

Return contribution

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This vignette shows how function `rc` can be used.

1 Return contribution

```
> library("PMwR")
> w <- c( 0.1, 0.5, 0.4)
> R <- c(-0.1, 0.1, 0.2)
> rc(R, w) ## sum(w*R)
```

```
$period_contributions
  timestamp segment_1 segment_2 segment_3 total
1          1    -0.01      0.05      0.08 0.12

$total_contributions
segment_1 segment_2 segment_3    total
    -0.01      0.05      0.08      0.12

attr("method")
[1] "contribution"
attr("class")
[1] "rc"
```

Add a benchmark, which will trigger a split into allocation, selection and interaction. Since the benchmark returns are the same as the portfolio returns, the total effect is captured by 'allocation'.

```
> w.bm <- c(0.2, 0.4, 0.4)
> rc(R, w, weights.bm = w.bm) ## sum((w - w.bm)*R)
```

```
$allocation
  segment_1 segment_2 segment_3 total
[1,]      0.02 -1.39e-18         0 0.02

$selection
  segment_1 segment_2 segment_3 total
[1,]        0         0         0    0

$interaction
  segment_1 segment_2 segment_3 total
[1,]        0         0         0    0

$total
  allocation  selection interaction    total
        0.02         0.00         0.00      0.02

attr("method")
[1] "attribution"
attr("linking.method")
[1] "none"
```

```
attr("class")
[1] "rc"
```

Pass separate benchmark returns.

```
> R.bm <- c(-0.1, 0.2, 0.3)
> rc(R, w, weights.bm = w.bm, R.bm = R.bm)
```

```
$allocation
  segment_1 segment_2 segment_3 total
[1,]    0.028    0.002         0  0.03

$selection
  segment_1 segment_2 segment_3 total
[1,]        0   -0.04   -0.04 -0.08

$interaction
  segment_1 segment_2 segment_3 total
[1,]        0   -0.01         0 -0.01

$total
 allocation  selection interaction      total
        0.03       -0.08       -0.01      -0.06

attr("method")
[1] "attribution"
attr("linking.method")
[1] "none"
attr("class")
[1] "rc"
```

Specify segments

```
> w <- c( 0.1, 0.5, 0.4)
> R <- c(-0.1, 0.1, 0.2)
> segments <- c("Equity", "Equity", "Bonds")
> rc(R, w, segments = segments)
```

```
$period_contributions
 timestamp Bonds Equity total
1          1 0.032 0.024 0.056

$total_contributions
 Bonds Equity total
0.032 0.024 0.056

attr("method")
[1] "contribution"
attr("class")
[1] "rc"
```