

| | | |
|-------------------------------------|-------------------------------------|--|
| | "Loanable funds" | "money creation" + liq. man. |
| restriction for loan supply | reserve ratio total deposits | liq. management asset side borrowing from market |
| capacity of loan supply (short-run) | reserve ratio ⇒ money multiplier | $L \uparrow$ until $NRR = NC$ interest income ↓ loss in NPL (credit risk) cost in liq. man. ↓ haircut interbank borrowing rate ↑ ↑ market liq. (liq. risk) funding liq. |
| regulator | credit risk | credit risk <u>liquidity risk</u> |

1. → slides

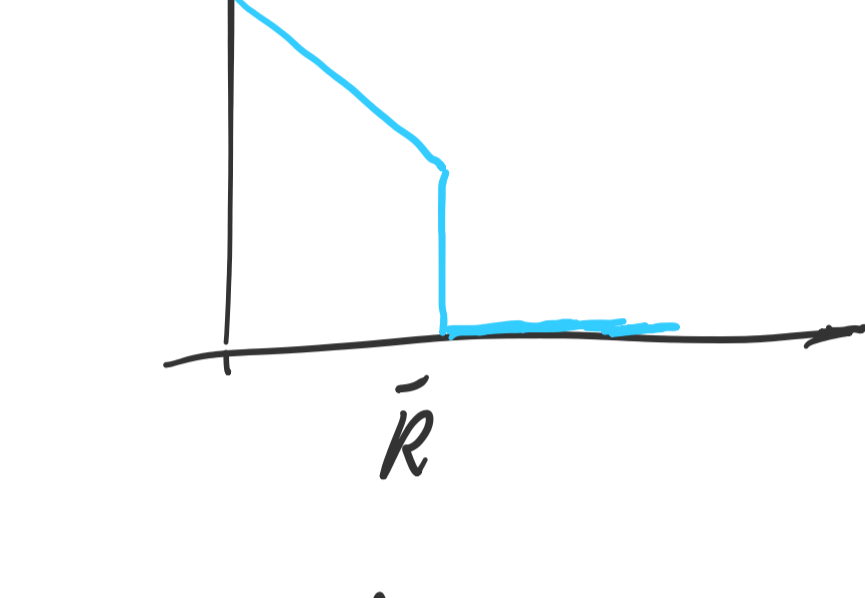
2. $t=0$ demand for securities
passive investor

1. $\max_{y_p} u(c) = E[c] - \frac{1}{2\tau} \text{var}[c]$
 s.t. $c = R y_p + e - P y_p$
 (return risky) (deposits) (price of security) (safe inv. deposit)

$u(c) = E[R y_p + e - P y_p] - \frac{1}{2\tau} \text{var}[R y_p + e - P y_p]$
 $= \bar{R} y_p + e - P y_p - \frac{1}{2\tau} y_p^2 \text{var}[R]$

F.o.c. $\frac{\partial u}{\partial y_p} = \bar{R} - P - \frac{1}{\tau} \cdot 2 \cdot y_p \cdot \frac{\text{var}[R]}{2} = 0$

$y_p = \begin{cases} \frac{3\tau(\bar{R}-P)}{2} & \text{if } \bar{R} \geq P \\ 0 & \text{o.w.} \end{cases}$



τ : sensitivity $\tau \uparrow \Rightarrow y_p \uparrow$

(B) active investors

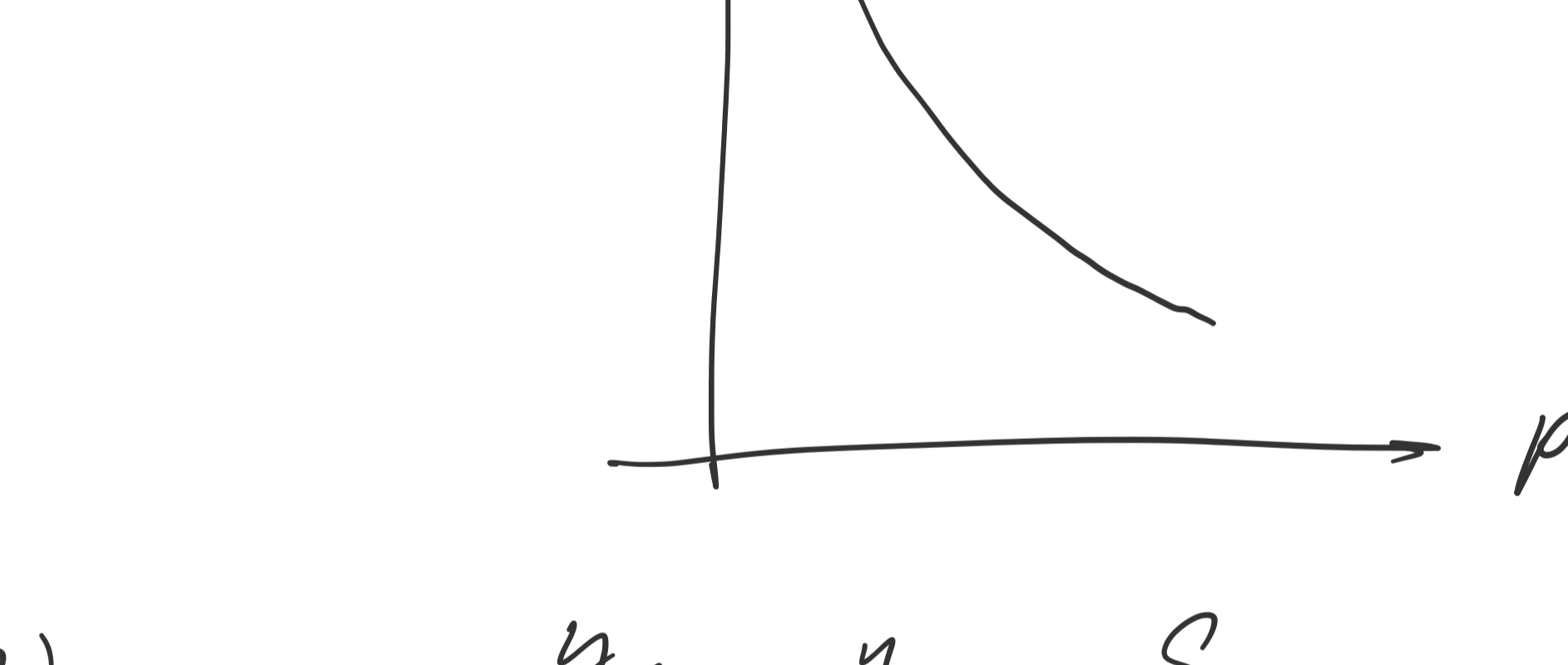
| | | |
|-------|---------|-------------|
| $t=0$ | A | L |
| | $P y_A$ | e |
| | | deposits |
| | | $P y_A - e$ |

| | | |
|-------|-------------------|-------------|
| $t=1$ | return from risky | $R y_A$ |
| | repay depositors | $P y_A - e$ |

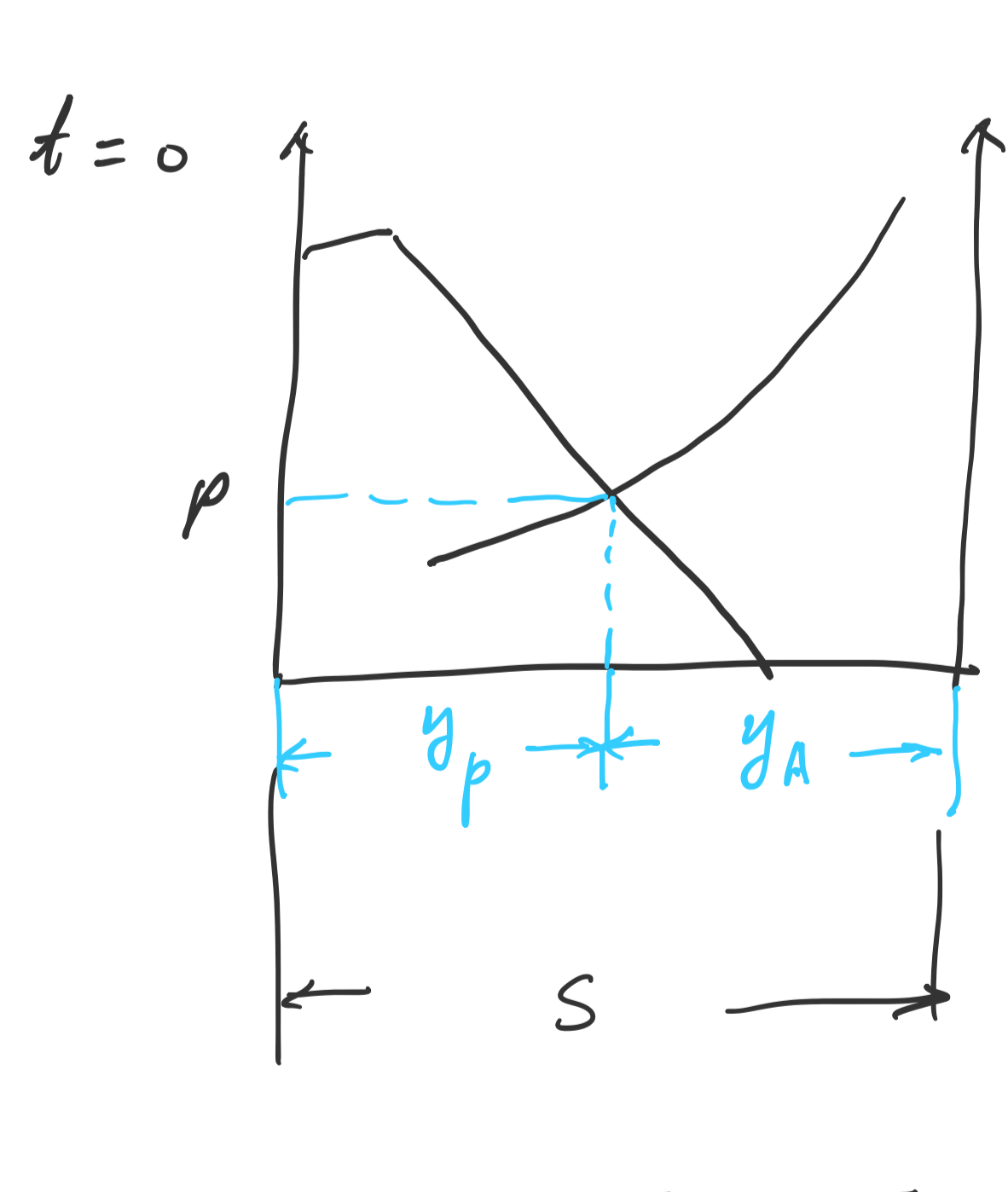
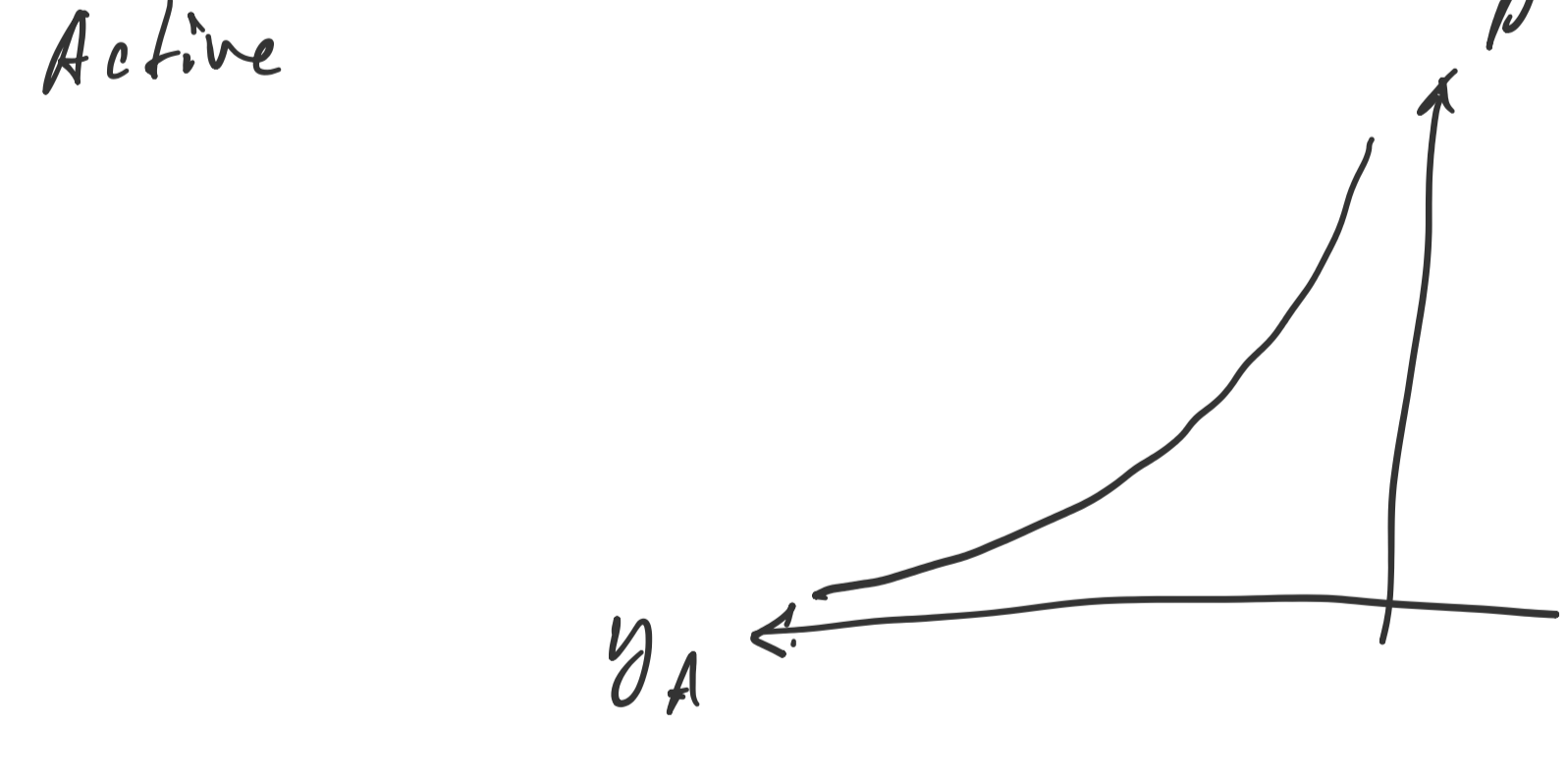
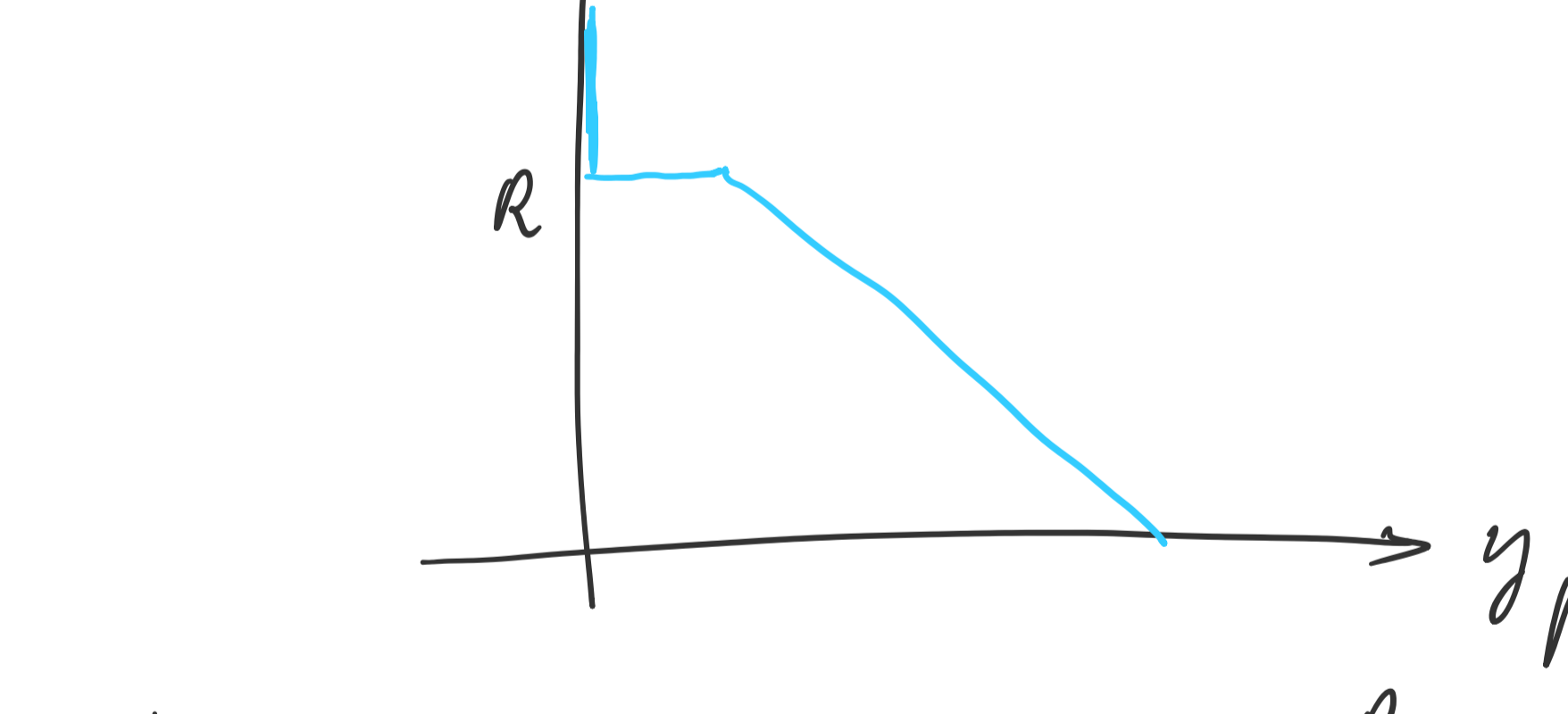
1. have to survive in the worst case, when $R = \bar{R} - z$
 $e \geq \text{loss} = P y_A - (\bar{R} - z) y_A = \text{VaR}$ at 100%

2. $\max_{y_A} C = E[R y_A - (P y_A - e)]$
 s.t. $e \geq \text{VaR}$

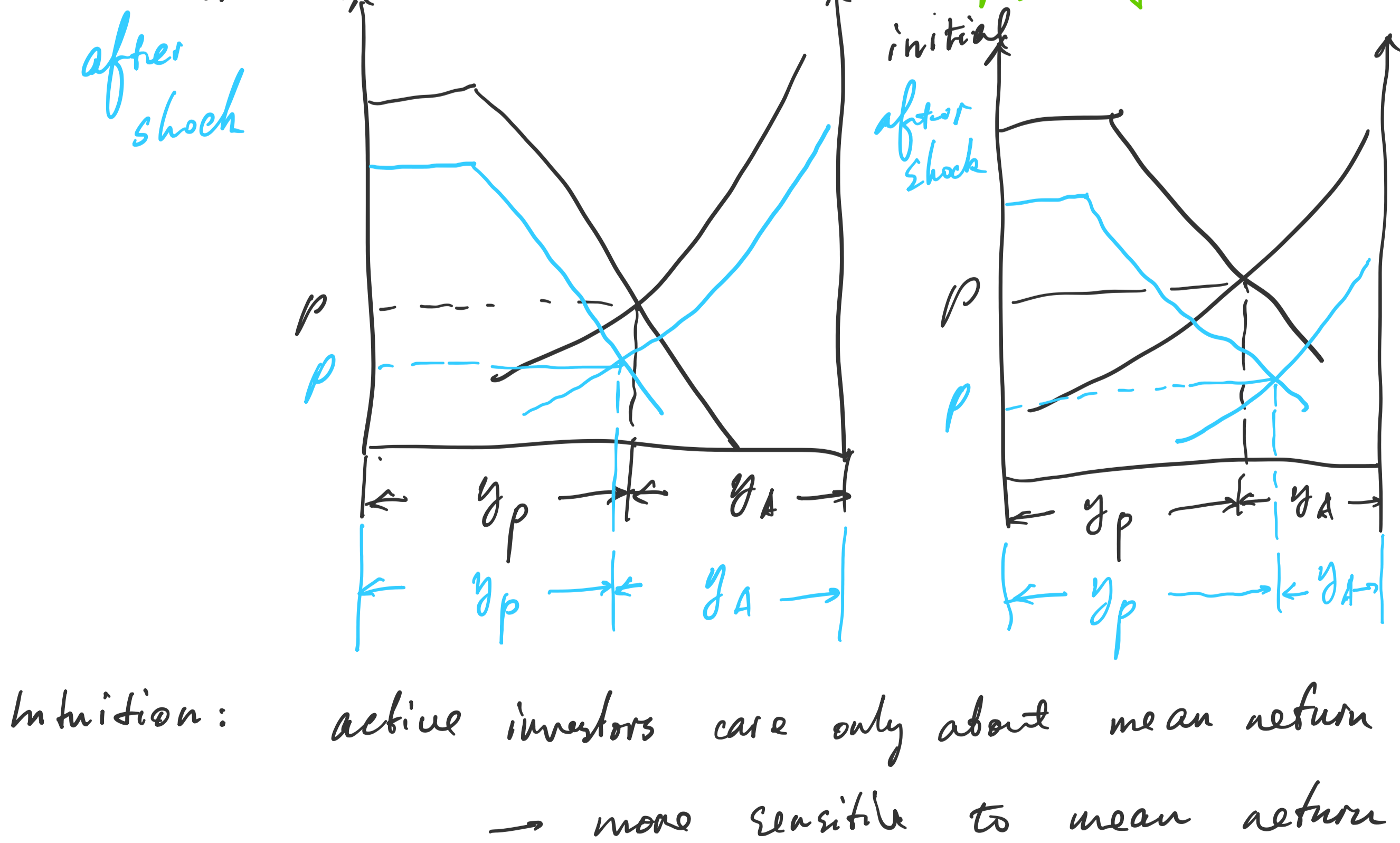
$y_A \text{ max } e = \text{VaR}, \text{ i.e. } y_A = \frac{e}{P - \bar{R} + z}$



c) $y_A + y_p = S$



(C) $t=0.5$: $\bar{R}' < \bar{R}$ negative shock to mean return



Intuition: active investors care only about mean return
 → more sensitive to mean return
 → negative, reduce risky inv.
 → Poss. 2

Proof: see slides.

3. implication: VaR → additional volatility → procyclicality
 → C.C.B. boom, raise cap. req. stop credit exp.
 bust, reduce cap. req. stop credit contracts