Capital regulation and tail risk

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Discussion

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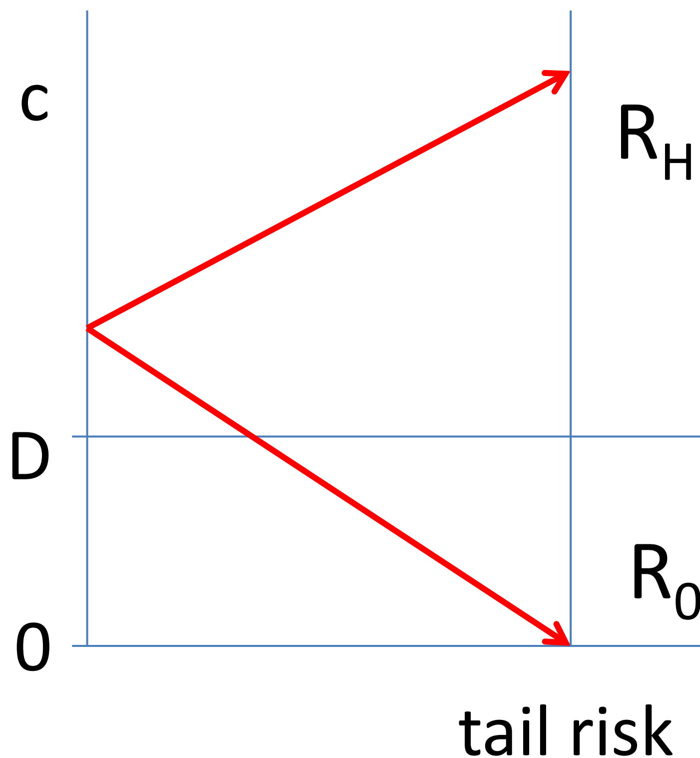
Tail risk

A recent example

UBS loses $2.3 bn on safest ETF trading strategy

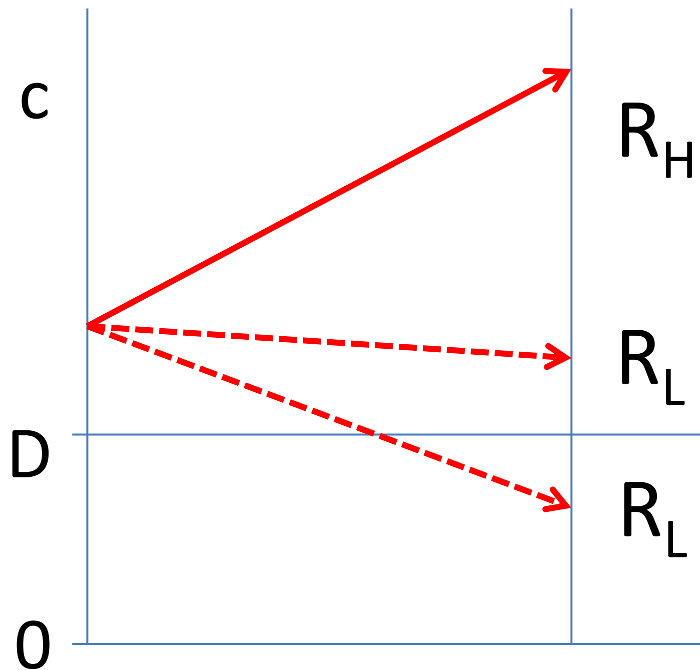
Model ingredients (1)



Risky technology
Limited liability
Insured debt (D)

Moral hazard

Model ingredients (2)



Mildly bad case (Skin in game)

Non-linear effect of capital

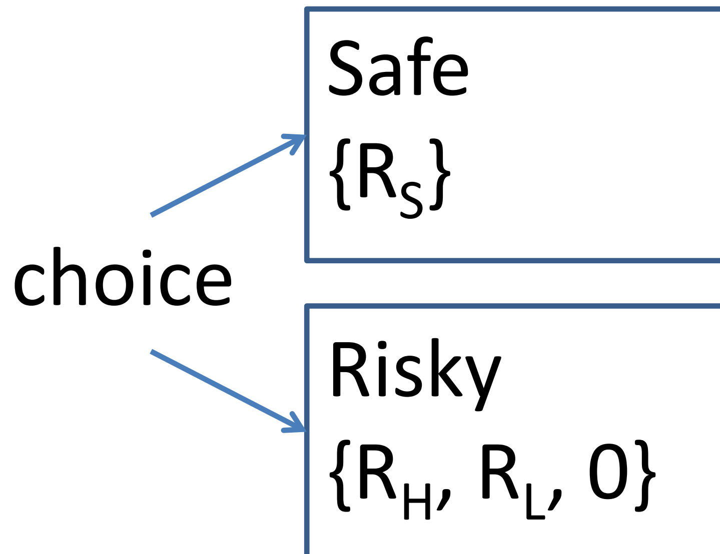
Remember?

Kupiec+O'Brien: Pre-Commitment approach

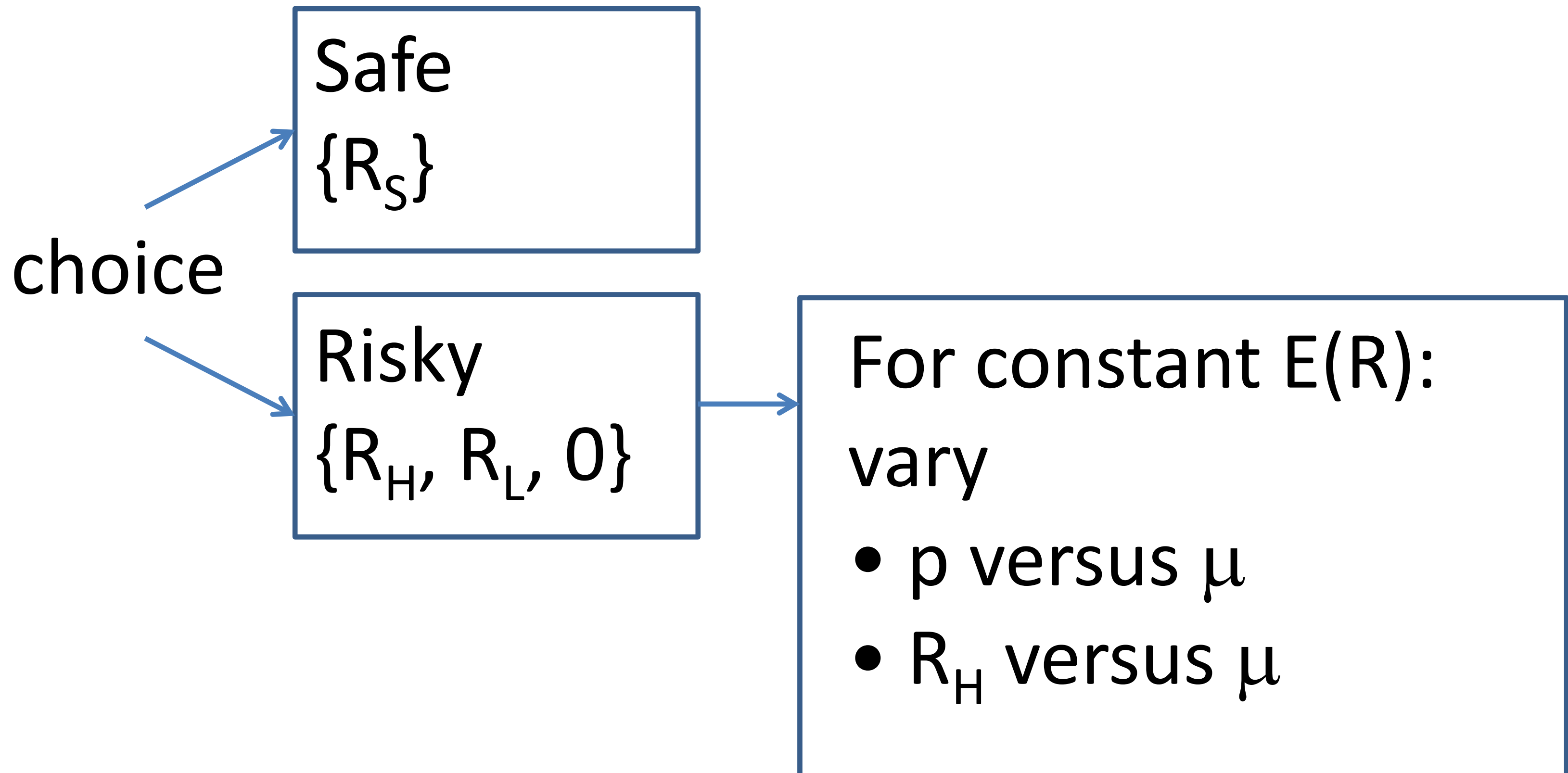
Issues

- A main result (ambiguity of capital → risk) is driven by $R_L > D$, not by tail risk

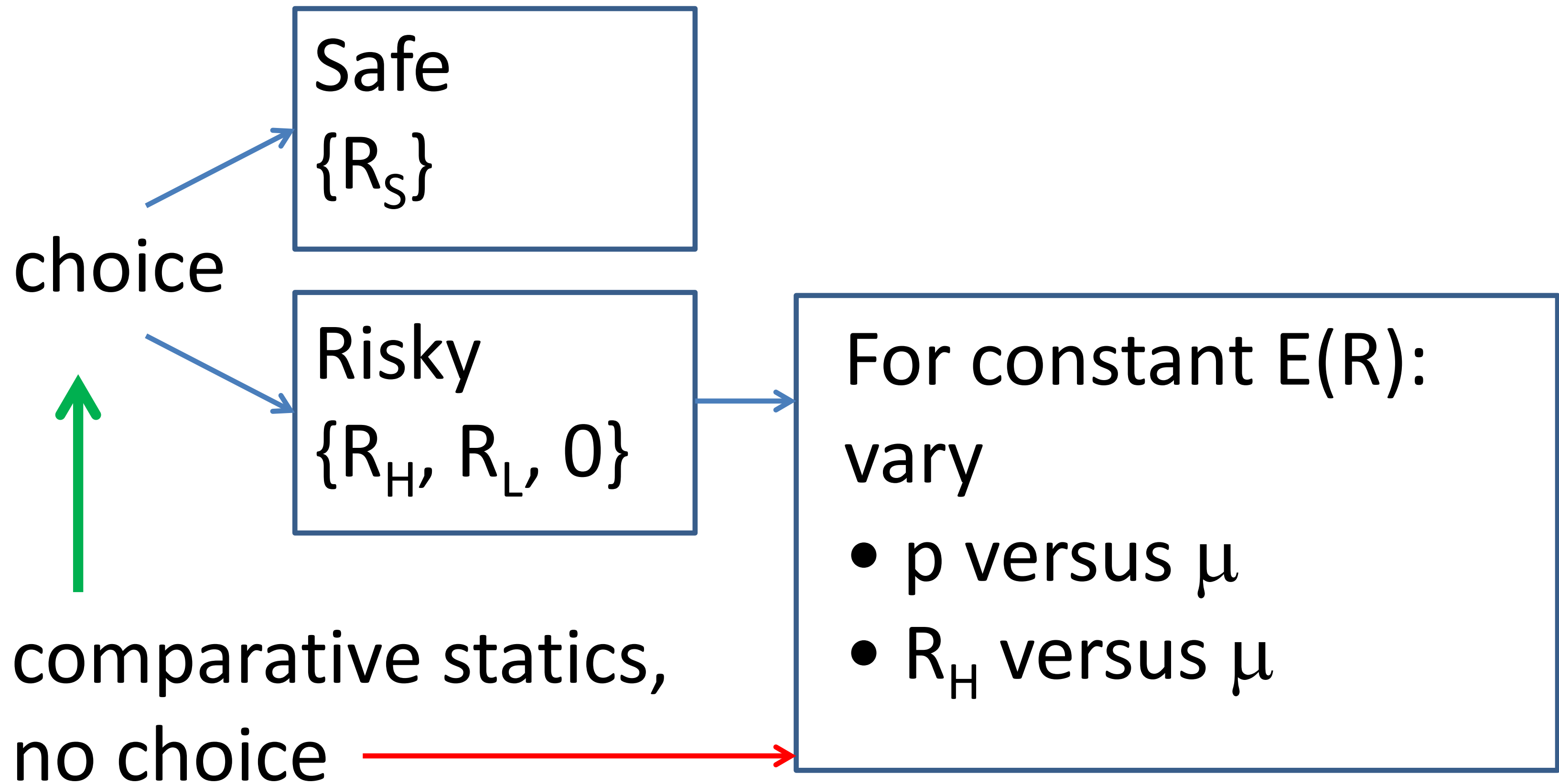
Risk-return-tradeoff



Risk-return-tradeoff



Risk-return-tradeoff



Risk-return-tradeoff

Why not:

integrate

Safe
$\{R_S\}$

as a special case of

Risky
$\{R_H, R_L, 0\}$

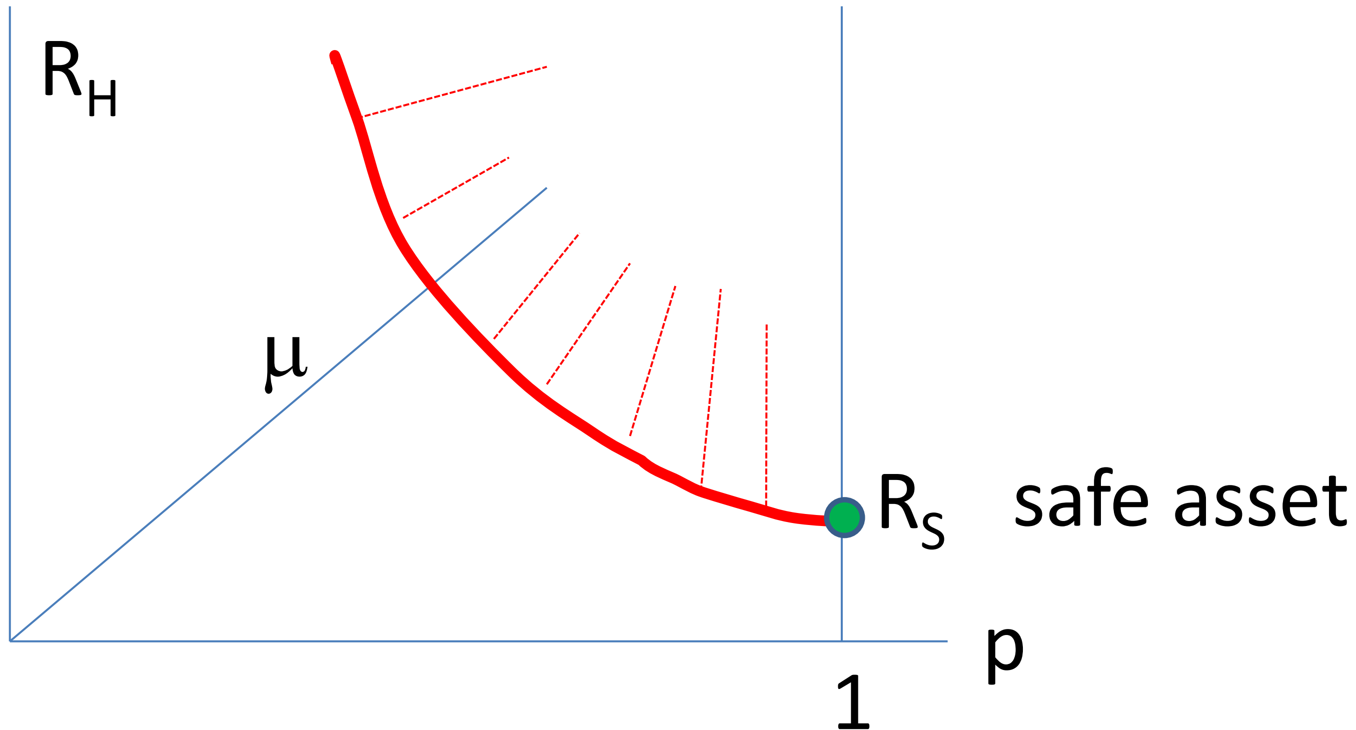
For constant E(R): vary

- p versus μ
- R_H versus μ

Allow choice

More general R-p-μ

Constant E(R) can still be used



More general R-p-μ

- discrete → continuous choice.
  Less danger of artificial results
- The bank might want to set $R_L = 0$.
  Fine! Another evidence for chasing tail risk.
- The safe asset need not be Pareto superior.
  (no loss of results)

Capital may increase risk appetite

- A main result and interesting:
  It shows interaction between mild and tail risk.
- However:
  - result is driven by mild risk ($(1-p)R_L$),
    rather than by tail risk (μR_0)
  - The effect is strong when debt is quite safe:
    when:
    $R_L - D > 0$;
    $(1-p)$ high → μ low

Summary of critical issues

- A main result (ambiguity of capital→risk) is driven by R_L><D, not by tail risk.
- Capital increases risk appetite when there is little risk for deposits (or the insurer).
- More elegant modeling of risk-return?
- Why must the safe asset be Pareto superior?
- Is closing the bank renegotiation proof?

The paper's contribution

- New: interaction between mild and tail risk.
- Simple and transparent model.
- Combines moral hazard and collateral (R_L).
- Is more capital always better? No!
- Yet: result refers to excess capital.
  More *regulatory* capital is always better.
  It unambiguously *decreases* risk appetite.
- Capital does not help against tail risk.

How to control these guys?