



BIS Bulletin

No 118

International footprint of global firms:
residence and nationality perspectives
on maritime shipments

Han Qiu, Hyun Song Shin and Leanne Si Ying Zhang

3 December 2025

BIS Bulletins are written by staff members of the Bank for International Settlements, and from time to time by other economists, and are published by the Bank. The papers are on subjects of topical interest and are technical in character. This work is an extension of Project Insight. The views expressed in this publication are those of the authors and do not necessarily reflect the views of the BIS or its member central banks, or stakeholders in Project Insight. The authors are grateful to Jon Frost, Bryan Hardy, Pablo Hernandez de Cos, Ulf Lewrick, Dan Rees, Bruno Tissot and Philip Wooldridge for helpful feedback, to Jimmy Shek for excellent research assistance, and to Nicola Faessler and Danielle Ritzema for administrative support.

The editor of the BIS Bulletin series is Hyun Song Shin.

This publication is available on the BIS website (www.bis.org).

© *Bank for International Settlements 2025. All rights reserved. Brief excerpts may be reproduced or translated provided the source is stated.*

ISSN: 2708-0420 (online)

ISBN: 978-92-9259-912-6 (online)

International footprint of global firms: residence and nationality perspectives on maritime shipments

Key takeaways

- *Nationality-based measurement that consolidates firms according to the nationality of the ultimate parent firm provides new insights on questions of ownership and control that underpin the operation of global value chains.*
- *Nationality-based shipment data highlight significant “within-nationality” shipments, especially between entities of the same parent group, revealing a strikingly different picture of global shipments compared with conventional residence-based measures.*
- *Foreign subsidiaries operate under two distinct shipment models: the “outpost” model which relies on upstream counterparties from the parent region, common among Asian firms, and the “going-global” model characterised by globally distributed trading partners, prevalent among North American firms.*

Measurement presupposes theory. For international trade, the conceptual underpinnings rest on measuring trade flows at the border that represents the GDP boundary. Measurement follows national income accounting principles based on the concept of *residence*, defined in terms of the economic territory with which an entity has the strongest connection, or its “centre of predominant economic interest” (IMF (2025)). A firm is resident in economy A if it conducts its business mainly in economy A. This is so, whether a firm is domestically owned or is a foreign-owned subsidiary, controlled by owners who live abroad and where its income accrues mainly to foreign shareholders. The GDP area is the unit of analysis, and the collection of GDP areas is then seen as an archipelago of separate islands, so that trade is measured when transactions cross from one island to another.¹ While this conventional approach does a good job of measuring output and employment, it has become increasingly poor at measuring the span of ownership and control as firms weave a web of supply chains across the global trading system (Avdjiev et al (2018); Shin (2017); Tooze (2025)).

As the international footprint of global firms takes centre stage, issues of ownership and control rise to the top of the agenda. This is especially so for the operation of global value chains where traditional arm’s length market relationships face challenges in maintaining the resilience and durability of customer-supplier linkages. For these questions on supply chain resilience, the conventional “island” view of trade could be supplemented by the *nationality* perspective, which considers the activities of subsidiaries abroad as an integral part of the activity of the parent group that straddles national boundaries.

¹ Conventional residence-based trade measures also capture cases where there may be no physical movement of goods from one island to another, for example in the case of contract manufacturing, distinguishing these measures from those based on customs data (Avdjiev et al (2018)).

For global banks, the BIS international banking statistics have long reported both residence and nationality dimensions in statistics describing the activities of global banking groups.² The nationality banking statistics are key to shedding light on ownership, control, internal capital markets of banks and associated capital flows – all issues that are of prime importance for the supervisory function that is arranged along nationality lines (McGuire et al (2024); Tissot (2016)). While the nationality perspective in financial statistics is well established, there is relatively less analysis of the nationality dimension in international trade, despite the importance of ownership and control in supply chains.³

Our analysis in this Bulletin seeks to fill this gap. We examine detailed maritime shipment data and compare maritime shipment flows based on the residence of shippers (senders of shipments) and consignees (recipients of shipments). We compare the *nationality* of shippers and consignees (based on their ultimate parent firm)⁴ with the conventional measures of shipper and consignee based on residence. We use maritime containerised shipment data from 2024, matched with corporate ownership data, sourced from Dun & Bradstreet (D&B). The shipping data set covers 55.98 million twenty-foot equivalent units (TEUs) of shipments, with a total value of USD 2.43 trillion, representing approximately one third of global maritime containerised shipment volume measured in TEU.⁵

Our investigation reveals three key findings. First, the pattern of nationality-based shipment flows differs significantly from residence-based ones, with a high incidence of international shipments between firms of the same nationality. The prevalence of such “within-nationality” international trade likely reflects the important role of ownership and control in securing supplier relationships. Second, within-group shipments, or shipments between entities under the same parent company umbrella, make up a significant share of foreign subsidiary shipment value (around 40 or 50% depending on the country) and are a key driver of within-nationality flows. Finally, our analysis reveals two types of foreign subsidiary trade patterns: the “outpost” model, where subsidiaries rely heavily on suppliers from the parent region, and the “going-global” model where shipment partners tend to be globally distributed. The outpost model is prevalent for some Asian economies, while the going-global model is typical in North American foreign subsidiaries.

A residence versus nationality perspective on global maritime shipments

We illustrate the distinction between nationality- and residence-based shipment flows in the following example. A manufacturer in economy A ships goods to its consignee in economy B. The firm in economy A is a subsidiary of a parent company in economy C, while the firm in economy B is a subsidiary of a parent company in economy D. From a residence-based perspective, the shipment is from economy A to economy B, while from a nationality perspective, the shipment is from economy C to economy D.

Nationality-based measures of trade flows reveal a strikingly different pattern of global flows. Graph 1 uses Sankey diagrams to illustrate the shipper-to-consignee maritime shipment flows between the top 10 economies based on 2024 total merchandise trade, in terms of residence (Graph 1.A) and nationality (Graph 1.B). The width of each connection is proportional to the shipment value between the shipper and consignee economy pair as a percentage of the total shipments between these 10 economies.

² The nationality dimension of the BIS international banking statistics had its origins in the expansion of international banking activity in offshore centres in the 1970s, which necessitated a nationality breakdown in the BIS locational banking statistics introduced in 1964 and led to the collection of consolidated banking statistics starting from 1983.

³ This is an important focus for global economic activity. For example, the *Manual on Statistics of International Trade in Services 2010* includes statistics on foreign affiliates.

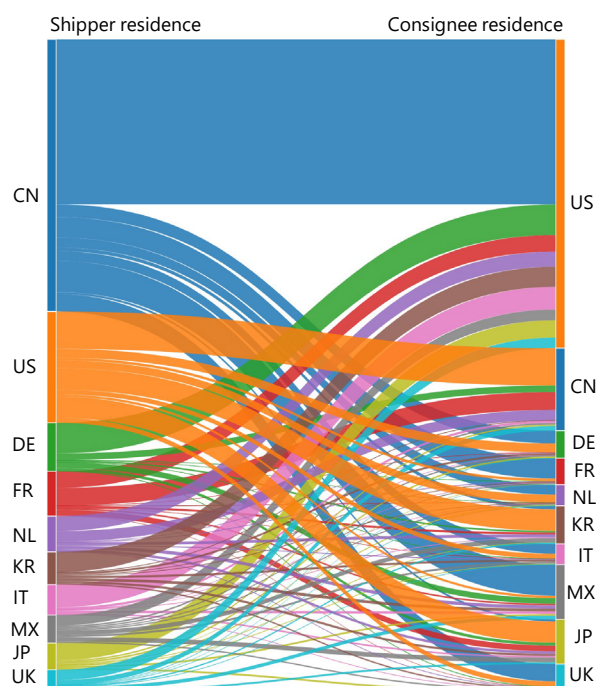
⁴ Henceforth referred to as the “parent firm” or “parent”.

⁵ Shipment values are estimated by D&B. For more details on the data, see the annex.

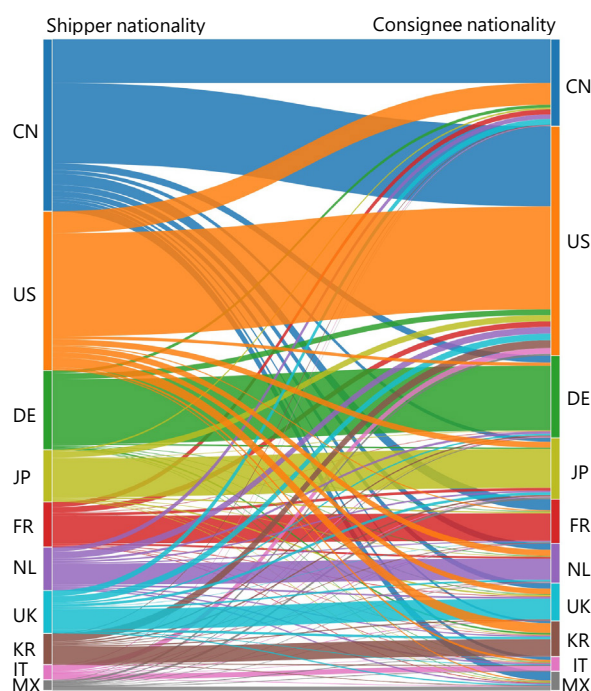
Maritime shipments by residence and nationality

Graph 1

A. By residence



B. By nationality

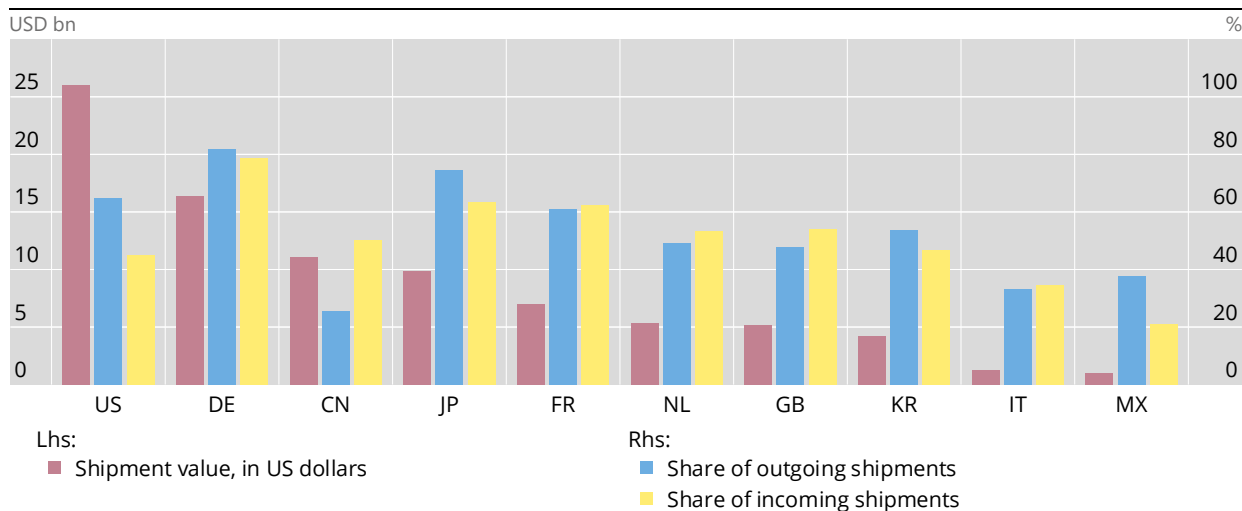


This graph shows shipper-to-consignee maritime shipment flows between the top 10 trading economies. In each panel, the left-hand side represents the shipper, with the width of the ribbon indicating the shipment value as a proportion of the total. The right-hand side represents the consignee. The colour of each flow is that of the shipper. As total shipment values among the 10 economies vary by residence and by nationality, the width of each economy-pair flow is not directly comparable across the two graphs. Instead, comparisons should be made between economy-pair flows within the same graph.

Sources: D&B; authors' calculations.

Within-nationality shipments by parent economy

Graph 2



The shares of outgoing and incoming shipments take into account only the shipments among the top 10 trading economies.

Sources: D&B; authors' calculations.

Graph 1.A shows the large shipment flows from entities resident in China (CN) to entities resident in the United States (US). This segment alone accounts for 53% of the total incoming shipment value to the

United States from the top 10 trading economies (Annex, Table A2). By contrast, Graph 1.B reveals the importance of within-nationality cross-border shipments. For instance, in the case of the United States, shipments from US-nationality firms account for 45% of total incoming shipment value to the US, while China's share is 35%. The numerical values behind Graph 1 are presented in the annex.

Zooming in on these within-nationality shipments reveals that they are important to varying degrees for major trading economies. These flows are largest in value for the United States, amounting to USD 26.03 billion, followed by Germany (DE) at USD 16.45 billion and China at USD 11.04 billion (Graph 2). When considering the share of such shipments as a proportion of total incoming and outgoing shipments by nationality, the United States, Germany, France (FR) and Japan (JP) stand out with relatively high shares. This underscores the critical role that global firms from these economies play in international trade. For China, within-nationality trade accounts for only 25% of total outgoing shipments but 50% of incoming flows, suggesting greater reliance on firms of the same nationality as suppliers rather than customers.

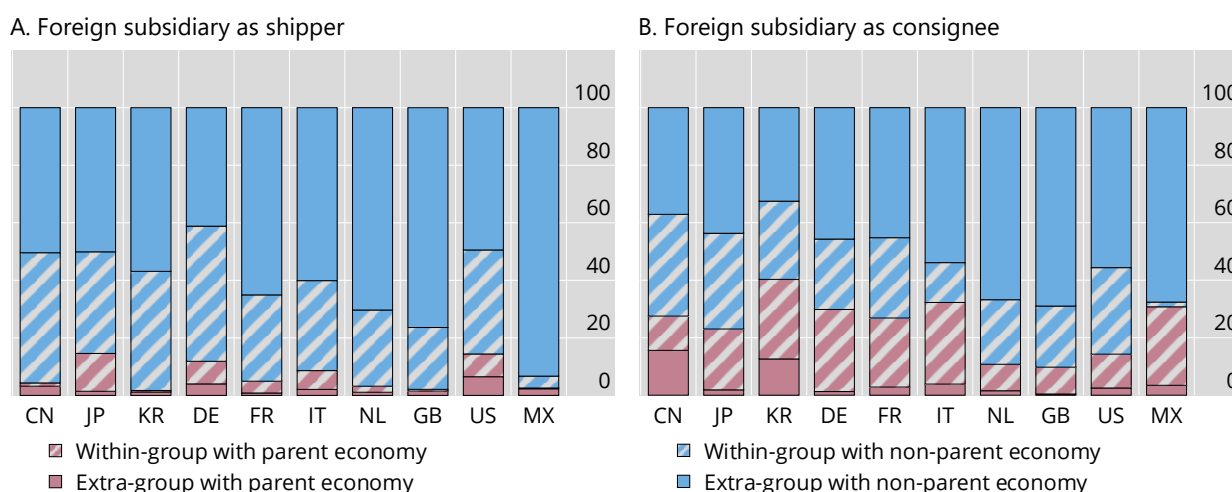
Within-group shipments

To shed light on the drivers of within-nationality flows, we narrow our focus to the shipments of foreign subsidiaries with parent companies located in the top 10 trading economies, breaking down these shipments by within-group (shipments between firms under the same parent company) and extra-group (shipments to firms not under the same parent). We find that within-group shipments represent a significant share of total foreign subsidiary shipment value and are therefore a key driver of within-nationality trade. As shown in Graph 3, within-group shipments (in stripes) account for around half of the total foreign subsidiary shipment value for China, Japan and Germany, and over 40% for the United States and Korea (KR).

Within-group shipments constitute a substantial proportion of total foreign subsidiary shipments

In per cent

Graph 3



Sources: D&B; authors' calculations.

These patterns reveal the importance of control in complex global production processes in overcoming incentive and hold-up problems (Blanchard and Kremer (1997); Kim and Shin (2012)). In arm's length market relationships, firms need to secure sufficient working capital to overcome payment delays and uncertainty. In contrast, within-group trade allows firms to maintain greater control over both upstream and downstream operations, thereby allowing firms to better manage risks and enhance supply chain resilience.

When looking at the composition of within-group and extra-group trade by further breaking down counterparties located inside and outside the economy where the parent company resides (parent economy), distinct patterns emerge. For foreign subsidiaries acting as shippers, trade with both affiliated and non-affiliated firms located outside of the parent economy (in striped and solid blue, respectively) dominate (Graph 3.A), highlighting the role of foreign subsidiaries as a spur in the parent economy supply chain that expands access to foreign markets. Conversely, for foreign subsidiary consignees, incoming shipments from affiliated firms in the parent economy (in striped red) feature prominently, especially for Asian economies, the European Union and Mexico (MX) (Graph 3.B). For China and Korea, shipments from non-affiliated firms in the parent economy (in solid red) are also significant, pointing to important ties with the home country beyond within-group trade.

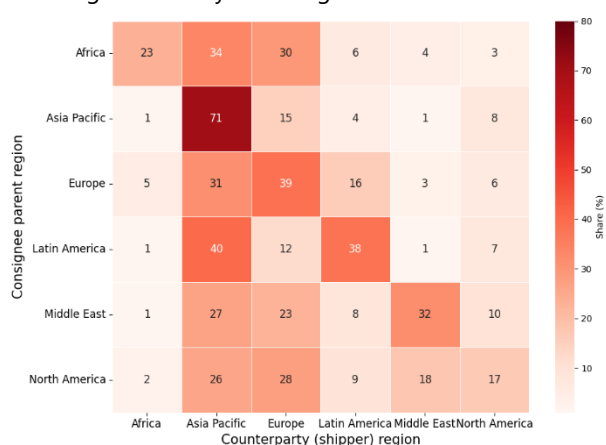
Foreign subsidiaries as customers and suppliers

Diving further into foreign subsidiary shipment ties with the parent economy and region, we find two contrasting models of how foreign subsidiaries feature in the operation of supply chains: the outpost model and the going-global model.

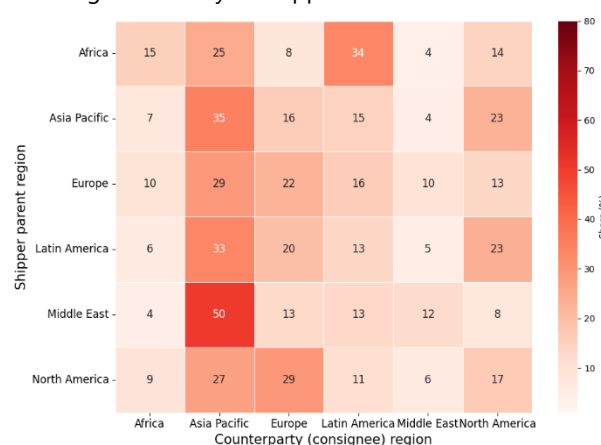
Foreign subsidiaries as customers and suppliers

Graph 4

A. Foreign subsidiary as consignee



B. Foreign subsidiary as shipper



Parent regions are represented along the y-axis, while regions of the counterparty to the foreign subsidiary are represented along the x-axis. A darker (lighter) coloured square reflects a higher (lower) share of counterparty shipment value in the host region indicated along the x-axis relative to the total shipment value of the parent region indicated along the y-axis. According to D&B's classification, North America includes the United States and Canada, while Latin America includes Mexico.

Sources: D&B; authors' calculations.

Considering foreign subsidiaries as customers, the outpost model refers to foreign subsidiaries sourcing the bulk of their supplies from their parent economy or region, essentially acting as a spur of the parent economy's supply chain. This model would be conducive to expanding market reach by using the subsidiaries as an outpost of the parent group. Graph 4 illustrates the location distribution of counterparties for foreign subsidiaries, broken down by the region of their parent economy. The relatively darker shaded cells along the diagonal squares in Graph 4.A show how foreign subsidiaries source their inputs from the parent region through the outpost model. This is especially notable for Asia, where 71% of incoming shipments to its foreign subsidiaries come from Asian shippers. For Europe and Latin America, there is a similar effect, although the equivalent figures are lower, at 39% and 38%, respectively. In contrast, the going-global model involves subsidiaries sourcing more of their inputs from all parts of the world. This model reflects firms seeking to leverage advantages such as lower labour costs, specialised skills or

supplier clusters outside the parent economy. North America is the clearest example, where only 17% of shipments come from North America itself.

These different models can have implications on supply chain resilience. For example, while the outpost model can better leverage the capacity of the parent economy, it may also increase exposure to its economic conditions. In contrast, the going-global model may reduce this risk by diversifying operations across regions, but it would depend more on arm's length market relationships.

In terms of foreign subsidiaries as suppliers (ie as shippers), the diagonal squares in Graph 4.B show fewer dark cells, indicating that the customers of foreign subsidiaries are less concentrated in the parent region. Instead, we see that customers located in Asia are major customers for shipments from all regions of the world, reflecting Asia's role in intermediate goods trade. For foreign subsidiaries both as suppliers and as customers, Graph 4.A and Graph 4.B illustrate the role of Asia as a manufacturing hub.

Conclusion

The nationality perspective on international trade highlights the role of supply chains of interconnected firms that transcend the conventional "island economy" approach to the analysis of international trade. The findings in this Bulletin provide a complementary nationality perspective on global trading relationships. While the residence-based approach is best suited for output measures and for employment, the nationality-based approach informs discussions on ownership, control and resilience. Our findings also underscore the complexity of global supply chains, where disruptions can propagate not only through trade but also through ownership structures. This alternative perspective sheds further light on the international trading system that is undergoing adjustments and realignment (Qiu et al (2023)).

References

- Avdjiev, S, M Everett, P Lane and H S Shin (2018): "Tracking the international footprints of global firms", *BIS Quarterly Review*, March, pp 47–66.
- Blanchard, O and M Kremer (1997): "Disorganization", *Quarterly Journal of Economics*, vol 112, no 4, pp 1091–126.
- International Monetary Fund (2025): *Integrated balance of payments and international investment position manual*, seventh edition (BPM7), white cover (pre-edited) version, March.
- Kim, S-J and H S Shin (2012): "Sustaining production chains through financial linkages", *American Economic Review*, vol 102, no 3, pp 402–06.
- McGuire, P, G von Peter and S Zhu (2024): "International finance through the lens of BIS statistics: residence vs nationality", *BIS Quarterly Review*, March, pp 73–88.
- Qiu, H, H S Shin and L Zhang (2023): "Mapping the realignment of global value chains", *BIS Bulletin*, no 78, October.
- Shin, H S (2017): "Globalisation: real and financial", presentation at the Bank for International Settlements 87th Annual General Meeting, 25 June.
- Tissot, B (2016): "Globalisation and financial stability risks: is the residency-based approach of the national accounts old-fashioned?", *BIS Working Papers*, no 587, October.
- Tooze, A (2025): "The future of the world economy beyond globalization – or, thinking with soup", *Chartbook*, no 413, 12 October.