

Geoeconomic “Connectors”

Shekhar Aiyar and Franziska Ohnsorge

Kiel-CEPR Conference, October 17-18, 2024

The findings, interpretations, and conclusions expressed in this paper are those of the authors alone and do not necessarily represent the views of the IMF or the World Bank or their Executive Boards. The database is available at <https://doi.org/10.7910/DVN/PGCQVD>.

Outline

Motivation, related literature, contribution

Data and index construction

Vertical and horizontal connectors

Trends since 2016

Conclusions and future research

Motivation

Questions

- 1) Which countries are most vulnerable geoeconomic fragmentation?
- 2) What is the best policy response to geoeconomic fragmentation?

Motivation

A New Source of Risk

“And right now as we speak, large factories, just started, are being built across the border in Mexico. [T]hey’re being built by China to make cars and to sell them into our country, no tax, no anything...[W]e’re going to bring back car manufacturing and we’re going to bring it back fast.”

Donald Trump, U.S. presidential nominee, speech at the Republican National Convention ([New York Times](#) 2024)

“This conclave is being organized at a time when there is a war situation in two big regions of the world. Both these regions are very important for the global economy [...]”

Narendra Modi, Prime Minister of India, speech at the third Kautilya Economic Conclave [2024](#).

Contribution

Framework for Examining Connector Countries

- From an emerging market perspective, formalize the notion of geoeconomic connectors.
- Extend several disparate existing exercises to all types of cross-country transactions with available data in a consistent methodology.

Outline

Motivation, related literature, contribution

Data and index construction

Vertical and horizontal connectors

Trends since 2016

Conclusions and future research

Bilateral Data Sources

FDI assets and liabilities for up to 195 economies (including 156 EMDEs) for 2002-22

- Coordinated Direct Investment Survey
- UNCTAD's Bilateral FDI database
- China's Statistical Bulletin of China's Outward FDI and China's Statistic Yearbook
- OECD's Bilateral FDI Statistics.

Portfolio investment assets and liabilities for up to 190 economies (including 154 EMDEs) for 2002-22

- Coordinated Portfolio Investment Survey

Liabilities to BIS-reporting banks for up to 173 economies (including 136 EMDEs) for 2002-23

- Consolidated total claims of BIS-reporting banks on all counterparties.

Trade for up to 199 economies for 2002-2023

- Direction of Trade Statistics.
- CEPII BACI Database.

Geopolitical distance for up to 193 economies for 2002-23.

- Bailey, Strezhnev, and Voten (2017)'s Ideal Point Index of UN voting patterns

Final Dataset

	Number of economies	Years
Total exports and imports	179 - 185	2002-2023
Exports and imports of capital goods	182 - 188	2002-2022
Exports and imports of intermediate inputs	182 - 188	2002-2022
Exports and imports of consumer goods	182 - 188	2002-2022
Exports and imports of goods, for eight HS sectors	182 - 188	2002-2022
FDI liabilities	188 - 190	2009-2022
Portfolio investment liabilities	173 - 176	2009-2022
Liabilities to BIS-reporting banks	164 - 167	2007-2023

Geoeconomic Vulnerability and Connectedness

Weighted Average and Standard Deviation of Geopolitical Distance

Geoeconomic Vulnerability: Trade- or liability-weighted average of geopolitical distance

$$GeoV_{i,t} = \sum_j \frac{v_{i,j,t}}{\sum_j v_{i,j,t}} IPD_{i,j,t}$$

- $IPD_{i,j,t}$ = geopolitical distance between country i and partner country j at time t ,
- $v_{i,j,t}$ = economic transaction between country i and its partner country j at time t .

Geoeconomic Connectedness: Trade- or liability-weighted standard deviation of geopolitical distance

$$GeoC_{i,t} = \sqrt{\frac{\sum_j \frac{v_{i,j,t}}{\sum_j v_{i,j,t}} \left(IPD_{i,j,t} - \sum_j \frac{v_{i,j,t}}{\sum_j v_{i,j,t}} IPD_{i,j,t} \right)^2}{\frac{N-1}{N} \sum_j \frac{v_{i,j,t}}{\sum_j v_{i,j,t}}}}$$

- $IPD_{i,j,t}$ = geopolitical distance between country i and partner country j at time t ,
- $v_{i,j,t}$ = economic transaction between country i and its partner country j at time t ,
- N = number of non-missing observations.

Outline

Motivation, related literature, contribution

Data and index construction

Vertical and horizontal connectors

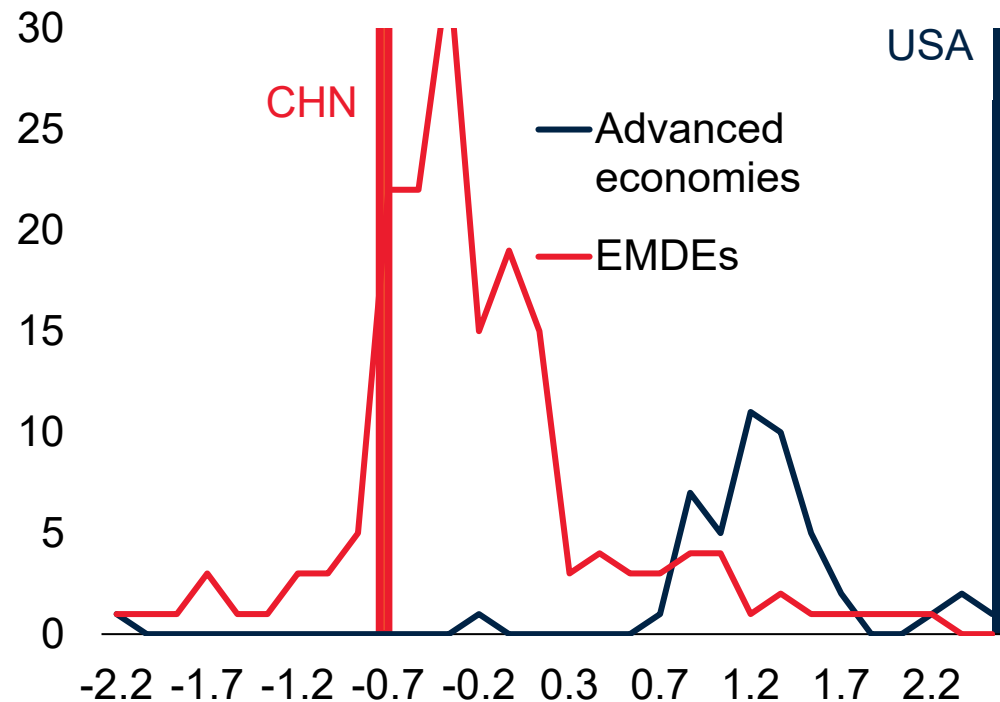
Trends since 2016

Conclusions and future research

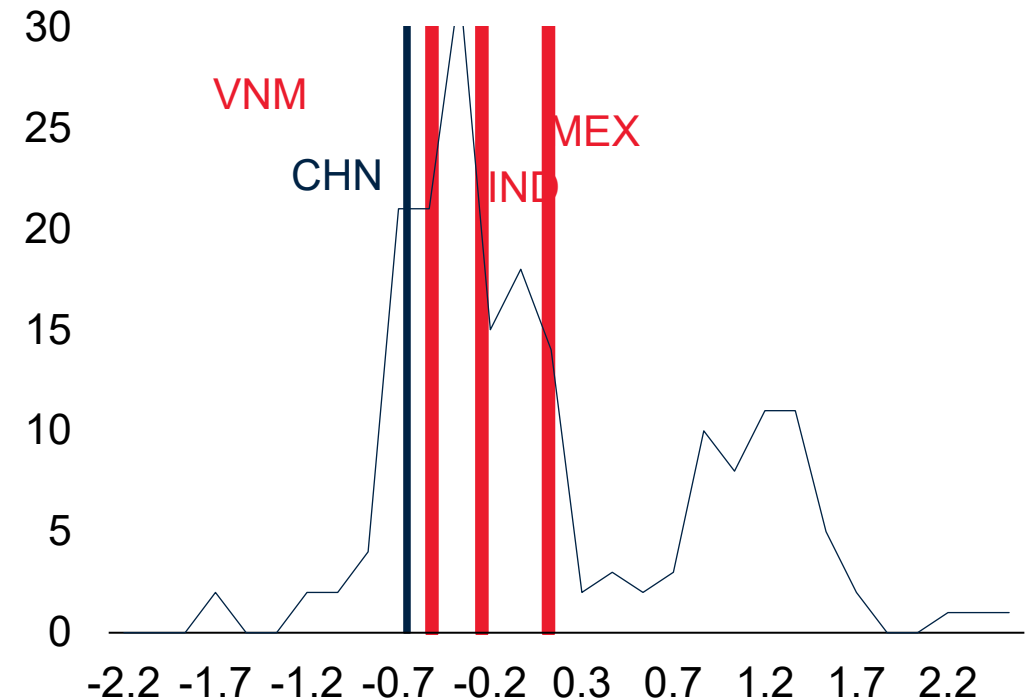
Geopolitical Stances

Most EMDEs Closer to China, Advanced Economies closer to US

Distribution of geopolitical stances, 2023
(Number of countries)



Distribution of EMDE geopolitical stances, 2023
(Number of countries)

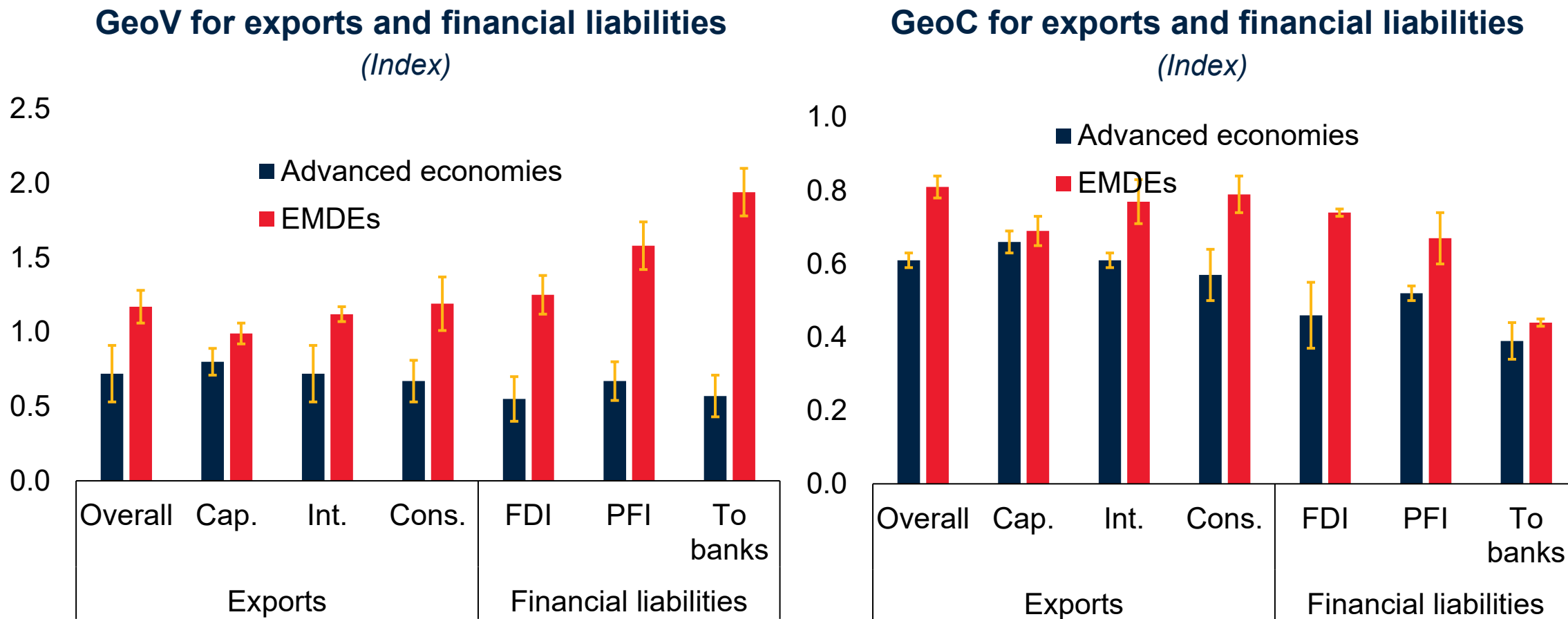


Source: Bailey, Strezhnev, and Voten (2017).

Note: Figures show the distribution of ideal point indices for EMDEs and advanced economies in 2023. Left Panel: Vertical lines indicate ideal point indices for China and United States. Right Panel: Vertical lines indicate ideal point indices for China, India, Mexico, and Vietnam. Thin blue line is distribution of ideal point indices for EMDEs.

GeoV and GeoC

Higher for EMDEs than AEs, GeoC Higher (GeoV Lower) for Trade Than Finance

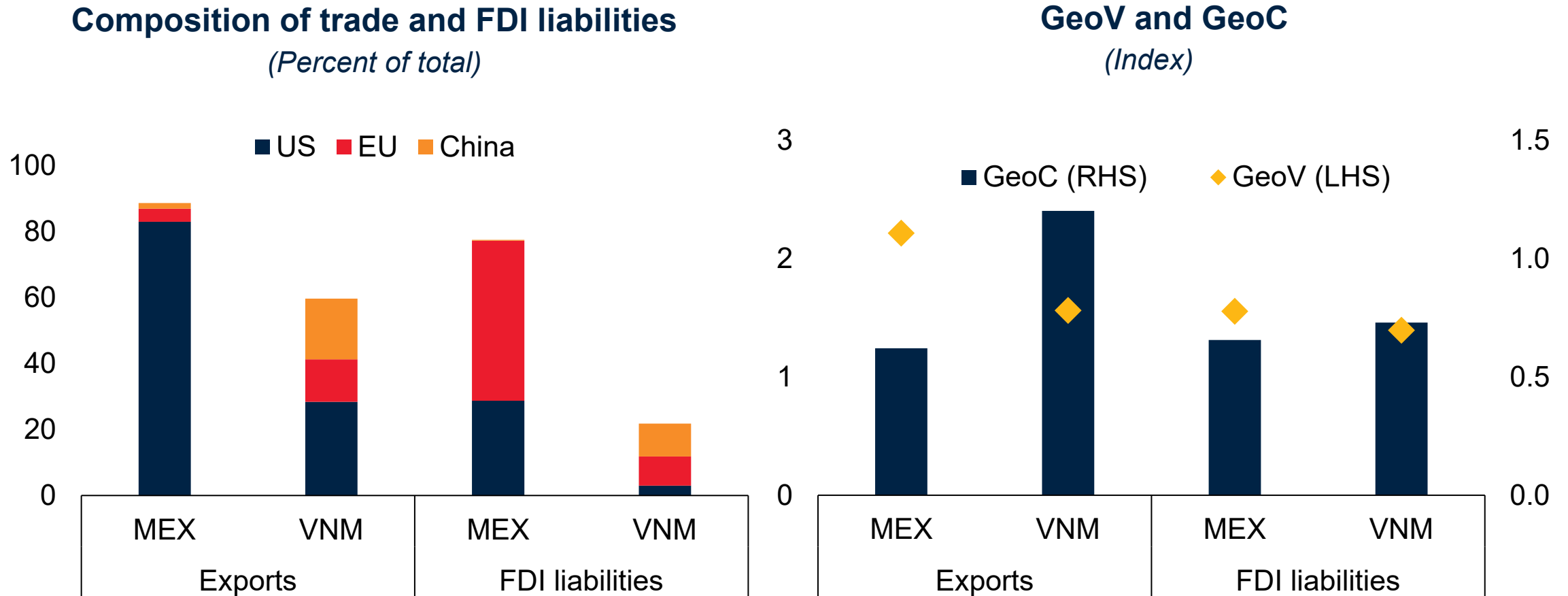


Source: Authors' estimates, DOTS, CDIS, OECD Bilateral FDI Statistics, China Statistical Office, UNCTAD Bilateral FDI statistics

Note: 2023 for exports and liabilities to banks, 2022 for FDI and portfolio investment (PFI) liabilities. Bars show unweighted averages, yellow whiskers show 90 percent confidence bands.

Mexico and Vietnam

Vertical and Horizontal Connectors



Source: Authors' estimates, DOTS, CDIS, OECD Bilateral FDI Statistics, China Statistical Office, UNCTAD Bilateral FDI statistics

Note: Latest available data for exports and imports for 2023, for FDI liabilities for 2022. Left Panel: Mexico's and Vietnam's exports to the United States and China, imports from United States and China, and FDI liabilities to United States and China in percent of total exports, imports, and FDI liabilities, respectively.

Outline

Motivation, related literature, contribution

Data and index construction

Vertical and horizontal connectors

Trends since 2016

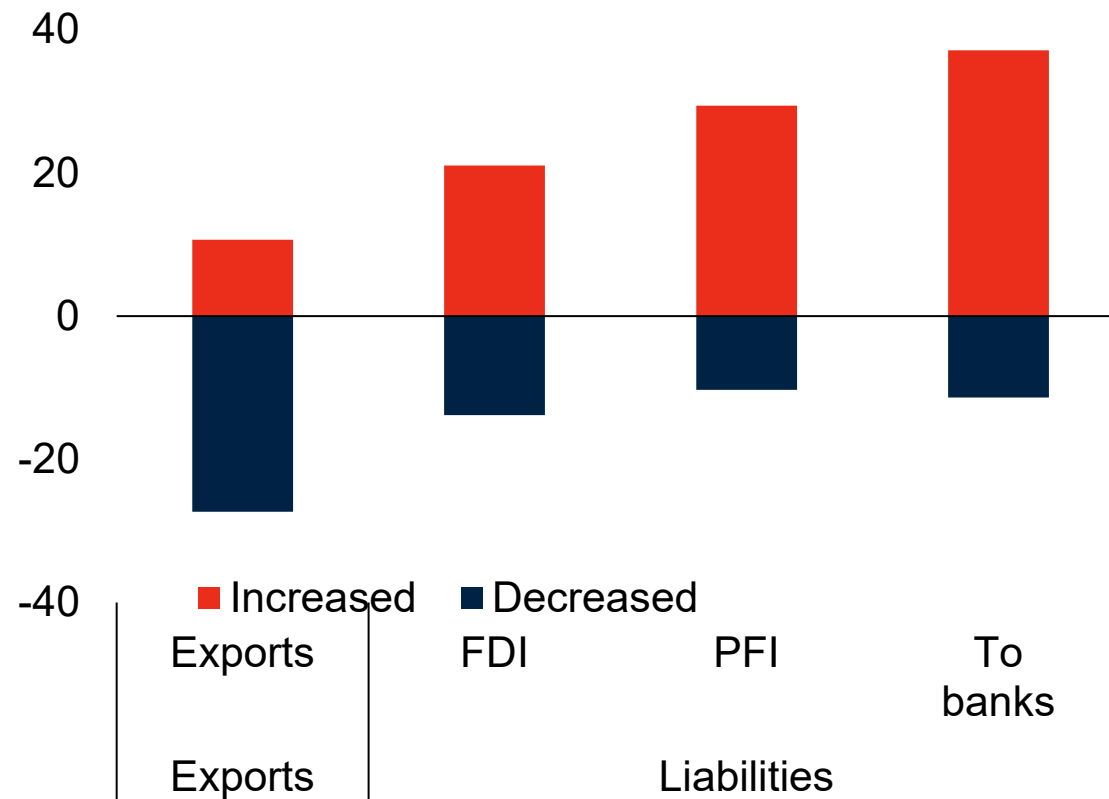
Conclusions and future research

Changes in EMDEs since 2016

Mostly Increased Vulnerabilities, Connectedness

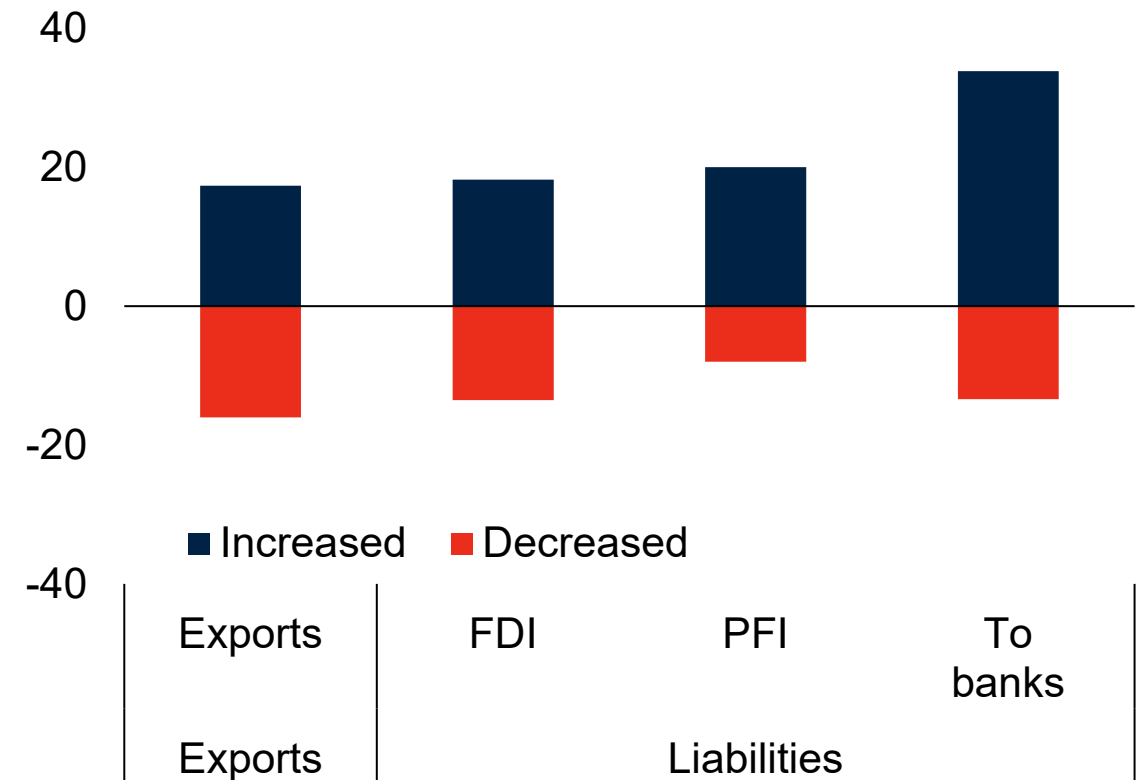
GeoV: EMDEs with significant changes since 2016

(Percent of EMDEs)



GeoC: EMDEs with significant changes since 2016

(Percent of EMDEs)



Source: Authors' estimates.

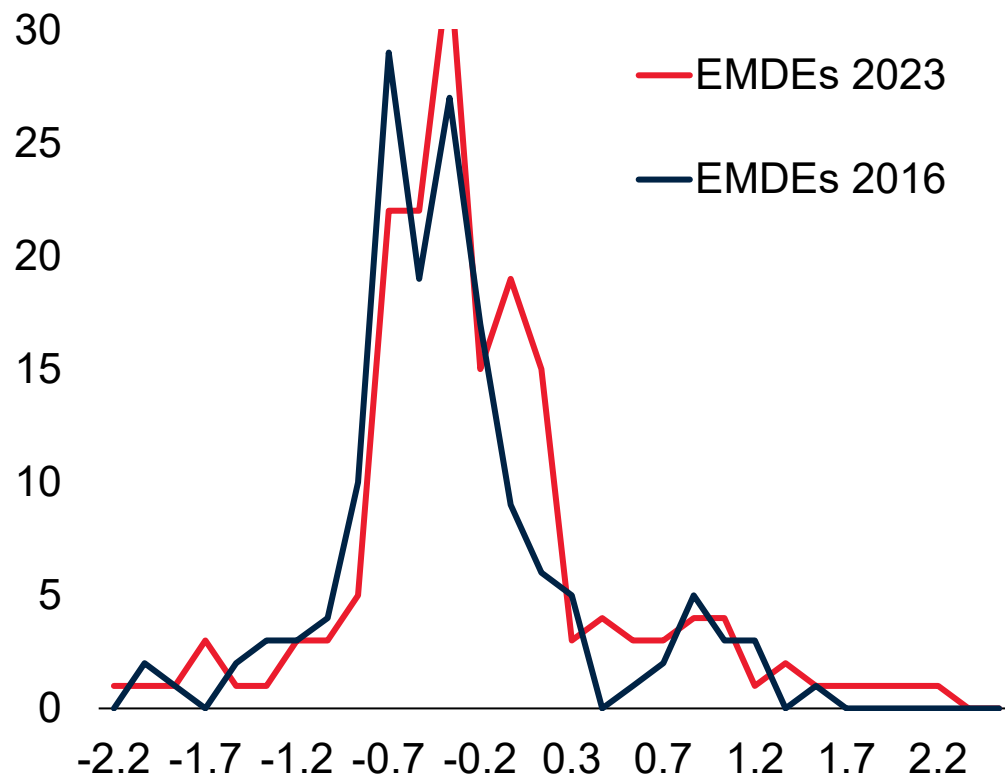
Note: Charts show the share of economies in which GeoV or GeoC has significantly risen ("increased") or fallen ("decreased") since 2016, at the 10 percent confidence level. Negative bars indicate share of countries with significant declines.

Reasons for Changes in EMDEs since 2016

Geopolitical and Trade Shift Towards the United States

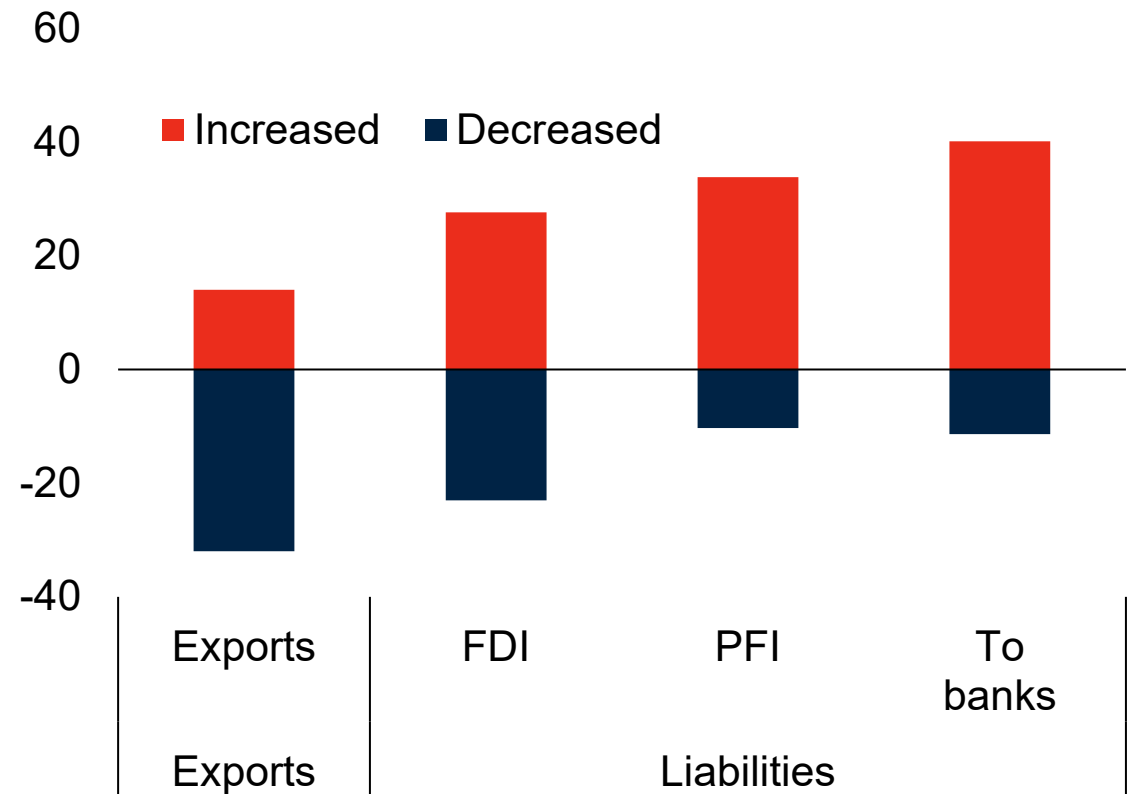
EMDEs: Distribution of geopolitical stances, 2016 and 2023

(Number of EMDEs)



GeoV at fixed 2016 IPD: EMDEs with significant changes since 2016

(Percent of EMDEs)



Source: Bailey, Strezhnev, and Voten (2017).

Left Panel: Figure shows the distribution of ideal point indices for EMDEs and advanced economies in 2023. Red lines indicate 2023 data, blue lines 2016 data. Right Panel: Charts show the share of EMDEs with statistically significant increases or decreases (90 percent confidence intervals) in GeoV and GeoC since 2016, holding ideal point distances fixed at their 2016 values. Share of EMDEs with decreases are shown as negative bars.

Changes in GeoV and GeoC since 2016

Largest Declines in GeoV in Countries with Greatest Vulnerability in 2016

Correlations between change in GeoV since 2016 and initial GeoV in 2016

	Dependent variable: Change in GeoV				Dependent variable: Change in GeoC			
	2016 GeoV	Constant	Obs.	R2	2016 GeoV	Constant	Obs.	R2
Exports	-0.189*** (0.0489)	0.0851** (0.0423)	182	0.135	-0.0726*** (0.0228)	0.0383 (0.0249)	182	0.058
Exports of capital goods	-0.216*** (0.0708)	0.210*** (0.0641)	184	0.046	-0.139*** (0.0437)	0.129*** (0.0419)	184	0.050
Exports of intermediate inputs	-0.296*** (0.0767)	0.227*** (0.0653)	184	0.178	-0.107*** (0.0309)	0.0763** (0.0314)	184	0.060
Exports of consumer goods	-0.182*** (0.0457)	0.182*** (0.0526)	184	0.088	-0.102*** (0.0218)	0.106*** (0.0286)	184	0.093
FDI liabilities	-0.227*** (0.0465)	0.261*** (0.0546)	184	0.162	-0.0669** (0.0272)	0.0410 (0.0281)	182	0.053
Portfolio liabilities	-0.332*** (0.0569)	0.418*** (0.0936)	170	0.195	0.00732 (0.0258)	-0.0196 (0.0419)	160	0.001
Liabilities to BIS-reporting banks	-0.0744** (0.0351)	0.0992 (0.0620)	164	0.024	0.00307 (0.0140)	0.0167 (0.0217)	161	0.000

Source: Authors' estimates.

Note: Cross-country linear regression of changes in GeoC since 2016 on initial GeoV in 2016 (excluding seven micro states). Robust standard errors in parentheses. ***, **, * stand for statistical significance at the 1, 5, and 10 percent level, respectively.

Future Research

- Theoretical framework for deriving the link between GDP growth and geoeconomic vulnerability and connectedness
- Empirical estimates of role of vulnerability and connectedness in amplifying or buffering geopolitical shocks

Outline

Motivation, related literature, contribution

Data and index construction

Vertical and horizontal connectors

Trends since 2016

Conclusions and future research

Conclusions

- EMDEs are more vulnerable to geopolitical shocks, but also more geoeconomically connected, than advanced economies.
- For EMDEs, geoeconomic vulnerability is larger in finance than in trade and connectedness is larger in trade than in finance.
- For EMDEs, declines in geoeconomic vulnerability in export destinations were more common than increases; and increases in vulnerability for financial liabilities were more common than decreases.
- The most vulnerable countries in 2016 reduced their vulnerabilities and connectedness the most.

Thank You!