Residency-to-Nationality Issuance Distribution Matrices

Antonio Coppola* Matteo Maggiori† Brent Neiman‡ Jesse Schreger§

September 2020, Version 1

This README file provides documentation for the series of downloadable .XLS files containing distribution matrices that restate bond and equity securities outstanding from a residency to a nationality basis. These matrices are estimated using commercially-available data on bond and equity issuance discussed in detail in Coppola et al. (2020). We use the algorithm developed by Coppola et al. (2020) to aggregate securities across corporate subsidiaries up to the ultimate parent company. We request that users of these data acknowledge their source and recommend inclusion of the following sentence:

> "These data are based on the work in Coppola et al. (2020) and were obtained from: www.globalcapitalallocation.com".

The downloadable files include:

- Issuance_Distribution_Matrix_Y_T.xls: Files containing the distribution matrices,
- Country_Names.xls: File containing a mapping from country ISO3 codes (used to index matrices) to country names,

where "Y" indexes asset classes and "T" indexes years. For example, the matrix used to restate the amount of corporate bonds outstanding from a residency basis to a nationality basis as of December 2017 is the file

"Issuance_Distribution_Matrix_Corporate_Bonds_2017.xls".

We include matrices estimated separately for the asset classes: equity, all bonds, and corporate bonds. This release of the data includes matrices estimated for the years 2007 to 2017. The matrices are always estimated using data as of the last reporting date of the year (December).

1 Methodology

For a given asset class, let $b_{i,t}^{\mathcal{R}}$ denote the dollar value of securities outstanding issued by entities resident in country i at the end of year t.[1] Let $b_{i,k,t}^{\mathcal{R}\to\mathcal{N}}$ denote the dollar value of these securities

*Coppola: Harvard University, Department of Economics. Email: acoppola@g.harvard.edu.
†Maggiori: Stanford University, Graduate School of Business, NBER, and CEPR. Email: maggiori@stanford.edu.
‡Neiman: University of Chicago, Booth School of Business, NBER, and CEPR. Email: brent.neiman@chicagobooth.edu.
§Schreger: Columbia Business School and NBER. Email: jesse.schreger@columbia.edu.

[1] To save on notation, we do not index these values by asset class. For debt we use notional values, for equities we use market values. We include only common equities in the equity matrices and in particular exclude fund shares. All amounts outstanding are converted to USD using end-of-period exchange rates.

that, under nationality rather than residency, would be associated instead with issuer country k rather than i, such that $b^{\mathcal{R}}_{i,t} = \sum_k b^{\mathcal{R}\to\mathcal{N}}_{i,k,t}$. We then define an entry $\theta_{i,k,t}$ in our distribution matrix for country j as:

$$\theta_{i,k,t} = \frac{b^{\mathcal{R}\to\mathcal{N}}_{i,k,t}}{b^{\mathcal{R}}_{i,t}}. \tag{1}$$

We collect the elements $\theta_{i,k,t}$ over all rows i and columns k in the issuance distribution matrix Θ_t:

$$\Theta_t = \begin{bmatrix} \theta_{1,1,t} & \theta_{1,2,t} & \theta_{1,3,t} & \dots \\ \theta_{2,1,t} & \theta_{2,2,t} & \theta_{2,3,t} & \dots \\ \theta_{3,1,t} & \theta_{3,2,t} & \theta_{3,3,t} & \dots \\ \vdots & \vdots & \vdots & \ddots \end{bmatrix}, \tag{2}$$

where each row of Θ_t sums to one. These matrices are a convenient way to present summary statistics in support of our research. These matrices summarize where bonds and equity outstanding in each country by residency are distributed to on a nationality basis.

References

Coppola, Antonio, Matteo Maggiori, Brent Neiman, and Jesse Schreger, "Redrawing the map of global capital flows: The role of cross-border financing and tax havens," *Working Paper*, 2020.