aggregate.Portfolio Cheat Sheet

The `Portfolio` call signature is straightforward. `spec_list` is a DecL program, list of `Aggregate` objects or kwargs, or names known to the Underwriter, or a pandas DataFrame sample.

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

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`, `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

`aggregate` version 0.18.0