

Non-Compatibility from POP to Portfolio Probe

Burns Statistics

10th January 2010

1 Package Name

The package name has changed. So instead of:

```
> library(POP.R, ...)
```

you do:

```
> library(PortfolioProbe, ...)
```

If you take the default installation, then the location changes as well. For POP it was:

```
C:\Program Files\BurSt\POP
```

while for Portfolio Probe it is:

```
C:\Program Files\BurSt\pprobe
```

2 Linear Bound Default Change

The default style of linear bounds has changed from value to weight.

In POP the (effective) default value of `lin.style` was "value".

In Portfolio Probe the default value of `lin.style` is "weight".

This is the change that is most likely to cause bugs.

3 Function Name Changes

There have been some functions whose names have changed:

- `portfolio.optimizer` -> `trade.optimizer`
- `pop.verify` -> `pprobe.verify`
- `violation.constraints` -> `constraints.realized`

The rationale for the first of these is that it really is the trade and not the portfolio that we want to optimize, and saying this explicitly may save some people from thinking wrongly about the problem.

4 Argument Name Changes

In order to pave the way for possible additional constraints in the future, arguments concerning linear constraints have changed their names:

- `constraint.matrix` -> `lin.constraint`
- `bounds.constraint` -> `lin.bounds`
- `trade.constraint` -> `lin.trade`
- `abs.constraint` -> `lin.abs`

This affects `trade.optimizer` and `random.portfolio`.

Additional changes are:

- `trade.value` -> `turnover`
- `objective` -> `utility`
- `util.table` -> `utable`
- `var.table` -> `vtable`
- `alpha.table` -> `atable`

The output components for the “table” arguments have corresponding changes.

5 Order of `trade.optimization` Arguments

The order of the arguments to `trade.optimizer` has changed rather dramatically. This will not affect code unless it does not give argument names for more than the first three arguments (`prices`, `variance`, `expected.return`). The `benchmark` argument is the first in the old order to have been moved.

6 Output Component Names of `build.constraints`

The first component of the output of `build.constraints` has changed:

- `matrix` -> `lin.constraints`

7 `constraints.realized` Argument Name Change

`constraints.realized` has the following changes to its argument names:

- `matrix` -> `lin.constraints`
- `bounds` -> `lin.bounds`
- `trade.constraint` -> `lin.trade`
- `abs.constraint` -> `lin.abs`

8 Random Portfolio Valuation Output Change

The result of `valuation.randportBurSt` is different. There are also some new arguments that make the function much more useful.

9 Random Optimization

In POP optimization (with `portfolio.optimizer`) was (pseudo-)random—each invocation of the same problem would take a different path, and hence possibly end with a different answer.

In Portfolio Probe `trade.optimizer` always uses the same random seed by default. Thus (barring subtle numeric changes) the same problem always results in the same answer. If you want to get a random optimization path, then you should use the argument:

```
seed = NULL
```

or

```
seed = seed.BurSt()
```

10 Moved Functions

Some of the functions from POP have been moved to the public domain package `BurStFin`. The functions that have moved are:

- `factor.model.stat`
- `fitted.statfacmodBurSt`
- `var.add.benchmark`
- `var.relative.benchmark`

These are joined by a function for estimating a variance matrix by shrinking towards the equal correlation matrix (`var.shrink.eqcor`).

Note that a bug has been fixed in `factor.model.stat` so the results from the function in `BurStFin` will not exactly match those from POP. (Thanks Giles.)

If you are using R on Windows, then you can get `BurStFin` with:

```
> install.packages("BurStFin",  
+   repos="http://www.burns-stat.com/R")
```

You can get the source with:

```
> download.packages("BurStFin", 'some_directory',  
+   type="source", repos="http://www.burns-stat.com/R")
```

11 Defunct Functions

`asset allocator` and `efficient.frontier` are no longer available.