Solving …

- Bellman equation: $\rho f(\eta_t) n_t \, dt = \max_k E[d(f(\eta_t) n_t)]$ (when $f(\eta)>1$)

  $E[d(f(\eta_t) n_t)] = \mu_t^f n_t \, dt + f'(\eta_t) \, \sigma_t^\eta \, k_t p_t \, (\sigma + \sigma_t^p) \, dt +$
  $f(\eta_t) \, (r \, n_t + (a - \iota(p_t)) \, k_t + k_t p_t \, (g(p_t) - r + \mu_t^p + \sigma\sigma_t^p))$

  - FOC: $(a-\iota(p_t))/p_t + g + \mu_t^p + \sigma\sigma_t^p - r = - f'(\eta_t)/f(\eta_t) \, \sigma_t^\eta \, (\sigma+\sigma_t^p)$

    expected excess return on capital

    risk premium from precautionary motive

  - Using FOC, Bellman equation simplifies to
    - $(\rho - r) \, f(\eta_t) = \mu_t^f$
- Derive μ_t^p, μ_t^f, σ_t^η, σ_t^p in terms of p', p'', f', f'' to obtain ODE for $p(\eta)$ and $f(\eta)$