Uncertainty, the Exchange Rate and International Capital Flows

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Discussion by: Ric Colacito

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Outline

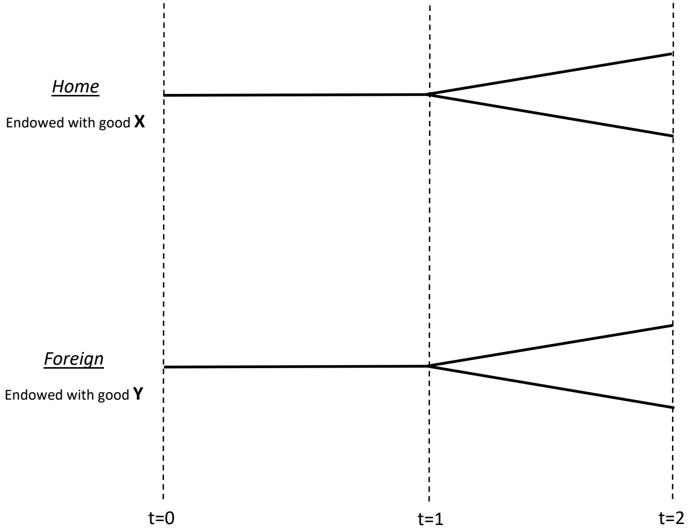
Three types of shocks:

1. uncertainty
2. risk appetite
3. conditional mean

Agenda:

- explain the Backus/Smith/Kollmann anomaly
- highlight common mechanism of three cases
- comments

Case #1: Uncertainty shocks



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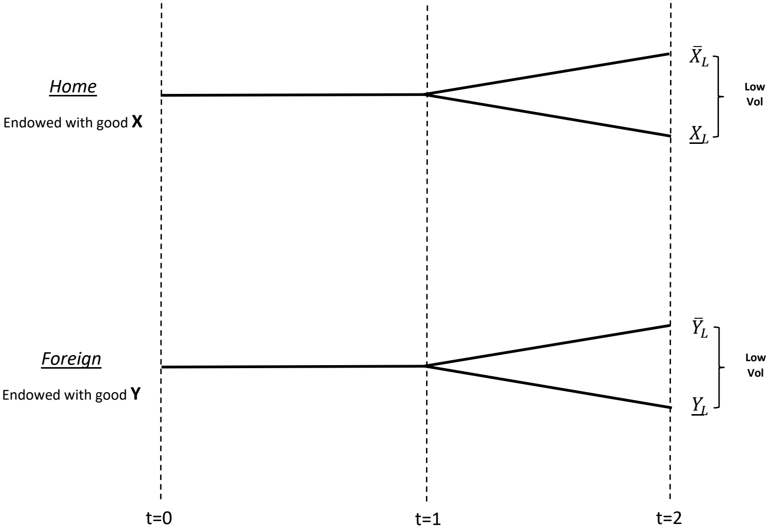

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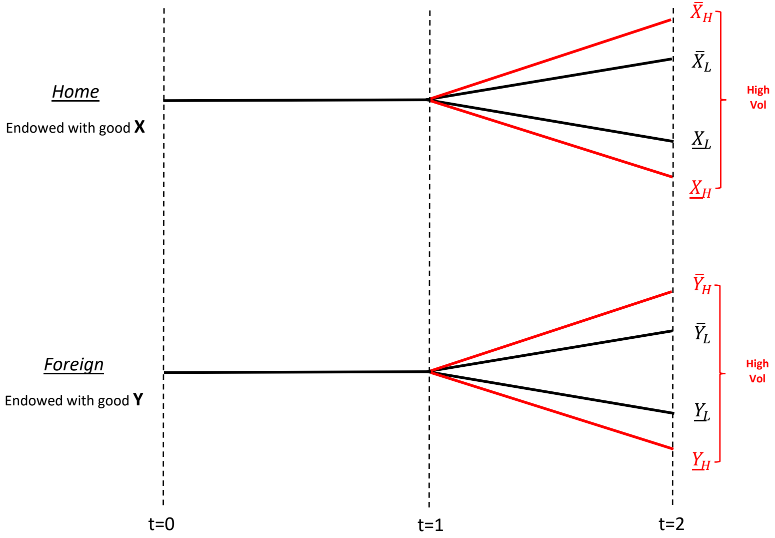

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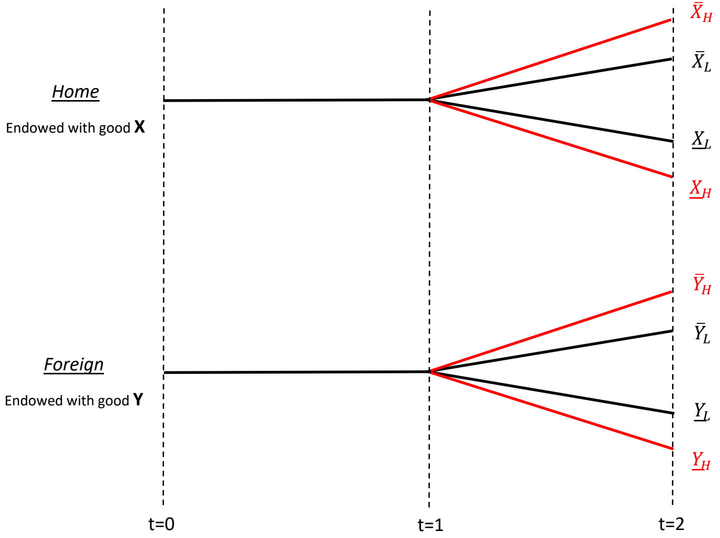

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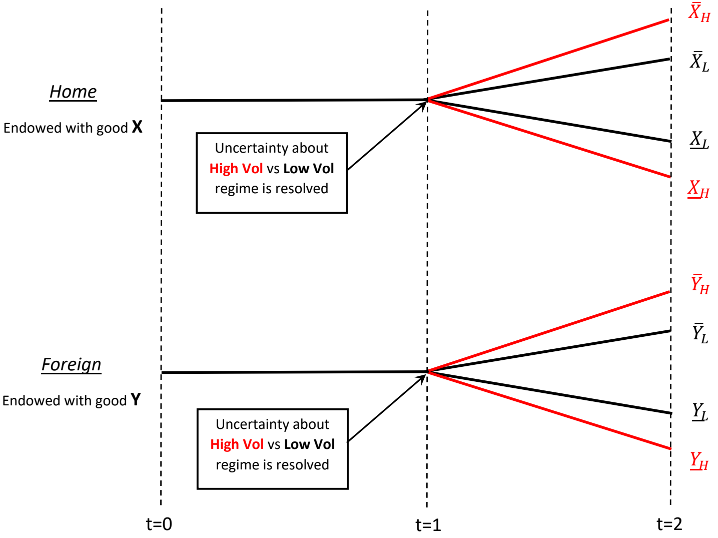

Setup of the economy

- Agents have EZ preferences with unit EIS

$$U_{i,t} = (1-\delta)\log C_{i,t} + \delta\theta \log E_t \exp\left\{\frac{U_{i,t+1}}{\theta}\right\}, \qquad \forall i \in \{h, f\}$$

where $\theta = 1/(1-\gamma)$.

Setup of the economy

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$$U_{i,t} \quad \approx \quad (1-\delta)\log C_{i,t} + \delta E_t[U_{i,t+1}] + \frac{1}{2\theta} V_t[U_{i,t+1}], \quad \forall i \in \{h,f\}$$

where $\theta = 1/(1-\gamma)$. Conditional Variance matters.

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- Preferences are defined over the consumption aggregate

$$C_{h,t} = (x_{h,t})^{\alpha}(y_{h,t})^{1-\alpha} \quad \text{and} \quad C_{f,t} = (x_{f,t})^{1-\alpha}(y_{f,t})^{\alpha}$$

- Consumption bias: $\alpha > 1/2$.
- Complete markets.
- Endowments are defined on previous slide.
- Time is finite: $t = \{0,1,2\}$.

Consumption

- Consumption depends on uncertainty shocks

$$\Delta c_{h,t} = g_h\left(\underbrace{\Delta s_t}_{+}, \Delta x_t, \Delta y_t\right), \quad \Delta c_{f,t} = g_f\left(\underbrace{\Delta s_t}_{-}, \Delta x_t, \Delta y_t\right)$$

where $\Delta s_t = (\gamma - 1)(U_{f,t} - U_{h,t})$.

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  - That is: $Vol_h \uparrow \Rightarrow (\Delta c_h - \Delta c_f) \uparrow$

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- EZ preferences ($\gamma > 1$): $corr\left(\Delta c_h - \Delta c_f, \Delta fx\right) < 1$ ✓

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Date $t = 1$ state by state outcomes

Home Vol	high	high	low	low
Foreign Vol	high	low	high	low

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Home Vol **Foreign Vol**	high high	high low	low high	low low
$\mathbf{U_h}$ $\mathbf{U_f}$	9.080 9.080	9.081 9.084	9.084 9.081	9.084 9.084
$\Delta\log(\mathbf{S})$	0.000	$+0.028$	-0.028	0.000
$\Delta\mathbf{c_h}$ $\Delta\mathbf{c_f}$	2.000 2.000	2.001 1.999	1.999 2.001	2.000 2.000
$\Delta\mathbf{c_h} - \Delta\mathbf{c_f}$	0.000	$+0.002$	-0.002	0.000
$\Delta\log\mathbf{FX}$	0.000	-0.025	$+0.025$	0.000

$\rightarrow$ Negative correlation b/w $\Delta c_h - \Delta c_f$ and $\Delta\log FX$

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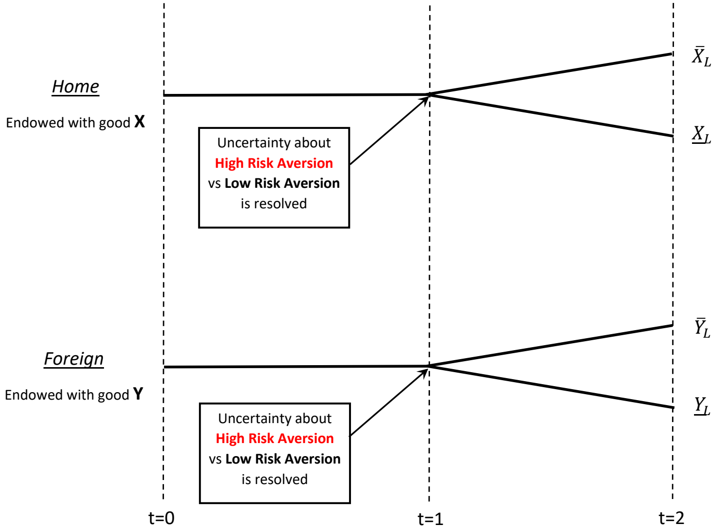

Date $t = 1$ state by state outcomes

Home Risk Aversion	high	high	low	low
Foreign Risk Aversion	high	low	high	low
$\mathbf{U_h}$	9.076	9.076	9.083	9.083
$\mathbf{U_f}$	9.076	9.083	9.076	9.083
$\Delta \log(\mathbf{S})$	0.000	$+0.027$	-0.027	0.000
$\Delta \mathbf{c_h}$	2.000	2.001	1.999	2.000
$\Delta \mathbf{c_f}$	2.000	1.999	2.001	2.000
$\Delta \mathbf{c_h} - \Delta \mathbf{c_f}$	0.000	$+0.002$	-0.002	0.000
$\Delta \log \mathbf{FX}$	0.000	-0.024	$+0.024$	0.000

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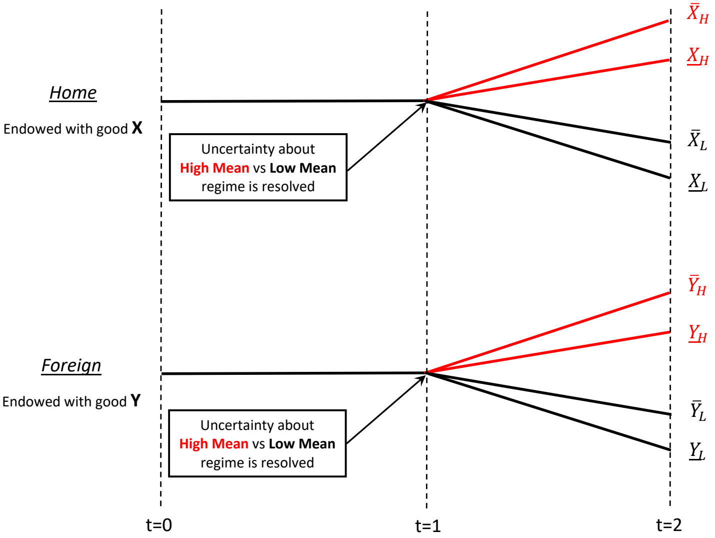

Date $t = 1$ state by state outcomes

Home Exp. growth	high	high	low	low
Foreign Exp. growth	high	low	high	low
$\mathbf{U_h}$	9.18	9.17	8.99	8.99
$\mathbf{U_f}$	9.18	8.99	9.17	8.99
$\Delta \log(\mathbf{S})$	0.00	-0.01	$+0.01$	0.00
$\Delta \mathbf{c_h}$	2.00	1.97	2.03	2.00
$\Delta \mathbf{c_f}$	2.00	2.03	1.97	2.00
$\Delta \mathbf{c_h} - \Delta \mathbf{c_f}$	0.00	-0.06	$+0.06$	0.00
$\Delta \log \mathbf{FX}$	0.00	$+0.65$	-0.65	0.00

$\rightarrow$ Negative correlation b/w $\Delta c_h - \Delta c_f$ and $\Delta \log FX$

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- A very interesting contribution!