‘The replacement of safe assets in the U.S. financial bond portfolio & implications for the U.S. financial bond home bias’
by C. Bertaut, A. Tabova and V. Wong

Discussion - Nicolas Coeurdacier - SciencesPo & CEPR

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The story

- Safe asset scarcity in the U.S. (Global saving glut and collapse of markets of safe assets issued by U.S. financial institutions).

- Foreign financial institutions increased their supply of ‘safe’ assets issued in USD (targeted towards U.S. investors).

- Portfolio rebalancing of U.S. investors towards these assets = fall in home portfolio bias for corporate bonds of financial institutions.
The story: empirical evidence

Paper provides original empirical evidence to back-up the story with a careful treatment of new data.

Home bias for corporate bonds of financial institutions correlates negatively with the share of safe assets issued in USD by foreign financial institutions.

• Holds across time for aggregate (financial) bond home bias.

• Holds also when looking across countries: U.S. bond portfolio biased towards countries issuing larger share of USD ‘safe’ bonds.
Discussion

1. Theory? Channels?
   
   Gambling for yields?
   
   Hedging?
   
   Change in default risks?
   
   Change in transaction costs/information costs?
   
   Change in asset supplies?

2. Empirical identification
Theory

Necessary ingredients:

- Assets/bonds imperfect substitutes: (exogenous) default risk.

- Transaction costs

Similar to Martin and Rey (2004) and Okawa and van Wincoop (2012).

Default risk potentially asymmetric across investors (foreign discrimination, Broner, Martin and Ventura (2009))
Savings, asset supplies and transaction costs

\( y_i \) investors from country \( i \) with one unit of wealth [CARA utility]

World wealth: \( \sum_i y_i = y \)

Asset \( j \), price \( p_j \), quantity \( n_j \).

Transaction cost \( \tau_{ij} > 1 \). Asset price for \( i \): \( \tau_{ij} p_j \)

\( x_{ij} = y_i p_j n_{ij} = \text{wealth invested in asset } j; \sum_j \tau_{ij} p_j n_{ij} y_i = y_i (1 - c_i) \)
Imperfect substitutability

Each asset $j$ pays 1 with proba $1 - \delta_{ij}\pi$ and zero with proba $\delta_{ij}\pi$ ($\pi$ small)

$\delta_{ij} - \delta_{jj} > 0$ proxy for discriminatory default; $|\delta_{ij} - \delta_{jj}|$ small.

Realization of default state $j$ uncorrelated across assets.

$\Rightarrow$ Assets are imperfect substitutes

Remark: independent returns; otherwise asset demand untractable (demand for one asset depends on demands for all other assets). Okawa and van Wincoop (2012).
Portfolio problem

\[ \left( 1 - \sum_{i} \tau_{ij} p_{j} n_{ij} \right) + \beta \left( \sum_{j} \left( \left( 1 - \delta_{ij} \pi \right) n_{ij} - \frac{\gamma}{2} \delta_{ij} \pi n_{ij}^{2} \right) \right) \]

FOC: \[ p_{j} \tau_{ij} + \gamma \delta_{ij} \pi n_{ij} = \beta \left( 1 - \delta_{ij} \pi \right) \]

Market clearing for asset \( j \): \[ \sum_{i} y_{i} n_{ij} = n_{j} \]

\[ p_{j} = \left( \frac{\beta \left( 1 - \delta_{j} \pi \right) - \gamma \delta_{j} \pi \frac{n_{j}}{y}}{\tau_{j}} \right) \]

with \( \tau_{j} = \left( \sum_{i} \frac{y_{i}}{y} \tau_{ij} \right) \) and \( \delta_{j} = \left( \sum_{i} \frac{y_{i}}{y} \delta_{ij} \right) \)
Asset holdings

\[ x_{ij} \approx \frac{y_i}{y} p_j n_j \left( \frac{\delta_j}{\delta_{ij}} \right) \left[ 1 + \mu_j - \mu_j \left( \frac{\tau_{ij}}{\tau_j} \right) \right] \quad \text{with } \mu_j > 0 \]

\[ x_{ij} \approx \left( \frac{y_i}{y} \right) \left( p_j n_j \right) \left( \frac{\delta_j}{\delta_{ij}} \right) F \left( \frac{\tau_{ij}}{\tau_j} \right) \]

\( F(x) \) for \( x > 0 \) continuous function, decreasing such that \( F(1) = 1 \).

*Relative* transaction costs/default risk matters.

Remark 1: No discriminatory default and \( \frac{\tau_{ij}}{\tau_j} = 1 \) then \( x_{ij} = \left( \frac{y_i}{y} \right) n_j p_j \)

Endogenous asset supply? Next important step in this literature.
Home bias

Only two countries/two assets $i$ and $j$

\[
HB_i = 1 - \left( \frac{x_{ij}}{x_{ii} + x_{ij}} \right) / \left( \frac{n_jp_j}{n_ip_i + n_jp_j} \right)
\]

\[
HB_i = \frac{1 - \left( F\left( \frac{\tau_{ij}}{\tau_j} \right) / F\left( \frac{\tau_{ii}}{\tau_i} \right) \right) \left( \frac{\delta_j}{\delta_{ij}} / \frac{\delta_{ii}}{\delta_i} \right)}{1 + \left( \frac{p_jn_j}{p_in_i} \right) \left( F\left( \frac{\tau_{ij}}{\tau_j} \right) / F\left( \frac{\tau_{ii}}{\tau_i} \right) \right) \left( \frac{\delta_j}{\delta_{ij}} / \frac{\delta_{ii}}{\delta_i} \right)} > 0
\]

Remark: $F\left( \frac{\tau_{ij}}{\tau_j} \right) = F\left( \frac{\tau_{ii}}{\tau_i} \right)$ and $\frac{\delta_j}{\delta_{ij}} = \frac{\delta_i}{\delta_{ii}}$ no home bias.
Home bias: comparative statics

\[ HB_i = \frac{1 - \left( \frac{F \left( \frac{\tau_{ij}}{\tau_j} \right)}{F \left( \frac{\tau_{ii}}{\tau_i} \right)} \right) \left( \frac{\delta_j}{\delta_{ij}} / \frac{\delta_{ii}}{\delta_i} \right)}{1 + \left( \frac{p_j n_j}{p_i n_i} \right) \left( \frac{F \left( \frac{\tau_{ij}}{\tau_j} \right)}{F \left( \frac{\tau_{ii}}{\tau_i} \right)} \right) \left( \frac{\delta_j}{\delta_{ij}} / \frac{\delta_{ii}}{\delta_i} \right)} \]

Transaction cost story: increase in \( \left( \frac{F \left( \frac{\tau_{ij}}{\tau_j} \right)}{F \left( \frac{\tau_{ii}}{\tau_i} \right)} \right) \) lowers home bias (demand effect). Intuitive.

Is it \( \tau_{ij} \) falling or \( \tau_j \uparrow \) (more dollar funding by foreign banks)?

Or \( \tau_i \downarrow \) (relatively easier for foreigners to buy U.S. assets)?
Home bias: comparative statics

\[ HB_i = \frac{1 - \left( F\left( \frac{\tau_{ij}}{\tau_j} \right) / F\left( \frac{\tau_{ii}}{\tau_i} \right) \right) \left( \frac{\delta_j}{\delta_{ij}} / \frac{\delta_{ii}}{\delta_i} \right)}{1 + \left( \frac{p_j n_j}{p_i n_i} \right) \left( F\left( \frac{\tau_{ij}}{\tau_j} \right) / F\left( \frac{\tau_{ii}}{\tau_i} \right) \right) \left( \frac{\delta_j}{\delta_{ij}} / \frac{\delta_{ii}}{\delta_i} \right)} \]

Discriminatory default story: increase in \( \left( \frac{\delta_j}{\delta_{ij}} / \frac{\delta_{ii}}{\delta_i} \right) \) lowers home bias.

Is it \( \left( \frac{\delta_j}{\delta_{ij}} \right) \uparrow \) (harder for foreign banks to default on USD liabilities; or for foreign banks relative to foreign sovereigns)?

Or \( \delta_i \downarrow \) (less discriminatory default risk on U.S. assets)?
Home bias: comparative statics

Asset supply story: increase in \( \left( \frac{p_j n_j}{p_i n_i} \right) \) lowers the home bias (supply effect). Not so intuitive. At the margin, home investors buy more of domestic bonds. If their share increases, so does home bias.

\[
\left( \frac{x_{ii}}{x_{ij}} \right) = \left( \frac{n_i p_i}{n_j p_j} \right) \left( F \left( \frac{\tau_{ii}}{\tau_i} \right) / F \left( \frac{\tau_{ij}}{\tau_j} \right) \right) \left( \frac{\delta_j}{\delta_{ij}} / \frac{\delta_{ii}}{\delta_i} \right) > \left( \frac{n_i p_i}{n_j p_j} \right)
\]

Faster deleveraging of U.S. banks/increase in default rates on assets issued by U.S. banks would go that way (or relatively more funding needed by foreign banks).

Combination of the potential channels? Would be nice to isolate the channels. Could look at home bias of ROW (and its composition).
Identification issues

- Empirical specification
- Other assets?
- More disaggregated evidence?
Empirical specification

Be heroic: $\log F\left(\frac{\tau_{ijt}}{\tau_{jt}}\right) \approx -\theta(\tau_{ijt} - \tau_{jt})$. At date $t$:

$$
\log(x_{ijt}) = \log\left(\frac{y_{it}}{y}\right) + \log(p_{jt}n_{jt}) - \theta(\tau_{ijt} - \tau_{jt}) - (\delta_{ijt} - \delta_{jt}) + \varepsilon_{ijt}
$$

$$
\log(x_{ijt}) = \alpha_{it} + \alpha_{jt} - \theta\tau_{ijt} - \delta_{ijt} + \varepsilon_{ijt}
$$

Gravity equation for asset trade. Similar to trade literature.

Need country/time fixed effect in both dimension to properly identify impact of transaction costs (also accommodate for multilateral resistance factor in the country $i$ dimension)

Issue when estimating gravity with only one source country
Empirical specification

Gravity with $i = U.S.$: $\log(x_{jt}) = \alpha_t + \log(p_{jt}n_{jt}) - \theta \tau_{jt} + \gamma Z_j + \varepsilon_{ijt}$

1. Need to control for source/time FE. Done in the paper through time effects.

2. Relative transaction costs matter. Taken care of if control for destination country fixed effect. Done in the paper but has to be constant over time.

Both treatments could be misspecified. Intuition? Imagine transaction costs increase across the board but less so for the U.S. for assets issued by foreign banks (or less so for assets issued by U.S.) $\Rightarrow$ overstatement of the effect

Remark: taking advantage of internal asset trade solves partially the problem: $\log(\frac{x_{ijt}}{x_{iit}}) = \alpha_{jt} - \theta \tau_{ijt} + \varepsilon_{ijt}$
Other assets?

Partial picture of U.S. portfolio of securities beyond the absence of ‘trade partners’.

- Foreign deposits? Close substitutes to corporate bonds issued by financial institutions. Increase in foreign debt holdings or just substitution across types of debt.

- Equity home bias stable but can be rebalancing across sectors like for bonds. Fall in equity holdings of foreign banks vs increase in other sectors

More disaggregated evidence?

Which banks? Possibility to match security level data with firm level financial data?
Conclusion


Make use of an original dataset carefully constructed.

Still partial picture of the story. Difficult to assess the full mechanism when looking only from the U.S. point of view.

More disaggregated data at the security level could also help to better understand the channel.