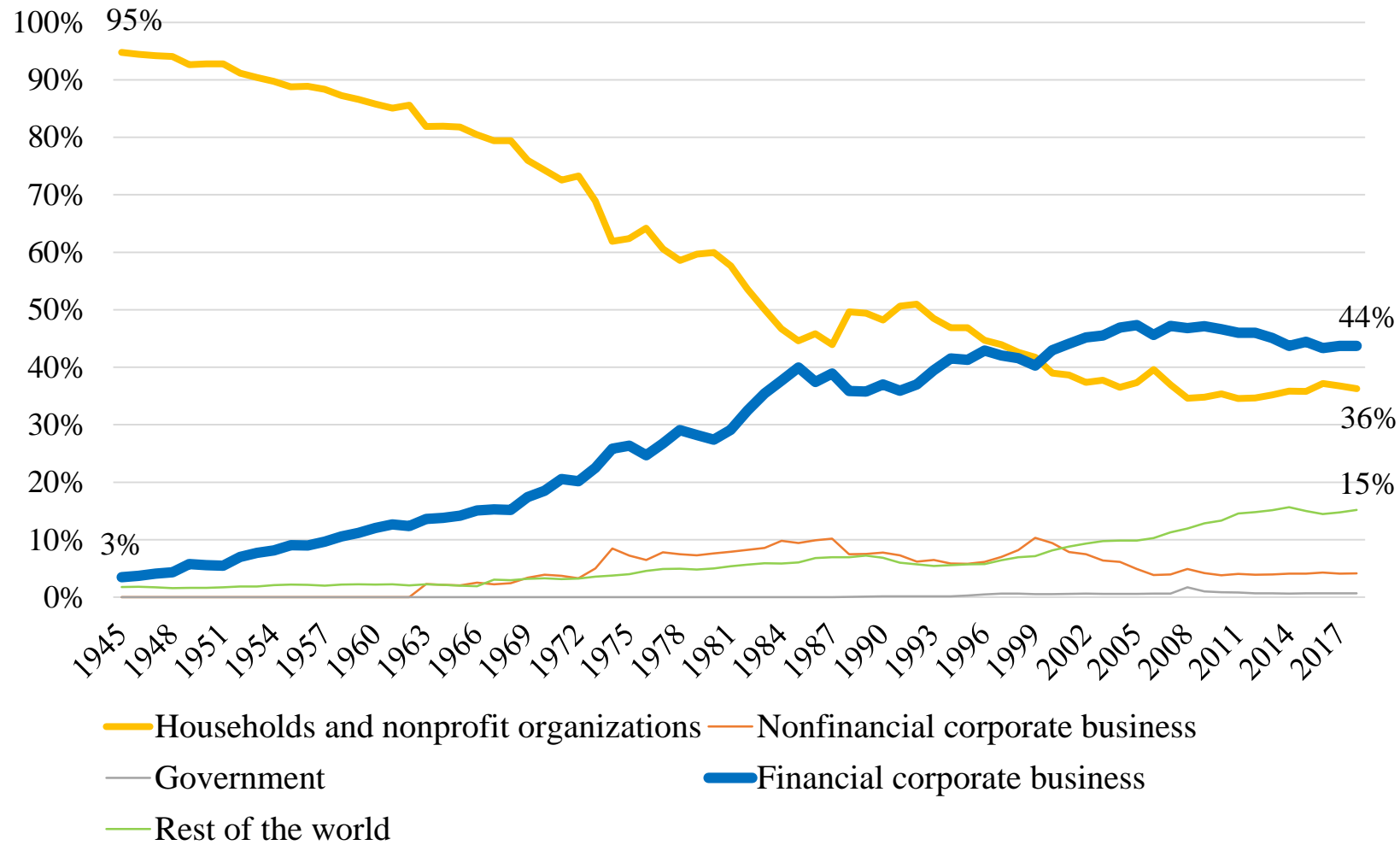


Who Owns the Means of Production?

Uneven Geographies of Financialization

Albina Gibadullina
PhD Student, UBC Geography

Background: Financialization in the United States



- The largest shareholder of US capital are institutional investors: mutual and exchange traded funds
- Altogether US finance owns 55-65% of US publicly traded firms
- Ownership is highly concentrated: **the top 3 index funds own 20% of the S&P 500 index**

Direct owners of US corporate equities by ownership percentage, 1945-2018

(Source: Federal Reserve)

The rise of the “Big Three”

Home > Investing

Three fund managers may soon control nearly half of all corporate voting power, researchers warn

Published: Sept. 20, 2019 at 9:54 a.m. ET

By [Andrea Riquier](#)

Actively managed funds have had outflows for the past four years straight, while index funds have gained

7

Asset flows to active and index funds

In billions



Special report

Nov 12th 2020 edition >

Index funds

Passive attack

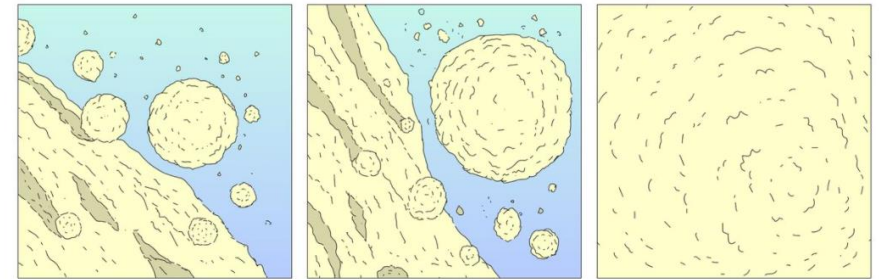
How index investing is reshaping the asset-management industry



dated on January 9, 2020, 10:40 AM PST

The Hidden Dangers of the Great Index Fund Takeover

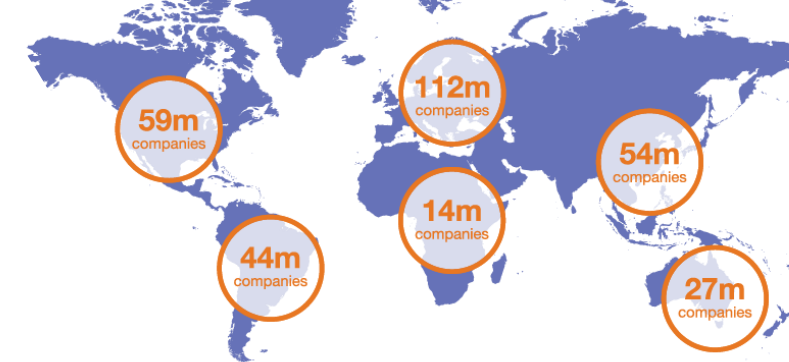
The Big Three—BlackRock, Vanguard, and State Street—are the most important players in corporate America. Whether they like it or not.



Two research questions:

- I. To which extent financiers in other countries control and own the means of production? Is this a US-only phenomenon?
- II. What is the position of American finance in the global corporate network?

Data and Methods



- Orbis provides firm-level data for 375 million public and private firms around the world (the most comprehensive global firm database)
 - Financial information + extensive data on corporate ownership ties
 - 8.9 million firms have known assets
- **My dataset** includes data on all firms with at least \$1m in total assets
 - 2.93 million unique firms in 202 countries
 - Accounts for 99% of total assets in the Orbis database
 - 6.4 million unique shareholders, 6.7 million weighted ownership ties, \$114.4 trillion in owned equity (global wealth in the world ~ \$317 trillion)

The wonders of aggregation...

Data attributes at the level of individual firms

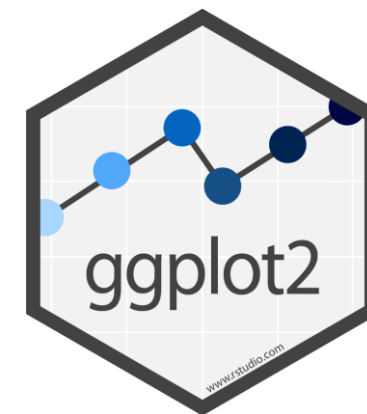
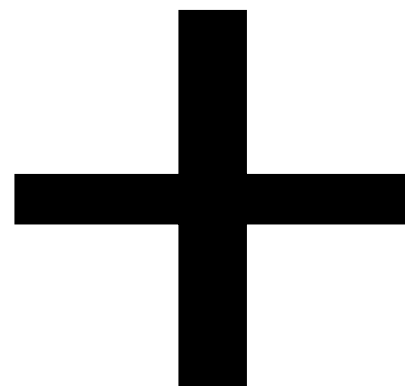
| Data attributes | Type of data | Description |
|--------------------------------------|-------------------------|----------------------------------|
| Node Attributes | | |
| Orbis ID | Identifier Variable | 6.6m unique observations |
| Country | Categorical - Nominal | 202 levels |
| Sector | Categorical - Nominal | 20 levels |
| Finance | Categorical - Nominal | 2 levels: Yes or No |
| Edge List | | |
| Source: Shareholder Orbis ID | Identifier Variable | 6.4m unique observations |
| Target: Firm Orbis ID | Identifier Variable | 2.9m unique observations |
| Weight: Ownership Tie 2018 \$ | Quantitative - Interval | Range from \$0.001m to \$1.2tril |
| Edge Type | Categorical - Nominal | 1 level: Directed |



Derived data attributes at the level of countries and industries

| Data attributes | Type of data | Description |
|--------------------------------------|-------------------------|----------------------------------|
| Node Attributes | | |
| Country Industry | Identifier Variable | 2490 unique observations |
| Country | Categorical – Nominal | 202 levels |
| Sector | Categorical – Nominal | 20 levels |
| Finance | Categorical – Nominal | 2 levels: Yes or No |
| Edge List | | |
| Source: Country Industry | Identifier Variable | 2144 unique observations |
| Target: Country Industry | Identifier Variable | 2040 unique observations |
| Weight: Ownership Tie 2018 \$ | Quantitative – Interval | Range from \$0.001m to \$4.5tril |
| Edge Type | Categorical – Nominal | 1 level: Directed |

InfoVis Solution



- *visNetwork*
- *igraph*
- *DT*
- *maps*
- *scales*
- *chorddiag*
- *htmltools*

Demo URL:

albinagib.shinyapps.io/finance/

- Project description
- National comparison charts
 - Domestic shareholders
 - Domestic finance
 - Domestic industries
 - Foreign shareholders
 - Scatterplot of countries
 - Map of shareholders
- Network charts
 - Country's domestic investments by sector
 - Comparing countries' domestic investments
 - Country's FDI network
 - Comparing countries' FDI networks
 - Global corporate ownership network
- References

Who Owns the Means of Production? Uneven Geographies of Financialization

Project description and rationale

Financialization is a term used to broadly describe the rising importance of finance in the global economy and society at large (Epstein, 2005). In the United States, one of the primary characteristics of the post-1980 financial turn has been the rising share of corporate profits accrued by the US financial sector (Krippner, 2005). This led to the conceptualization of financialization as a new regime of accumulation where profits increasingly accrue through financial rather than productive channels (ibid).

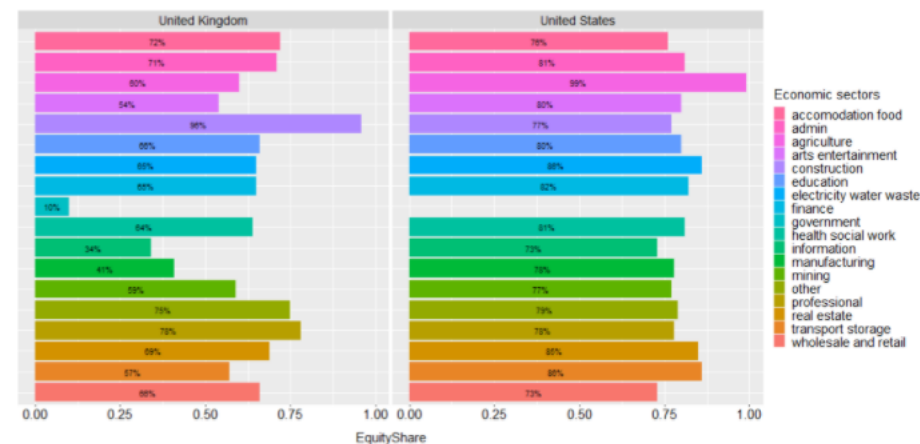
By examining the primary profit-generating activities performed by the US financial sector as a whole and the composition of its income sources and assets, in my Master's thesis I demonstrated that the increased profitability of US finance can largely be attributed to a transition from credit intermediation (i.e. lending) to the management and ownership of capital. By showing how the share of US capital directly owned and managed by US financial firms has grown from 3 percent in 1945 to at least 62 percent in 2018, I proposed that financialization in the United States should be primarily understood as a new regime of property relations, in which the class of financiers have established themselves as the direct owners of the means of production, having at their discretion ultimate control over the US economy by way of collectively holding the most shares by far in American corporations.

This analysis project expands on the research conducted in my Master's thesis by examining two main questions. First, it explores the extent to which financiers have established themselves as the new, dominant owners of capital in other countries or whether financialization as a new regime of property relations has been a US-only phenomenon. Secondly, it develops visualizations to show the global dominance of American financial firms in this global corporate ownership network. The empirical analysis involves examining 6.4 million ownership ties of 2.9 million firms around world from 2018 that add up to \$114.4 trillion in owned equity. The project aims to expose a staggering consolidation of power obtained by the US financial sector through a series of static and interactive visualizations and advance our understanding of the influence exerted by American finance in the global economy, contributing to the literatures of financialization, corporate networks, and geographies of advanced producer services.

Overview of visualizations

Domestic owners of capital in a given industry in a given country

This stacked bar chart shows the share of capital owned domestically (i.e. by shareholders located in the same country) in a given industry for a selected country. The visualization allows one to easily compare rates of domestic capital ownership between different industries, while the facets make it easy to compare these values between different countries.



Data and methods

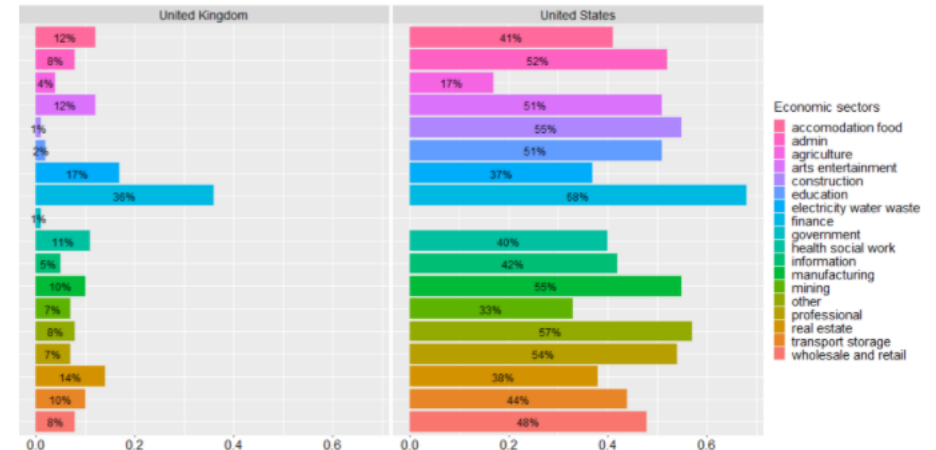
The project examines corporate ownership data provided by the Orbis database (Bureau van Dijk), which offers the most comprehensive co-ownership dataset of firms (both public and private) and state enterprises available to date, covering over 375 million entities around the world, and providing detailed financial and geographical information for each firm and quantifiable ownership ties between them. Although the data coverage is uneven with significantly less information available on firms located in the Global South (see Garcia-Bernardo and Takes, 2018), for each firm Orbis tries to provide basic information on firm's location and industry, financial information from firm's balance-sheets and income statements, as well as data on corporate ownership ties by listing everyone who owns a particular firm and everyone who a particular firm owns.

While Orbis advertises that it has some information on 375 million firms, in 2018 only 8.9 million firms had available information on total assets (a metric relevant to estimating the value of equity and quantifying each ownership tie in dollar terms). As often the case with financial data, the distribution of the total assets variable was highly skewed with a small number of firms accounting for a large share of total assets. I filtered my sample of firms based on the total assets variable, collecting information on all firms with at least \$1 million in total assets in 2018. My dataset features 2.9 million unique firms located in 202 countries. I estimate that cumulatively these 2.9 million firms account for 99% of total assets in the Orbis database. For each firm, I collected basic and financial information, as well as information on all of its shareholders (and their respective basic and financial information). My core list of 2.9 million firms has 6.4 million unique shareholders, featuring 6.7 million weighted ownership ties between them, totalling \$114.4 trillion in owned equity. Given that it is next to impossible to properly visualize 6.6 million nodes with 6.7 million edges, I have aggregated information in the derived dataset at the level of countries and sectors. This aggregation allows me to visualize the dominance of the domestic financial sector within each country as well as visualize the power of the US financial sector in the global corporate network.

Visualizations were developed using the following R packages: dplyr, tidyr, ggplot2, plotly, visNetwork, igraph, forcats, DT, maps, ggraph, RColorBrewer, scales, chorddiag, and htmltools. The project webpage and interactive visualizations and tables were developed using shiny and shinydashboard.

Share of capital in a given industry in a given country owned by domestic financial sector

This stacked bar chart shows the share of capital owned by the domestic financial sector (i.e. by financial firms located in the same country) in a given industry for a selected country. The visualization allows one to easily compare rates of financialization of capital ownership for different industries, while the facets make it easy to compare these values between different countries.



Choose a country

China, United Kingdom, United States

Choose a continent

Africa, Asia, Europe, North America, Oceania

Choose an industry

accommodation food, admin, agriculture, art

Select countries based on their degree (in th USD)

0 2,000,000,000 4,000,000,000 6,000,000,000 8,000,000,000 10,000,000,000 12,000,000,000 14,000,000,000 16,000,000,000 18,000,000,000 20,000,000,000

2,000,000,000 20,000,000,000

Reset all inputs

Change the height of graphs by a factor of ...

0.5 1.2 10

Select the number of columns

1 5 10

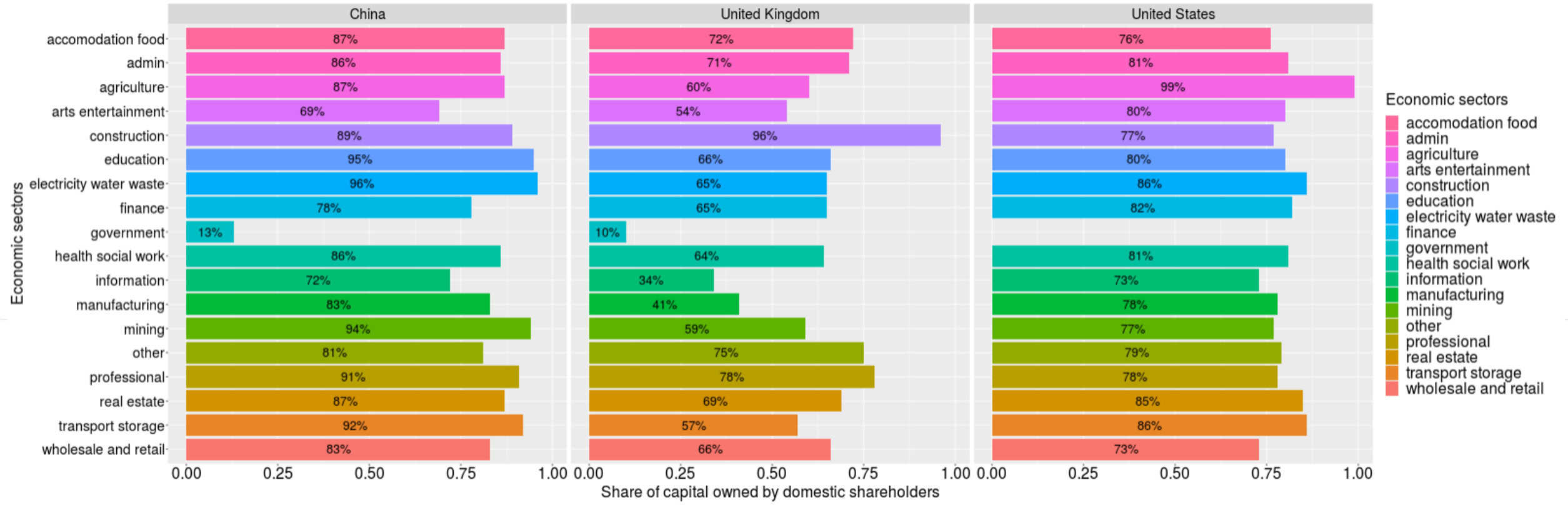
Change the size of a font for economic sectors by a factor of ...

0.2 1 2

Change the size of a font for percentages by a factor of ...

0.2 1.4 2

Domestic owners of capital in a given industry in a given country



Choose a country

China, United Kingdom, United States

Choose a continent

Africa, Asia, Europe, North America, Oceania, Sc

Choose an industry

accomodation food, admin, agriculture, arts eni

Select countries based on their degree (in th USD)

0 2,000,000,000 4,000,000,000 6,000,000,000 8,000,000,000 10,000,000,000 12,000,000,000 14,000,000,000 16,000,000,000 18,000,000,000 20,000,000,000

2,000,000,000 20,000,000,000

Reset all inputs

Change the height of graphs by a factor of ...

0.5 1.5 10

Select the number of columns

1 3 10

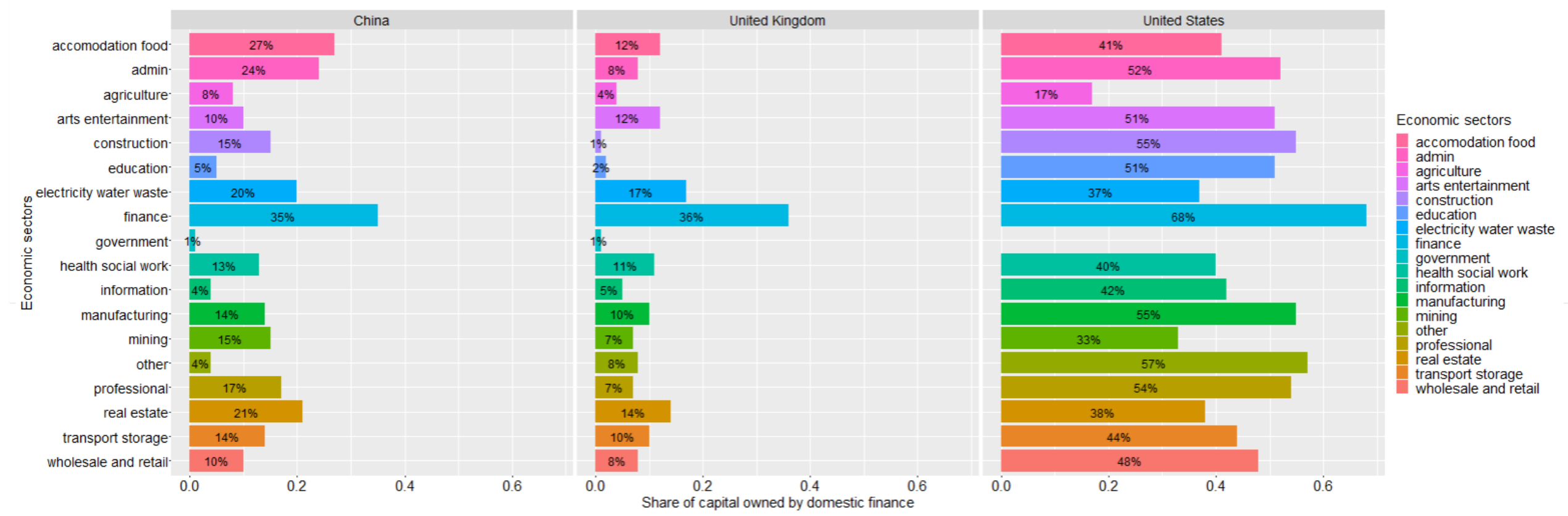
Change the size of a font for economic sectors by a factor of ...

0.2 1 2

Change the size of a font for percentages by a factor of ...

0.2 1.4 2

Share of capital in a given industry in a given country owned by domestic financial sector



Choose a country

China, United Kingdom, United States

Choose a continent

Africa, Asia, Europe, North America, Oceania, Sc

Choose an industry

accomodation food, admin, agriculture, arts ent

Choose an industry of the shareholder

accomodation food, admin, agriculture, arts ent

Select countries based on their degree (in th USD)

2,000,000,000 20,000,000,000

0 4,000,000,000 8,000,000,000 12,000,000,000 16,000,000,000 20,000,000,000

Reset all inputs

Change the height of graphs by a factor of ...

0.5 1.5 10

Select the number of columns

1 3 10

Change the size of a font for economic sectors by a factor of ...

0.2 1 2

Change the size of a font for percentages by a factor of ...

0.2 1.2 2

Share of capital in a given industry in a given country owned by type of domestic shareholder



Choose a country

United States

Choose an industry

accomodation food, admin, agriculture, arts entertainment, construction, educ

Select countries for shareholders

Afghanistan, Albania, Algeria, Andorra, Angola, /

Select continents for shareholders

Africa, Asia, Europe, North America, Oceania, Sc

Reset all inputs

Change the height of graphs by a factor of ...

0.5 0.8 2

Select the number of columns

1 5 10

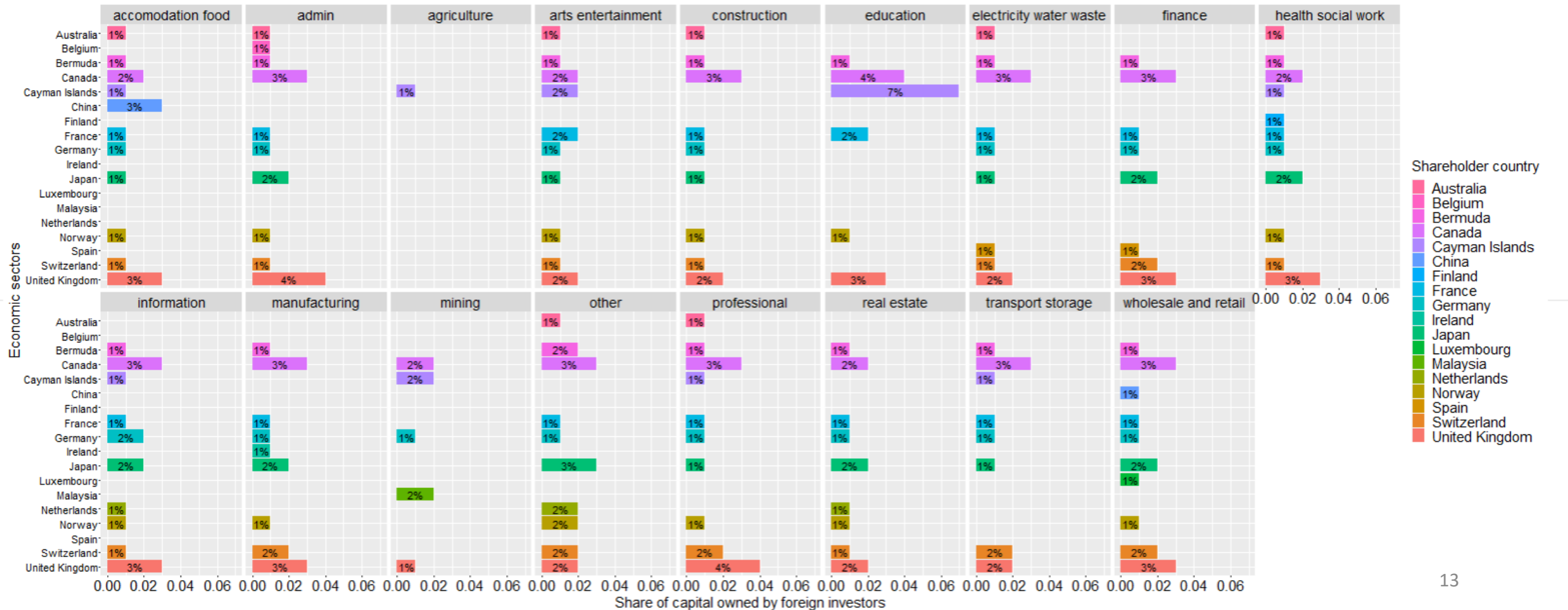
Change the size of a font for shareholder countries by a factor of ...

0.2 0.8 2

Change the size of a font for percentages by a factor of ...

0.2 1 2

Share of capital in a given industry in a given country owned by foreign investors (showing investments above 0.1%)



Choose a country

Choose a continent

Choose industry of the shareholder

Select countries based on their degree (in th USD)

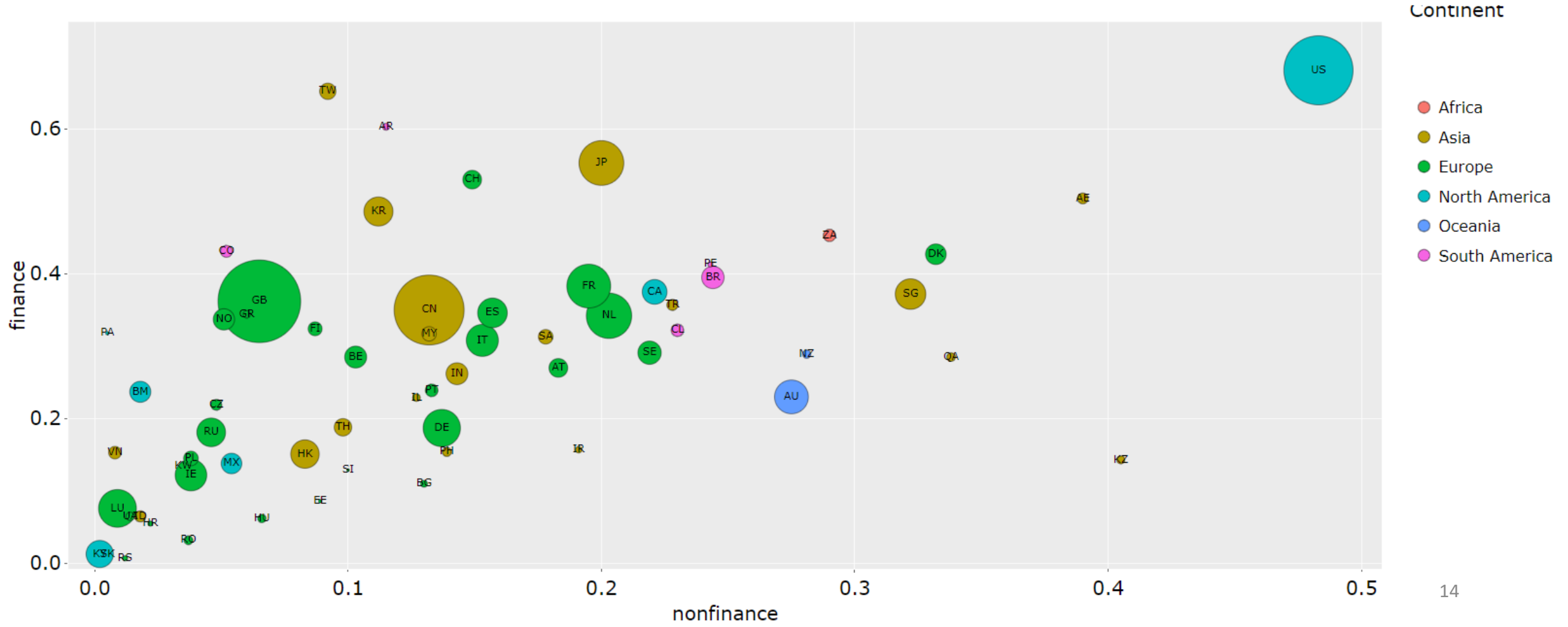
0 2,000,000,000 4,000,000,000 6,000,000,000 8,000,000,000 10,000,000,000 12,000,000,000 14,000,000,000 16,000,000,000 18,000,000,000 20,000,000,000

Choose to show domestic, foreign, or global shareholders

Y-axis: Choose an industry

X-axis: Choose an industry

Share of capital owned by a selected shareholder in chosen industries



Choose industry for the shareholder

finance

Choose your industry

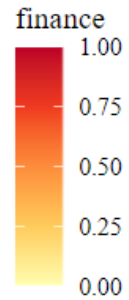
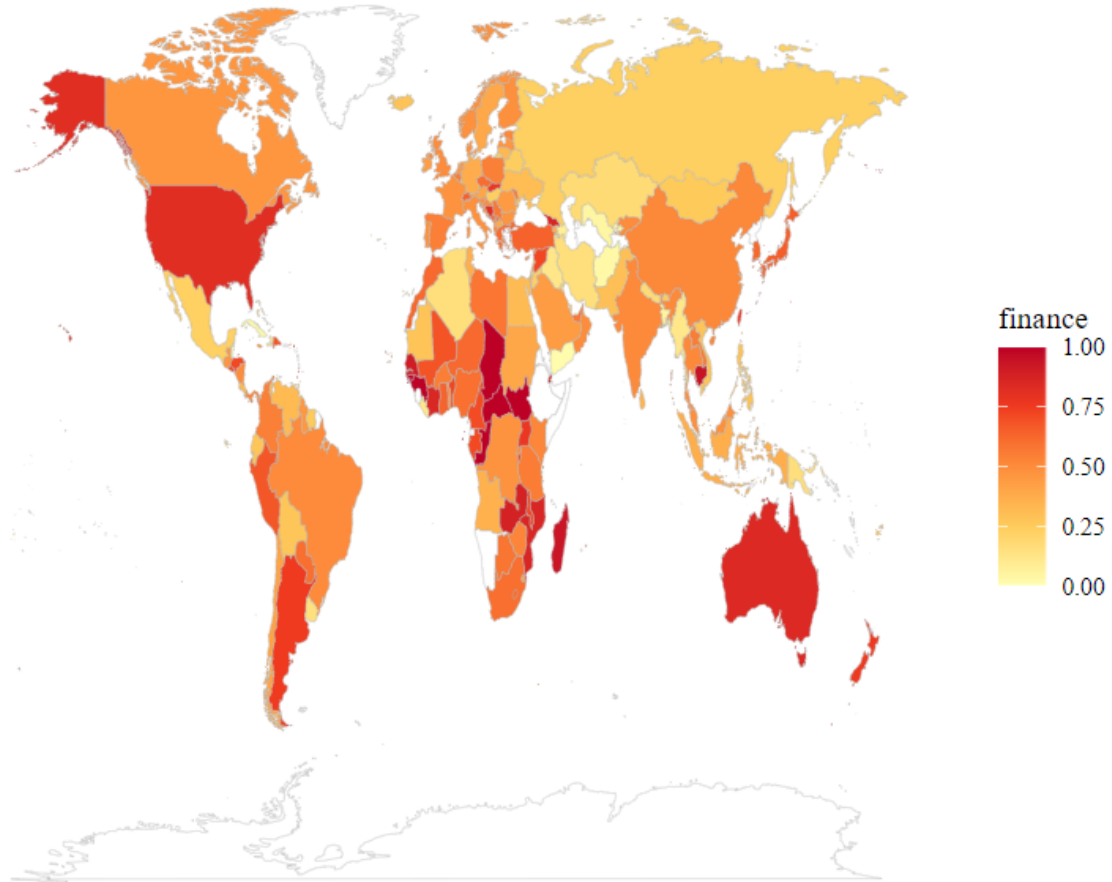
finance

Choose to show domestic, foreign, or global shareholders

Global

Reset all inputs

Share of capital owned by a sector in a given industry and country



Show 15 entries

Search:

| | Country_Name | Industry | Shareholder_industry | Shareholder_type | Capital_owned |
|----|--------------|----------|----------------------|------------------|---------------|
| 1 | Afghanistan | finance | finance | Global | 0.031 |
| 2 | Albania | finance | finance | Global | 0.53 |
| 3 | Algeria | finance | finance | Global | 0.158 |
| 4 | Andorra | finance | finance | Global | 0.086 |
| 5 | Angola | finance | finance | Global | 0.361 |
| 6 | Anguilla | finance | finance | Global | 1 |
| 7 | Argentina | finance | finance | Global | 0.753 |
| 8 | Armenia | finance | finance | Global | 0.373 |
| 9 | Aruba | finance | finance | Global | 1 |
| 10 | Australia | finance | finance | Global | 0.849 |
| 11 | Austria | finance | finance | Global | 0.407 |
| 12 | Azerbaijan | finance | finance | Global | 0.08 |
| 13 | Bahamas | finance | finance | Global | 0.207 |
| 14 | Bahrain | finance | finance | Global | 0.299 |
| 15 | Bangladesh | finance | finance | Global | 0.057 |

Showing 1 to 15 of 184 entries

Previous **1** 2 3 4 5 ... 13 Next

Choose a country

United States

Choose which sectors to include

accommodation food, admin, agriculture, arts entertainment, construction, ec

Do you want to include external and/or internal edges (self-loops)?

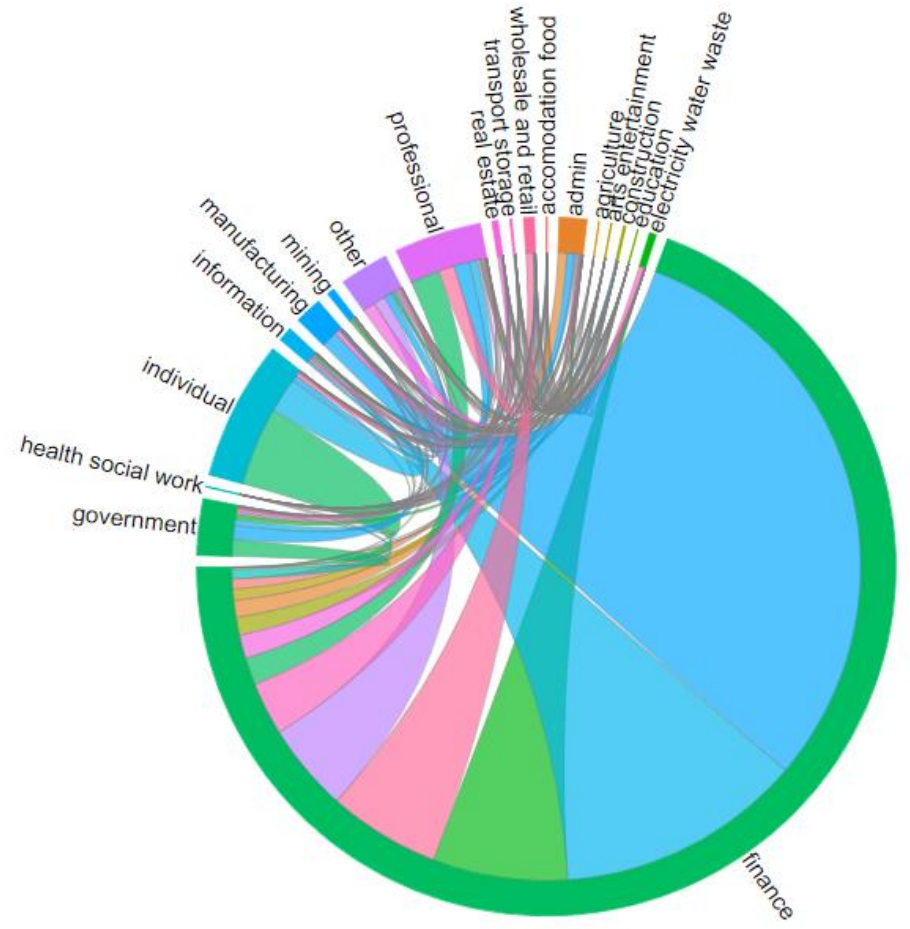
External

Choose equity value for individual edges (th USD)

0 3,000,000,000

Reset all inputs

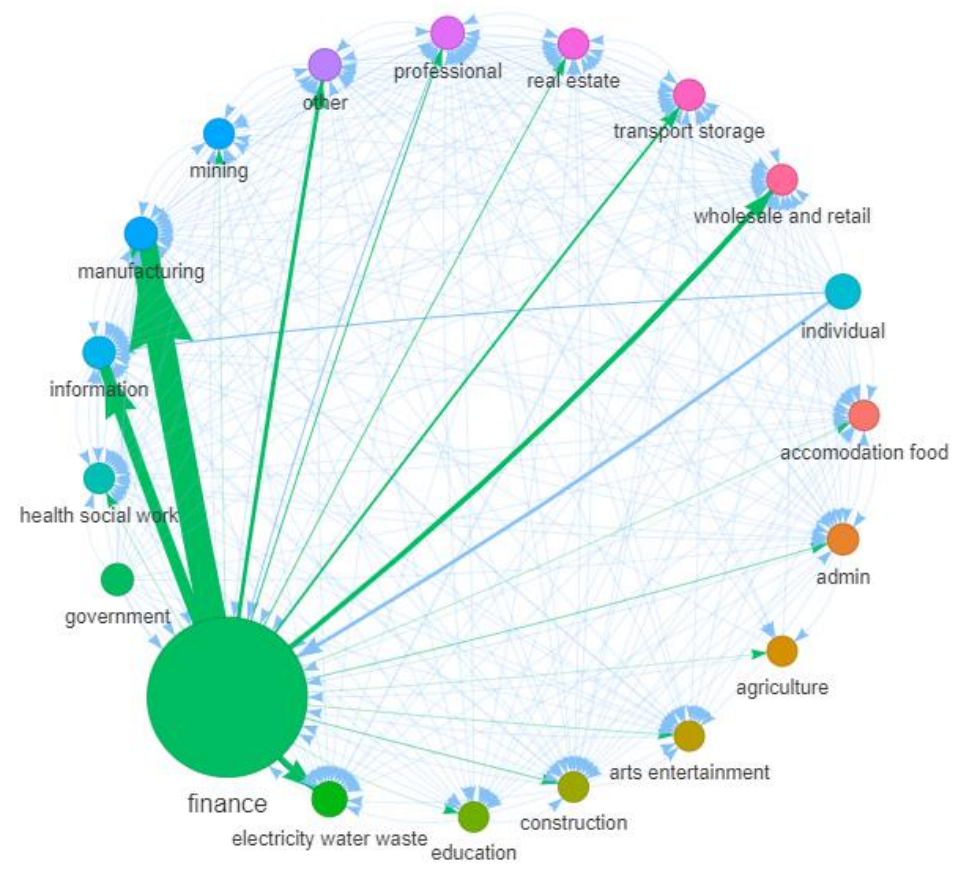
Domestic investments by sector: A chord diagram view



Domestic investments by sector: A network view

Select by id

Select by group



Choose Country #1: United States

Choose Country #2: United Kingdom

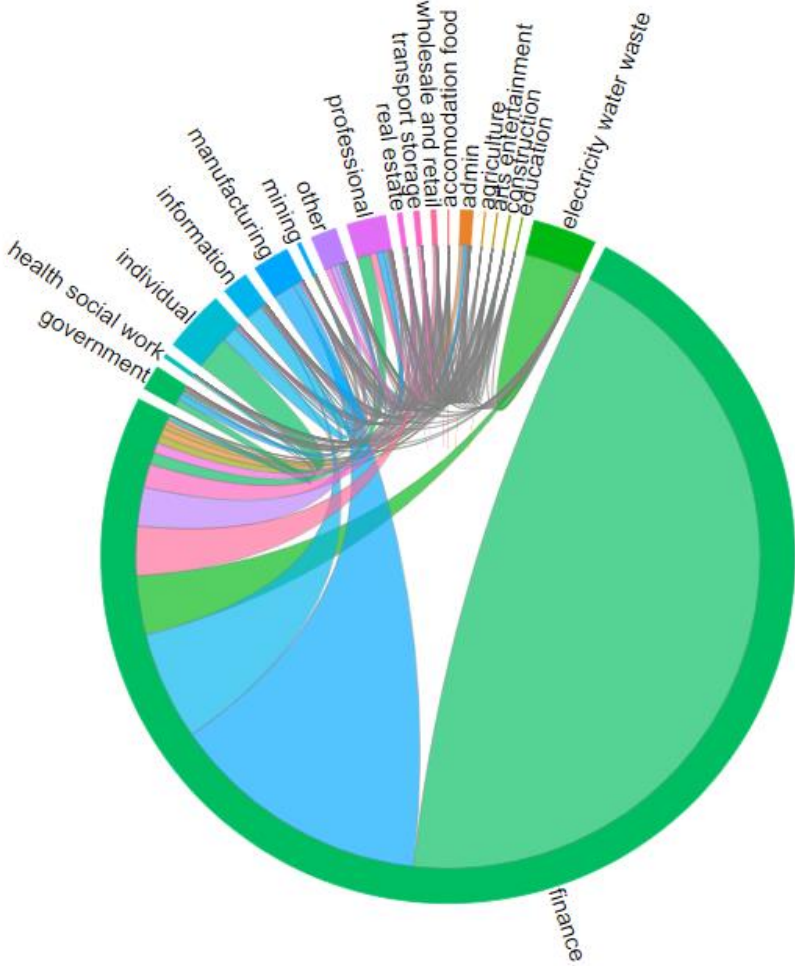
Choose which sectors to include: accomodation food, admin, agriculture, arts e

Do you want to include external and/or internal edges (self-loops)? External, Internal (self-loops)

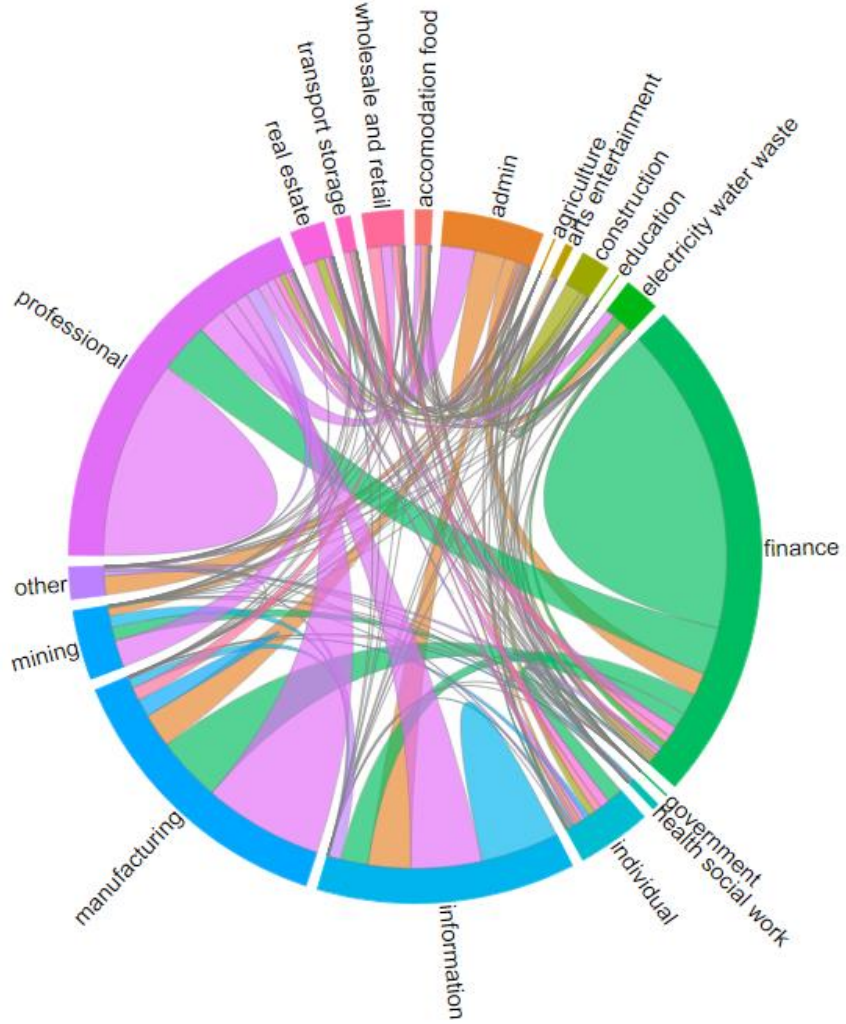
Choose equity value for individual edges (th USD): 0 to 5,000,000,000

Reset all inputs

Country #1: A chord diagram of domestic investments by sector



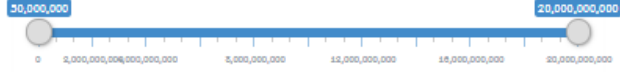
Country #2: A chord diagram of domestic investments by sector



Choose a country

United States

Select countries based on equity owned (th USD)



Choose whether to include incoming or outgoing investments

Incoming Outgoing

Choose equity value for individual edges (th USD)

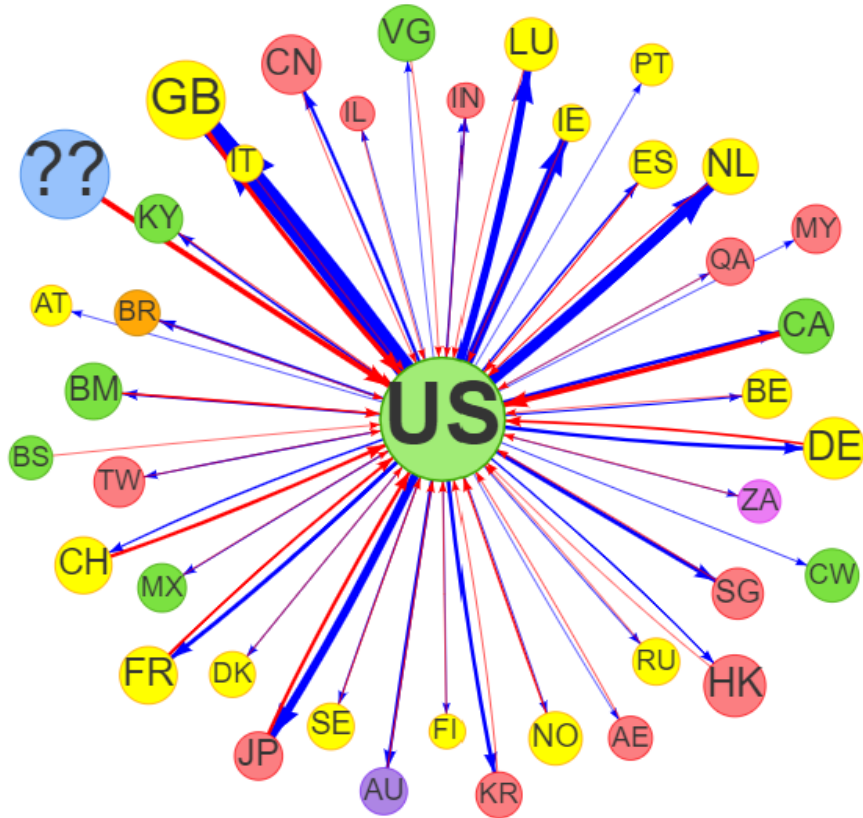


Reset all inputs

Network of incoming and outgoing FDI

Select by id

Select by group



Show 20 entries

Search:

| | Country_Name | Shareholder_Country | Incoming_Outgoing_FDI | Investment_mil_USD |
|----|------------------------|---------------------|-----------------------|--------------------|
| 1 | Argentina | United States | Outgoing | 7729.67 |
| 2 | Australia | United States | Outgoing | 219360.66 |
| 3 | Austria | United States | Outgoing | 12395.45 |
| 4 | Belgium | United States | Outgoing | 74787.46 |
| 5 | Bermuda | United States | Outgoing | 142610.58 |
| 6 | Brazil | United States | Outgoing | 172997.62 |
| 7 | British Virgin Islands | United States | Outgoing | 6762.69 |
| 8 | Bulgaria | United States | Outgoing | 1023.69 |
| 9 | Canada | United States | Outgoing | 285053.54 |
| 10 | Cayman Islands | United States | Outgoing | 156760.05 |
| 11 | Chile | United States | Outgoing | 14205.17 |
| 12 | China | United States | Outgoing | 215890.84 |
| 13 | Colombia | United States | Outgoing | 10629.78 |
| 14 | Curacao | United States | Outgoing | 29330.21 |
| 15 | Czech Republic | United States | Outgoing | 4965.63 |
| 16 | Denmark | United States | Outgoing | 32787.12 |
| 17 | Ecuador | United States | Outgoing | 1280.02 |
| 18 | Egypt | United States | Outgoing | 1283.42 |
| 19 | Finland | United States | Outgoing | 15065.23 |
| 20 | France | United States | Outgoing | 299867.16 |

Showing 1 to 20 of 101 entries

Previous **1** 2 3 4 5 6 Next

Choose Country #1: United States

Choose Country #2: United Kingdom

Include incoming or outgoing investments: Incoming

Select countries based on equity owned (th USD): 50,000,000 to 20,000,000,000

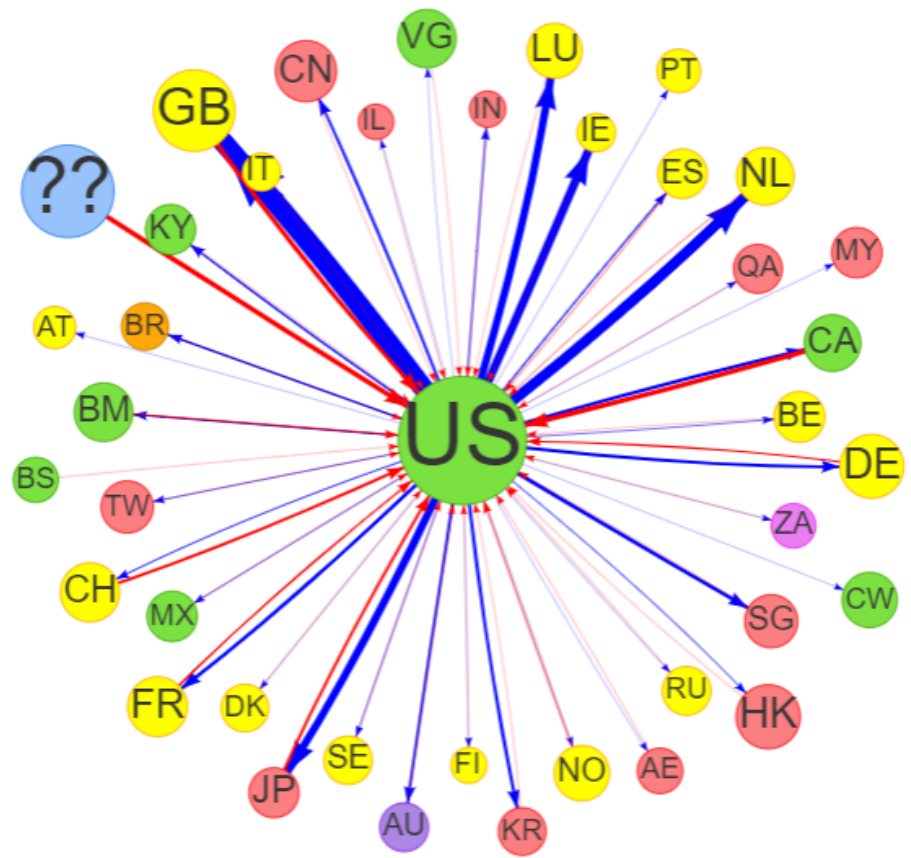
Choose equity value for individual edges (th USD): 1,000,000 to 2,000,000,000

Reset all inputs

Country #1: Network of incoming and outgoing FDI

Select by id

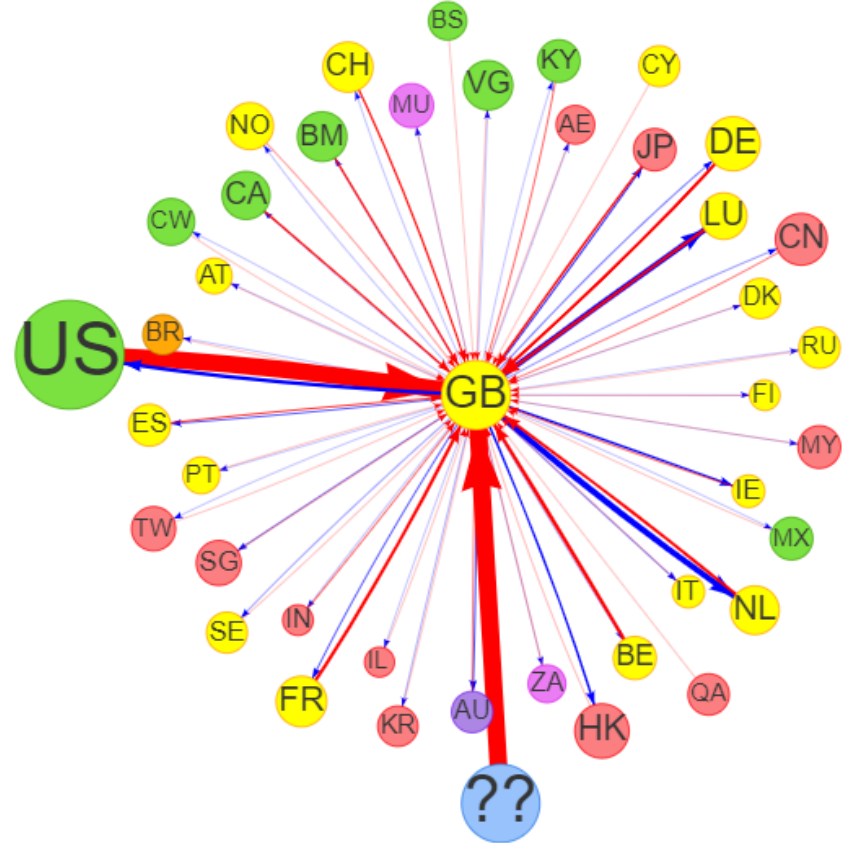
Select by group



Country #2: Network of incoming and outgoing FDI

Select by id

Select by group



Choose a Country

Afghanistan, Albania, Algeria, Andorra, Angola ▾

Choose a Continent

Africa, Asia, Europe, North America, Oceania, ⌵

Select countries based on equity owned (th USD)

100,000,000 20,000,000,000

0 4,000,000,000 8,000,000,000 12,000,000,000 16,000,000,000 20,000,000,000

Choose whether to include both international and domestic ties

International

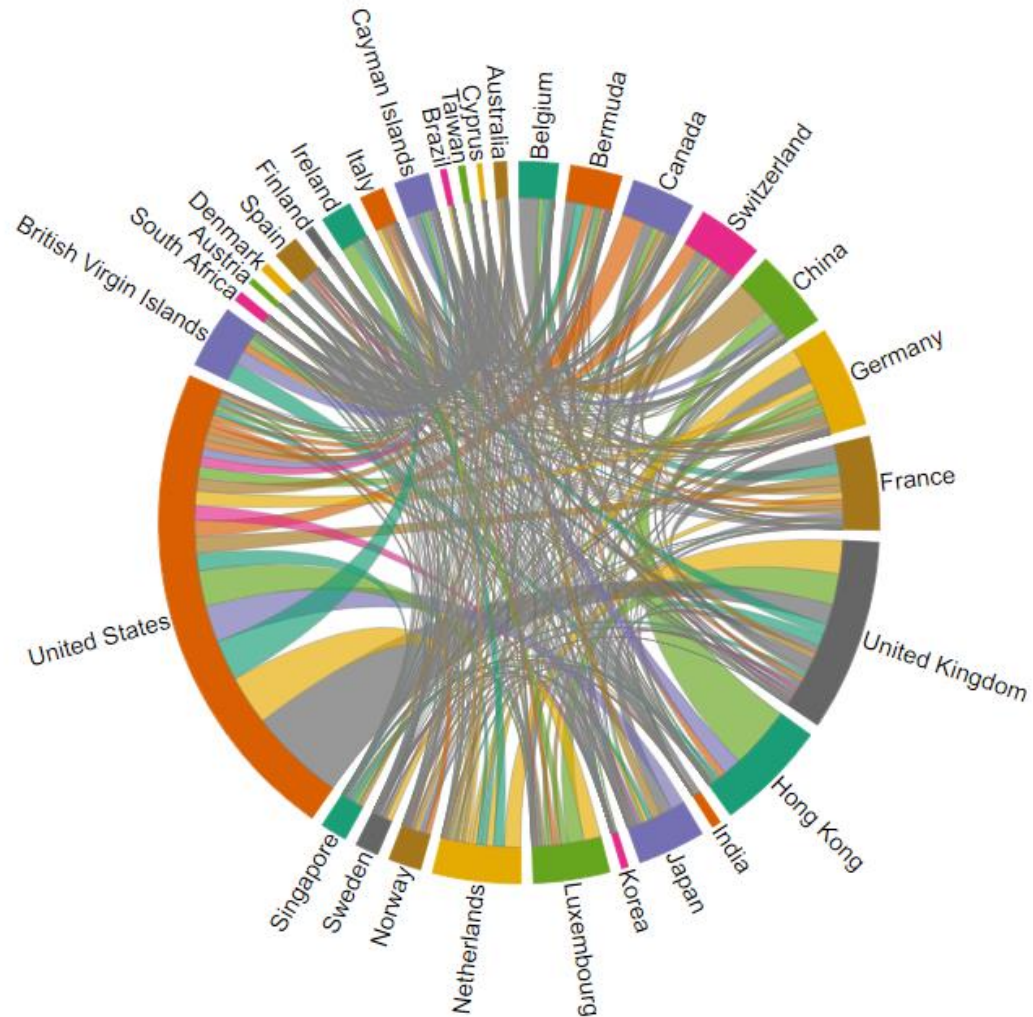
Choose equity value for individual edges (th USD)

0 20,000,000,000

0 4,000,000,000 8,000,000,000 12,000,000,000 16,000,000,000 20,000,000,000

Reset all inputs

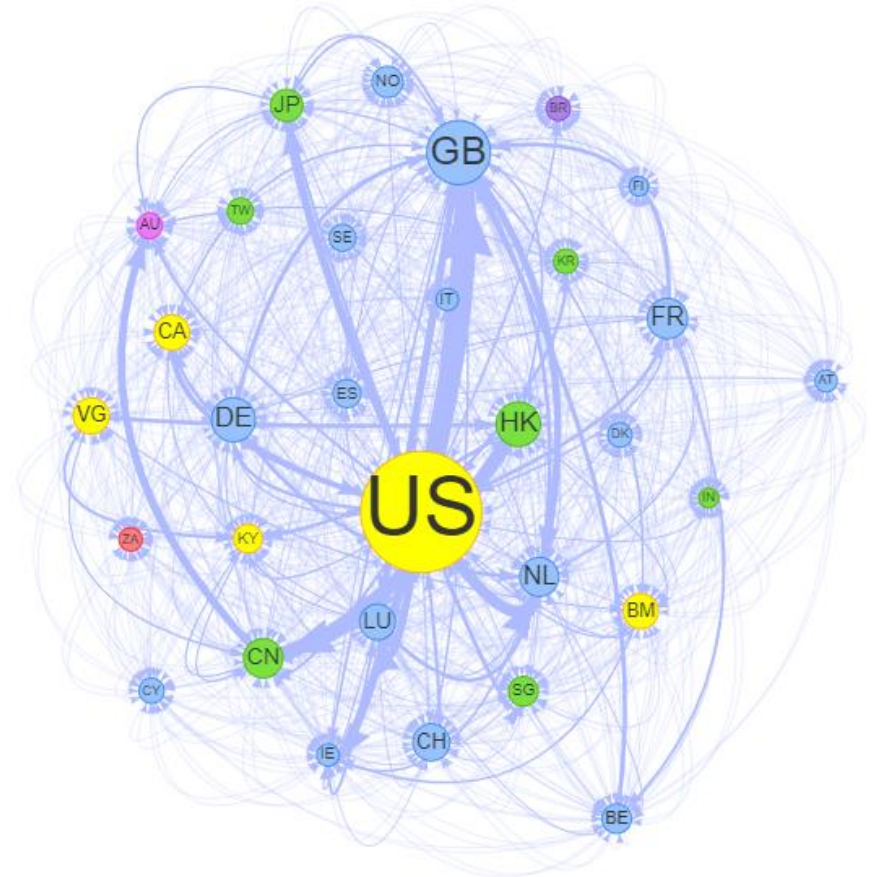
Global investments by countries: A chord diagram view



Global investments by countries: A network view

Select by id ▾

Select by group ▾

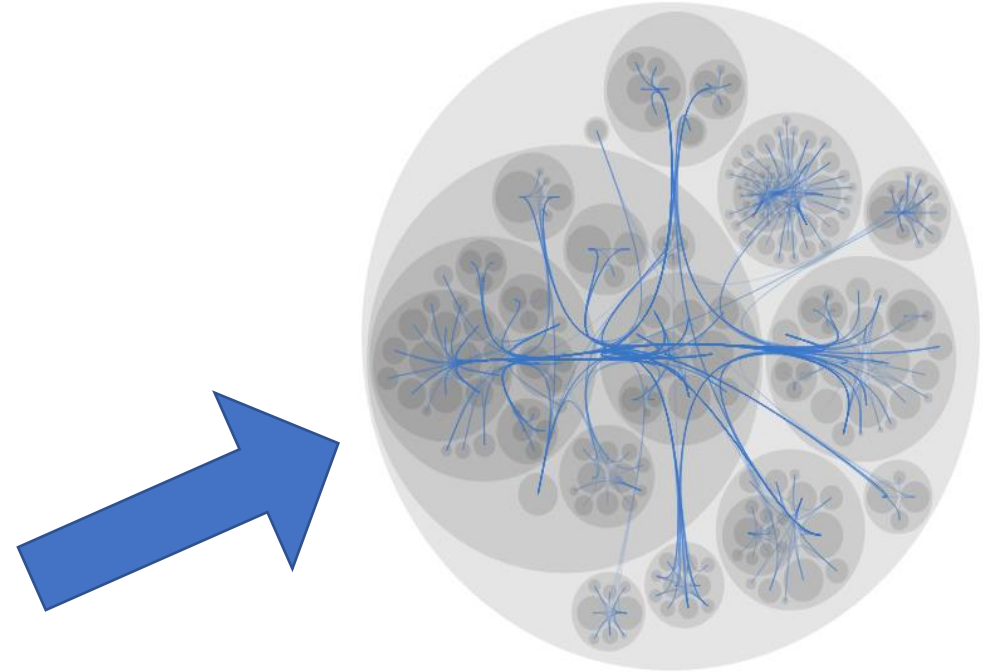


Main findings and lessons learned

- The shiny app has more use than originally planned for – lots of interesting exploratory findings (e.g. China owns a lot of capital in Australia!)
- While the US appears to be highly financialized, the UK is not!
- US financial sector is heavily invested in itself (over half of its domestic investments are in finance: it owns 68% of itself)!
- Very few countries have similar rates of financialization compared to the US (exceptions are mainly tax havens)
- Globally, US is extremely powerful! The decline of the “US empire” is not visible here.

Future work and next steps

1. Create an interactive page for data description: geographical data coverage and missing data
2. Develop an interactive network visualization combining circle packing and hierarchical edge bundling to show connections between industries of different countries
3. Develop US-centric visualizations at the scale of individual firms



Source:

<https://bl.ocks.org/nitaku/972a1a1ca93bb3da54505f3b0f3bb335>

Thank you!

Acknowledgments

- Dr. Luke Bergmann
- Dr. Elvin Wyly
- CPSC 547 COVID Mobility Team:
Lily Bryant, James Yoo, and Frank Yu

