

# Profit/Loss for Open Positions

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This vignette shows how the `vprice` argument of function `pl` can be used.

## 1 How to use `vprice`

### When timestamp is not used

If no timestamp information is used, i.e. if `along.timestamp` is `FALSE`, `vprice` is used to value an open position (or, if you prefer, to simulate the close of an open position). So for a single asset, it should be vector of length one; for  $N$  assets, it should be a named vector of length  $N$ .

### When timestamp is used

If `along.timestamp` is `TRUE`, `vprice` is used to close the final, open position. So for a single asset, it should be vector of length one; for  $N$  assets, it should be a named vector of length  $N$ .

If `along.timestamp` is a vector of timestamps, `vprice` is used to value any open position along those timestamps. For a single asset, it should then be a vector of prices, with length equal to that of `along.timestamp`. For  $N$  assets, it should be a matrix with `length(along.timestamp)` rows and  $N$  named columns.

## 2 Examples

With a single asset.

```
> j <- journal(amount = 1, price = 20)
> pl(j)
```

```
P/L total      NA
average buy     20
average sell    NA
cum. volume     1
```

```
'P/L total' is in units of instrument;
'volume' is sum of /absolute/ amounts.
```

```
> pl(j, vprice = 21)
```

```
P/L total      1
average buy     20
average sell    21
cum. volume     1
```

```
'P/L total' is in units of instrument;
'volume' is sum of /absolute/ amounts.
```

```
> j <- journal(amount = c(1, -1),
               price = c(102, 109),
               timestamp = c(2.5, 9))
> pl(j, vprice = 101:110, along.timestamp = 1:10)
```

timestamp	1	2	3	4	5	6	7	8	9	10
P/L total	0	0	1	2	3	4	5	6	7	7
-- realised	0	0	0	0	0	0	0	0	7	7
-- unrealised	0	0	1	2	3	4	5	6	0	0
average buy	102									
average sell	109									
cum. volume	0	0	1	1	1	1	1	1	2	2

'P/L total' is in units of instrument;  
'volume' is sum of /absolute/ amounts.

With several assets.

```
> j <- journal(amount = c(1, -1, 1),
               instrument = c("A", "A", "B"),
               timestamp = c(1, 2, 1),
               price = c(100, 103, 10))
> P <- cbind(A = c(100, 102, 105),
            B = c( 10,  5,  11))
> pl(j, vprice = P,
     along.timestamp = 1:3)
```

A

timestamp	1	2	3
P/L total	0	3	3
-- realised	0	3	3
-- unrealised	0	0	0
average buy	100		
average sell	103		
cum. volume	1	2	2

B

timestamp	1	2	3
P/L total	0	-5	1
-- realised	0	0	0
-- unrealised	0	-5	1
average buy	10		
average sell	NaN		
cum. volume	1	1	1

'P/L total' is in units of instrument;  
'volume' is sum of /absolute/ amounts.

```
> pl(j, vprice = P,
     along.timestamp = 1:3, do.sum = TRUE)
```

timestamp	1	2	3
P/L total	0	-2	4
-- realised	0	3	3
-- unrealised	0	-5	1
average buy	NA		
average sell	NA		
cum. volume	2	3	3

'P/L total' is in units of instrument;  
'volume' is sum of /absolute/ amounts.