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Article

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The Global Capital Allocation Project

Matteo Maggiori, Brent Neiman, and Jesse Schreger

In recent decades, global flows of assets and goods have grown rapidly relative to GDP and have shifted aggressively during crises such as the global financial crisis and the current pandemic. Corporations and governments increasingly borrow from foreign investors, who face more options for allocating their capital in terms of asset class, currency, and geography. A sense of “who owns what” around the world, and why, is required to understand what these trends mean for the global economy. Our research aims to expand this under-

standing and explores the key elements driving global capital allocation.

Our work demonstrates the preference of investors for assets denominated in their own currency and details the consequences of this home currency bias for firm financing around the world. We find that the global demand for dollar-denominated assets implies that American firms have special access to global markets because they do not need to borrow in foreign currency to borrow from foreign investors. In recent work, we restate bilateral investment

positions around the world by unwinding investments made in tax havens such as the Cayman Islands. This new map of capital allocation shows much larger bond investments by large developed countries in emerging economies such as Brazil, China, and Russia. The use of tax havens by large Chinese firms distorts our understanding of China as a global creditor. Finally, we organize the accompanying tools and data so that other users in academia and among policymakers can build on them.



Matteo Maggiori is an associate professor of finance at Stanford University's Graduate School of Business. His research focuses on international macroeconomics and finance. He is a cofounder and director of the Global Capital Allocation Project.

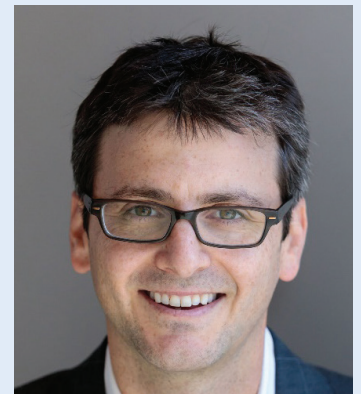
Maggiori's research topics have included the analysis of exchange rate dynamics, global capital flows, the international financial system, the role of the dollar as a reserve currency, tax havens, bubbles, expectations and portfolio investment, and very long-run discount rates. His work combines theory and data with the aim of improving international economic policy.

Maggiori is a research associate affiliated with the NBER's International Finance and Macroeconomics, Asset Pricing, and Economic Fluctuations and Growth programs, and a research affiliate at the [Center for Economic Policy Research](#). He received his PhD from the University of California, Berkeley. Among a number of honors, he is the recipient of the 2021 Fischer Black Prize for the best financial economist under age 40, a 2019 Guggenheim Fellowship, and the 2019 Carlo Alberto Medal for the best Italian economist under age 40.

Brent Neiman is the Edward Eagle Brown Professor of Economics at the University of Chicago's Booth School of Business. He conducts research on international macroeconomics, finance, and trade.

Neiman is a cofounder and director of the Global Capital Allocation Project and director of the Initiative on International Economics at the Becker Friedman Institute. He is an executive board member of Chicago Booth's Initiative for Global Markets, a research associate in the NBER's International Finance and Macroeconomics and International Trade and Investment programs, a research fellow at the [Center for Economic Policy Research](#), and an associate editor of the *American Economic Review*, *The Quarterly Journal of Economics*, and the *Journal of International Economics*. He previously served as the staff economist for international finance on the White House Council of Economic Advisers and worked at the Federal Reserve Bank of Chicago and McKinsey and Company.

He has been the recipient of an Alfred P. Sloan Research Fellowship in Economics, was named an [Emerging Leader](#) by the Chicago Council on Global Affairs, and has been a corecipient of the Economics in Central Banking Award and the AQR Insight Award. Neiman was awarded the Thouron Fellowship, which funded his graduate studies at Oxford, after earning both a Bachelor of Science in economics and a Bachelor of Applied Science from the University of Pennsylvania. He earned a master's degree from Oxford University and completed his PhD in economics at Harvard University.



Microdata in International Macro

In recent years, large-scale data collection by public institutions and commercial data providers has made it possible to go beyond aggregate statistics to reach a better understanding of how capital is allocated globally. Our work uses security-level holdings from mutual funds worldwide, US insurance companies, and the Norwegian sovereign wealth fund, together with various firm and security-level datasets on corporate ownership chains around the world, to better understand key patterns and determinants of global portfolio investment.

Cross-Border Financing and Tax Havens

In recent research with Antonio Coppola, we use these data to restate bilateral investment positions after taking into account the fact that companies often borrow from international investors through affiliates in tax havens and other financing centers.¹ For example, official data show that the Cayman Islands account for 14 percent of all for-

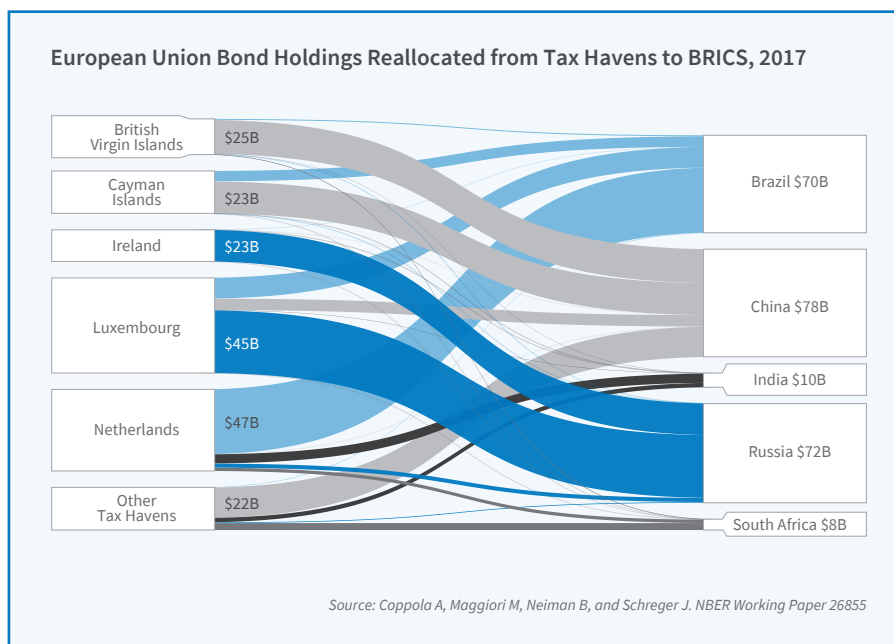


Figure 1

eign stock and bond positions held by American investors, a staggeringly large share for a country with a GDP of only about \$5 billion. These positions clearly reflect the fact that companies with operations in third countries often raise money from Americans using foreign financing affiliates. Researchers have been long aware of this problem, but a key contribution of our work is to provide a way to reallocate these positions and associate them with the country of the financing affiliate's parent company rather than with the country of the shell company, as in official statistics.

Using microdata on investor holdings, we look security-by-security at the differences between the country where the immediate issuer is based and the

country where the issuer's parent company is located. We then apply the resulting patterns of reallocation that we find in our micro positions to the aggregate positions reported by the IMF or US Treasury. For example, we find that about 8 percent of European Monetary Union (EMU) investment positions in the Cayman Islands in bonds reflect issues from firms whose ultimate parents are based in Brazil, such as a Cayman Islands-

based affiliate of Petrobras, the Brazilian energy giant. Our procedure, therefore, assumes that about 8 percent of all bond positions held by EMU investors in the Cayman Islands, as reported by official statistics, should instead be associated with Brazil.

Applying this procedure, we find that developed country investors have significantly more bond positions in large emerging markets than are shown in the official data. Figure 1 shows, for example, how this procedure generates a reallocation of bond positions for the EMU from tax havens to Brazil, Russia, India, China, and South Africa. This pattern generally holds across all developed investor countries that we analyze.

We also find that developed coun-



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Schreger is a cofounder and director of the Global Capital Allocation Project, a faculty research fellow at the NBER, a research affiliate at the Center for Economic Policy Research, and an associate editor of the *Journal of International Economics*. He has been the recipient of a Sloan Research Fellowship and the **AQR Asset Management Institute Young Researcher Award**, and has been a corecipient of the Economics in Central Banking Award and the AQR Insight Award.

He received his PhD in political economy and government from Harvard University and his BA in economics and international relations from the University of Pennsylvania.

tries have far larger equity investment positions in China than are shown in official data. Many large and prominent Chinese firms, such as Tencent and Alibaba, issue equity through affiliates listed in the Cayman Islands as part of a structure designed to circumvent Chinese inward investment restrictions. We show that over the last 15 years, China's net foreign assets have undergone a substantial adjustment, leading China today to be only half as large a creditor as the official data report. This adjustment, due to valuation effects, had previously gone unnoticed, despite intense academic and policy interest, because of the complexity of the offshore corporate structures.

Home-Currency Bias and the International Role of the Dollar

In addition to shedding light on the geography of economic linkages, our work highlights factors that play a critical role in shaping investor portfolios. Figure 2 shows a dichotomy between the currency of corporate bonds purchased by domestic residents and foreign investors in each country. For all countries but the United States, domestic investors lend in the domestic currency but foreign investors do not. The United States is different in that both residents and foreigners finance US firms in dollars. Instead of lending in the borrower's

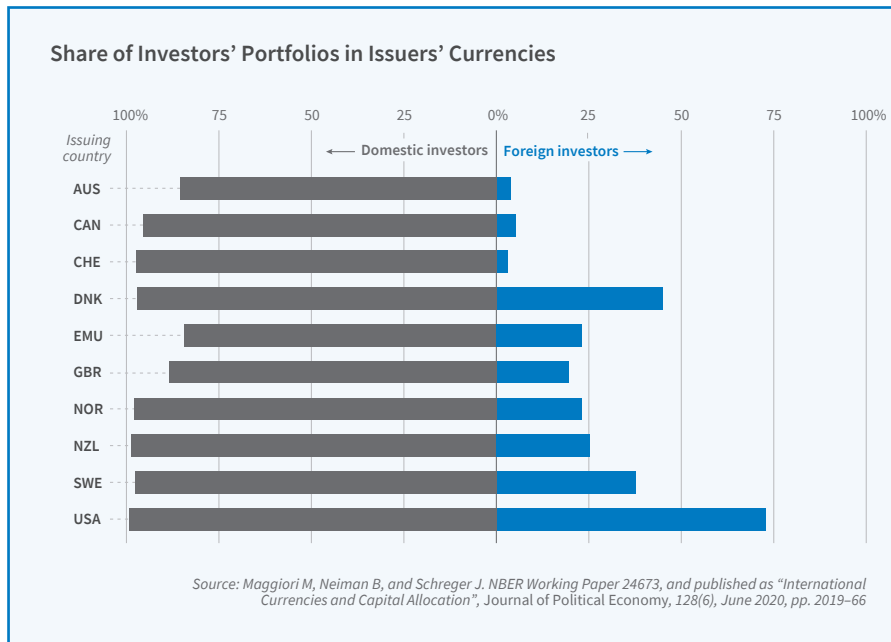


Figure 2

currency, investor portfolios are characterized by home-currency bias, the tendency to overweight bond securities denominated in the investor country's home currency.² Canadian investors, for example, hold a disproportionately large share of the Canadian dollar bonds issued by European companies. We demonstrate that, for bonds, a home-currency indicator has greater explanatory power for the pat-

tern of global security holdings than a home-country indicator does. For the majority of companies that issue bonds only in their local currency, this means that they less commonly raise money from foreign investors than from domestic investors, and it conveys a financing advantage to the typically larger firms that issue bonds in multiple currencies. US companies are exceptional in this regard. While small firms in most countries that issue only local-currency bonds rarely place their bonds in foreign portfolios, the dollar bonds issued by US firms make up a large share of foreign investors' portfolios. Our results suggest a novel benefit of issuing in an international currency like the US dollar: it opens up the capital account for small- and medium-sized firms that borrow by issuing local currency bonds.

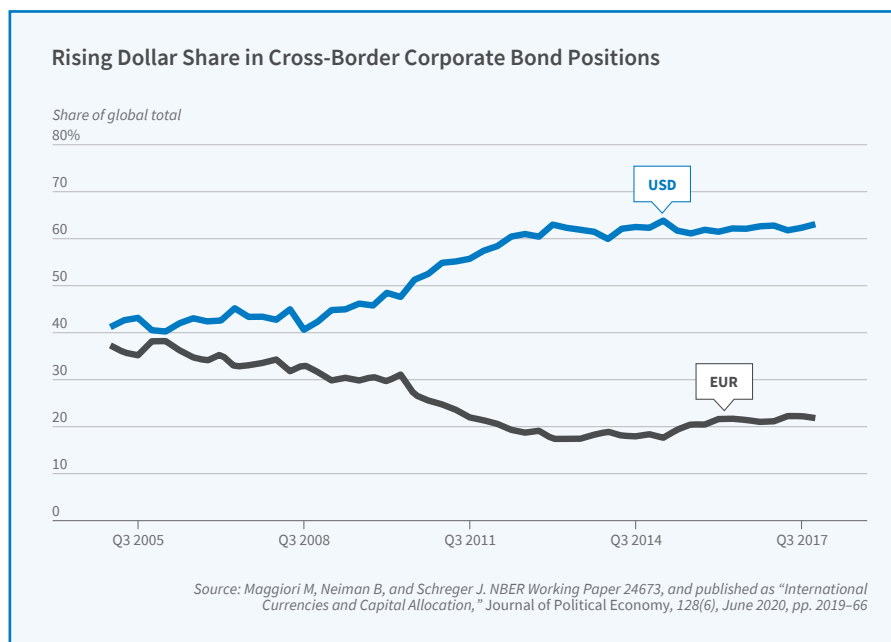


Figure 3

Given that the United States was at the center of the global financial crisis of 2008 and the subsequent rhetoric and policies on US trade restrictions, one might wonder if the global role of the dollar declined since 2009. Figure 3 shows, instead, that the use of the dollar to denominate bonds held cross-border has increased significantly. Whereas before the crisis the dollar was used to denominate roughly 40 percent

of cross-border corporate bond positions — where the issuer and borrower reside in different countries — that share rose to more than 60 percent by the end of 2017.

There has also been a decline during this period in the role of the euro in denominating corporate bonds held by foreign investors. In another study, we consider a number of different roles of international currencies, including their use invoicing trade, in global foreign exchange trading, as central bank reserves, and as an anchor or reference currency. In each of these dimensions, growth in use of the euro generally lags, and at best equals, that of the dollar.³

In addition to the rising use of the dollar as the international currency after the global financial crisis, changes emerged around that same time in the dynamics of the dollar's value. In a recent study with Andrew Lilley, we show that whereas the contemporaneous correlation of the US dollar's value and measures of global risk appetite such as the change in equity market returns and

implied volatility was close to zero in monthly data spanning 1990–2007, the dollar's value subsequently closely co-moved with these measures.⁴ In addition, in the period following the crisis, the dollar's value closely co-moved with US purchases of foreign bonds, a rare example of a high-frequency connection between exchange rates and portfolio quantities.

Data on Global Portfolios

To further advance the study of global capital markets, our [Global Capital Allocation Project](#) website provides a number of tools as well as summary data that we hope will make it easier for other researchers to work on these issues. The growing scale and continuing shifts in cross-border financial linkages make it more important than ever to better document and understand the drivers of global capital allocation.

¹ [“Redrawing the Map of Global](#)

[Capital Flows: The Role of Cross-Border Financing and Tax Havens,”](#) Coppola A, Maggiori M, Neiman B, Schreger J. NBER Working Paper 26855, December 2020.

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² [“International Currencies and Capital Allocation,”](#) Maggiori M, Neiman B, Schreger J. NBER Working Paper 24673, April 2019, and *Journal of Political Economy* 128(6), June 2020, pp. 2019–2066.

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³ [“The Rise of the Dollar and Fall of the Euro as International Currencies,”](#) Maggiori M, Neiman B, Schreger J. NBER Working Paper 25410, December 2018, and *AEA Papers and Proceedings* 109, May 2019, pp. 521–526.

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⁴ [“Exchange Rate Reconnect,”](#) Lilley A, Maggiori M, Neiman B, Schreger J. NBER Working Paper 26046, December 2019, and *Review of Economics and Statistics*, 2021, forthcoming.

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