How Do We Listen to Our Audiences? We Anticipate Their Needs

Andrew H. McCallum
Board of Governors of the Federal Reserve System

Sixth Statistics Conference
“The Power of Data for a Smart World”

Any opinions and conclusions expressed herein are those of the author and do not necessarily represent the views of the Board of Governors of the Federal Reserve System, or any other person associated with the Federal Reserve System.

A faster horse

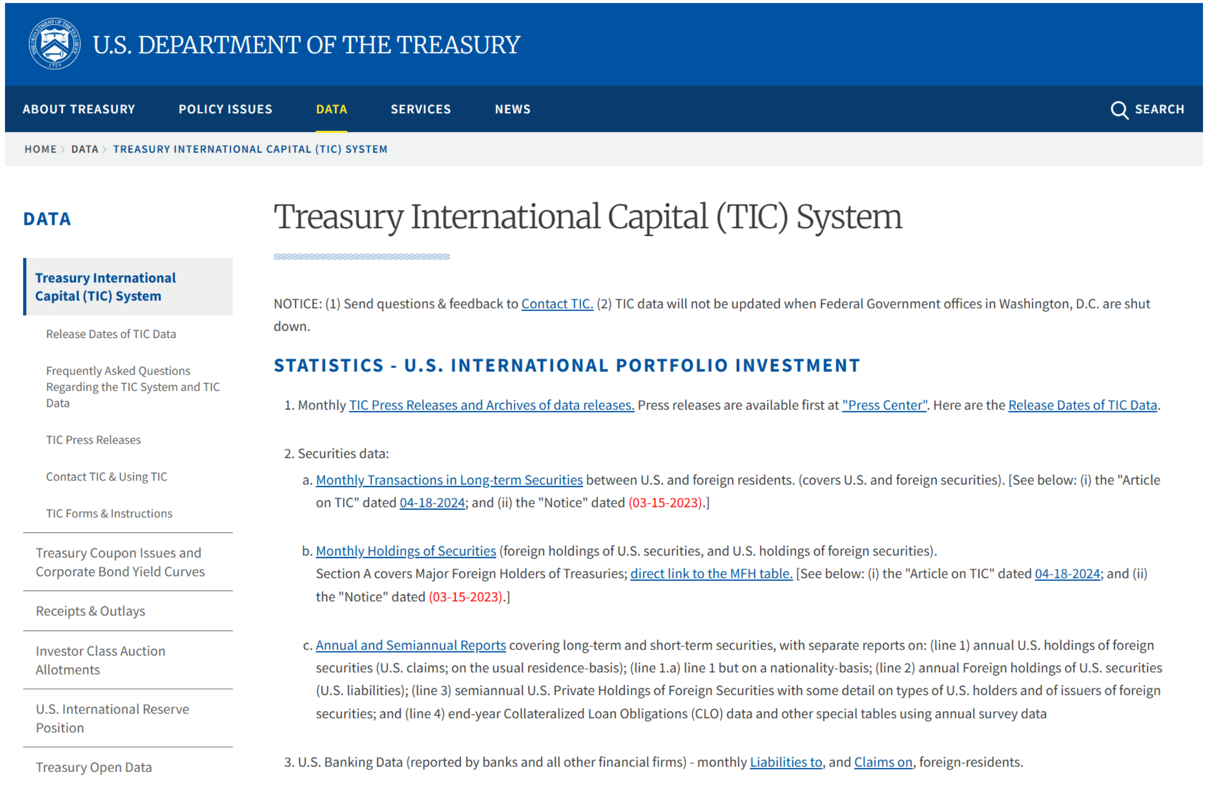
"Some people say give the customers what they want, but that's not my approach. Our job is to figure out what they're going to want before they do. I think Henry Ford once said, 'If I'd ask customers what they wanted, they would've told me a faster horse.' People don't know what they want until you show it to them. That's why I never rely on market research. Our task is to read things that are not yet on the page."

-Steve Jobs

(Source: Business Insider)

Treasury International Capital System

- The Treasury International Capital (TIC) system collects cross-border banking and securities position and transaction data:
  - Banking and Securities **liabilities**:
    - Holdings of U.S. securities by foreign residents (most notably Treasuries)
    - Banking positions at U.S. institutions by foreign residents
  - Banking and Securities **claims**:
    - Holdings of foreign securities by U.S. residents
    - Banking positions at foreign institutions by U.S. Residents
  - Transactions
    - Sales and purchases between U.S. residents and foreign residents
    - Reported for securities and derivatives



The actors in TIC data collection and processing

- U.S. Treasury (UST)
  - Holds legal authority to collect and disseminate the data.
  - Controls data access and, with Board advice, makes decisions about publication.
  - Publishes data on a monthly, quarterly, and annual basis to the public at on the Treasury TIC website
- Federal Reserve Bank of New York (FRBNY)
  - Collects data, interacts with data reporters, reviews data
  - Point of contact for reporters
- Board of Governors of the Federal Reserve System (Board)
  - Reviews data and develops methodology for data review
  - Prepares data and reports for UST
  - Distributes data externally to our audience

Who is our audience?

- Board Governors, International Division, Global Financial Flows section
    - Analysis used in policy work for briefings and weekly readouts
- Other sections within the board
    - Flow of Funds (FOF): Source of U.S. Financial Accounts (Z.1) rest of world sector for securities and banking
- Bureau of Economic Analysis (BEA)
    - Primary source of portfolio data in Balance of Payments (BOP) and International Investment Position (IIP)
- International Monetary Fund (IMF)
    - Primary source for U.S. data provided to IMF on cross-border securities and banking activity.
        - Special Data Dissemination Standard (SDDS): U.S. debt service obligations
        - Coordinated Portfolio Investment Survey (CPIS): U.S. private securities holdings
        - Securities Held as Foreign Exchange Reserves (SEFER): FX reserve assets holdings
- The public (examples on next slide)
    - Media publications
    - Research papers

Examples of external use

Contents lists available at ScienceDirect

Journal of International Money and Finance

journal homepage: www.elsevier.com/locate/jimf

Geopolitical risk and U.S. foreign portfolio investment: A tale of advanced and emerging markets☆

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International capital flows and U.S. interest rates

Francis E. Warnock [a b c], Veronica Cacdac Warnock [d]

Screenshots from Science Direct

Foreign holdings of US Treasuries top $9 trillion in March, data shows

By Gertrude Chavez-Dreyfuss

May 16, 2025 6:06 PM EDT · Updated 13 days ago

Aa

U.S. dollar banknotes are seen in this photo illustration taken February 12, 2018. REUTERS/Jose Luis Gonzalez/Illustration/File Photo Purchase Licensing Rights

NEW YORK, May 16 (Reuters) - Foreign holdings of U.S. Treasuries soared to a record high in March, data from the Treasury Department showed on Friday, rising for a third straight month, as demand for U.S. government debt remained robust a few months after President Donald Trump took office.

Holdings of U.S. Treasuries surged to $9.05 trillion in March, an all-time peak and up more than $233 billion from $8.81 trillion in February. Compared with a year earlier, Treasuries owned by foreigners rose nearly 12%.

Data also showed that UK investors have overtaken China as the second largest non-U.S. holder of Treasuries, with holdings of $779 billion. UK is typically considered a custodial account, which is generally a proxy for hedge funds. Other countries used by hedge funds for custody services include Cayman Islands and the Bahamas.

Japan remains the biggest Treasury debt holder, with a stash of $1.13 trillion in March, up about 0.4% from the $1.126 trillion held in February. Japan's load of Treasuries rose for a second straight month.

China, on the other hand, reduced its stash of Treasuries to $765.4 billion in March, down from $784.3 billion the previous month. In December last year, China's holdings were $759 billion, the lowest since February 2009 when the country's stock of Treasuries dropped to $744.2 billion.

Screenshots from Reuters

Markets Magazine | The Big Take

Asia's $7.5 Trillion Bet on US Assets Is Suddenly Unravelling

Trump's policies are turning US markets from a haven into a source of volatility and pain.

By Ruth Carson, Masaki Kondo, Rebecca Choong Wilkins, and Diana Li

May 27, 2025 at 5:00 PM EDT

Save Translate

For decades, Asia's export powerhouses had a simple financial strategy: Sell goods to the US, then invest the proceeds in American assets.

That model is now facing its biggest threat since the 2008 global financial crisis as Donald Trump tries to remake global trade and the US economy – upending the logic behind $7.5 trillion of investments from Asia. Some of the world's biggest money managers say an unwind is just getting started.

Treasuries Threat

China had already been cutting back on its investments given a worsening relationship with the US.

Data from the US Treasury show that the Asian nation sold a net $172 billion worth of American equities and bonds last year, adding to the $64 billion in 2023. The data may be incomplete, with some analysts pointing out that Chinese funds could have masked purchases of those securities through proxies in other countries. Still, the years of reductions and a decline in Treasury holdings in March indicate that the risks of such a historic readjustment aren't one-sided. There's danger for US markets, too.

Screenshots from Bloomberg

How do we listen to our audiences?

- Dialog
  - Weekly and ad hoc calls between UST, FRBNY, and Board
  - Quarterly TIC user group meetings of BEA, FRBNY, UST, and Board
- Anticipating their needs
  - First example: we anticipate their questions
  - Second example: we anticipate their consumption

First example: we anticipate their questions

- April 2023, first tranche of new collection published
- Anticipate questions about this new data
  - What new aspects will be most unfamiliar to our old users?
  - What subtleties can be reexplained?
  - How will the new data be used relative to the past?
- Wrote extensive FAQ to accompany the new data
- April 2024, second tranche of new collection published
  - Published FEDS Note to publicize, explain new concepts, and compare to deprecated collection

FEDS Notes

April 18, 2024

Introducing New Valuation Change Data for U.S. Cross-Border Portfolio Holdings

Andrew H. McCallum, Laura DeMane, Nyssa Kim, Emily Liu, Andrew Loucky[1]

Introduction

The most comprehensive data on cross-border capital holdings for the United States come from the Treasury International Capital (TIC) system. These data inform the official U.S. balance of payments statistics and are crucial for understanding U.S. capital flows, their causes, and their effects on the U.S. economy. The U.S. Treasury

Second example: we anticipate their consumption

- Redesigned new publication tables to be:
  - Machine readable
  - Readable on mobile
- Board produces two 100-page long TIC reports each year:

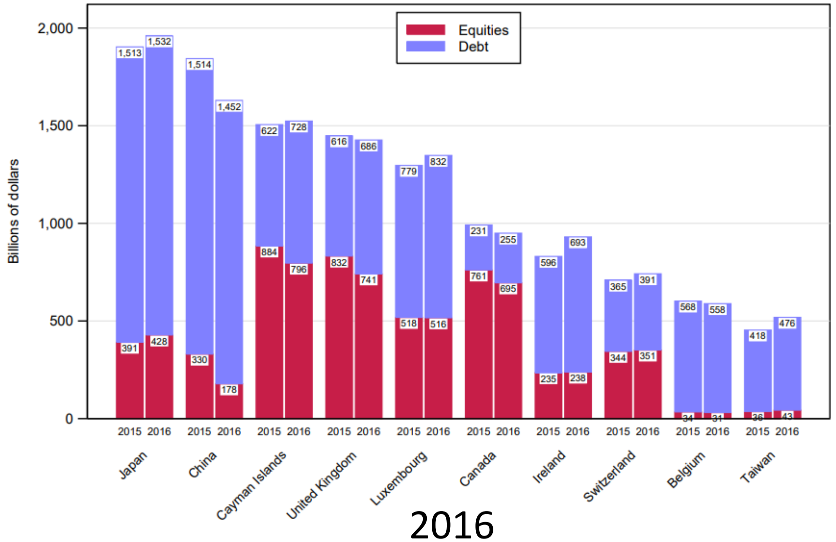
1. LaTeX for easier reading and navigation
2. Introduction of graphics and subsequent improvements
3. Implementing Board’s graphics guidelines
4. Reformatting tables for visual clarity
5. Appendix tables and creating hyperlinks
6. Standardizing to accessible and free font

2. Introduction of graphics and subsequent improvements

Table 6: Value of foreign holdings of U.S. securities, by major investing country and type of security, as of June 30, 2015
Billions of dollars

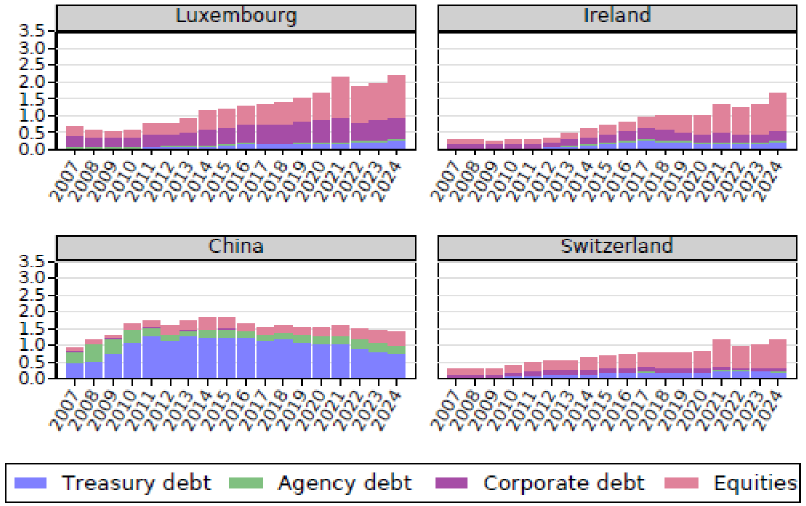
Country	Total	Equities	Treas. LT debt	Agency LT debt		Corp. LT debt		ST debt
				ABS[1]	Other	ABS[1]	Other	
Japan	1,903	391	1,123	132	21	13	148	75
China[2]	1,844	330	1,268	208	14	6	14	3
Cayman Islands	1,506	884	135	18	6	96	269	97
United Kingdom	1,448	832	172	6	3	23	370	42
Luxembourg	1,297	518	135	22	7	47	470	98
Canada	992	761	48	2	2	32	123	24
Ireland	831	235	174	28	8	37	229	120
Switzerland	708	344	191	11	6	21	108	27
Belgium	602	34	196	2	3	24	329	13
Taiwan	454	36	174	188	*	1	52	2
Country Unknown	99	1	*	*	*	*	98	0
Rest of world	5,451	2,290	1,835	123	68	111	595	429
Total	**17,134**	**6,655**	**5,450**	**742**	**138**	**412**	**2,805**	**932**
Of which: Holdings of foreign official institutions	*5,794*	*961*	*3,806*	*379*	*77*	*21*	*146*	*403*

2015



2016

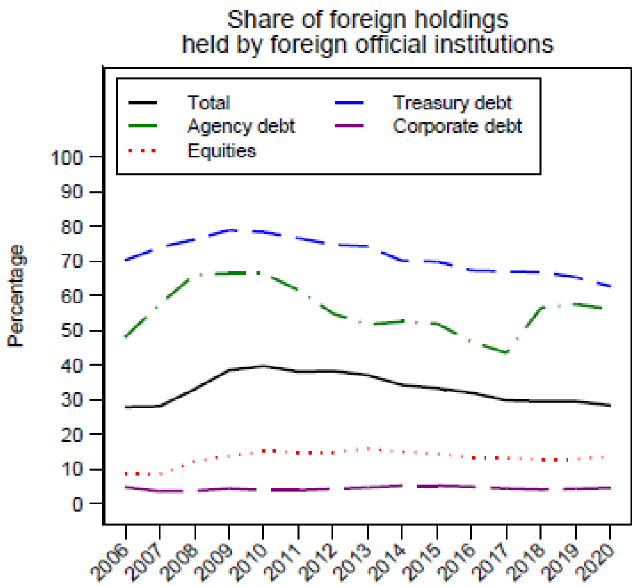
- No data visualizations to accompany tables in 2015. Figures added in 2016.
- Limited data range in figures including multiple countries despite availability (see below)
- Added more detail on security types for each country (see below)



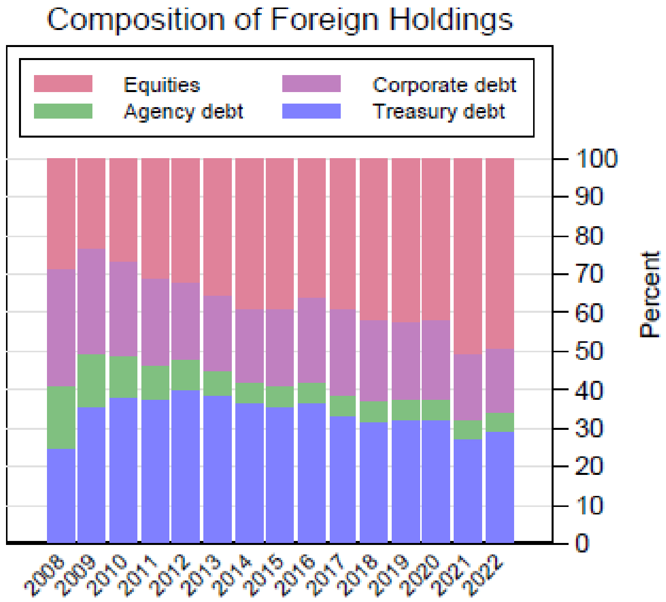
2024

3. Implementing Board's graphics guidelines: an example

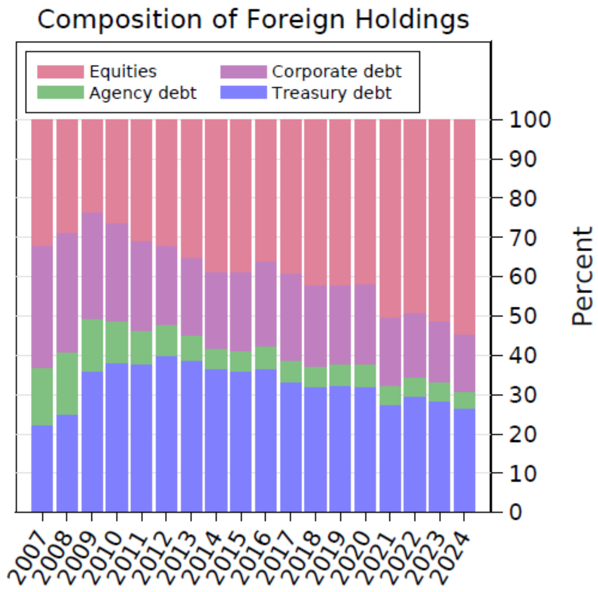
- Suitability of chart style.
  - Bar easier to interpret visually
- Consistency in colors across panels.
  - Example: Agency debt is green throughout the entire report
- Clear ticks on both x- and y-axis
- Eliminated excessive white space.



2020



2022



2024

6. Standardizing to accessible and free font

- Prior to the 2023 report, the exhibits were in a different font from the main text and tables.
    - Fixed all text to a Times New Roman-style font in 2023.

- In this year’s report, we changed away from Times New Roman-style:
    - 508 compliant font—GSA’s standards require sans-serif!
        - Federal law that requires digital accessibility compliance for all federal agencies.
    - Arial and Calibri sans-serif and are good, popular choices, but are licensed, Microsoft fonts
    - No license! Our LaTeX and Stata backend is much better, but no longer goes through Microsoft products
    - Thus, we sought an open font and settled on Déjà vu Sans

- Matched figure font size to 12pt to match main text whenever possible

2023	2024
2 Comprehensive Results from the U.S. Liabilities Survey for 2023	**2 Comprehensive Results from the U.S. Liabilities Survey for 2024**
Figure 1: Foreign Portfolio Holdings of U.S. Securities by Broad Security Type	Figure 1: Foreign Portfolio Holdings of U.S. Securities by Broad Security Type

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(Source: Business Insider)

Appendix

1. LaTeX for easier reading and navigation

- First began using LaTeX instead of Microsoft Word in the 2014 report
- High-quality automated cross-referencing and typesetting
  - Cross-references chapters, sections, figures, and tables
  - Automatically updates numbering of chapters, sections, figures, and tables
  - Figures and tables change location intelligently, keeping layout consistent and easily legible
- Consistent styling enforced throughout the document
- Auto-generates table of contents, list of figures, and list of tables
- Ideally suited for version control systems (in our case, Git)
  - Version control is an important part of our workflow
- Better integration with code
  - Can generate and adjust .tex files within Stata .do file
  - Allows us to see the fully formatted PDF output when adjusting figures

4. Reformatting tables for visual clarity

- Tables previously integrated with body text, sometimes multiple on one page.
  - Text and tables cramped on a page
  - Each figure and table given their own page starting from 2023

- Previous formatting of tables leading to lack of clarity and distinction
  - Added horizontal lines to visually separate text
  - Indentation for organization
  - Moved total line to top row

Table 3: Accounting for changes in foreign holdings of U.S. long-term securities by type of security
Billions of dollars

Type of security	Measured, June 2014 (1)	Measured, June 2015 (2)	Change, June 2014 to June 2015 (3 = 2 − 1)	Of which: Net purch. (4)	Stock swaps and ABS repayments (5)	Val. adj. (6)	Other[1] (7)
Treasury debt	5,382	5,450	68	130	n.a.	2	-64
Agency debt	827	880	53	183	-139	-3	12
Corporate debt	2,974	3,217	243	114	-22	-224	375
Equities	6,356	6,655	299	-55	11	347	-4
Total	**15,539**	**16,202**	**663**	**373**	**-150**	**122**	**319**

2015

Table 2: Accounting for Changes in Foreign Holdings of U.S. Long-Term Securities
Trillions of dollars

Type of security	Measured, June 2023 (1)	Measured, June 2024 (2)	Change, June 2023 to June 2024[a] (3)	Of which: Net purch.[b] (4)	Adjust-ments[c] (5)	Val. adj.[b] (6)	Other (7)
Total	**25.69**	**29.57**	**3.88**	**0.73**	**0.03**	**2.83**	**0.29**
Equities	13.72	16.88	3.16	-0.15	0.03	2.73	0.55
Debt	8.42	9.13	0.71	0.85	n.a.	0.03	-0.17
Corporate	4.06	4.25	0.19	0.28	n.a.	0.09	-0.18
U.S. agency	1.27	1.33	0.06	0.12	n.a.	-0.05	-0.01
U.S. Treasury	6.64	7.11	0.47	0.48	n.a.	0.06	-0.07
Official	3.54	3.56	0.01	0.03	n.a.	0.08	-0.09
Private	3.10	3.55	0.46	0.45	n.a.	-0.01	0.02

2024

5. Integrating appendix tables and creating hyperlinks

- Moved certain appendix tables into the main text to create new figures and group with existing ones.
  - Pages in appendix cut from 57 to 30
  - Examples: Exhibit 8 from 2016 and Figure 7 from 2024
    - Tables A7, A8, A9, and A10 have now been consolidated into Table 7

- Added more detailed footnotes to exhibits and tables (see right)
  - Allowed for the reduction in the total amount of text in the report
  - Hyperlinks in table footnote send reader to corresponding figures and relevant appendix tables

Table 12: Value of foreign holdings of U.S. Treasury securities, by major investing country, as of June 30, 2015

Billions of dollars

Country	Total	Treasury long-term debt[1]				Treasury short-term debt[1]
		Total	of which: Nominal	of which: TIPS[2]	of which: FRN	
China[3]	1,271	1,268	1,097	170	*	3
Japan	1,196	1,123	1,089	34	*	73
Brazil	256	238	205	13	20	18
Cayman Islands	219	135	83	47	6	84
Ireland	217	174	157	13	4	43
Switzerland	217	191	173	17	2	25
Belgium	206	196	190	4	1	11
United Kingdom	204	172	146	25	1	32
Luxembourg	184	135	124	10	1	49
Hong Kong	181	123	89	4	30	58
Rest of world	1,996	1,695	1,458	171	67	300
Total	**6,147**	**5,450**	**4,810**	**508**	**132**	**697**
Of which: Holdings of foreign official institutions	*4,173*	*3,806*	*3,346*	*348*	*113*	*367*

2015

Floating rate notes																		
Total	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	132	127	118	115	75	94	109	98	53	111
Japan	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	1	1	2	2	0	3	0	0	0
China, mainland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	0	0	0	0	0	0	0	0	0
United Kingdom	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1	4	19	17	13	19	18	17	7	21
Canada	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1	1	1	7	2	1	1	1	0	4
Luxembourg	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1	13	12	12	6	12	3	2	6	4
Ireland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4	16	12	18	12	24	14	13	12	13
All other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	125	92	73	58	41	38	70	64	29	68

Table 16 shows the data used in Figure 14. Appendix Table A7 shows holdings of different forms of U.S. Treasury securities for all reportable countries as of the latest reporting period. Floating rate notes were first issued in January 2014.

2024