What is a safe asset?

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Outline

- Safe asset definitions
- Safety and law of one price
- Identifying safe assets: Negative beta
- Self-fulfilling aspects of safety
- Some evidence on perceived sovereign safety
Safe asset definitions

- Riskless payoff in *real* terms
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- Negative beta assets
  - e.g., Maggiori (2013)
Real safety did not seem to matter much in recent crisis.
What is a safe asset?
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What about German and Danish real estate in Eurozone crisis?

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Examples

- Caballero and Farhi (2014): Marginal investor in safe assets have infinite RA. Pledgeability constraint limits safe asset supply.
- Krishnamurthy and Vissing-Jorgensen (2012): Non-pecuniary benefits of safety
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- AA-Treasury spread sometimes used as LOP violation proxy
What is a safe asset?

Source: BofA Merrill Lynch

Shaded areas indicate US recessions - 2015 research.stlouisfed.org
Negative beta should be a universal characteristic of an asset perceived as safe
- if real safety matters, safe real bonds should rise as crisis prob. rises
- if nominal safety matters, safe nominal bonds should rise as crisis prob. rises
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Different investors may want different type of safety depending on location, regulation, investment horizon.
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- Two states \{no disaster, disaster\} w/ prob. \{1 - \pi, \pi\}

SDF: \{1, \Lambda\}, w/ \Lambda > 1.

Bond payoff: \{1, \delta\}, w/ 0 \leq \delta \leq 1.

Bond price $P_0 = (1 - \pi) + \pi \Lambda \delta$

With fixed $\delta$, $\beta_{\pi} \equiv \text{Cov}(P_0, \pi) / \text{Var}(\pi) = \Lambda \delta - 1$

e.g., for riskless asset, $\delta = 1$, and so $\beta_{\pi} > 0$

i.e., here "negative beta" = positive "disaster prob. beta"
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Payoff in crisis state may depend on beliefs about $\beta^\pi$: e.g., flight to safety

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Example: Suppose

$$f(\beta^\pi) = \begin{cases} 1 & \text{if } \beta^\pi \geq 0 \\ 0 & \text{if } \beta^\pi < 0 \end{cases}$$
What is a safe asset?
Beliefs about $\beta^\pi$ : Influenced by which fundamentals?

$$\frac{B_t + M_t}{P_t} \leq \max_{\theta \in \Theta} E_t \sum_{i=1}^{\infty} \frac{\Lambda_{t+i}}{\Lambda_t} s_{t+i}(\theta)$$

with set of (politically) feasible policies $\Theta$. 

Nominal debt with monetary independence (and w/o monetary dominance):

$E_t[s_{t+i}(\theta)]$ not sensitive to $\pi$.

Seignorage can boost $P_t$ may adjust (FX rate), boost in export that boosts from rollover crisis.

Effectively real debt (currency union, foreign currency debt):

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Seignorage boost not available $P_t$(FX rate) cannot adjust, or counter-productive (foreign currency debt).

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Sovereign safety

- Proxy for $\beta^\pi$ with implied volatility betas
- Annual regressions of weekly 10y bond returns on changes of
  - VIX index
  - VStoxx index
- Focus on 2011 during Eurozone crisis
What is a safe asset?
Implied vol betas and net foreign assets/GDP in 2011

What is a safe asset?
Nominal safety key (in low inflation environment)
Summary: Conjectures

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Conjectures

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- Effective monetary backstop important
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- Government backing important
  - Deposits, ABCP, GSEs, ... with implicit backstop by power to tax & inflate
  - Overcomes pledgeability constraints

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