November 21, 2025

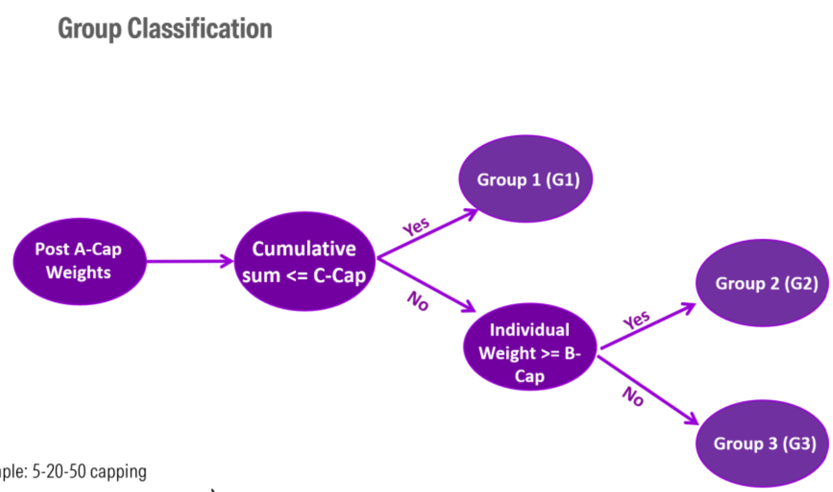
## Morningstar Indexes Fallback Capping Logic

Morningstar's standard constituent capping approach is to preserve the relative (uncapped) weights for a maximum number of stocks within each index, while meeting the capping constraints. This aims to minimize the distortion capping can introduce, but for indexes with limited constituent counts, it can also lead to infeasible solutions in extreme cases.

To address this issue, if a feasible solution is not found under Morningstar Indexes' standard capping methodology, the index will be shifted to a new fallback capping algorithm designed to find a feasible solution to meet the capping constraints, if one is possible, by iteratively moving away from the relative pre-capped weights.

The algorithm works by first applying the top constituent (A) cap and then grouping stocks into three buckets from largest to smallest. For example, if an index applies 5/20/50 capping, Group 1 would consist of the highest weighted stocks with cumulative weights less than or equal to 50%, Group 2 would consist of the next largest cohort of stocks with weights greater than or equal to 5%, and Group 3 would include all remaining stocks, as shown below.

| Post A-Cap Weights | Cumulative Sum | Group |
|---|---|---|
| 20.00% | 20.00% | G1 |
| 19.74% | 39.74% | G1 |
| 16.16% | 55.90% | G2 |
| 7.90% | 63.79% | G2 |
| 5.67% | 69.46% | G2 |
| 5.00% | 74.46% | G3 |
| 4.49% | 78.95% | G3 |
| 4.49% | 83.44% | G3 |
| 3.79% | 87.23% | G3 |
| 3.53% | 90.76% | G3 |
| 3.13% | 93.89% | G3 |
| 2.49% | 96.37% | G3 |
| 2.20% | 98.57% | G3 |
| 1.43% | 100.00% | G3 |




Example: 5-20-50 capping
B-Cap = 5% (aggregation threshold)
A-Cap = 20% (security cap)
C-Cap = 50% (cumulative cap)

The highest weighted constituent in Group 2 (called the marginal security) can either be moved to Group 1, where the aggregate weight of Group 1 would be brought back to the C limit (50%), or kept in Group 2 and brought down to the B cap (5%). The path that requires the lower reduction in the weight of the marginal security will be followed. In the example above, the reduction of the marginal security weight required would be:

- Option 1(Moving Marginal Security to Group 1): 55.90% - 50% = 5.90%
- Option 2 (Capping Marginal Security at 5%): 16.16% – 5% = 11.16%

Since the reduction required is less in option 1, the marginal security will move to Group 1.

In the next step, the weights of all securities remaining in Group 2 are capped at the B weight limit (5%). The excess weight removed from the Group 2 securities is distributed proportionally among all uncapped securities of Group 1 and Group 3, based on their original weight allocations. During this redistribution, no security can exceed its original cap: Group 1 securities A-Cap (20%), Group 3 securities B-Cap (5%).

After this redistribution, a final check is conducted. If the total weight of Group 1 has exceeded the C-Cap, that excess weight is redistributed across the Group 3 securities. The weights are normalized to sum 100%, by distributing the remaining deficit in the original proportion of the weights. The entire process is run iteratively until the capping requirements are satisfied and the group assignments and weights no longer change.

| Weight` | Cumulative Sum | Group | IsCapped | Final Weights |
|---|---|---|---|---|
| 20.00% | 20.00% | G1 | 1 | 20.00% |
| 19.74% | 39.74% | G1 | 1 | 19.74% |
| 16.16% | 55.90% | G1 | 1 | 10.26% |
| 7.90% | 63.79% | G2 | 1 | 5.00% |
| 5.67% | 69.46% | G2 | 1 | 5.00% |
| 4.99% | 74.46% | G3 | 1 | 5.00% |
| 4.49% | 78.95% | G3 | 1 | 5.00% |
| 4.49% | 83.44% | G3 | 1 | 5.00% |
| 3.79% | 87.23% | G3 | 1 | 5.00% |
| 3.53% | 90.76% | G3 | 1 | 5.00% |
| 3.13% | 93.89% | G3 | 1 | 5.00% |
| 2.49% | 96.37% | G3 | 0 | 4.07% |
| 2.20% | 98.57% | G3 | 0 | 3.60% |
| 1.43% | 100.00% | G3 | 0 | 2.33% |

To avoid excess turnover, once an index is shifted to this fallback capping logic, it will continue to follow this new logic for future rebalances.

**Impacted Indexes**

While this logic will be used as a general failsafe across all Morningstar Indexes that apply standard constituent capping, only two indexes will likely move to this new capping algorithm at the upcoming

December rebalance: Morningstar US Healthcare Providers & Services Capped Index and Morningstar MLP Composite Index. An impact analysis showing what these indexes would have looked like with the new capping logic at the September 2025 rebalance is available here.

This fallback logic will be effective from the December reconstitution (December 22, 2025), on.

**About Morningstar Indexes**

Morningstar Indexes was built to keep up with the evolving needs of investors—and to be a leading-edge advocate for them. Our rich heritage as a transparent, investor-focused leader in data and research uniquely equips us to support individuals, institutions, wealth managers and advisors in navigating investment opportunities across major asset classes, styles and strategies. From traditional benchmarks and unique IP-driven indexes, to index design, calculation and distribution services, our solutions span an investment landscape as diverse as investors themselves.

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