1. **How to find factor scores?**

|  |  |  |
| --- | --- | --- |
| **Asset** | **Value (Price-to-Book or Book-to-Price)** | **Momentum (Return)** |
| X1 | V1 | M1 |
| X2 | V2 | M2 |
| … | … | … |
| Xn | Vn | M3 |

1. Find the mean and standard deviation of the individual factor figures (e.g. Value: Price-to-book and Momentum: Returns)
2. Compute z-score, i.e. Z = (X-u)/sigma ~ N(0,1)
3. Assign the z-score to the factor score for each asset (X1, X2, … Xn)
4. **Additional Controversial Weapons Lists that could be considered**
5. ISS Ethix
6. Listed companies excluded by ABN\_AMRO (5 out of 19 companies are covered in NBIM exclusion list)
7. Nordea
8. **Difficulties in the implementation of ESG scores**

Traditional indices typically sort the universe using companies’ ESG scores (can be internally computed or provided by external data vendors), eliminating those with the worst rankings, and cap-weighting the remainder to avoid a small-cap bias. However, for ESG scores to be computed, a few conditions need to be met:

1. Limited availability of company disclosures on ESG matters – Attitude towards ESG matters vary across companies. Notwithstanding this, we also see that larger companies have better ESG ratings because they have the resources to measure and disclose ESG data or they are under pressure and scrutiny from regulators and investors. This inevitably creates overexposure to larger companies, i.e. no diversification of small to mid-cap companies.
2. ESG scores are inconsistent across external data vendors of ESG ratings, e.g. MSCI, Sustainalytics and Thomson Reuters. Each provider might have different definitions of what strong ESG means, e.g. some companies may weigh ‘Environmental’ more important than ‘Social’ and ‘Governance’
3. Subjectivity of ESG benchmark – It is difficult to gauge an ethical benchmark and it is even more difficult with an ESG benchmark.
4. **Common practices among index providers to handle ESG demands**

While it is a common approach to rely on ESG scores to weigh stocks, it does not make sense from financial standpoint. Adding ESG score weighting reduces control over exposure to rewarded factors and greatly increases robustness risks.

1. Scientific Beta uses the ERAF framework for positive screening of stock universe:
   * Exclusion of companies with extremely low scores on any value
   * Exclusion of companies that lag by overall ESG score

Currently, Scientific Beta wishes to apply the ESG scores obtained in the positive screening process by excluding companies that score below one-third of their sector average on any value or in the lowest quantile. However, this threshold is still ambitious in maintaining a high degree of diversification.

1. Morning Star Sustainability Index – Work out ESG scores based on corporate practices and controversies and select stocks in priority order until they reach 50% coverage by float-adjusted market capitalisation of parent index
2. FTSE ESG Index also works out ESG scores based on themes (similar to Scientific Beta’s ERAF). The scores are then normalized and used to compute tilt.
3. **Council of Institutional Investors**
4. Support inclusion of unequal voting shares on an underweighted basis (as proposed by MSCI), since they are still equity by definition.
5. It is appropriate to delete securities with no listing voting power if the companies do not revise their capital structure or adopt a time-based sunset provision (reasonable threshold: 7 years).
6. Index weight of securities with unequal voting shares should be linked to voting power.
7. To reflect misalignment between voting power and economic interest, voting power adjustment is fine. However, such adjustments should be pegged to the lower of (i) company voting (i.e. proportion of total voting power held by non-strategic shareholders of listed securities) on voting items other than the election of directors, or (ii) the percentage of total board seats on which inferior class holders can vote on OSOV basis.
   * Rationale: Companies can design capital structures around establishing control solely through the rights to elect directors.
8. While votes per share cannot be calculated for companies with “loyalty share” structures, these companies should provide, on an annual basis, sufficient information to calculate the proportion of total voting power in the hands of non-strategic shareholders of listed securities.
9. **Follow-up actions**
10. Acquire data with voting rights associated with each security, voting restrictions (e.g. elect directors), sunset provisions (e.g. whether there is a clause and the length of sunset provision), loyalty shares etc.
11. Consultations with accredited bodies, e.g. CII or Associate Professor Mak Yuen Teen
12. Come up with a weighting scheme that incorporates the data above