

# **The Holders and Issuers of International Portfolio Securities**

Vahagn Galstyan, Philip R Lane,  
Caroline Mehigan and Rogelio Mercado

TEP Working Paper No. 0916

July 2016



**Trinity Economics Papers**

---

**Department of Economics**

**Trinity College Dublin**

# The Holders and Issuers of International Portfolio Securities\*

Vahagn Galstyan  
Trinity College Dublin

Philip R. Lane  
Central Bank of Ireland,  
Trinity College Dublin and CEPR

Caroline Mehigan  
OECD

Rogelio Mercado  
Trinity College Dublin

July 20, 2016

## Abstract

Research on the geographical distribution of international portfolios has mainly focused on data aggregated to the country level. We exploit newly-available data that disaggregates the holders and issuers of international securities along sectoral lines. We find that patterns evident in the aggregate data do not uniformly apply across the various holding and issuing sectors, such that a full understanding of cross-border portfolio positions requires granular-level analysis.

**JEL classification:** F30, F41, G15

**Keywords:** International portfolios, International capital flows, Gravity models

---

\*Prepared for the 25th NBER-TCER-CEPR Conference "International Finance in the Global Markets," Tokyo, December 16-17 2015. This research was enabled by grants from the Institute for New Economic Thinking and the Irish Research Council. We thank seminar participants at the NBER-TCER-CEPR conference for their comments. The views expressed in this paper are personal and do not represent the views of the Central Bank of Ireland or the eurosystem.

Email: v.galstyan@tcd.ie, plane@tcd.ie., caroline.mehigan@oecd.org, mercador@tcd.ie.

## 1. Introduction

The analysis of international financial linkages is a primary theme in international macroeconomic research. At the theoretical level, the extent and characteristics of international financial integration influence macroeconomic outcomes and the cross-border risk distribution. In similar vein, the capacity of policy officials to scan the horizon for emerging macro-financial risks and calibrate policy interventions depends on an adequate understanding of international financial transmission mechanisms. Along both dimensions, a solid platform of empirical evidence is necessary in order to help design useful models and make effective policy decisions.

Since 2001, the Coordinated Portfolio Investment Survey (CPIS) has been published on a regular basis by the International Monetary Fund.<sup>1</sup> Relative to aggregate international investment position data, the CPIS represented a significant improvement by publishing the geographical composition of cross-border bond and equity holdings for the reporting countries.<sup>2</sup>

Building on the extensive gravity literature on international trade patterns and previous work on geographical patterns in international financial flows (Portes and Rey 2005), an empirical literature soon developed that studied the cross-country variation in bilateral portfolio holdings (Lane and Milesi-Ferretti 2008, Coeurdacier and Martin 2009, and Hale and Obstfeld 2016).<sup>3</sup> In turn, these empirical patterns have also inspired new theoretical models (Okawa and Van Wincoop 2012).

However, this literature has just studied the aggregate bilateral data. This is restrictive, since the transmission of international financial shocks may depend on the identities

---

<sup>1</sup>A trial survey was run in 1997 with a limited number of reporter countries. The CPIS was published on an annual basis from 2001 until 2012; and has been published twice a year since 2013. The number of reporters now stands at 78 (latest release). A sister survey on direct investment positions (the CDIS) has been run since 2009.

<sup>2</sup>See Lane and Milesi-Ferretti (2008) for an extensive discussion of the limitations of the dataset.

<sup>3</sup>The main focus has been on explaining cross-country variation in the levels of bilateral holdings. Galstyan and Lane (2013) explore the dynamic adjustment of bilateral holdings during the global financial crisis.

of the issuers and holders of portfolio securities. Accordingly, the recent expansion of the CPIS to provide sectoral information on the holders and issuers of portfolio securities is welcome.<sup>4</sup> This paper represents a first attempt to analyse these newly-available data.

Previewing our results, we find important differences in the geographical patterns of international portfolio allocation across these categories. In relation to both holders and issuers of international securities, the data highlight the importance of gravity-type factors in the cross-border distribution of portfolio securities. We also find that common membership of the euro area is non-negligible for the holding sectors of both portfolio debt and equity securities; while a similar pattern is present across all issuing sectors for debt securities, we find no such correspondence across issuing sectors in relation to equities.

Our results highlight that patterns evident in the aggregate data do not uniformly apply across all individual holding or issuing sectors. For instance, across holding sectors in advanced countries, the distance effect is stronger for banks and households than for other financial corporations and non-financial corporations. To take another example, in relation to the portfolio debt issued by emerging economies, investors exhibit a stronger distance effect vis-à-vis bonds issued by banks or sovereigns than vis-à-vis bonds issued by non-financial corporates.

The rest of the paper is structured as follows. Section 2 describes the CPIS data. In Section 3 we describe the empirical approach, while in Section 4 we report the econometric results. Some conclusions are offered in Section 5.

---

<sup>4</sup>Ideally, a complete dataset that identifies the ultimate owner and ultimate issuer of each security would be an "asset". The expanded CPIS is confined to broad sectoral categories and is organised on a residency basis rather than a nationality basis.

## 2. The CPIS Data

### 2.1. Data Availability

To analyse the bilateral distribution of holdings and issuances of portfolio assets, we employ data from the Coordinated Portfolio Investment Survey (CPIS). Until recently, the CPIS primarily reported aggregate bilateral holdings of bonds and equity. While the availability of bilateral data was a step improvement relative to international investment position data that only included aggregate foreign holdings, it was also clear that the absence of extensive sectoral and currency information on the composition of the bilateral data severely limited the ability of analysts to make useful inferences.

Since 2013, an expanded version of the CPIS reports the sectoral identities of the issuers of portfolio securities (22 countries) and the holders of portfolio securities (67 countries). In addition, more countries (50 countries) now also report the currency composition of their international bond holdings, even if the currency breakdown is not available on a bilateral basis. The sectoral categories of issuers are: central banks (CB), deposit-taking corporations excluding central banks (BANKS), other financial corporations (OFC), general government (GG) and nonfinancial corporations (NFC). Similarly, the sectoral categories of holders are: central banks (CB); deposit-taking corporations excluding central bank (BANKS); other financial corporations (OFC); general government (GG); nonfinancial corporations (NFC); households (HH), and non-profit institutions serving households (NPISH). The OFC category is further broken down into sub-sectors: insurance corporations and pension funds (ICPF), money market funds (MMF), and others (OOFC). The currency composition is broken down between: dollars, euro, yen, Swiss Francs, Sterling and a catch-all Other category.<sup>5</sup>

---

<sup>5</sup>There are many zero observations in the CPIS data associated with trivial holdings or minor destinations. In order to avoid skewed results, we eliminate this subset of data.

## 2.2. Stylised Facts

Figures 1a-1c present the sectoral shares of total portfolio assets by holders for selected years. We note several observations. First, there are differences across sectoral holdings. The category of other financial corporations (which includes the various types of investment firms) holds the lion's share of total portfolio assets at 54 percent in 2004 and 64 percent in 2014. These are followed by banks, households and the general government, respectively. Non-financial corporations, together with non-profit organisations and central banks (labeled others) hold the smallest share of portfolio assets at less than 4 percent.

Second, across sample periods, the holdings of banks have declined from 36 percent in 2004 to 31 percent at the peak of the global financial crisis in 2008-2009 to around 20 percent in 2014. In contrast, the portfolio holdings of the general government sector has steadily increased from 4.6 percent in 2004, to 5.8 percent in 2008 and about 8.3 percent in 2014.

In Figures 1d-1i, we split total portfolio assets into debt and equity holdings and show a similar sectoral breakdown. Among the sectors, consistent with Figures 1a-1c, other financial corporations hold the largest shares in both asset classes. While the other financial corporations sector has maintained a relatively stable share of equity holdings, its share in debt holdings has expanded from 47 percent in 2004 to 60 percent in 2014. This increase has been matched by a steady decline in the bond holdings of banks from 44.3 percent in 2004 to 37.9 percent in 2008 and 27.2 percent in 2014. The second largest holder of equity assets are governments, with the share increasing from 7 percent to 13 percent, while banks have experienced a twofold decline in their equity share from 2004 to 2008. As might be expected, banks hold far more bonds than equity, while the other sectors hold larger proportions of equities.

Figures 2a-2c show the breakdown of liability issuance by sectors for 2014.<sup>6</sup> Across

---

<sup>6</sup>The distribution for 2013 is very similar.

the sectors, we observe roughly equal shares in total issuance by banks, other financial corporations, non-financial corporations and general government.<sup>7</sup> The split between asset classes highlights that banks and the general government are the largest issuers of debt liabilities while (not surprisingly) non-financial corporations dominate in the issuance of equity securities.<sup>8</sup>

Tables 1 and 2 present some sectoral distributional patterns in the holding and issuance of cross-border securities across country groups for year 2014. Table 1 shows that the country-level “all sectors” statistics obscure substantial variation across holding sectors in terms of the portfolio allocations between advanced and emerging destinations. In addition, Table 1 shows differences in portfolio allocations between investors in advanced economies and investors in emerging economies. In particular, the cross-border portfolios of investors in advanced countries are dominated by the securities issued by other advanced economies. In contrast, investors in emerging economies hold a significant share of their cross-border portfolios in other emerging economies. For instance, households in emerging economies allocate 18 percent of their international portfolio debt holdings to emerging countries, compared with only 6 percent of cross-border holdings allocated to emerging countries by households in advanced countries. An exception is that the cross-border portfolios held by governments in emerging economies are more heavily concentrated in advanced economies than is the case for advanced-economy governments. This is driven by the portfolio debt category and is consistent with emerging governments holding advanced-economy bonds for reserve management reasons.

Table 2 shows that the portfolio allocations of investors in advanced and emerging economies differ sharply across the various issuing sectors, especially in relation to the portfolio securities issued by emerging economies. For instance, only 8 percent of the cross-border public debt issued by emerging countries is held by investors in other

---

<sup>7</sup>Of other financial corporations, “other” other financial corporations are the dominant issuers of portfolio debt securities with a sectoral share of around 98 percent. These also dominate equity issuance, albeit to a lesser extent, with a share of 71 percent. Mutual funds are the second largest issuers of equity with a sectoral share of 23 percent.

<sup>8</sup>The government sector has a near-zero share in equity issuance.

emerging economies, whereas investors in emerging economies hold significant fractions of the cross-border debt and equity liabilities of non-financial corporates in emerging economies at 25.1 percent and 27.0 percent respectively. In addition, the emerging-to-emerging category is also substantial for the bonds issued by banks in emerging economies at 29.5 percent.

Figures 3a-3c describe the currency composition of international debt holdings. Among the currencies, almost half of holdings are denominated in euro (EUR). This can be explained by the high level of cross-border financial trade among member countries of the euro area (Lane 2006). Holdings in US dollar (USD) are in second place at around 30 percent of total portfolio holdings. Debt denominated in Japanese yen (YEN) comes in third and has been declining since 2004, while the shares of Swiss Franc (CHF) and Sterling (GBP) have remained relatively small and stable. Another notable feature of the graph is the substantial increase in the share of debt liabilities denominated in “other” currencies from 6 percent in 2008 to 10.5 percent in 2014. This is consistent with the much-discussed increase in the willingness of global investors to hold the local-currency bonds of emerging economies.

Finally, we also highlight substantial variation in the currency shares of bond holdings across advanced and emerging groups. The currency share of debt holdings for advanced countries is the highest for euro (49 percent) and dollars (30.4 percent), while the highest shares are allocated to dollars (60 percent) and the “other” category (22 percent) in emerging economies. As noted above, the high euro share for advanced economies reflects the high degree of cross-border bond investment among euro area countries, while the predominance of US dollars in the portfolio debt assets of emerging economies is consistent with the central role played by the dollar in the international financial environment facing these countries.<sup>9</sup>

---

<sup>9</sup>Galstyan, Mehigan and Mercado (2016) examine the sources of variation in the currency denomination of international portfolio debt assets across reporting countries.



### 3. Empirical Specification

Our objective is to investigate whether the bilateral variables that have been identified as significant covariates of aggregate bilateral portfolio holdings exhibit different patterns across the disaggregated categories of sectoral holders and issuers of portfolio securities.

There are various reasons to expect differential patterns in cross-border portfolio allocations across holding sectors. First, the degree of professionalisation of portfolio selection may vary across holding sectors, with the choices of institutional investors in the OFC category systematically differing from the choices of households. Second, the portfolio strategies of governments may be influenced by a wider range of factors than the trade off between expected returns and risk (for example, portfolio composition may be dominated by reserve management considerations). Third, differences in the severity of informational frictions across sectors might have an asymmetric impact on the composition of portfolios. Similarly, the sectoral identity of the issuers of securities may be important. For instance, the information frictions facing foreign investors may be quite different for opaque issuers (such as banks) than for large non-financial corporates that are easier to analyse.

In examining the geographical distribution of positions, we follow the established gravity literature by employing the following benchmark specification

$$\ln(A_{ij,t}^k) = \alpha_{i,t}^k + \alpha_{j,t}^k + \mathbf{g}_{ij} \boldsymbol{\theta}^k + \mathbf{m}_{ij} \boldsymbol{\eta}^k + \epsilon_{ij,t} \quad (1)$$

where  $\ln(A_{ij,t}^k)$  is the log of the outstanding bilateral position by reporting country  $i$  in destination country  $j$  at the end of year  $t$ ,  $\mathbf{g}_{ij}$  is a row vector of gravity-type controls while  $\mathbf{m}_{ij}$  is a row vector of membership dummies with corresponding  $\boldsymbol{\theta}^k$  and  $\boldsymbol{\eta}^k$  column vectors of coefficients. The index  $k$  captures the different categories of holders and the different categories of issuers and the instrument in question (portfolio debt or portfolio equity). The gravity variables we consider are the logarithms of bilateral distance

between capitals, bilateral imports and dummies for shared language, colonial histories and legal origins.<sup>10</sup>

The second set of controls, justifiable on grounds of either informational frictions and/or political economy considerations, is captured by the membership vector which includes dummies that take the value 1 if both source and destination countries are members of the corresponding regional bloc (euro area, European Economic Association, and Association of Southeast Asian Nations respectively) and 0 otherwise.<sup>11</sup> The inclusion of a euro area dummy captures the effect of a common currency, possibly with heterogeneous implications for portfolio allocations in relation to the different sectors of holders and issuers.

To control for local, partner and global time-varying factors, we run the regressions with source and host country-time dummies.<sup>12</sup> In the current specification,  $\alpha_{i,t}^k$  captures variables affecting aggregate foreign portfolio holdings by source country  $i$  at time  $t$ , while  $\alpha_{j,t}^k$  controls for variables affecting the aggregate foreign portfolio liability position of destination country  $j$  at time  $t$ . Effectively these time-varying host/source effects filter common trends and valuation effects out of portfolio allocation, so that what remains is the purely bilateral variation.<sup>13</sup> Given the bilateral nature of the data, it is reasonable to expect some heteroskedasticity at the country-pair level. To account for the impact of non-spherical disturbances, we estimate equation (1) with OLS and correct the standard errors.<sup>14</sup>

Regarding the control variables, we take the level of bilateral imports from the IMF's Direction of Trade Statistics database. Data for distance, common language and colonial

---

<sup>10</sup>Following the established literature, we interpret bilateral distance as capturing bilateral information costs as well as trade costs such as communication difficulties in real time and the duration of flights between countries (Aviat and Coeurdacier 2007, Daude and Fratzscher 2008, Lane and Milesi-Ferretti 2008, Martin and Rey 2004, Portes and Rey 2005, Stein and Daude 2007).

<sup>11</sup>If common membership of international institutions reduces informational frictions, we may expect increased bilateral holdings.

<sup>12</sup>Inclusion of these dummies makes country-specific variables, such as market size and capital controls, redundant.

<sup>13</sup>See Galstyan and Lane (2013).

<sup>14</sup>An alternative approach is to use GLS (Galstyan and Lane 2013).

links are from the CEPII Distances database, while data on legal origins are from La Porta et al (2008). Finally, information on the membership of various blocs is obtained from [www.ecb.int](http://www.ecb.int) for the euro area, [www.europa.eu](http://www.europa.eu) for the European Economic Association, and [www.aseansec.org](http://www.aseansec.org) for the Association of Southeast Asian Nations.

The sectoral data on the holders of portfolio securities are available for a longer period (2001-2014) than the sectoral data on the issuers of portfolio securities (2013-2014). We examine sub-samples of advanced and emerging markets as holders and issuers vis-à-vis other countries as well.

## 4. Results

### 4.1. International Portfolios: Holding Sectors

Table 3 presents results for international portfolio debt patterns by the different holding sectors. We split the sample between advanced reporting countries in Panel A and emerging reporting countries in Panel B. Table 3 confirms that most holding sectors exhibit the basic gravity pattern by which international bond holdings are disproportionately concentrated in neighbouring countries. Among advanced economies, the distance effect is stronger for banks and households than for other financial corporations and non-financial corporations; these differences are less apparent for investors in emerging economies. The sectoral differences for advanced countries warrant further investigation to understand why the bond portfolios of banks and households exhibit greater sensitivity to distance than the bond portfolios of other financial corporations and non-financial corporations.

It is striking that the distance effect is not significant for bond holdings of the government sector. This is perhaps not surprising to the extent that the bond holdings of governments are mainly in the form of official reserves and may be concentrated in the major reserve currencies rather than in neighbouring countries.

For both advanced and emerging reporting countries, trade is consistently significant as a covariate of bond holdings for the different holding sectors: this may reflect a hedging motive by which investors guard against the risk of depreciation vis-à-vis major import partners (Obstfeld and Rogoff 2001). The common legal origins dummy is also typically significant for both groups, with the exception of the holdings of banks and non-financial corporates in emerging economies. It is striking that a common language is typically important for holding sectors in emerging economies but is not significant for investors in advanced economies (with the exception of a significant but negative coefficient for the bond holdings of advanced-country banks).

In relation to common membership of institutional blocs (euro area, European Economic Area, Association of Southeast Asian Nations), common membership of the euro area is significantly positive across all holding sectors, with common membership of the European Economic Area significantly positive for the holdings of non-financial corporations but significantly negative for banks and households. For the emerging group, common membership of the European Economic Area is significantly positive for other financial corporations, banks and households, so that this institutional anchor seems more important for these holding sectors in the emerging economies of Central and Eastern Europe than for these holding sectors in the advanced economies. The ASEAN dummy is significantly positive for banks but significantly negative for other financial corporations.

In Table 4, we conduct a similar exercise in relation to international portfolio equity holdings. Relative to the patterns for bond holdings in Table 3, Table 4 shares some similarities but also exhibits some differences. For investors in both advanced and emerging economies, the distance effect is negative and statistically significant. Among advanced countries, banks, households and non-financial corporations exhibit the highest sensitivity to distance. The government sector is least sensitive to distance, a finding that is qualitatively similar to the distance-insensitivity of its bond holdings. There is less

sectoral variation in the distance coefficient in the sample of emerging markets.

Trade is a positive and consistently significant covariate across both sample splits. Furthermore, in the group of advanced countries, we observe disproportionately higher holdings by banks of equities issued by trade partners. It is noteworthy that legal origins matter for equity investors in advanced economies substantially more than for equity investors in emerging economies, with households in the former group attaching the highest weight to this variable. We also find that a common language is marginally more important for holding sectors in emerging economies than advanced economies.

Finally, the institutional variables appear to be more essential for the holding sectors of advanced countries than emerging countries. In particular, cross-border holdings of equity securities across all sectors show a significantly positive covariation with common membership of the euro area. Among these sectors, the other financial corporations sector shows the least sensitivity to the membership dummy. In relation to the European Economic Area, it is striking to observe a significantly negative coefficient in relation to equity holdings for most sectors, with households in advanced countries exhibiting the highest sensitivity (the EEA dummy is insignificant for the government sector). This pattern is in stark contrast to the effect that EEA membership has on cross-border holdings of debt securities.

## **4.2. International Portfolios: Issuing Sectors**

Panels A and B of Table 5 present results for portfolio debt regressions by the sector of issuer for investors in advanced and emerging economies respectively. For advanced economies, a striking pattern is that the distance variable is only significant for the bonds issued by banks; distance is more generally significant for the bonds issued by the different sectors in emerging economies, although considerably weaker for the bonds issued by non-financial corporates relative to banks or sovereigns.

In the sample of advanced reporting countries, trade is consistently positive and sig-

nificant as a covariate of the cross-border variation of debt liabilities, while trade matters only for the bonds issued by non-financial corporations in the sample of emerging economies. Legal origin is also important for the bonds issued by governments and non-financial corporations in emerging countries. This finding is consistent with the importance of legal origins for the holding sectors of advanced countries, which, in turn, hold 92 percent (for general government) and 75 percent (for non-financial corporations) of debt liabilities issued by emerging countries.<sup>15</sup>

In relation to the institutional variables, membership of the euro area is associated with higher bilateral debt positions across most issuing sectors. Common membership of the EEA is significantly positive for non-financial corporations, and marginally negative for banks in advanced countries. In contrast, the EEA membership dummy is positive and significant for the debt liabilities issued by sovereigns in emerging countries. The implication is that investors from fellow EEA member countries are disproportionately willing to hold the sovereign debt issued by governments in Central and Eastern Europe.

Next, we shift our attention to equity-issuing sectors.<sup>16</sup> In Panel A of Table 6, we present results for the issuing sectors in advanced countries, while Panel B shows the results for the issuing sectors in emerging countries. In stark contrast to the debt regressions, distance is consistently negative and statistically significant across both samples. While there is hardly any variation across sectors for the advanced and emerging groups, there are important differences across the groups: equity-issuing sectors in emerging economies seem to be disproportionately held by investors in neighbouring regions than the corresponding sectors in advanced economies.

Bilateral trade linkages and colonial links mostly matter to the issuing sectors of advanced countries, in particular vis-à-vis the shares issued by non-financial corporations and banks. The common legal origin dummy is significant for both groups of coun-

---

<sup>15</sup>The statistical significance of common legal origins in advanced countries is driven by “other” other financial corporations.

<sup>16</sup>We do not include the government sector as an issuer of portfolio equity securities, since this category is typically empty.

tries (with the exception of other financial corporations), with less apparent differences both across sectors and across sample splits. It is striking, however, that in advanced countries a common language is associated with a negative covariation pattern *via-à-vis* the equity securities issued by banks, while the corresponding association is positive in emerging economies. Turning to the institutional variables, the EEA dummy is positive and statistically significant only for issuing banks in emerging economies: membership to the European Economic Area has non-negligible implications for the funding sources of banks in Central and Eastern Europe.

### 4.3. Summary of Empirical Results

The main lessons from the gravity-type regressions reported in Tables 3-6 are as follows. First, there is clear evidence that the elasticities of holdings to the various gravity variables differ across the various holding and issuing sectors. At a basic level, these findings show that there is clear value in having access to the disaggregated sectoral data, in terms of understanding the composition of the investor base.

Second, the general pattern of results is in line with our priors that gravity patterns should be weaker for professional-type investors than for retail-type investors and stronger for opaque-type issuing sectors than for more transparent-type issuing sectors. For instance, Panel A of Table 3 shows that the elasticities of portfolio debt holdings *vis-à-vis* distance and bilateral trade are lower for the professional-type investors included in the OFC category (insurance companies, pension funds, hedge funds) than for the household sector. Similarly, Panel A of Table 5 shows that the bonds issued by banks in advanced economies are mainly held by investors in neighbouring countries, while the distance term is not significant for the bonds issued by sovereigns and non-financial corporates in advanced economies. This is intuitive, in view of the opaque nature of bank balance sheets compared to the volumes of information available in relation to the creditworthiness of sovereigns and large non-financial corporates.

Third, we note that common membership of the euro area is associated with significantly larger bilateral holdings across virtually all holding and issuing sectors, even controlling for common membership of the European Economic Area.

Fourth, Table 3 shows that the international bond portfolios of sovereign investors are orthogonal to distance, for both advanced and emerging economies. This is consistent with governments having quite different investment priorities compared to private-sector investors. Most obviously, the international bond holdings of sovereigns relate to reserve management considerations rather than to commercial criteria.

Clearly, these findings are only a first step in exploiting the potential richness of the expanded CPIS dataset. Much remains for future research.

## 5. Conclusions

This paper has studied the newly-available disaggregated data from the Coordinated Portfolio Investment Survey in order to explore whether geographical patterns in portfolio holdings vary in systematic ways across different categories of investors and different issuers of financial liabilities. The results in Table 3-6 reveal that the patterns evident in the aggregate bilateral data do not uniformly apply across the individual holding and issuing sectors.

While these results are intriguing, a greater level of understanding requires further progress in the collection and distribution of granular cross-border financial data (Lane 2015). For instance, the CPIS organises the data on a residency basis, while information on the nationalities of the holders and issuers of securities is critical for understanding the distribution of financial risk (Acharya et al 2015, Adjiev et al 2015). To make further progress, a major shift in the international financial data architecture is required.

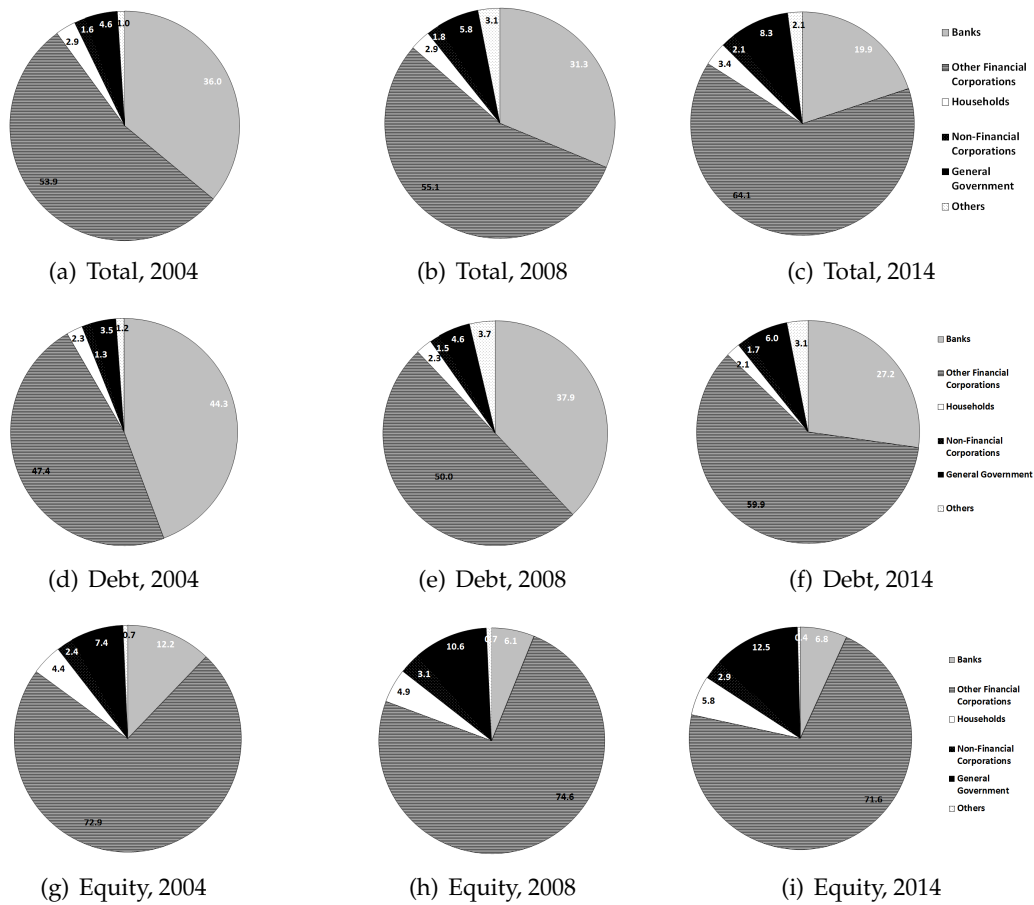


## References

- Acharya, Viral, Stephen G. Cecchetti, José De Gregorio, Sebnem Kalemli-Özcan, Philip R. Lane, and Ugo Panizza (2015), "Corporate Debt in Emerging Economies: A Threat to Financial Stability?," Committee on International Economic Policy and Reform.
- Aviat, Antonin and Nicolas Coeurdacier (2007), "The Geography of Trade in Goods and Asset Holdings," *Journal of International Economics* 71, 22-51.
- Avdjiev, Stefan, Robert Neil McCauley and Hyun Song Shin (2015), "Breaking Free of the Triple Coincidence in International Finance," Bank for International Settlements Working Paper No. 524.
- Coeurdacier, Nicolas and Philippe Martin (2009), "The Geography of Asset Trade and the Euro: Insiders and Outsiders," *Journal of the Japanese and International Economies* 23, 90-113.
- Daude, Christian and Marcel Fratzscher (2008), "The Pecking Order of Cross-Border Investment," *Journal of International Economics* 74, 94-119.
- Galstyan, Vahagn and Philip R. Lane (2013), "Bilateral Portfolio Dynamics During the Global Financial Crisis," *European Economic Review* 57, 63-74.
- Galstyan, Vahagn, Caroline Mehigan and Rogelio Mercado (2016), "The Currency Composition of International Portfolio Debt Assets," mimeo, Trinity College Dublin.
- Hale, Galina and Maurice Obstfeld (2016), "The Euro and The Geography of International Debt Flows," *Journal of the European Economic Association* 14, 115-144.
- Lane, Philip R. (2006), "Global Bond Portfolios and EMU," *International Journal of Central Banking* 2, 1-23.

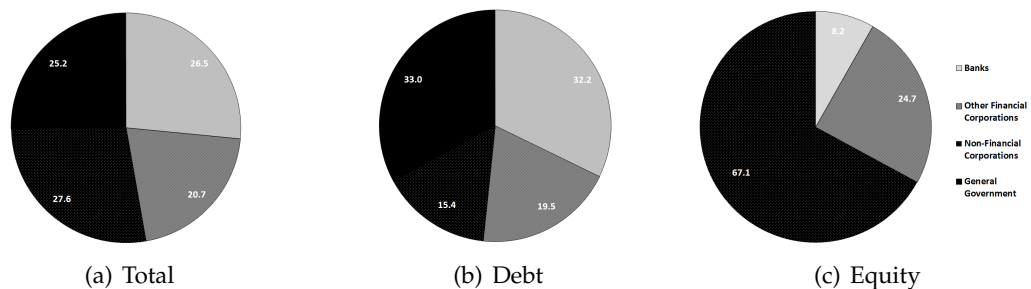
- Lane, Philip R. (2015), "Cross-Border Financial Linkages: Identifying and Measuring Vulnerabilities," CEPR Policy Insight No 77.
- Lane, Philip R. and Gian Maria Milesi-Ferretti (2008), "International Investment Patterns," *Review of Economics and Statistics* 90, 538-549.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer (2008), "The Economic Consequences of Legal Origins," *Journal of Economic Literature* 46, 285-332.
- Martin, Philippe and Hélène Rey (2004), "Financial Super-Markets: Size Matters for Asset Trade," *Journal of International Economics* 64, 335-361.
- Obstfeld, Maurice and Kenneth Rogoff (2000), "The Six Major Puzzles in International Macroeconomics: Is there a Common Cause?" *NBER Macroeconomics Annual*, 339-389.
- Okawa, Yohei and Eric Van Wincoop (2012), "Gravity in International Finance," *Journal of International Economics* 87, 205-215.
- Portes, Richard and Hélène Rey (2005), "The Determinants of Cross-Border Equity Flows," *Journal of International Economics* 65, 269-296.
- Stein, Ernesto and Christian Daude (2007), "Longitude Matters: Time Zones and the Location of Foreign Direct Investment," *Journal of International Economics* 71, 96-112.

Figure 1: International Portfolios Assets: By Holding Sector



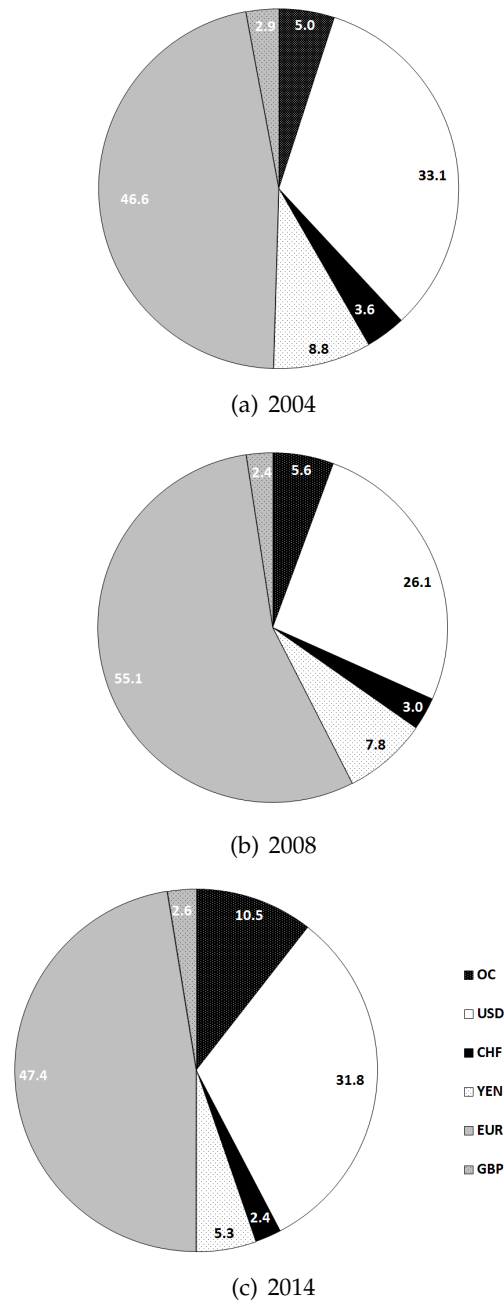
Note: Calculations are based on the CPIS data.

Figure 2: International Portfolio Liabilities: By Issuing Sector



Note: Charts presented for year 2014. Calculations are based on the CPIS data.

Figure 3: International Portfolio Debt Assets: Holdings by Currency



Note: Calculations are based on the CPIS data.

Table 1: International Portfolio Patterns: Holders in Advanced and Emerging Economies

	Total		Debt		Equity	
	ADV	EM	ADV	EM	ADV	EM
<b>Panel A: ADV</b>						
Other Financial Corporations	90.3	9.7	92.2	7.8	87.3	12.7
Banks	92.2	7.8	94.2	5.8	77.5	22.5
Households	94.9	5.1	93.7	6.3	95.6	4.4
General Government	87.2	12.8	87.9	12.1	86.6	13.4
Non-Financial Corporations	94.9	5.1	96.6	3.4	93.3	6.7
All Sectors	90.8	9.2	92.8	7.2	87.2	12.8
<b>Panel B: EM</b>						
Other Financial Corporations	81.0	19.0	64.9	35.1	89.0	11.0
Banks	63.1	36.9	64.0	36.0	55.2	44.8
Households	89.8	10.2	82.3	17.7	93.2	6.8
General Government	90.0	10.0	90.7	9.3	89.3	10.7
Non-Financial Corporations	76.1	23.9	84.8	15.2	66.4	33.6
All Sectors	81.2	18.8	77.3	22.7	84.7	15.3

Notes: Data for year 2014. Panel A refers to the portfolio patterns for investors in advanced economies; Panel B refers to the portfolio patterns for investors in emerging economies. Values refer to the sectoral shares of portfolio holdings for advanced and emerging countries relative to the total of each country group.

Table 2: International Portfolio Patterns: Issuers in Advanced and Emerging Economies

	Total		Debt		Equity	
	ADV	EM	ADV	EM	ADV	EM
<b>Panel A: ADV</b>						
Other Financial Corporations	98.0	2.0	98.7	1.3	96.2	3.8
Banks	98.1	1.9	98.2	1.8	96.2	3.8
General Government	98.7	1.3	98.7	1.3		
Non-Financial Corporations	93.6	6.4	90.9	9.1	95.7	4.3
All Sectors	97.0	3.0	97.4	2.6	95.9	4.1
<b>Panel B: EM</b>						
Other Financial Corporations	95.2	4.8	95.8	4.2	94.5	5.5
Banks	81.0	19.0	70.5	29.5	91.1	8.9
General Government	92.0	8.0	92.0	8.0		
Non-Financial Corporations	73.7	26.3	74.9	25.1	73.0	27.0
All Sectors	83.9	16.1	86.6	13.4	78.8	21.2

*Notes:* Data for year 2014. Panel A refers to the portfolio allocations across issuing sectors in advanced economies; Panel B refers to the portfolio allocations across issuing sectors in emerging economies.

Table 3: International Portfolio Debt: By Holding Sector

<b>Panel A: ADV</b>	<b>Total</b>	<b>OFC</b>	<b>Banks</b>	<b>HH</b>	<b>GG</b>	<b>NFC</b>
Distance	-0.57 (0.03)***	-0.47 (0.04)***	-1.02 (0.05)***	-0.76 (0.08)***	0.01 (0.08)	-0.44 (0.09)***
Trade	0.08 (0.01)***	0.04 (0.01)**	0.08 (0.02)***	0.11 (0.04)**	0.19 (0.04)***	0.25 (0.05)***
EEA	0.74 (0.07)***	0.18 (0.11)	-0.61 (0.17)***	-6.71 (1.02)***	0.39 (0.24)	6.87 (2.24)**
Euro	0.99 (0.06)***	0.83 (0.07)***	0.68 (0.09)***	0.74 (0.14)***	1.06 (0.11)***	0.75 (0.15)***
Common Language	0.10 (0.05)*	-0.02 (0.08)	-0.28 (0.09)**	0.02 (0.14)	-0.12 (0.15)	0.25 (0.16)
Colonial Links	0.55 (0.05)***	0.43 (0.08)***	0.52 (0.09)***	0.35 (0.13)**	0.29 (0.17)	0.13 (0.15)
Legal Origins	0.18 (0.03)***	0.21 (0.04)***	0.45 (0.06)***	0.51 (0.08)***	0.39 (0.08)***	0.54 (0.10)***
Marginal R2	0.17	0.09	0.18	0.11	0.10	0.12
R2	0.84	0.85	0.78	0.84	0.85	0.78
Observations	18200	10836	8322	5054	3916	4085
<b>Panel B: EM</b>	<b>Total</b>	<b>OFC</b>	<b>Banks</b>	<b>HH</b>	<b>GG</b>	<b>NFC</b>
Distance	-0.85 (0.03)***	-0.70 (0.07)***	-0.58 (0.06)***	-0.64 (0.07)***	-0.02 (0.17)	-0.76 (0.12)***
Trade	0.18 (0.02)***	0.16 (0.03)***	0.12 (0.04)***	0.19 (0.03)***	0.28 (0.09)**	0.10 (0.06)
EEA	0.79 (0.09)***	0.95 (0.17)***	0.52 (0.15)***	0.66 (0.17)***	0.59 (0.45)	0.50 (0.26)
ASEAN	0.20 (0.14)	-1.19 (0.29)***	0.89 (0.28)**	0.55 (1.52)	0.15 (0.66)	0.68 (0.58)
Common Language	0.44 (0.07)***	0.41 (0.16)**	0.11 (0.14)	0.79 (0.18)***	-1.18 (0.66)	1.15 (0.26)***
Colonial Links	0.10 (0.10)	0.34 (0.17)*	0.43 (0.15)**	-0.04 (0.22)	0.75 (0.36)*	-0.25 (0.26)
Legal Origins	0.22 (0.05)***	0.27 (0.09)**	0.01 (0.08)	0.49 (0.10)***	0.40 (0.15)**	-0.12 (0.16)
Marginal R2	0.26	0.19	0.13	0.26	0.15	0.14
R2	0.67	0.60	0.63	0.68	0.84	0.67
Observations	14339	5498	5485	3102	1183	2736

Notes: The dependent variable is the logarithm of the outstanding bilateral sectoral position. All regressions include host-year and source-year dummies. Sectoral definitions are as follows: other financial corporations (OFC), households(HH), general government (GG), non-financial corporations (NFC). \*\*\*, \*\*, \* denote significance at 1, 5 and 10 percent.



Table 4: International Portfolio Equity: By Holding Sector

<b>Panel A: ADV</b>	<b>Total</b>	<b>OFC</b>	<b>Banks</b>	<b>HH</b>	<b>GG</b>	<b>NFC</b>
Distance	-0.65 (0.03)***	-0.61 (0.04)***	-0.95 (0.09)***	-1.12 (0.08)***	-0.66 (0.11)***	-1.07 (0.10)***
Trade	0.21 (0.02)***	0.17 (0.02)***	0.55 (0.06)***	0.13 (0.04)***	0.06 (0.05)	0.38 (0.06)***
EEA	-0.61 (0.07)***	-1.16 (0.11)***	-1.66 (0.36)***	-9.03 (0.48)***	-1.09 (0.70)	-5.81 (0.78)***
Euro	0.39 (0.05)***	0.71 (0.06)***	0.95 (0.16)***	1.20 (0.10)***	1.79 (0.12)***	1.27 (0.13)***
Common Language	0.22 (0.05)***	-0.01 (0.08)	0.22 (0.15)	0.67 (0.14)***	0.01 (0.15)	0.61 (0.15)***
Colonial Links	0.74 (0.06)***	0.46 (0.08)***	0.25 (0.15)	0.76 (0.13)***	0.02 (0.21)	0.35 (0.16)*
Legal Origins	0.37 (0.04)***	0.37 (0.04)***	0.16 (0.10)	0.69 (0.07)***	0.08 (0.10)	0.22 (0.10)*
Marginal R2	0.18	0.15	0.17	0.25	0.18	0.20
R2	0.87	0.87	0.69	0.86	0.91	0.75
Observations	16526	9982	5110	5564	3006	4545
<b>Panel B: EM</b>	<b>Total</b>	<b>OFC</b>	<b>Banks</b>	<b>HH</b>	<b>GG</b>	<b>NFC</b>
Distance	-1.28 (0.05)***	-1.29 (0.07)***	-0.83 (0.20)***	-0.86 (0.10)***	-0.73 (0.24)**	-1.44 (0.11)***
Trade	0.24 (0.02)***	0.16 (0.03)***	0.08 (0.12)	0.28 (0.06)***	0.33 (0.12)**	0.23 (0.05)***
EEA	-0.39 (0.11)***	-0.33 (0.16)*	-0.19 (0.45)	-0.47 (0.22)*	-0.19 (0.92)	-0.61 (0.24)*
ASEAN	0.59 (0.17)***	-0.43 (0.32)	-1.15 (0.66)	-0.42 (1.22)	-5.35 (0.91)***	-0.34 (0.47)
Common Language	0.53 (0.10)***	0.84 (0.14)***	0.16 (0.27)	0.55 (0.23)*	0.80 (0.66)	1.48 (0.20)***
Colonial Links	0.54 (0.12)***	0.45 (0.17)**	-0.05 (0.39)	0.99 (0.21)***	-0.03 (0.52)	0.29 (0.25)
Legal Origins	0.18 (0.06)**	-0.09 (0.10)	0.21 (0.17)	0.19 (0.15)	0.18 (0.31)	-0.53 (0.16)***
Marginal R2	0.28	0.24	0.06	0.18	0.20	0.24
R2	0.69	0.66	0.76	0.71	0.86	0.69
Observations	13230	6059	2097	3535	801	3669

Notes: The dependent variable is the logarithm of the outstanding bilateral sectoral position. All regressions include host-year and source-year dummies. Sectoral definitions are as follows: other financial corporations (OFC), households(HH), general government (GG), non-financial corporations (NFC). \*\*\*, \*\*, \* denote significance at 1, 5 and 10 percent.

Table 5: International Portfolio Debt: By Issuing Sector

<b>Panel A: ADV</b>	<b>Total</b>	<b>OFC</b>	<b>Banks</b>	<b>GG</b>	<b>NFC</b>
Distance	-0.02 (0.09)	0.22 (0.34)	-0.57 (0.22)**	0.01 (0.23)	0.11 (0.26)
Trade	0.51 (0.07)***	0.70 (0.18)***	0.57 (0.15)***	0.45 (0.13)***	0.36 (0.15)*
EEA	1.01 (0.26)***	1.89 (1.32)	-1.47 (0.65)*	-0.02 (0.91)	2.21 (0.72)**
Euro	1.29 (0.15)***	0.93 (0.44)*	0.96 (0.34)**	1.36 (0.35)***	0.57 (0.34)
Common Language	-0.25 (0.17)	-1.20 (0.46)**	-0.82 (0.45)	0.17 (0.37)	-0.15 (0.34)
Colonial Links	0.43 (0.22)*	0.02 (0.45)	0.39 (0.53)	0.10 (0.62)	0.40 (0.38)
Legal Origins	0.21 (0.11)	1.32 (0.38)***	-0.01 (0.26)	0.04 (0.24)	0.32 (0.22)
Marginal R2	0.22	0.18	0.16	0.10	0.14
R2	0.83	0.84	0.80	0.83	0.84
Observations	1938	369	473	431	472
<b>Panel B: EM</b>	<b>Total</b>	<b>OFC</b>	<b>Banks</b>	<b>GG</b>	<b>NFC</b>
Distance	-0.91 (0.06)***	0.09 (0.38)	-1.29 (0.32)***	-0.92 (0.15)***	-0.45 (0.19)*
Trade	0.11 (0.02)***	0.19 (0.13)	0.09 (0.07)	-0.01 (0.04)	0.16 (0.06)**
EEA	0.84 (0.20)***	-0.95 (0.67)	0.34 (1.45)	2.09 (0.58)***	-0.65 (1.11)
ASEAN	0.27 (0.29)		-0.64 (0.95)		2.34 (0.72)**
Common Language	0.09 (0.13)	-0.15 (1.07)	-1.48 (0.62)*	-0.27 (0.43)	0.43 (0.56)
Colonial Links	0.29 (0.19)	-0.64 (0.93)	-0.49 (0.47)	-0.41 (0.30)	-1.29 (0.46)**
Legal Origins	0.55 (0.08)***	-0.13 (0.34)	0.42 (0.23)	0.63 (0.16)***	0.55 (0.20)**
Marginal R2	0.26	0.02	0.15	0.13	0.16
R2	0.73	0.71	0.68	0.79	0.73
Observations	3816	319	475	858	632

Notes: The dependent variable is the logarithm of the outstanding bilateral sectoral position. All regressions include host-year and source-year dummies. Sectoral definitions are as follows: other financial corporations (OFC), general government (GG), non-financial corporations (NFC). \*\*\*, \*\*, \* denote significance at 1, 5 and 10 percent.

Table 6: International Portfolio Equity: By Issuing Sector

<b>Panel A: ADV</b>	<b>Total</b>	<b>OFC</b>	<b>Banks</b>	<b>NFC</b>
Distance	-0.54 (0.10)***	-0.99 (0.26)***	-0.49 (0.23)*	-0.40 (0.17)*
Trade	0.48 (0.06)***	0.38 (0.21)	0.36 (0.13)**	0.55 (0.11)***
EEA	-0.13 (0.23)	0.28 (0.81)	0.63 (0.61)	-0.33 (0.49)
Euro	0.10 (0.15)	-0.45 (0.37)	-0.46 (0.38)	0.10 (0.24)
Common Language	-0.07 (0.18)	0.11 (0.41)	-0.79 (0.35)*	-0.19 (0.33)
Colonial Links	0.90 (0.24)***	1.75 (0.84)*	1.80 (0.55)**	0.25 (0.46)
Legal Origins	0.37 (0.12)**	-0.06 (0.30)	0.66 (0.27)*	0.48 (0.21)*
Marginal R2	0.23	0.20	0.23	0.23
R2	0.86	0.78	0.83	0.89
Observations	1918	444	412	603
<b>Panel B: EM</b>	<b>Total</b>	<b>OFC</b>	<b>Banks</b>	<b>NFC</b>
Distance	-1.34 (0.08)***	-1.46 (0.39)***	-1.01 (0.36)**	-0.90 (0.23)***
Trade	0.13 (0.03)***	-0.13 (0.14)	-0.05 (0.08)	0.11 (0.07)
EEA	-0.90 (0.28)**	-1.25 (0.91)	6.29 (1.82)***	0.79 (1.37)
ASEAN	0.13 (0.36)		-0.67 (1.09)	1.54 (0.94)
Common Language	0.51 (0.17)**	1.04 (3.15)	1.53 (0.70)*	0.07 (0.53)
Colonial Links	0.58 (0.20)**	-0.27 (0.50)	-0.69 (0.55)	-0.48 (0.43)
Legal Origins	0.74 (0.12)***	0.67 (0.35)	0.67 (0.26)*	1.01 (0.23)***
Marginal R2	0.26	0.08	0.11	0.18
R2	0.73	0.66	0.78	0.73
Observations	3102	400	479	847

*Notes:* The dependent variable is the logarithm of the outstanding bilateral sectoral position. All regressions include host-year and source-year dummies. Sectoral definitions are as follows: other financial corporations (OFC), general government (GG), non-financial corporations (NFC). \*\*\*, \*\*, \* denote significance at 1, 5 and 10 percent.

## Appendix: Broad Country List

**Reporters:** Argentina, Australia, Austria, Bangladesh, Belarus, Belgium, Bolivia, Brazil\*, Bulgaria, Canada\*, Chile, Colombia, Costa Rica, Cyprus, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Germany, Greece, Honduras, Hong Kong\*, Hungary, Iceland, India, Indonesia, Israel, Italy, Japan, Kazakhstan, Korea, Kuwait, Latvia, Lithuania, Malaysia, Malta\*, Mexico, Mongolia, Netherlands, New Zealand, Norway, Pakistan, Philippines\*, Poland, Portugal, Romania, Russian Federation, Singapore\*, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Switzerland\*, Thailand, Turkey, Ukraine, United Kingdom, United States\*, Uruguay, Venezuela.<sup>17</sup>

**Partners:** Afghanistan, Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bangladesh, Belarus, Belgium, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Congo, Costa Rica, Cote d'Ivoire, Croatia, Cyprus, Czech Republic, Denmark, Djibouti, Dominica, Dominican Republic, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, Gabon, Gambia, The, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Iraq, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Korea, Kuwait, Kyrgyz Republic, Laos, Latvia, Lesotho, Liberia, Libya, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Mauritania, Mexico, Moldova, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russian Federation, Rwanda, Sao Tome and Principe, Saudi Arabia, Senegal, Sierra Leone, Singapore, Slovak Republic, Slovenia, Solomon Islands, South Africa, Spain, Sri Lanka, Sudan, Suriname, Swaziland, Sweden,

---

<sup>17</sup>Countries with asterisk report only aggregate holding.

Switzerland, Tajikistan, Tanzania, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe.