`Portfolio` Class Cheat Sheet

(m) `Portfolio(self, name, spec_list, uw=None)`

The `Portfolio` call signature requires a name and textttspec_list, which be be a DecL program, a list of `Aggregate` objects or kwargs, or names known to the Underwriter, or a pandas DataFrame sample. The following tables show all **(m)** `methods`, **(s)** `static methods`, and fields or properties (used interchangeably). Comments elucidate the meaning of more obscure entries. Internal methods and fields are not shown.

1. Specification & creation

`name` *more*
`spec_list` *more*
`uw` *more*
`n_units`, `agg_list` (list of `Aggregate` objects),
`line_names`, `line_names_ex`, `unit_names` (unit ←
line), `unit_names_ex`, `line_name_pipe`, `program`
(DecL program), `pprogram` (pretty printed), `spec`
(constructor kwarg dictionary; `Aggregate(**spec)`
re-creates the object), `spec_ex` (adds meta information),
(m) `nice_program`, **(s)** `from_DataFrame`,
(s) `from_dict_of_aggs`, **(s)** `from_Excel`,
(s) `create_from_sample`

2. Update

`log2`, `bs`, `sev_calc` (discrete=round, forward,
backwards), `discretization_calc` (distribution,
survival, both), `normalize`, `padding`, `tilt_amount`,
`approx_freq_ge`, `approx_type` (exact, slognorm,
sgamma), **(m)** `best_bucket`, **(m)** `recommend_bucket`,
(m) `update`, **(m)** `add_exa`, **(m)** `add_exa_details`,
(m) `add_exa_sample`, **(m)** `trim_df`, **(m)** `ft` & **(m)** `ift`
(FFT and inverse FFT), **(m)** `remove_fuzz`, **(m)** `set_a_p`

3. Moments

est prefix=estimated from FFT approximation
`agg_m`, `agg_cv`, `agg_sd`, `agg_var`, `agg_skew`,
`est_m`, `est_cv`, `est_sd`, `est_var`, `est_skew`,
`ex`

4. Statistical functions

(m) `cdf`, **(m)** `sf` (survival), **(m)** `pdf`, **(m)** `pmf`, **(m)** `q` (lower
quantile=VaR), **(m)** `tvar`, **(m)** `tvar_threshold`, **(m)** `var`,
(m) `var_dict`, **(m)** `density_sample`, **(m)** `percentiles`,
(m) `sample`, **(m)** `sample(_density)_compare`,

5. Validation

`describe` (validation statistics),
`valid` (true=all components and total "not unreasonable"
or false),
`validation_eps` (validation epsilon threshold 1e-04),
(m) `audits`, **(m)** `uat`, **(m)** `uat_differential`,
(m) `uat_interpolation_functions`

6. Output dataframes

`density_df`[1] (main output),
`report_df` (component, mixture & empirical stats),
`statistics`, `statistics_df`, `audit_df`,
`augmented_df`, `independent_audit_df`,
`independent_density_df`, `priority_analysis_df`,
(m) `make_audit_df`, **(m)** `make_all`, **(m)** `report`

7. Reinsurance

None – applies at the component level

8. Visualization & exhibits

(m) `plot`, **(m)** `scatter`, **(m)** `twelve_plot`,
(m) `biv_contour_plot`,
(m) `analyze_distortion_plots`,
(m) `natural_profit_segment_plot`,
(m) `profit_segment_plot`, `figure` (return last figure),
(m) `limits`, `line_renamer`,
`premium_capital_renamer`, `renamer`,
(m) `short_renamer`, `stat_renamer`, `tm_renamer`,
(m) `show_enhanced_exhibits`,
`EX_accounting_economic_balance_sheet`,
`EX_multi_premium_capital`, `EX_premium_capital`

9. Risk and pricing

(m) `accounting_economic_balance_sheet`,
(m) `analysis_collateral`, **(m)** `analysis_priority`,
(m) `analyze_distortion(s|_add_comps)`,
(m) `apply_distortion(s)`, `assets_2_epd`,
(m) `bodoff`, **(m)** `calibrate_blends`,
(m) `calibrate_distortion(s)`, **(m)** `cotvar`,
`dist_ans`, `distortion`, `distortion_df`, `dists`,
`epd_2_assets`, **(m)** `equal_risk_epd`,
(m) `equal_risk_var_tvar`, **(m)** `gamma`, **(m)** `gradient`,
(m) `merton_perold`, **(m)** `multi_premium_capital`,
(m) `premium_capital`, **(m)** `price`, **(m)** `price_ccoc`,
(m) `pricing_bounds`, `priority_capital_df`,
(m) `stand_alone_pricing`,

10. Approximations

(m) `approximate`, **(m)** `as_severity`, **(m)** `collapse`

11. Meta

`audit_percentiles`, `hash_rep_at_last_update`,
`info` (text meta info), **(m)** `json` (persist to json),
`last_update`, **(m)** `more(regex)` (print all methods and
fields matching regex), **(m)** `save`, **(m)** `snap`[1] (snap
argument to index)

Notes:

[1]: matches `Aggregate`

Any vectorizable input accepts numeric or iterable datatypes.

Abbreviations: gcn=gross (subject), ceded, and net; stats:
m=mean, cv=coefficient of variation, sd=standard deviation,
var=variance, skew(ness); VaR=value-at-risk