/2009, CQ)$

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Definitions

Annualized Returns

An annualized return is the return from an investment converted to an annual basis. Annualized returns are calculated in FactSet by raising $1 +$ the period return to some power. The power used depends on the subsequent return period. If you choose to annualize returns, each return will be raised to the $12/n$ power, with n being the number of months that are included in the return period. For example, if you are rebalancing monthly, you will see monthly returns by default. If you choose to annualize returns, each period return will be raised to the $12 \div 1$, or simply the 12^{th} , power. If you are rebalancing quarterly, each quarterly period return will be raised to the $12 \div 3$, or the 4^{th} , power.

For more information on how FactSet calculates annualized returns, see [Calculating Annualized Returns](#).

Ex-Date

One of two options available when calculating returns by reinvesting the dividends. The two options, pay-date and ex-date, allow you to specify the date on which dividends will be reinvested. Choose ex-date if the dividends will be reinvested on the date the dividends go ex (when the dividends belong to the seller rather than the buyer). Choose pay-date if the dividends will be reinvested on the date they are paid out.

Included Dividends

Dividends accumulated throughout the specified period are added to the price at the end of the period.

Pay-Date

One of two options available when calculating returns by reinvesting the dividends. The two options, pay-date and ex-date, allow you to specify the date by which dividends will be reinvested. Choose pay-date if the dividends will be reinvested on the date they are paid out. Choose ex-date if the dividends will be reinvested on the date the dividends go ex (when the dividends belong to the seller rather than the buyer).

Re-invested Dividends

Dividends accumulated throughout the specified period are used to buy more shares of stock in the company.

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Calculations

- **Calculation for Price Returns – Dividends excluded:**

$$100 * (P_PRICE(end_date, , , , 1) / P_PRICE(start_date, , , , 1) - 1)$$

where:

- P = Split and spin off adjusted price

- **Calculation for Price Returns – Dividends included:**

$$100 * (((P_PRICE(end_date, , , , 1) / P_PRICE(start_date, , , , 1)) * (1 + (SUM(P_DIVS_PD_R(start_date, end_date, , , 2))) / P_PRICE(end_date))) - 1)$$

where:

- P_PRICE = Split and spin off adjusted price for Price Change component – Split Adjusted Price for Dividend component
- P_DIVS_PD_R = Dividend amount(s), excluding spin offs and large special dividends. See [Calculating Special Dividends](#) for the definition of large special dividends.

Note The above calculation cannot be used in Universal Screening because only the FQL version of request code P_DIVS_PD_R offers the necessary functionality to return an array of dividends with special dividends excluded.

- **Calculation for Price Returns – Dividends reinvested:**

$$100 * ((P_PRICE(end_date, , , , 1) / P_PRICE(start_date, , , , 1)) * ((1 + (P_DIVS_PD_R(D1, , , 2) / P_PRICE(D1))) * (1 + (P_DIVS_PD_R(D2, , , 2) / P_PRICE(D2))) * \dots * (1 + (P_DIVS_PD_R(Dn, , , 2) / P_PRICE(Dn)))) - 1)$$

where:

- P_PRICE = Split and spin off adjusted price for Price Change component – Split Adjusted Price for Dividend Reinvestment component

- P_DIVS_PD_R = Dividend amount(s), excluding spin offs and large special dividends. See [Calculating Special Dividends](#) for the definition of large special dividends.
- D1 = First ex-dividend date
- D2 = Second ex-dividend date
- Dn = N ex-dividend date

Note The above calculation cannot be used in Universal Screening because only the FQL version of request code P_DIVS_PD_R offers the necessary functionality to return an array of dividends with special dividends excluded.

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Proofs

Download the following macro to run proofs for each of the different total return calculation methods.

 [FactSet Total Returns Proof.xlsm](#)

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