### **Turnover or Transaction Cost Constraints**

If you want to reduce real-world turnover or keep transaction costs in check:

* **Add a maximum turnover** per rebal date, or a penalty on turnover in your objective function.
* Or add a constraint “∥wnew−wold∥1≤θ\|w\_{\text{new}} - w\_{\text{old}}\|\_1 \le \theta∥wnew​−wold​∥1​≤θ” so you never drastically rebalance.

### **Multi-Objective or “Risk Parity” Twists**

1. You can do “**Max Return** - λ\lambdaλ\*Vol” or “Max Sharpe” but also impose a risk parity flavor if you want more balanced contributions.
2. Or try a **hierarchical risk parity** (HRP) approach, though that deviates from the standard MPT.

### **Add CVaR / Downside Constraints**

If you’re worried about large drawdowns, you can incorporate some form of **CVaR** or tail-risk constraints (though it’s more advanced in CVXPY).

**Grid search**

put the best combo in manual

**Treatment of instruments that have no prices when dataset starts and have prices after some time**

**Efficient frontier?**

* Last 12months?
* Showing annual ret?expected ret?

**RFR** 🡪 how to treat it