$\mu \to$ valores aleatórios entre 0 e 1 (vector)

matriz de covariância $\to$ semidefinida positiva $\to$ [n×n] aleatória e multiplicar pelo transposto

temp = randn(n);

sig = temp' * temp;

solve

$$\max_{w} \mu^T w - \gamma w^T \Sigma w$$

s.t. $1^T w = 1$ ← percentagem (100%) → o primeiro dinheiro retornava em vez de percentagens / dinheiro / formulação razoável ← proposta de quem quer investir 0€

vector de "1"s → $w \in \mathbb{R}^n_+$

$w \to$ portfolio allocation vector (with w_i fraction of capital invested in asset i)

$\mu \to$ is the vector of expected returns of the assets ($\mu_i \to$ expected return of asset i)

$\Sigma \to$ covariance matrix of the returns of assets in portfolio

$\mu^T w \to$ expected return of portfolio w

$\gamma w^T \Sigma w$ variance of the portfolio return (measures risk)

$\gamma \to$ variable controlling tradeoff between return and risk

goal: maximize return and minimize risk

OA Project