1. $u(1 - \tau + s^*) > \mathbb{E}[u(y+s^*)]$

I take the insurance.

2. $CE = \mathbb{E}(x) - RP$

$u(CE) = \mathbb{E}[u(x)]$

$u(\mathbb{E}(x) - RP) = \mathbb{E}[u(x)]$ (slide 9)

Jensen's inequality: $u(\mathbb{E}(x)) > \mathbb{E}(u(x))$

this implies our RP is positive.

From the question:

$u(1 - \tau + s^*) > \mathbb{E}[u(y+s^*)]$

$u(\mathbb{E}(y+s^*) - \tau) > \mathbb{E}[u(y+s^*)]$

AND

$u(\mathbb{E}(y+s^*) - RP) = \mathbb{E}[u(y+s^*)]$

hence, $\tau < RP$

3. On prudence and risk aversion.

In the CRRA setting $\underbrace{PP > RP > \tau}_{\text{from our work in 2.}}$

$$u(1-\tau+s^*) > \mathbb{E}[u(y+s^*)]$$

as $\mathbb{E}[y]=1$, and we had optimal saving

$$u'(\underbrace{1}_{\mathbb{E}[y]} - PP + s^*) = \mathbb{E}[u'(y+s^*)] \quad \text{(from slide 14)}$$

PP is now replaced with a smaller $\tau$ then

where $u'(c_0) = u'(c_1)$ (from optimality)

<u>OR</u> $u'(c_0) = \mathbb{E}[u'(y+s^*)] = u'(1-PP+s^*)$

when we replace PP with $\tau$

- $(1-\tau+s^*)$ is larger than $(1-PP+s^*)$
- mu in $c_1$ ~~increases~~ decreases (so now $u'(c_0) > u'(c_1)$).
- These should be equal, so we move consumption to raise MU of $C_1$.
  means we reduce consumption in period 1, and shift it to period 0.
  results in a decrease in savings.

3. On prudence and risk aversion.

In the CRRA setting $\underbrace{PP > RP > \tau}_{\text{from our work in 2.}}$

$$u(1-\tau+s^*) > \mathbb{E}[u(y+s^*)]$$

as $\mathbb{E}[y]=1$, and we had optimal saving

$$u'(\underbrace{1}_{\mathbb{E}[y]} - PP + s^*) = \mathbb{E}[u'(y+s^*)] \quad \text{(from slide 14)}$$

If PP is now replaced with a smaller $\tau$ then

where $u'(c_0) = u'(c_1)$ (from optimality)

OR $u'(c_0) = \mathbb{E}[u'(y+s^*)] = u'(1-PP+s^*)$

when we replace PP with $\tau$

- $(1-\tau+s^*)$ is larger than $(1-PP+s^*)$
- MU in $c_1$ ~~increases~~ decreases (so now $u'(c_0) > u'(c_1)$).
- These should be equal, so we move consumption to raise MU of $c_1$.
- This means we reduce consumption in period 1, and shift it to period 0,

which results in a decrease in savings.