1. Objects

```
Model
-- attribute : type (factor, graphical, etc)
-- attribute : estimation_window (start_date, end_data, freq)
-- attribute : method (pca, mtfa, glasso, etc)
-- attribute : num_dimensions (p)
-- attribute : num_observations (n)
```

```
 Model : type = factor
 -- attribute : exposures
               p x n matrix of factor exposures (am_standards)
 -- attribute : variances
               q vector of factor variances (am_standards)
 -- attribute : specifics
               p vector of specific risks (am_standards)
  p x p sparse matrix of covariances (default = zero)
 -- method : get_factor (id)
          {variance : number, exposures : p vector}
 -- method : get_specific
          {specifics : p vector, covariances : sparse matrix}
```

```
Model : type = graphical
-- missing!
```

```
Analysis
-- attribute : model
```

```
 Analysis : model_type = factor
 -- method : compute_signal (factor_id)
          {signal : number}
 -- method : compute_noise (factor_id)
 -- method : compute_size (factor_id)
 -- method : compute_snr (factor_id)
 -- method : compute_skew (facror_id)
 -- method : compute_meltup (facror_id)
 -- method : compute_correlation (facror_id)
 -- method : compute_entropy (facror_id)
```