

# Dollarization waves

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Keynote

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Prudently Catalysing Competitiveness

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Előd Takáts is with the Bank for International Settlements, the London School of Economics and Political Science (LSE) and Corvinus University of Budapest. The presentation is based on the “Dollarisation waves: new evidence from a comprehensive international bond database” by Swapan Kumar-Pradhan, Eswar Prasad, Előd Takáts and Judit Temesvary published as BIS Paper 165. The views do not necessarily reflect those of the affiliated institutions.

# Motivation: which currency used most internationally?

- There is much discussion about the increasing role of the dollar
- Key example: Maggiori, Neiman, and Schreger (2020, JPE) examine through holdings of selected investors
- Our question: How this dollarization trend shows in longer-term and more comprehensive data?

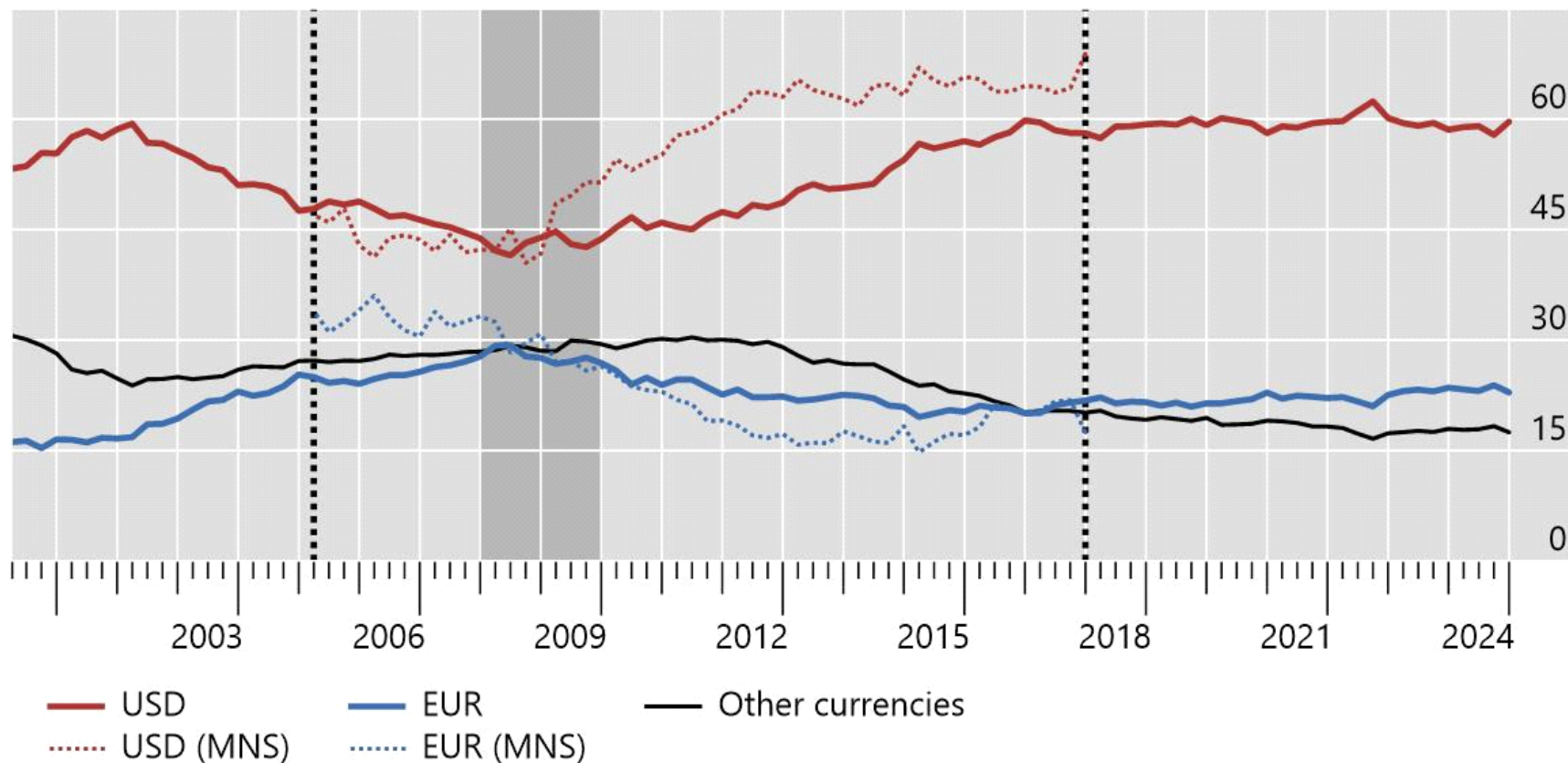


Maggiori, Neiman, and Schreger (2020, JPE)

## Our findings: no trend, waves

- We explore a comprehensive and long-term dataset on international debt securities (IDS) to investigate dollarization trends
- We find no evidence of a dollarization trend, rather we find dollarization waves
  - Not only since 2000 but since the 1960s
- The euro seems to have had a moment pre-GFC
  - In financial sector issuance
  - And its share today remains higher than at its introduction

Key finding: dollarization happens in waves  
no dollarization trend since-2000...

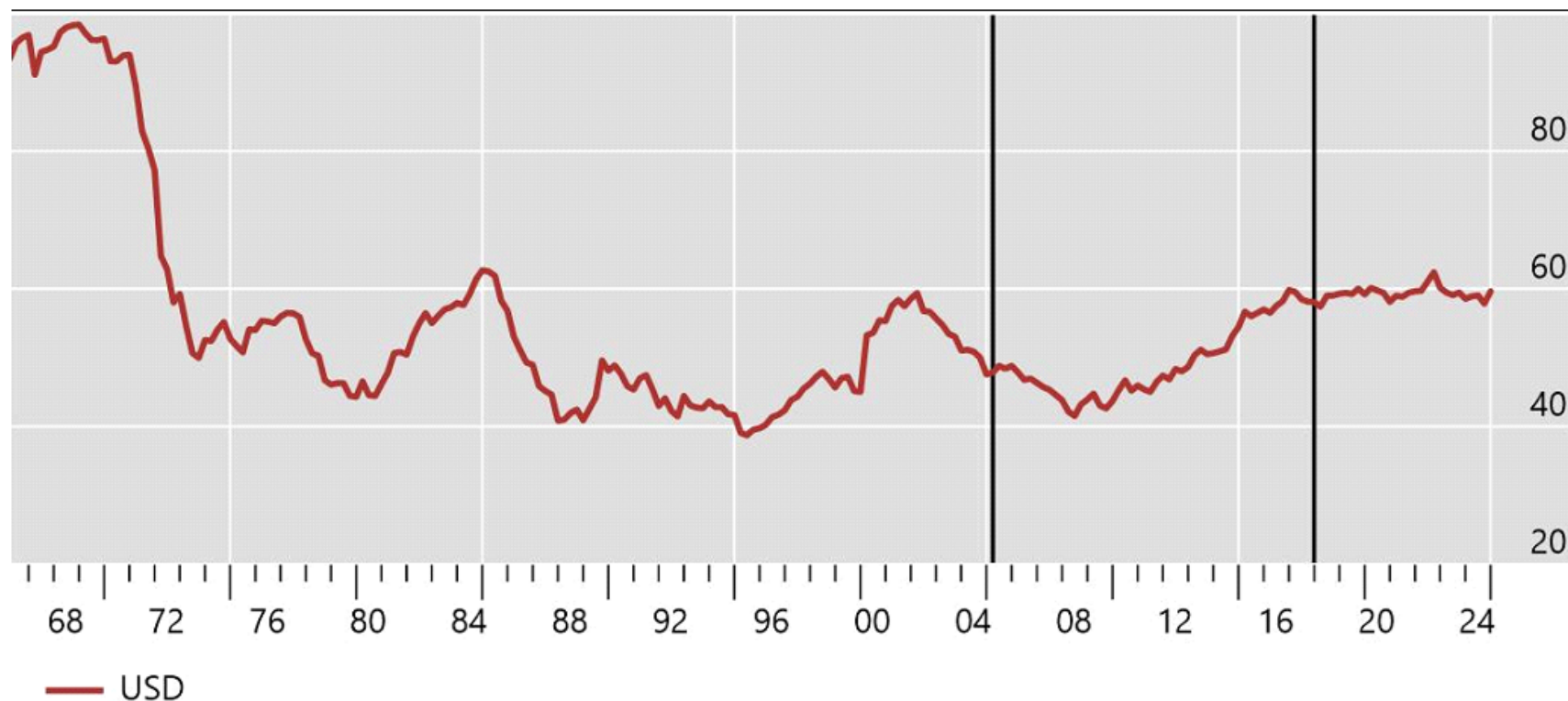


# Similar dollarization waves emerge over the longer term

Outstanding international debt securities: 1966 -2024

In % of total in all currencies

Graph 2



Sources: Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; BIS calculations.

# Data: BIS international debt securities (IDS) dataset

- Based on actual issuances
  - Issuer view rather than holders/investors view
- Near total coverage of intl. debt securities
- Long time series coverage: quarterly data from 2000 Q1 to 2024 Q4
  - And also allows us to look back to the late-1960s
- Currencies: USD, EUR, JPY, GBP, CHF and others:
- By issuer sector: Public, Private: banks, NBFIs, non-financial corporates
- By residence and nationality of issuers' country

# International Debt Securities (IDS): Summary over time

|                                               | 2000:Q1 | 2008:Q1 | 2016:Q1 | 2024:Q4 |
|-----------------------------------------------|---------|---------|---------|---------|
| Number of countries (residence)               | 97      | 113     | 130     | 136     |
| Number of countries (nationality)             | 100     | 111     | 131     | 134     |
| Number of issuers                             | 6,468   | 9,956   | 11,814  | 16,814  |
| Number of individual securities               | 22,541  | 51,685  | 52,943  | 89,420  |
| Total outstanding (\$ billion)                | 4,429   | 13,628  | 16,476  | 23,811  |
| Summary statistics by currency                |         |         |         |         |
| USD: Number of issuers                        | 3,712   | 5,716   | 7,674   | 11,477  |
| Number of securities                          | 8,331   | 19,059  | 26,600  | 51,185  |
| Total outstanding (\$ billion)                | 2,110   | 5,390   | 9,062   | 13,568  |
| Euro: Number of issuers                       | 617     | 2,678   | 2,316   | 3,223   |
| Number of securities                          | 1,526   | 13,759  | 9,114   | 17,296  |
| Total outstanding (\$ billion)                | 290     | 3,706   | 3,376   | 5,266   |
| Value of each issue (USD million)             |         |         |         |         |
| Mean                                          | 186     | 249     | 301     | 254     |
| Median                                        | 97      | 88      | 107     | 75      |
| Max                                           | 10,716  | 20,310  | 20,310  | 20,778  |
| Value of each issue by currency (USD million) |         |         |         |         |
| USD : Mean                                    | 253     | 283     | 341     | 265     |
| Median                                        | 125     | 100     | 125     | 77      |
| Max                                           | 10,716  | 20,310  | 20,310  | 20,310  |
| EUR : Mean                                    | 190     | 269     | 370     | 304     |
| Median                                        | 89      | 79      | 114     | 57      |
| Max                                           | 4,299   | 9,573   | 9,108   | 20,778  |

## Data: BIS international debt securities (IDS) dataset (2)

- What makes a security an IDS, vs. a domestic debt security (DDS)?
- Three criteria (plus ability to “flag”):
  - a) Governed by laws in a country different from issuer domicile
  - b) Listed on an exchange in a foreign country
  - c) Registered in a country different from issuer domicile (ISIN)
    - Vendor can also flag a security as “int’l” aside from 3 attributes.
- E.g.: \$1.3 T securities, issued by US residents in USD, classified as IDS
  - \$1.1 T are euro bonds (attribute (c))
  - \$0.2 T are global bonds (listed on more than one exchange)

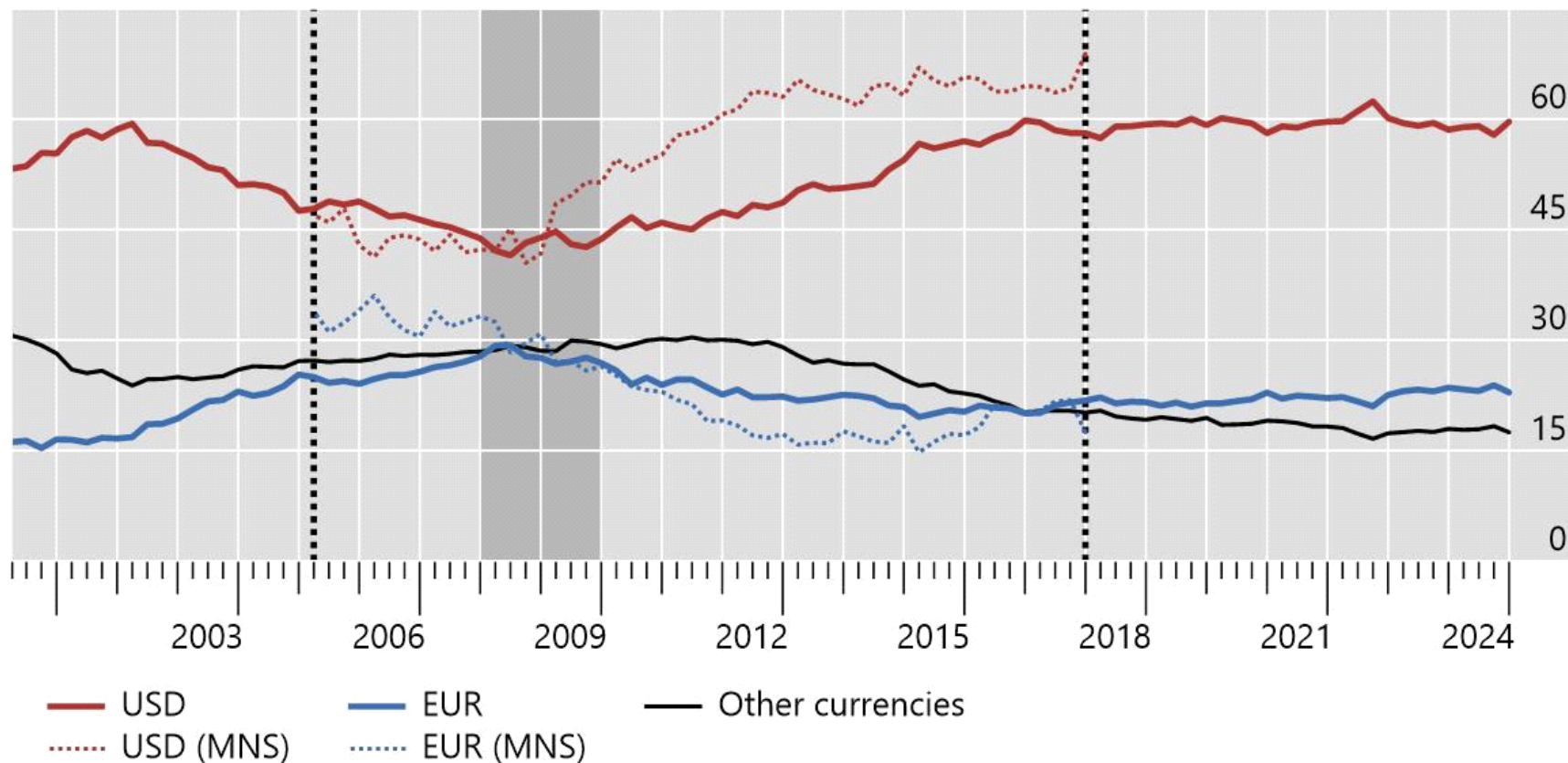
# Dollar share heatmap

| REGION                      | COUNTRY              | 2000  | 2004  | 2008  | 2012 | 2016 | 2020 | 2024 |
|-----------------------------|----------------------|-------|-------|-------|------|------|------|------|
| ADVANCED ECONOMIES (NON-EU) | Australia            | 58.4  | 44.3  | 43.3  | 49.3 | 53.1 | 52.3 | 56.4 |
|                             | Canada               | 65.5  | 53.9  | 47.2  | 61.5 | 69.8 | 67.4 | 62.4 |
|                             | Japan                | 44.0  | 19.8  | 17.8  | 43.1 | 72.4 | 72.8 | 75.6 |
|                             | United Kingdom       | 32.3  | 23.0  | 21.9  | 26.1 | 33.4 | 31.3 | 33.3 |
|                             | United States        | 74.4  | 71.7  | 60.4  | 65.9 | 70.8 | 59.6 | 64.9 |
| EUROPE                      | Denmark              | 37.3  | 15.7  | 14.0  | 19.2 | 20.3 | 24.0 | 20.7 |
|                             | Finland              | 41.1  | 43.1  | 33.9  | 30.1 | 51.3 | 44.0 | 52.4 |
|                             | France               | 55.0  | 47.3  | 46.2  | 54.6 | 65.6 | 61.6 | 72.2 |
|                             | Germany              | 52.2  | 43.7  | 50.4  | 51.7 | 67.6 | 60.6 | 56.7 |
|                             | Ireland              | 51.1  | 28.3  | 26.8  | 26.4 | 35.7 | 29.4 | 26.6 |
|                             | Italy                | 56.4  | 58.5  | 48.3  | 54.4 | 54.5 | 67.8 | 58.8 |
|                             | Luxembourg           | 65.5  | 55.1  | 55.3  | 60.0 | 62.6 | 44.4 | 47.5 |
|                             | Netherlands          | 52.9  | 41.3  | 44.3  | 47.2 | 59.8 | 55.0 | 53.0 |
|                             | Norway               | 54.1  | 32.6  | 21.0  | 31.8 | 37.1 | 31.4 | 35.1 |
|                             | Poland               | 85.4  | 23.7  | 10.4  | 22.1 | 24.9 | 18.0 | 32.1 |
|                             | Spain                | 54.7  | 68.4  | 54.7  | 56.5 | 74.0 | 69.4 | 69.5 |
|                             | Sweden               | 33.0  | 19.3  | 21.1  | 21.9 | 37.2 | 25.7 | 23.3 |
|                             | Switzerland          | 18.2  | 26.1  | 26.8  | 24.2 | 43.8 | 66.5 | 78.7 |
| EMERGING MARKET ECONOMIES   | Brazil               | 84.7  | 81.7  | 80.7  | 87.2 | 89.9 | 93.5 | 98.5 |
|                             | Chile                | 97.6  | 97.3  | 99.0  | 92.6 | 84.2 | 80.9 | 80.2 |
|                             | China                | 74.6  | 70.2  | 63.9  | 33.7 | 69.1 | 77.7 | 64.0 |
|                             | Hong Kong SAR        | 70.6  | 59.1  | 62.0  | 67.0 | 77.0 | 79.4 | 70.8 |
|                             | Indonesia            | 99.4  | 96.6  | 100.0 | 95.7 | 84.4 | 82.0 | 88.4 |
|                             | Korea                | 78.2  | 82.3  | 69.6  | 70.5 | 78.3 | 75.4 | 76.7 |
|                             | Mexico               | 80.0  | 81.4  | 81.1  | 76.8 | 72.8 | 76.2 | 84.0 |
|                             | Saudi Arabia         | 0.0   | 0.0   | 81.2  | 57.8 | 89.5 | 94.1 | 92.7 |
|                             | Singapore            | 82.6  | 67.4  | 66.3  | 67.5 | 73.6 | 71.6 | 75.2 |
|                             | Türkiye              | 40.0  | 62.6  | 73.6  | 83.7 | 86.4 | 87.5 | 90.7 |
|                             | United Arab Emirates | 100.0 | 100.0 | 67.9  | 77.9 | 85.7 | 87.7 | 89.6 |
|                             | AVERAGE              | 59.8  | 52.4  | 51.8  | 53.5 | 63.0 | 61.8 | 63.4 |

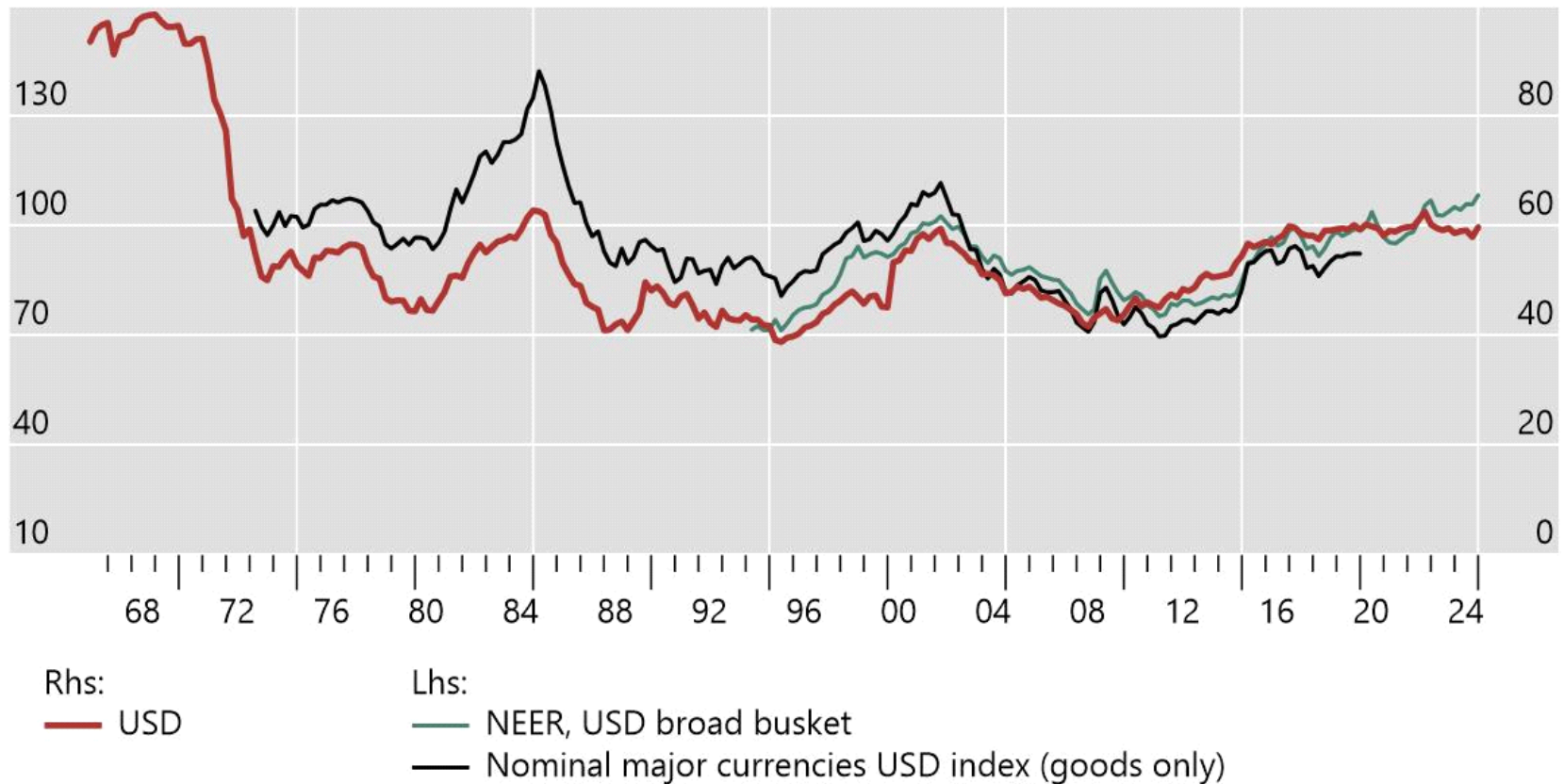
# Euro share heatmap

| REGION                      | COUNTRY              | 2000 | 2004 | 2008 | 2012 | 2016 | 2020 | 2024 |
|-----------------------------|----------------------|------|------|------|------|------|------|------|
| ADVANCED ECONOMIES (NON-EU) | Australia            | 7.4  | 23.3 | 26.2 | 18.6 | 21.6 | 26.7 | 21.2 |
|                             | Canada               | 8.9  | 11.5 | 15.1 | 4.8  | 15.0 | 17.8 | 22.9 |
|                             | Japan                | 12.3 | 15.8 | 11.9 | 5.4  | 5.4  | 12.6 | 14.8 |
|                             | United Kingdom       | 24.7 | 39.7 | 39.1 | 31.1 | 27.6 | 26.0 | 22.7 |
|                             | United States        | 12.6 | 19.2 | 25.5 | 21.0 | 19.9 | 29.3 | 24.2 |
| EUROPE                      | Denmark              | 30.1 | 60.5 | 64.6 | 58.5 | 57.6 | 62.8 | 64.6 |
|                             | Finland              | 10.4 | 26.0 | 15.8 | 11.1 | 1.9  | 7.4  | 13.1 |
|                             | France               | 3.5  | 4.9  | 6.0  | 6.2  | 5.5  | 6.3  | 3.8  |
|                             | Germany              | 2.4  | 4.9  | 6.0  | 4.1  | 4.6  | 6.9  | 7.5  |
|                             | Ireland              | 8.4  | 32.8 | 44.7 | 45.2 | 38.9 | 53.1 | 59.7 |
|                             | Italy                | 3.9  | 1.5  | 2.4  | 2.5  | 16.0 | 20.3 | 31.3 |
|                             | Luxembourg           | 7.3  | 16.4 | 24.6 | 21.6 | 22.0 | 36.9 | 36.9 |
|                             | Netherlands          | 11.6 | 21.0 | 26.9 | 21.0 | 19.7 | 27.5 | 31.0 |
|                             | Norway               | 19.0 | 30.3 | 45.5 | 36.1 | 44.5 | 52.5 | 47.1 |
|                             | Poland               | 14.6 | 66.3 | 69.4 | 63.3 | 64.8 | 76.4 | 63.4 |
|                             | Spain                | 0.0  | 0.0  | 4.6  | 1.5  | 4.1  | 5.6  | 3.1  |
|                             | Sweden               | 29.7 | 53.2 | 53.6 | 42.7 | 38.7 | 48.1 | 54.8 |
|                             | Switzerland          | 59.1 | 38.2 | 39.7 | 31.1 | 29.7 | 23.8 | 14.7 |
| EMERGING MARKET ECONOMIES   | Brazil               | 11.7 | 14.7 | 8.5  | 3.8  | 6.1  | 4.4  | 0.0  |
|                             | Chile                | 2.4  | 2.7  | 0.0  | 0.0  | 7.0  | 12.6 | 11.8 |
|                             | China                | 3.0  | 21.9 | 9.2  | 3.6  | 6.3  | 12.0 | 7.0  |
|                             | Hong Kong SAR        | 1.9  | 3.8  | 3.3  | 2.3  | 4.1  | 4.2  | 3.5  |
|                             | Indonesia            | 0.0  | 0.0  | 0.0  | 0.0  | 11.7 | 13.6 | 8.7  |
|                             | Korea                | 3.7  | 4.8  | 12.5 | 5.2  | 5.4  | 9.2  | 9.6  |
|                             | Mexico               | 12.7 | 14.2 | 12.5 | 9.0  | 16.5 | 15.0 | 9.8  |
|                             | Saudi Arabia         | 0.0  | 0.0  | 8.9  | 0.0  | 0.0  | 3.4  | 2.5  |
|                             | Singapore            | 5.8  | 12.1 | 11.4 | 1.9  | 2.8  | 10.7 | 8.5  |
|                             | Türkiye              | 41.5 | 37.1 | 26.5 | 11.7 | 9.1  | 7.9  | 8.4  |
|                             | United Arab Emirates | 0.0  | 0.0  | 5.4  | 9.3  | 7.4  | 3.4  | 2.5  |
|                             | AVERAGE              | 12.0 | 19.9 | 21.4 | 16.3 | 17.7 | 21.9 | 21.0 |

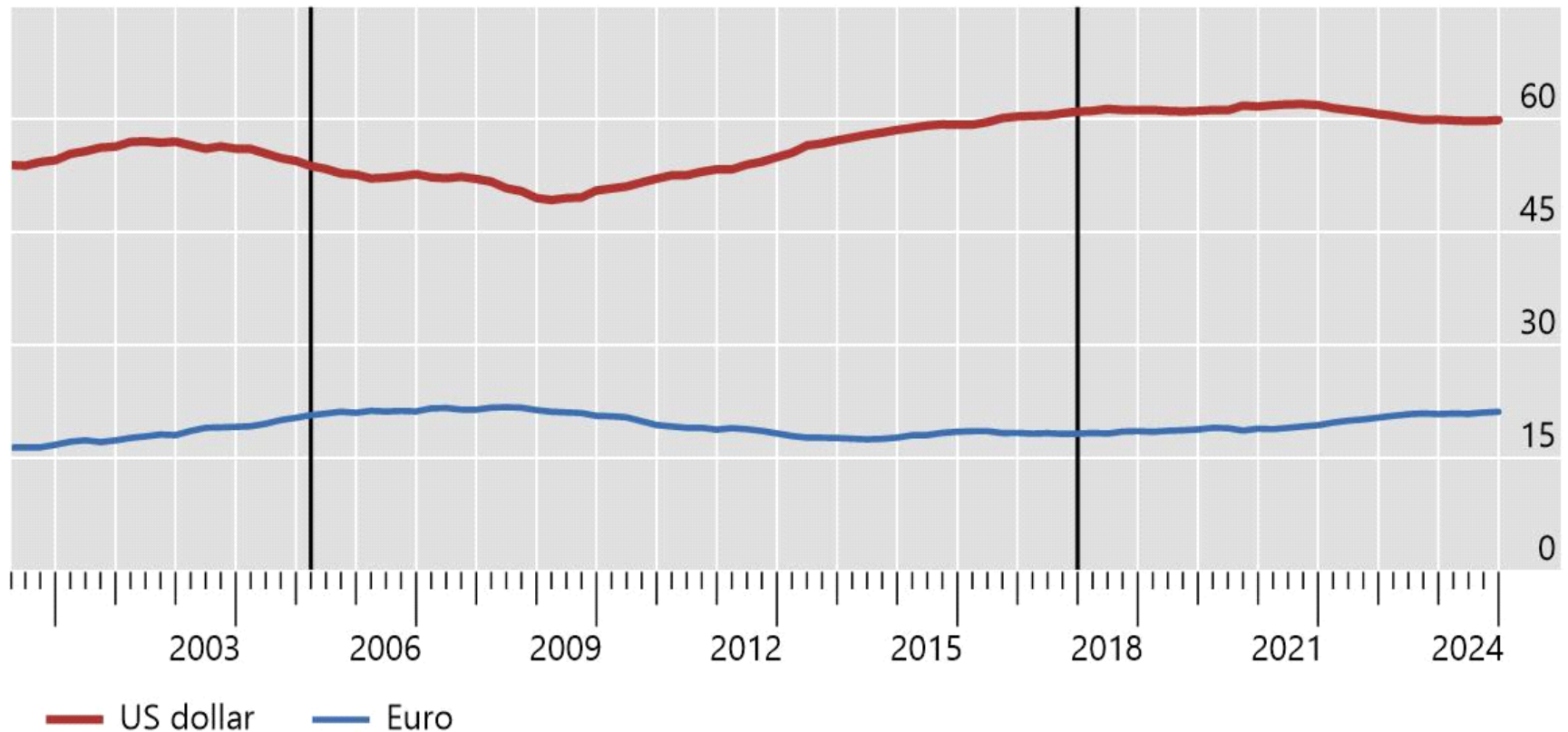
Key finding: dollarization happens in waves  
no dollarization trend since-2000...



## Several dollar waves in post-Bretton Woods, aligned with dollar strength



Indeed, dollar wave is weaker once exchange rate adjusted  
– and euro role looks more robust

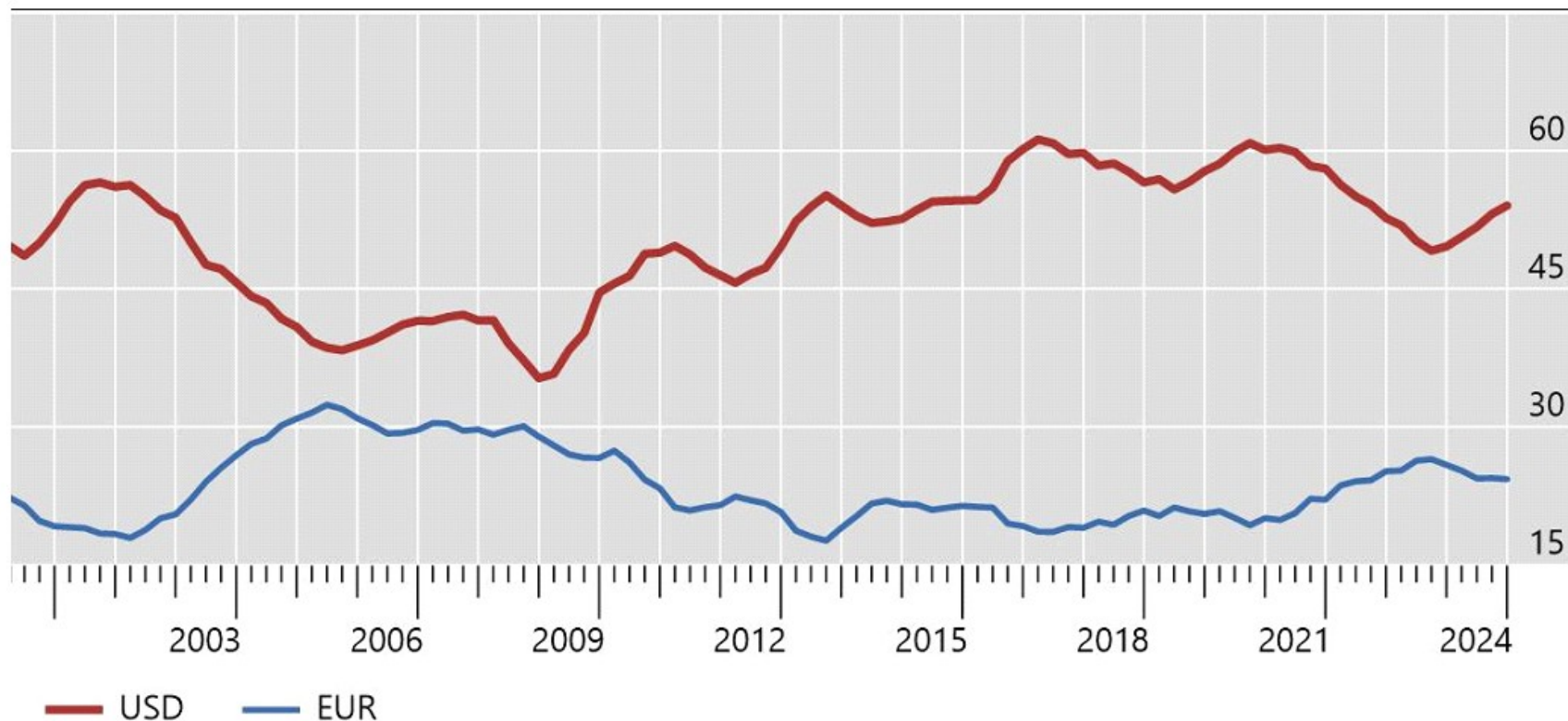


## New issues also show dollar waves, and show an even clearer “euro moment” pre-GFC

Gross issuance of international debt securities by currency<sup>1</sup>

Four quarter moving average, in USD billion

Graph 3

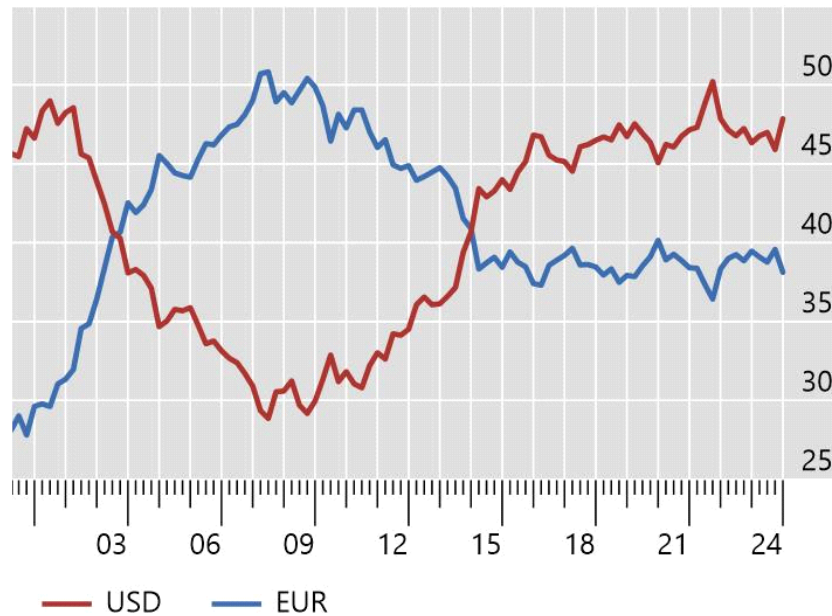


<sup>1</sup> Excluding intra-euro area EUR by euro area nationality issuer.,

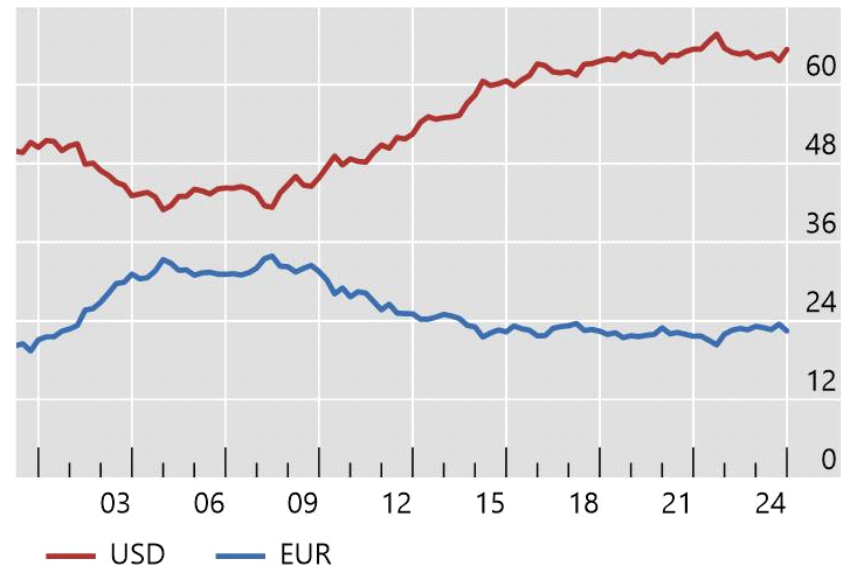
Sources: Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; BIS calculations.

# Robustness

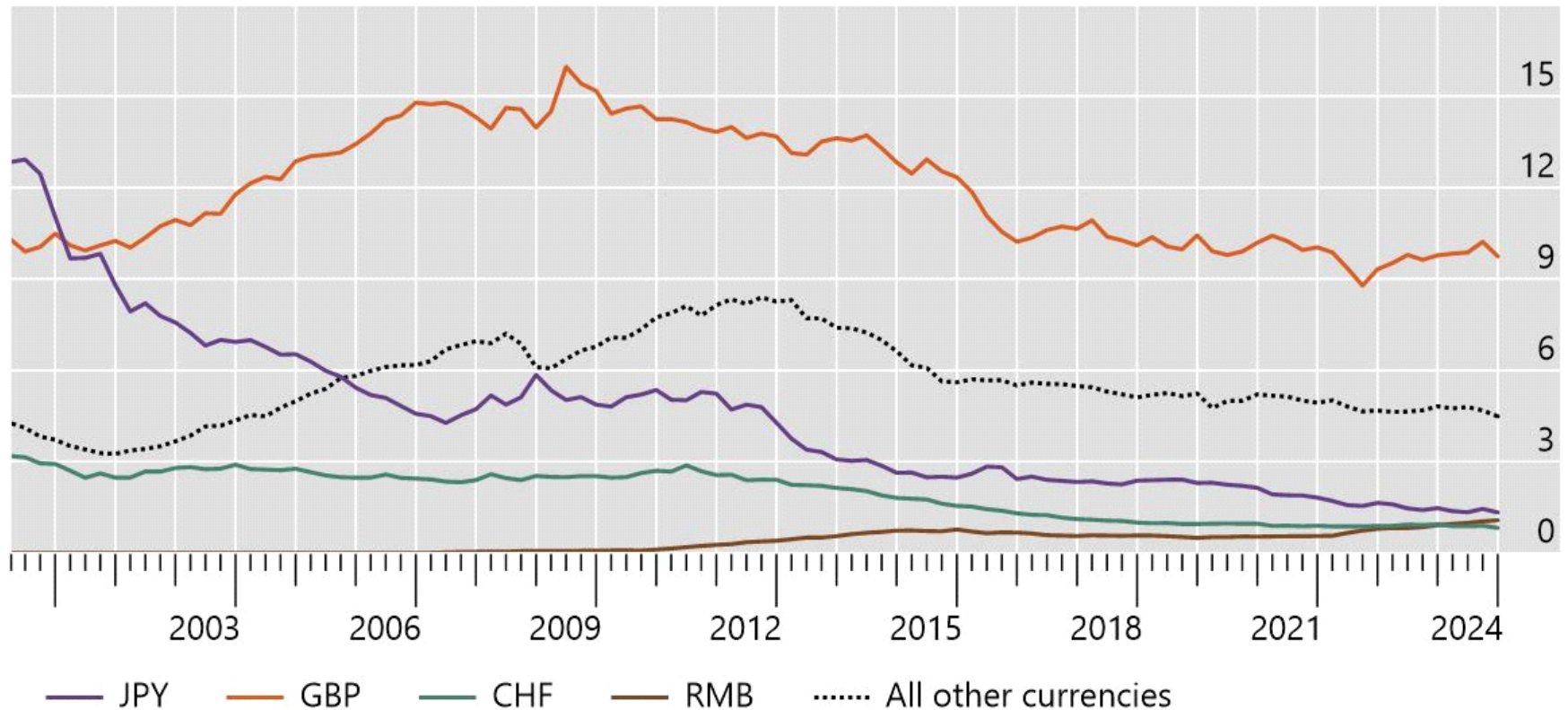
A. Including intra-euro area securities in euro



B. Issuance excluding those in own currency

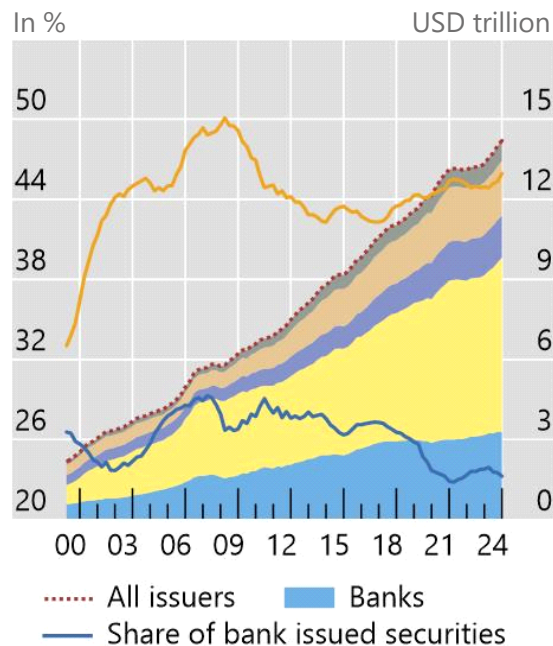


Other currencies show diverse picture while RMB appears

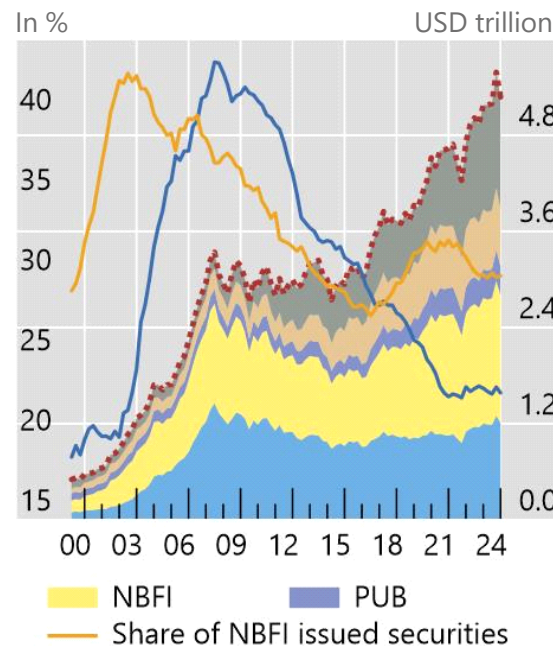


# Euro denominated financial sector issuance drove the dollar cycle (outstanding stocks)

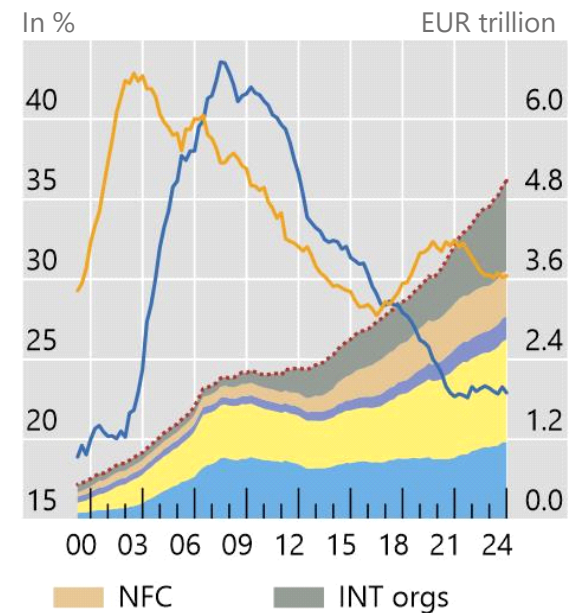
A. USD-denominated



B. EUR-denominated



C. EUR-denominated in Euros<sup>1</sup>

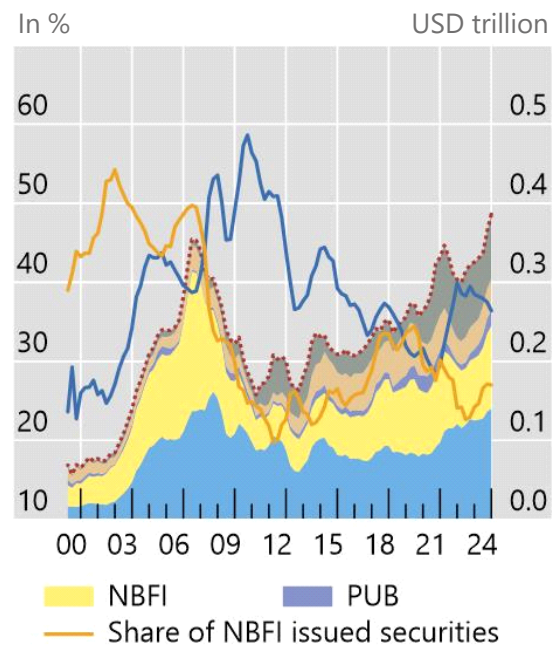


# Euro denominated financial sector issuance drove the dollar cycle (new issuance)

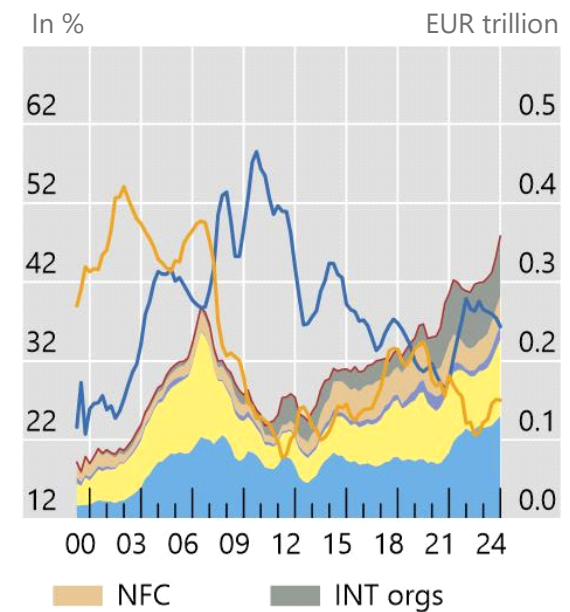
D. USD-denominated<sup>2</sup>



E. EUR-denominated<sup>1, 2</sup>



F. EUR-denominated in Euros<sup>1, 2</sup>



# Determinants of IDS currency denomination

- Investigate new issuance

$share_{icst}$

$$= \phi_0 + \phi_1 gdp\_growth_{it} + \phi_2 inflation_{it} + \phi_3 cb\_rate_{it} + \phi_4 lt\_yield_{it} \\ + \phi_5 vix_{it} + \phi_6 geopol\_risk_{it} + \phi_7 currency\_zone_{ict} + FE_{i/c/s/t} + \varepsilon_{isct}$$

- Currency zone alignment based on Ito and McCauley (2020)
  - Building on Haldane and Hall (1991) and Frankel and Wei (1996)
  - Estimate 12-quarter rolling window (USD)

$$\Delta e_t^{i/\$} = \alpha_i + \beta_{i\text{€}t} \Delta e_t^{\text{€}/\$} + \beta_{i\text{¥}t} \Delta e_t^{\text{¥}/\$} + \varepsilon_{it}$$

- Where  $\Delta e$  is quarterly bilateral exchange rate change in percent
- Which gives dollar weight as our currency zone alignment

$$currency\_zone_{i\$t} = 1 - (\hat{\beta}_{i\text{€}t} + \hat{\beta}_{i\text{¥}t})$$

## Determinants of USD share in gross issuances of IDS on residence basis

| Variables                    | (1)                  | (2)                  | (3)                  | (4)                  | (5)                  | (6)                  |
|------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| USD zone alignment           | 0.131***<br>(0.017)  | 0.139***<br>(0.018)  | 0.113**<br>(0.046)   | 0.138***<br>(0.019)  | 0.214***<br>(0.022)  | 0.217***<br>(0.023)  |
| Geopolitical risk            | -0.025**<br>(0.011)  | -0.017<br>(0.011)    | 0.056***<br>(0.015)  | 0.024<br>(0.025)     | -0.038***<br>(0.012) | -0.052<br>(0.037)    |
| GDP growth rate              | 0.021***<br>(0.008)  | 0.030***<br>(0.011)  | -0.034<br>(0.144)    | 0.022***<br>(0.008)  | 0.026***<br>(0.010)  | 0.027***<br>(0.009)  |
| Inflation                    | -0.003<br>(0.004)    | -0.003<br>(0.004)    | 0.003<br>(0.005)     | -0.003<br>(0.004)    | -0.004<br>(0.004)    | -0.004<br>(0.005)    |
| Central bank policy rate     | 0.023***<br>(0.003)  | 0.024***<br>(0.003)  | -0.008<br>(0.006)    | 0.023***<br>(0.003)  | 0.027***<br>(0.003)  | 0.027***<br>(0.004)  |
| Ten-year U.S. Treasury yield | -0.067***<br>(0.008) | -0.077***<br>(0.009) | -0.032***<br>(0.009) | -0.069***<br>(0.008) | -0.081***<br>(0.011) | -0.085***<br>(0.012) |
| VIX                          | 0.001*<br>(0.001)    | 0.001<br>(0.001)     | -0.002*<br>(0.001)   | 0.001<br>(0.001)     | 0.000<br>(0.001)     | -0.000<br>(0.001)    |
| Constant                     | 0.659***<br>(0.033)  | 0.682***<br>(0.039)  | 0.847***<br>(0.037)  | 0.661***<br>(0.033)  | 0.653***<br>(0.039)  | 0.677***<br>(0.042)  |
| Observations                 | 2,279                | 2,156                | 637                  | 2,190                | 1,668                | 1,579                |
| R-squared                    | 0.17                 | 0.19                 | 0.14                 | 0.18                 | 0.25                 | 0.26                 |
| Number of groups             | 39                   | 38                   | 21                   | 38                   | 31                   | 30                   |
| Issuer sector                | Total                | PVT                  | PUB                  | Total                | Total                | Total                |

## Robustness and extensions

- Nationality based data instead of residence based data
  - Robust results
- Fixed effects
  - Country of issuance
    - Renders most estimates insignificant
    - No surprise: currency alignment is slow moving
  - Sector of issuance and time fixed effects
- RMB issuance
  - Currency alignment is significant
  - Cautious about interpretation: small share

# Conclusion

- We explore a comprehensive and long-term dataset on international debt securities (IDS) to investigate dollarization trends
- We find no evidence of a dollarization trend, rather we find dollarization waves
  - Not only since 2000 but since the 1960s
- The euro seems to have had a moment pre-GFC
  - In financial sector issuance
  - And its share today remains higher than at its introduction
  - Euro denominated financial sector issuance drove the dollar cycle
- Currency alignment (with USD and EUR) seems to drive IDS shares

**Thank you for your comments!**

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