BIS Quarterly Review

International banking and financial market developments

June 2022

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Monetary and Economic Department

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Notations used in this Review

billion	thousand million
e	estimated
lhs, rhs	left-hand scale, right-hand scale
$	US dollar unless specified otherwise
…	not available
.	not applicable
–	nil or negligible

Differences in totals are due to rounding.

The term "country" as used in this publication also covers territorial entities that are not states as understood by international law and practice but for which data are separately and independently maintained.

Abbreviations

Currencies

ALL	Albanian lek	MXN	Mexican peso
ARS	Argentine peso	MXV	Mexican unidad de inversión (UDI)
AUD	Australian dollar	MYR	Malaysian ringgit
BGN	Bulgarian lev	NAD	Namibian dollar
BHD	Bahraini dinar	NGN	Nigerian naira
BRL	Brazilian real	NOK	Norwegian krone
CAD	Canadian dollar	NZD	New Zealand dollar
CHF	Swiss franc	OTH	All other currencies
CLP	Chilean peso	PEN	Peruvian sol
CNY (RMB)	Chinese yuan (renminbi)	PHP	Philippine peso
COP	Colombian peso	PLN	Polish zloty
CZK	Czech koruna	RON	Romanian leu
DKK	Danish krone	RUB	Russian rouble
EUR	euro	SAR	Saudi riyal
GBP	pound sterling	SEK	Swedish krona
HKD	Hong Kong dollar	SGD	Singapore dollar
HUF	Hungarian forint	THB	Thai baht
IDR	Indonesian rupiah	TRY	Turkish lira
ILS	Israeli new shekel	TWD	New Taiwan dollar
INR	Indian rupee	USD	US dollar
ISK	Icelandic króna	VES	bolívar soberano
JPY	Japanese yen	VND	Vietnamese dong
KRW	Korean won	XOF	CFA franc (BCEAO)
MAD	Moroccan dirham	ZAR	South African rand

Countries

AE	United Arab Emirates	CY	Cyprus
AF	Afghanistan	CZ	Czech Republic
AL	Albania	DE	Germany
AM	Armenia	DJ	Djibouti
AO	Angola	DK	Denmark
AR	Argentina	DM	Dominica
AT	Austria	DO	Dominican Republic
AU	Australia	DZ	Algeria
AZ	Azerbaijan	EA	euro area
BA	Bosnia and Herzegovina	EC	Ecuador
BD	Bangladesh	EE	Estonia
BE	Belgium	EG	Egypt
BF	Burkina Faso	ER	Eritrea
BG	Bulgaria	ES	Spain
BH	Bahrain	ET	Ethiopia
BI	Burundi	FI	Finland
BJ	Benin	FJ	Fiji
BM	Bermuda	FO	Faeroe Islands
BN	Brunei	FR	France
BO	Bolivia	GA	Gabon
BR	Brazil	GB	United Kingdom
BS	The Bahamas	GD	Grenada
BT	Bhutan	GE	Georgia
BW	British West Indies	GH	Ghana
BY	Belarus	GN	Guinea
BZ	Belize	GQ	Equatorial Guinea
CA	Canada	GR	Greece
CD	Democratic Republic of the Congo	GT	Guatemala
CF	Central African Republic	GW	Guinea-Bissau
CG	Republic of Congo	GY	Guyana
CH	Switzerland	HN	Honduras
CI	Côte d’Ivoire	HK	Hong Kong SAR
CL	Chile	HR	Croatia
CM	Cameroon	HT	Haiti
CN	China	HU	Hungary
CO	Colombia	ID	Indonesia
CR	Costa Rica	IE	Ireland
CV	Cabo Verde	IL	Israel

Countries (cont)

IN	India	MX	Mexico
IO	International organisations	MY	Malaysia
IQ	Iraq	MZ	Mozambique
IR	Iran	NA	Namibia
IS	Iceland	NC	New Caledonia
IT	Italy	NG	Nigeria
JE	Jersey	NL	Netherlands
JM	Jamaica	NO	Norway
JO	Jordan	NR	Nauru
JP	Japan	NZ	New Zealand
KE	Kenya	OM	Oman
KG	Kyrgyz Republic	PA	Panama
KH	Cambodia	PE	Peru
KR	Korea	PG	Papua New Guinea
KW	Kuwait	PH	Philippines
KY	Cayman Islands	PK	Pakistan
KZ	Kazakhstan	PL	Poland
LA	Laos	PT	Portugal
LB	Lebanon	PY	Paraguay
LC	St Lucia	QA	Qatar
LK	Sri Lanka	RO	Romania
LR	Liberia	RS	Serbia
LS	Lesotho	RU	Russia
LT	Lithuania	RW	Rwanda
LU	Luxembourg	SA	Saudi Arabia
LV	Latvia	SC	Seychelles
LY	Libya	SD	Sudan
MA	Morocco	SE	Sweden
MD	Moldova	SG	Singapore
ME	Montenegro	SK	Slovakia
MH	Marshall Islands	SI	Slovenia
MK	North Macedonia	SR	Suriname
ML	Mali	SS	South Sudan
MM	Myanmar	ST	São Tomé and Príncipe
MN	Mongolia	SV	El Salvador
MO	Macao SAR	SZ	Eswatini
MR	Mauritania	TD	Chad
MT	Malta	TG	Togo
MU	Mauritius	TH	Thailand
MV	Maldives	TJ	Tajikistan
MW	Malawi	TL	East Timor

Countries (cont)

TM	Turkmenistan	UY	Uruguay
TO	Tonga	UZ	Uzbekistan
TR	Turkey	VC	St Vincent and the Grenadines
TT	Trinidad and Tobago	VE	Venezuela
TW	Chinese Taipei	VG	British Virgin Islands
TZ	Tanzania	VN	Vietnam
UA	Ukraine	ZA	South Africa
US	United States	ZM	Zambia

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The outsize role of cross-border financial centres[1]

Financial centres that cater predominantly to non-residents account for an outsize share of cross-border financial activity. These so-called cross-border financial centres are typically located in small economies, in contrast to global financial centres located in large economies. Economies of scale and scope benefit global centres, but physical distance works against the tendency of financial activity to concentrate. So do regulation and taxation, which have set cross-border financial centres apart and propelled their rise. At the same time, these centres pose challenges to regulatory consistency across countries and complicate the analysis of capital flows.

JEL classification: F21, F36, F38, G15.

Financial centres that specialise in cross-border activity have become an entrenched feature of the global financial system. Until the 1970s, international financial intermediation was concentrated in a few major cities that also served as centres for domestic activity, notably London and New York. Since then, financial centres that cater predominantly to non-residents – henceforth, cross-border financial centres – have loomed large as intermediaries of cross-border financial flows. Small economies that host cross-border financial centres saw their share of global external assets and liabilities rise from around 15% in the late 1980s to 30% in the late 2010s – even as their share of world GDP remained constant at less than 3% (Graph 1, left-hand panel).

What explains the growing importance of cross-border financial centres in international intermediation? Economies of scale and scope favour the concentration of activity in financial centres embedded in larger economies. Yet, G20 economies, which account for around 80% of world GDP, saw their share of global external assets and liabilities fall from more than 65% in the late 1980s to around 55% in the late 2010s (Graph 1, right-hand panel). The opposing trends in the shares of cross-border centres and G20 economies demonstrate the importance of factors that work against the concentration of financial activity. One such factor is physical distance between financial intermediaries and their counterparties. Another is differences in regulation and taxation; the former propelled the early growth of cross-border centres while the latter has played a greater role more recently.

[1] The authors thank Stefan Avdjiev, Claudio Borio, Stijn Claessens, Bryan Hardy, Robert McCauley, Patrick McGuire, Nikola Tarashev and Christian Upper for helpful comments and discussion, and Swapan Kumar Pradhan for assistance with data. The views expressed in this article are those of the authors and do not necessarily reflect those of the Bank for International Settlements.

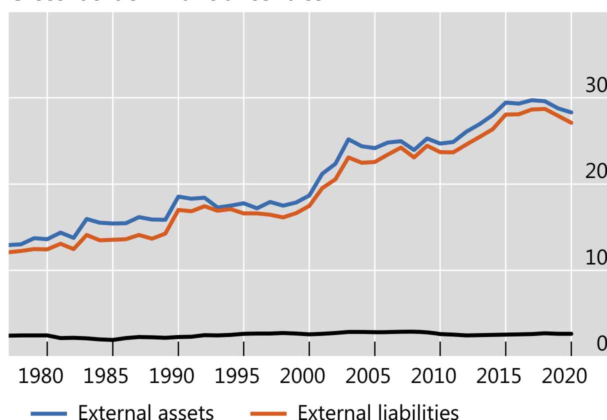
Key takeaways

- *Cross-border financial centres, which cater predominantly to non-residents, have become an entrenched feature of the global financial system.*
- *Geography, regulation and taxation work against the natural tendency of financial activity to concentrate in a few global financial centres.*
- *The importance of foreign direct investment in cross-border centres, mainly in the form of funds that only pass through, is indicative of substantial activity motivated by tax considerations.*

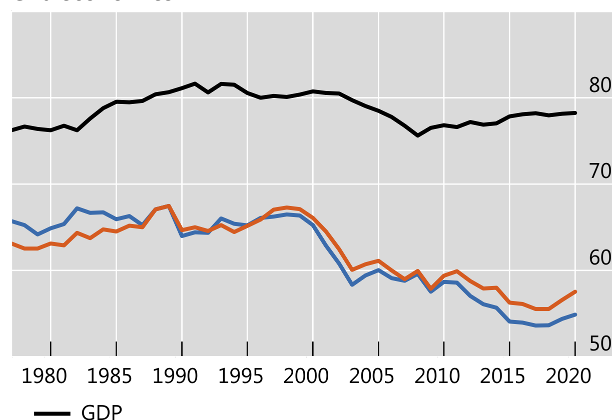
International financial intermediation has shifted from large to smaller economies

Share of world total, in per cent — Graph 1

Cross-border financial centres[1]



G20 economies[2]



[1] Comprises the group of cross-border financial centres shown in Table 1. [2] For euro area, France, Germany and Italy.

Sources: Lane and Milesi-Ferretti (2018), updated; BIS locational banking statistics (LBS); authors' calculations.

This feature proceeds as follows. It first defines different types of financial centre. It then outlines the growth of activity in cross-border centres, before turning to the factors that influence a country's emergence and persistence as such a centre. The concluding section outlines potential challenges to regulatory consistency and transparency arising from the role of cross-border centres in international intermediation.

Distinguishing among financial centres

A financial centre is a location, usually a city or district, where intermediaries involved in the provision of financial services are concentrated. Insofar as it is open to foreign participants, any financial centre can be considered international. But not all international financial centres are alike. In general terms, a common way to

distinguish among them is by the size of international financial business relative to total economic activity. We follow this approach in this feature.[2]

One type of financial centre serves mainly resident counterparties and consequently has a low share of international business. This type is synonymous with national financial centres, where banks are headquartered and stock exchanges are located. Their international activity largely involves channelling domestic funding to foreign borrowers and foreign funding to domestic borrowers. Istanbul and Mumbai are examples.

Another type of financial centre serves mainly non-resident counterparties and consequently has a very high share of international business. They channel funds from one country to another, often via entities with a minimal physical presence, such as booking offices, special purpose entities (SPEs) and shell companies. They are neither an ultimate source nor final destination for investments and are usually embedded in small economies, as in the case of Bermuda and the Cayman Islands (Lane and Milesi-Ferretti (2011)). We refer to these as cross-border financial centres and explain in the box how they differ from offshore centres.

A third type combines the functions of national and cross-border financial centres. Centres of this type are typically located in economies that issue a reserve currency and include some of the largest financial centres. Their international business is very large in absolute terms but not necessarily relative to total economic activity. These are often referred to as global financial centres. London and New York are the classic examples (Cassis (2006)).

Box

What distinguishes cross-border financial centres from offshore centres?

Cross-border financial centres cater predominantly to non-residents but are not necessarily synonymous with offshore centres. Historically, the BIS has defined offshore centres as “countries with banking sectors dealing primarily with non-residents and/or in foreign currency on a scale out of proportion to the size of the host economy” (BIS (1995), p 102).① This definition is similar to that for cross-border financial centres. However, since the BIS’s first reference to offshore centres in its 1974 *Annual Report*, perceptions have changed. Whereas they were originally considered centres for “eurocurrency” or international banking activity, offshore centres have come to be characterised as jurisdictions with “low or zero taxation; moderate or light financial regulation; banking secrecy and anonymity” (IMF (2000)).

Tax and regulatory regimes can help to attract international financial business, but they are neither necessary nor sufficient to do so. For instance, classifications that equate offshore centres with tax havens often contain many economies that are marginal players in the global financial system (eg Hines (2010)). In contrast, cross-border centres are defined in this feature by the size of activity and so stand out for their success in attracting international business. For example, Luxembourg is usually not grouped with offshore centres but has been among the top cross-border centres for decades. Conversely, Lebanon and Vanuatu are often considered offshore centres but for many years have not stood out as having unusually large financial activities.

① The BIS is reviewing its classifications of countries in its statistical publications.

[2] Zoromé (2007) and Lane and Milesi-Ferretti (2011, 2018) also follow this approach, although the specific measures they use differ (net exports of financial services to GDP and total external positions to GDP, respectively). Garcia-Bernardo et al (2017) use network analysis to identify financial centres. Z/Yen (2022) assess business characteristics to rank financial centres. For further discussion, see the box and Pogliani and Wooldridge (2022).

International financial business has many aspects, from origination, underwriting and trading to legal, accounting and other corporate support services. For the purposes of analysing capital flows and international interconnectedness, the most relevant aspect is the extent to which this business results in the accumulation of external positions. These positions comprise a country's outstanding claims on and liabilities to non-residents in the form of portfolio investment, direct investment, other financial investment (consisting mainly of bank loans and deposits), and the market value of derivatives.[3]

We measure cross-border intermediation as the minimum of external financial assets and liabilities. This captures the extent to which a country acts as a conduit for financing between non-residents, as opposed to a source or destination for investments. The minimum underscores a country's role in cross-border financial intermediation and disregards its role as an external creditor or debtor.

To gauge whether this measure of cross-border intermediation is high or low relative to economic activity, we scale by GDP and identify cross-border centres as outliers in the distribution of this ratio across countries. GDP is readily available for almost all economies, including many dependent territories, and is highly correlated with less readily available measures of financial activity, such as total financial assets. The outliers are detected annually, using a method that is less sensitive than alternatives to the shape of the distribution.[4]

Cross-border financial intermediation in 2020 is shown for a sample of over 200 economies in Graph 2, both in US dollars (y axis) and as a ratio to GDP (x axis). Cross-border financial centres appear on the right side of the graph (red dots). The British Virgin Islands (VG) and Cayman Islands (KY) stand out, with cross-border intermediation a thousand times greater than their GDP, followed by Bermuda (BM) and Luxembourg (LU). A few economies, such as the Netherlands (NL), Hong Kong SAR (HK) and Singapore (SG), are examples of cases in the boundary zone between cross-border and global centres. Several other economies were classified as cross-border centres in the past but had fallen out of the group by 2020 (orange dots).

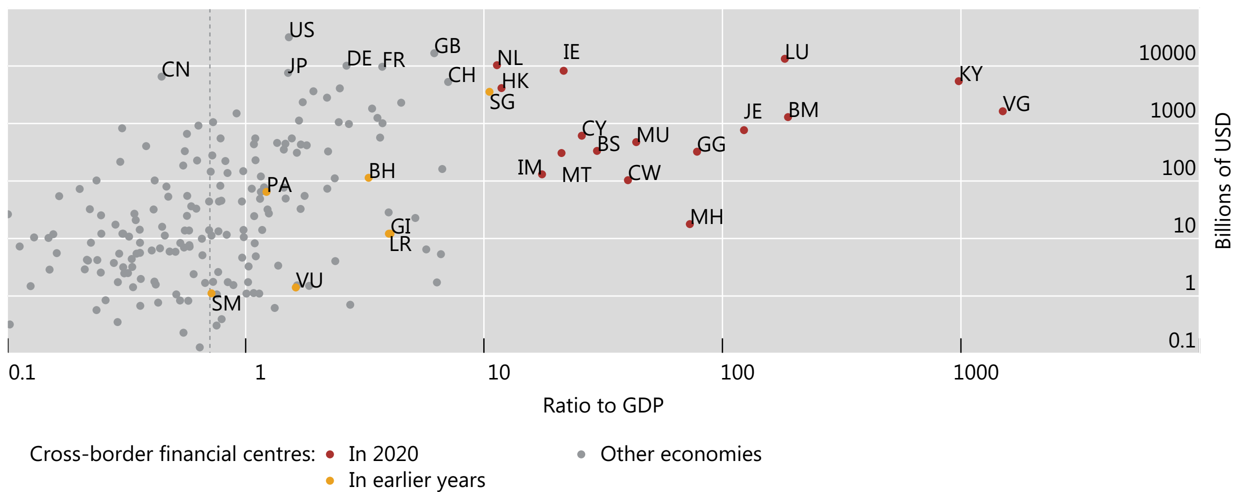
Global financial centres appear at the top of Graph 2. They feature the highest US dollar values of cross-border financial intermediation; in addition, their ratios to GDP are higher than the cross-country median but lower than those of cross-border centres. The largest global centres are London (GB) and New York (US). Shanghai (CN) is not yet in the league of global centres because the large US dollar value of its cross-border intermediation is small relative to the size of the Chinese economy.

[3] For many countries, comprehensive data on external positions have a short history. Lane and Milesi-Ferretti (2018) constructed long series by combining national data on international investment positions with other sources, including cumulative gross capital flows from the balance of payments. Their coverage increases from 103 countries in 1970 to 211 in 2020, the final year in the December 2021 version of their External Wealth of Nations (EWN) database. Following Pogliani and Wooldridge (2022), we extend the EWN by incorporating data from the BIS locational banking statistics (LBS); where external assets and liabilities derived from the LBS exceed estimates in the EWN, we replace the estimates.

[4] Outliers are detected using a boxplot adjusted for the skewness of the distribution. For further discussion of measures and methods for identifying cross-border financial centres, see Pogliani and Wooldridge (2022).

Distinguishing among financial centres

Cross-border financial intermediation at end-2020[1] Graph 2



BH=Bahrain; BM=Bermuda; BS=Bahamas; CH=Switzerland; CN=China; CW=Curaçao; CY=Cyprus; DE=Germany; FR=France; GB=United Kingdom; GG=Guernsey; GI=Gibraltar; HK=Hong Kong SAR; IE=Ireland; IM=Isle of Man; JE=Jersey; JP=Japan; KY=Cayman Islands; LR=Liberia; LU=Luxembourg; MH=Marshall Islands; MT=Malta; MU=Mauritius; NL=Netherlands; PA=Panama; SG=Singapore; SM=San Marino; US=United States; VG=British Virgin Islands; VU=Vanuatu. The vertical dotted line indicates the median ratio for all economies. [1] Measured as the minimum of an economy's external assets and liabilities. Log_{10} scale, with axis labels in natural units.

Sources: Lane and Milesi-Ferretti (2018), updated; BIS LBS; authors' calculations.

The rise of cross-border financial centres

The group of countries classified as cross-border financial centres is reasonably stable over time, but not static. Over the 1995–2020 period the number of cross-border centres in any given year varied between 12 and 18, with a total of 23 different economies belonging to this group at some point in time (Table 1). Many had already emerged as cross-border centres in the 1970s and have remained prominent since then, including the Cayman Islands (KY), British Virgin Islands (VG) and Luxembourg (LU). A few have faded in importance, notably Bahrain (BH), Panama (PA) and Vanuatu (VU) in the 1990s. Others have grown in recent years, such as the Netherlands (NL) and Mauritius (MU).

Since the 1970s, greater financial integration has caused external assets and liabilities to grow faster than GDP worldwide and especially so in cross-border centres. Across all economies, the ratio of cross-border intermediation to GDP increased sevenfold between the early 1980s and 2020, from 0.3 to 2.1 (Graph 3, left-hand panel). Over the same period, this ratio increased about fifteenfold for cross-border centres, from 1.5 to 23. Accordingly, the share of these centres in global financial activity rose fast – unlike their share in world GDP (Graph 1, left-hand panel).

The rapid growth of cross-border centres, as well as the financial integration of emerging market economies, has contributed to a more diverse geographic distribution of external positions (Lane and Milesi-Ferretti (2018), Broner et al (2020)). The concentration of external liabilities has been roughly stable, partly due to the growth of US external liabilities as a share of the global total. At the same time, the concentration of external assets across all countries fell by about half between the 1970s and 2010s (Graph 3, right-hand panel).

Some cross-border centres have become much larger, others have faded away

Ranking by cross-border financial intermediation ratio[1]; arrows highlight economies that moved into or out of the cross-border financial centre group

Table 1

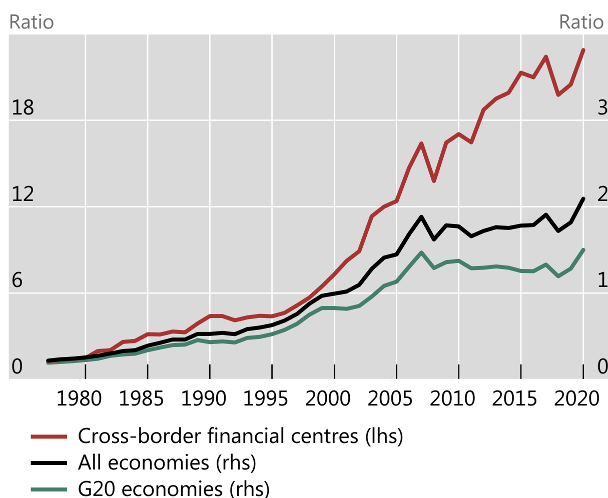
1995[2]		2005		2020	
Cross-border financial centres					
Cayman Islands	398.8	Cayman Islands	671.6	British Virgin Islands	1497.1
Liberia	85.6	British Virgin Islands	191.6	Cayman Islands	980.1
Luxembourg	38.1	Luxembourg	101.0	Bermuda	188.2
British Virgin Islands	35.5	Bermuda	97.1	Luxembourg	182.7
Bahamas	34.5	Jersey	85.1	Jersey	123.2
Curaçao	24.8	Guernsey	61.9	Guernsey	78.2
Bahrain	9.2	Bahamas	35.7	Marshall Islands	73.0
Bermuda	8.4	Curaçao	32.6	↑ Mauritius	43.4
Hong Kong SAR	6.4	Isle of Man	18.5	Curaçao	40.2
San Marino	4.6	Marshall Island	17.1	Bahamas	29.8
Panama	3.9	Liberia	15.3	↑ Cyprus	25.7
Singapore	2.7	Gibraltar	11.2	Ireland	21.6
		↑ Ireland	10.5	↑ Malta	21.1
		Bahrain	7.3	Isle of Man	17.5
		Singapore	7.2	↑ Hong Kong SAR	11.8
				↑ Netherlands	11.3
Below the threshold for a cross-border financial centre in the year shown					
Ireland	2.2	Netherlands	6.6	↓ Singapore	10.5
Netherlands	1.3	↓ Hong Kong SAR	6.1	↓ Gibraltar	4.1
Malta	1.0	Malta	4.0	↓ Liberia	4.0
Vanuatu	0.8	↓ San Marino	2.8	↓ Bahrain	3.3
Cyprus	0.7	↓ Panama	2.6	Vanuatu	1.6
Mauritius	0.3	Cyprus	1.7	Panama	1.2
		Vanuatu	1.5	San Marino	0.7
		Mauritius	0.8		

[1] Minimum of external assets and liabilities, as a ratio to GDP. All economies that were classified as a cross-border financial centre for at least two years over the 1995–2020 period are shown. Three economies that were in this group for only one year (Barbados, Nauru and Samoa) are not shown. [2] For 1995, no data are available for Gibraltar, Guernsey, the Isle of Man, Jersey and the Marshall Islands.

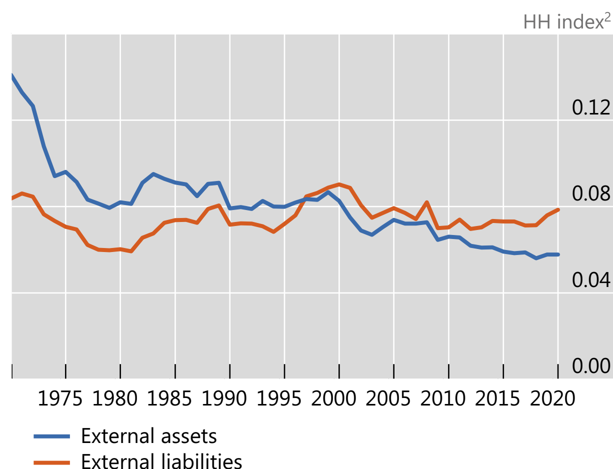
Sources: Lane and Milesi-Ferretti (2018), updated; Pogliani and Wooldridge (2022); authors' calculations.

Growth of intermediation in cross-border centres reduced concentration overall | Graph 3

Ratio of cross-border intermediation to GDP[1]



Global concentration in external positions



[1] GDP-weighted average across countries in each group. [2] The Herfindahl-Hirschman (HH) index ranges from 1/n to 1, where a smaller number indicates lower concentration.

Sources: Lane and Milesi-Ferretti (2018), updated; BIS LBS; authors' calculations.

Factors influencing activity in cross-border centres

What explains the growing prominence of cross-border financial centres in the global financial system? Network effects as well as economies of scale and scope work in favour of concentrating financial activity in a few large economies, particularly global financial centres. In these centres, the presence of a diverse set of market participants lowers the costs of matching borrowers and savers with different preferences, thus attracting still more intermediaries and customers. Similarly, a pool of financial experts attracts more experts, thus promoting specialisation and agglomeration effects.

However, the coexistence of many cross-border financial centres alongside a few global ones demonstrates that forces against centralisation are at play too. Information frictions increase with geographical and cultural distance, which supports activity in financial centres closer to customers. Advances in transportation and communication have reduced these frictions but have not eliminated them. High rents and congestion in cities put further limits on concentration, especially of activities that do not benefit from network effects, such as business registrations. Moreover, national borders matter: laws, regulations and taxes are country-specific, and can be tailored to influence the geographic distribution of financial activity.

Institutional prerequisites

A prerequisite for becoming an international financial centre is a stable, transparent legal environment that instils confidence in the predictability of contractual terms and the effective resolution of disputes. Dubai's decision to establish its financial centre as a separate administrative area, with its own courts as well as commercial and civil laws based on English common law, illustrates the importance of the legal framework. Lebanon is another example, in that Beirut's standing as a financial centre was

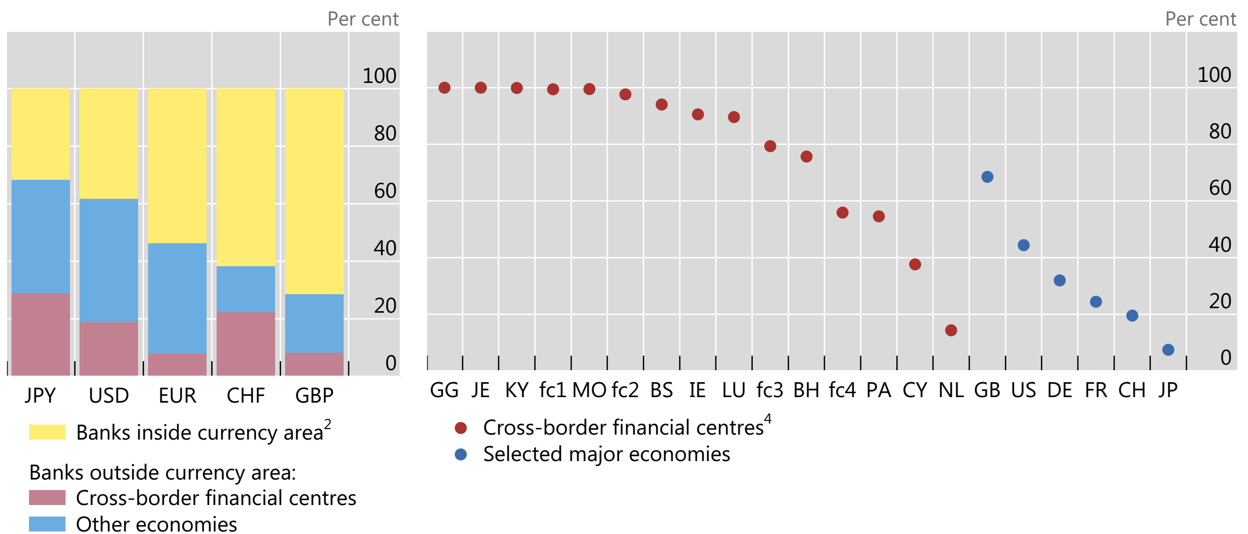
undercut starting in the 1970s by civil wars and the weakening of domestic institutions.

Another prerequisite is the unrestricted use of foreign currencies. This is particularly important for financial centres in small economies, which lack any sizeable activity in their own domestic currency. To achieve scale, they transact in the US dollar and other reserve currencies. Some adopt a reserve currency outright as their domestic currency. Financial counterparties readily transact in reserve currencies, and often do so outside the reserve-issuing country. For example, non-banks outside the United States borrow US dollars mainly offshore, from banks outside the United States (Graph 4, left-hand panel). A substantial share of offshore lending in US dollars, yen, sterling and Swiss francs – lending by banks outside the currency area – takes place from cross-border centres (red bars).

Cross-border financial centres are also typically open to foreign financial institutions and their expertise. In many, foreign banks account for the lion's share of the banking system's cross-border positions (Graph 4, right-hand panel). Foreign-owned institutions bring skills, technology, networks and reputation that locally owned institutions in small economies have difficulty matching. They also bring access to funding and liquidity, which help cross-border financial centres to operate at scale.

Foreign currencies and foreign banks dominate activity in cross-border centres

At end-2021 Graph 4



[1] Loans to non-banks outside the currency area, eg USD loans to non-banks outside the United States. [2] Cross-border centres inside a currency area are allocated to that area, eg for EUR, CY, IE, LU and NL are included with banks inside the euro area. [3] Cross-border positions (assets plus liabilities) booked by banks headquartered outside the country shown, as a percentage of cross-border positions of all banks in that country. [4] Data for some cross-border centres are not available. Centres indicated as fc1-fc4 are masked for confidentiality reasons.

Sources: BIS LBS; authors' calculations.

Geographic aspects

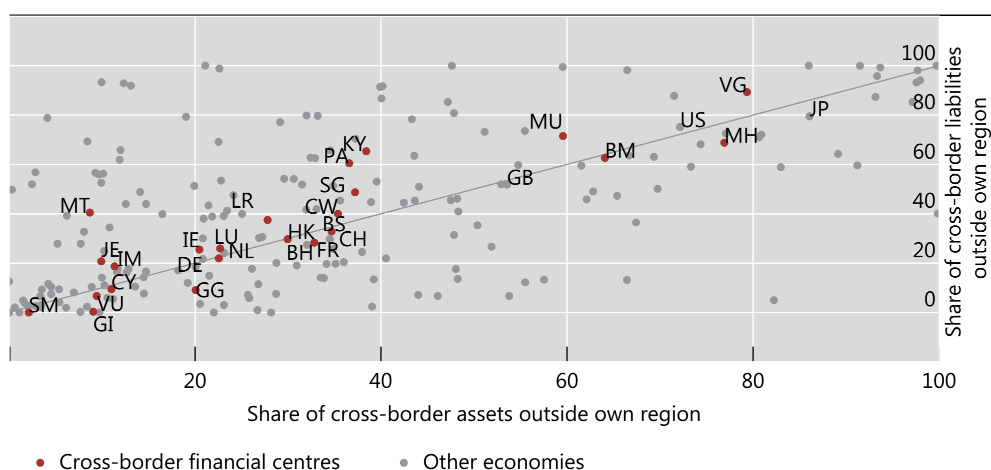
Geography naturally entails some dispersion of activity across financial centres. The physical reality of time zones requires several financial centres that allow for trading, clearing and settlement around the clock. New York, London and Tokyo span 24 hours with their market opening hours. But even small time differences can be inconvenient for financial institutions and their customers. Furthermore, information frictions increase with physical and cultural distance (Mian (2006)). This creates opportunities for multiple financial centres even within a given time zone, as in the case of Hong Kong SAR and Singapore.

The advantage of being closer to customers helps explain why cross-border financial centres tend to have more of a regional focus than global centres do. In particular, many centres cater to a large neighbouring economy. To gauge the geographic reach of a financial centre, we use the BIS locational banking statistics to examine bilateral links between banks and their counterparties abroad (Graph 5). Most cross-border centres book a smaller percentage of cross-border bank positions outside their region (33%) than the average country (38%), let alone global financial centres like the United States (74%) and Japan (83%). Several cross-border centres transact almost exclusively within their region, including Cyprus (CY) and Gibraltar (GI). The British Virgin Islands (VG) is a notable exception, owing to its extensive links with Asia in particular.

Some cross-border financial centres play a role intermediating between regions. The Cayman Islands (KY) – located in the Americas – source 65% of their bank-related liabilities from other regions, notably from Japan and other countries in Asia; yet the bulk of their cross-border claims are on borrowers in the Americas, pushing the interregional share below 40% on the asset side (Graph 5). Similarly, about half of Malta's (MT) liabilities are owed to creditors outside Europe, but 80% of its assets remain invested within the region.

Most cross-border financial centres have a regional focus

Share of cross-border banking business with counterparties in other regions, at end-2021 Graph 5



Countries are allocated to one of three regions: North and South America; Europe and Africa; or Asia and Oceania.

Sources: BIS LBS; authors calculations.

Tax and regulatory considerations

Cross-border centres that lack the economies of scale and scope enjoyed by financial centres in large economies often compete for financial business by offering lower taxes or lighter regulations. Centres that compete on these grounds face a highly elastic demand for their services; small differences can have a significant impact on their market share (Sinha and Srivastava (2013)). As a result, much of the business booked in such centres involves entities that have low setup costs and a minimal physical presence, so that the business can be relocated with ease (Dixon (2001)).

The first cross-border centres had their origins in regulatory arbitrage. Differences in the regulatory treatment of banks' domestic and foreign funding create the equivalent of a tax wedge, which enables affiliates abroad to offer higher interest rates to depositors and lower ones to borrowers. The most relevant regulations include ceilings on deposit rates, reserve requirements and deposit insurance premiums (McCauley et al (2021)).

The liberalisation of capital accounts since the 1980s and the strengthening of financial regulation and supervision worldwide have reduced opportunities for regulatory arbitrage, especially in the banking sector. However, the regulation of non-bank financial institutions (NBFIs) tends to be more fragmented than that of banks and thus continues to offer opportunities for cross-border arbitrage. For instance, capital requirements for captive insurance companies are lower and more flexible in some cross-border centres than they are in larger economies (KPMG (2021)). In the area of digital innovation, a number of economies have banned or restricted cryptocurrency businesses, whereas many cross-border centres have enabled their expansion. NBFIs now account for the largest share of intermediation via cross-border centres, which highlights their potential as a channel for regulatory arbitrage (see below).

Corporate taxes are another area where cross-border centres often differentiate themselves. Several cross-border centres have tax rates of zero on some types of corporate income, including the British Virgin Islands (VG), the Cayman Islands (KY), the Isle of Man (IM), Guernsey (GG) and Jersey (JE). This has the effect of enticing foreign businesses, as these same countries have an unusually large number of company registrations per capita (Graph 6, left-hand panel). While statutory tax rates are not uniformly low in cross-border centres, other features, such as exemptions and double taxation treaties, further enhance the attractiveness of a tax regime.

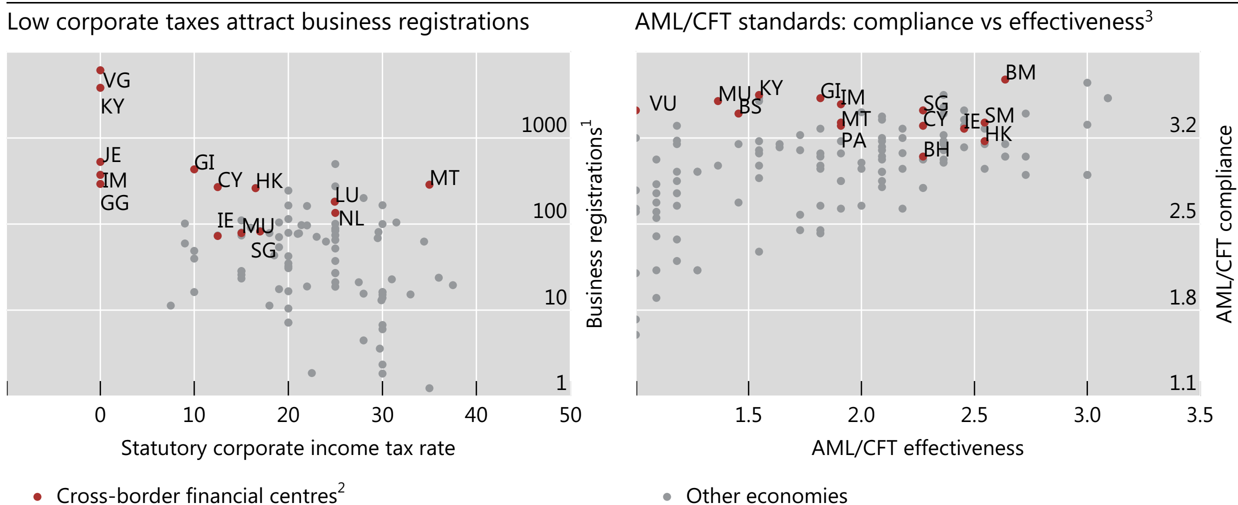
The size of foreign direct investment (FDI) in many cross-border centres is indicative of how much activity is motivated by tax considerations. In cross-border centres, most FDI takes the form of pass-through funds, whereby companies route investments through one or more financial subsidiaries on their way to a destination (Weyzig (2013)). Even if some pass-through activity reflects the complexity of multinationals' corporate structures, a larger proportion is explained by tax optimisation strategies (Borga and Caliandro (2020)).

In many cross-border centres, FDI assets and liabilities are unusually large and of similar magnitude, confirming the pass-through nature of FDI. Globally, FDI accounts for less than 30% of external liabilities (Graph 7, right-hand panel). By contrast, it accounted for about 40% of cross-border centres' aggregate liabilities in 2020. The proportion was even higher in Cyprus (CY), Malta (MT) and Mauritius (MU) (red bars). These centres have small domestic economies, which suggests that little of this FDI was invested in the production of goods or services. The steady rise in outstanding FDI, more than doubling as a share of the external liabilities of cross-border centres since 1995 and up over tenfold as a share of their GDP, points to the growing importance of tax optimisation strategies (Graph 7, left-hand panel).

Authorities in many cross-border centres now strive to implement international tax and regulatory standards. Many centres have joined international efforts to tackle tax evasion: for example, by participating in the automatic exchange of information under the auspices of the Global Forum on Transparency and Exchange of Information for Tax Purposes. In 2021, 137 countries – including many cross-border centres – agreed to a plan to impose a minimum corporate tax rate of 15% (OECD (2021)). Similarly, in cross-border centres the regulations in place against money laundering and the financing of terrorism mostly comply with the technical requirements set out by the Financial Action Task Force (Graph 6, right-hand panel, y-axis). That said, the effectiveness of these regulations varies across centres (x-axis).

To be sure, not all cross-border financial centres are in full compliance with international standards. In some places financial secrecy still attracts clients wishing to engage in activities that are illegal elsewhere. A series of data leaks in recent years, documented in a database curated by the International Consortium of Investigative Journalists, sheds light on the complex web of corporate structures that can be used to hide wealth or illicit activities (Díaz-Struck et al (2022)).

Tax and regulatory environment in cross-border financial centres | Graph 6



[1] Number of limited liability companies per capita, $\log_{10}$ scale, with axis labels in natural units.. [2] Data for some cross-border centres are not available. [3] Based on the latest mutual evaluation by the Financial Action Task Force (FATF) or its regional bodies of a country's framework for anti-money laundering and combating the financing of terrorism (AML/CFT). FATF assesses implementation based on technical compliance with 40 recommendations and effectiveness based on achieving intended results in 11 areas. FATF does not assign an overall rating. The panel shows a simple average across ratings in each area. For implementation (y axis), 4 is compliant and 1 is non-compliant. For effectiveness (x axis), 4 is high and 1 is low.

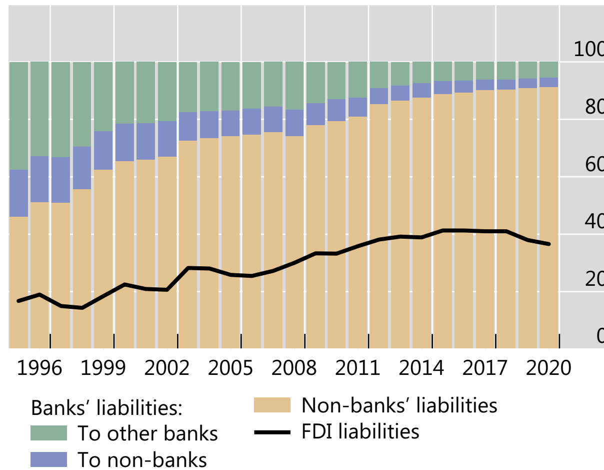
Sources: European Business Registry Association; FATF; Tax Foundation; World Bank; national data; authors' calculations.

Activity in cross-border centres has shifted towards non-banks and FDI

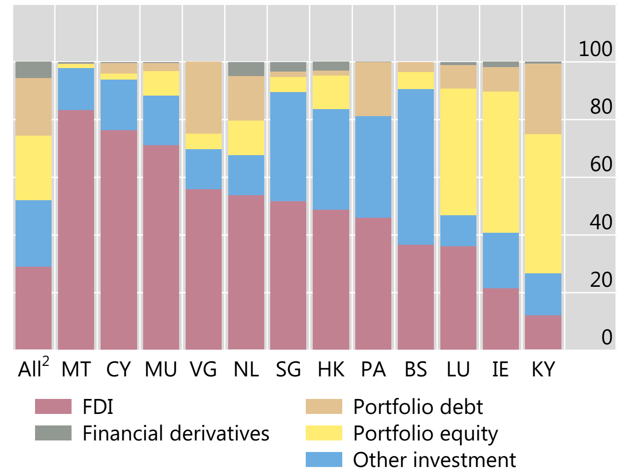
As a share of external liabilities, in per cent

Graph 7

Cross-border centres' external liabilities, by sector



External liabilities, by instrument[1]



[1] At end-2020. [2] Weighted average of all economies.

Sources: Lane and Milesi-Ferretti (2018), updated; BIS LBS; authors' calculations.

Business specialisation

Competitive pressures lead many cross-border financial centres to implement similar regulatory and tax regimes. Thus, to achieve a lasting advantage, cross-border financial centres also tend to specialise in certain activities. They build an ecosystem of financial, advisory and legal services that cater to specific demands and differentiate them from other financial centres. Indeed, centres sometimes tailor their regulatory and tax framework to appeal to certain types of activity (Sinha and Srivastava (2013)).

When cross-border financial centres first emerged in the 1970s, they typically specialised in banking. A substantial share of this banking activity consisted of intragroup transactions among affiliates of the same (foreign) banking group. Even business involving unrelated parties, such as lending to non-bank borrowers, was typically originated by banks based elsewhere (McCauley and Seth (1992)). In effect, assets and liabilities were recorded in cross-border centres for financial reporting purposes, but mind and management for making meaningful lending and borrowing decisions were located elsewhere (Dixon (2001)).

Since the mid-1990s, activity in cross-border financial centres has shifted away from banking toward non-bank financial intermediation. This was in keeping with the same shift in the global financial system. Today business with non-bank entities, such as fund managers and other NBFIs, accounts for the largest share of most centres' cross-border activity. Their interbank liabilities (including intragroup positions) fell from close to 40% of total liabilities in 1995 to about 5% in 2020 (Graph 7, left-hand panel, green bars). Over the same period, the liabilities of non-banks rose from 40% to over 80% (beige bars). FDI accounts for the largest share of these liabilities, mostly incurred by SPEs affiliated with multinational companies.

The different types of activity in which cross-border centres specialise is reflected in the instrument composition of their external assets and liabilities. The Cayman Islands (KY), Ireland (IE) and Luxembourg (LU) host a large number of investment

funds, consistent with the high share of portfolio equity in their liabilities (Graph 7, right-hand panel, yellow bars). The British Virgin Islands (VG), the Cayman Islands (KY) and the Netherlands (NL) host financial subsidiaries of multinational firms, through which bonds are issued to international investors. Their portfolio debt liabilities are correspondingly high (beige bars). In the Bahamas (BS), Hong Kong SAR (HK) and Singapore (SG), banking is still relatively important ("other investment", in blue). In Panama (PA), much of the loan liabilities are owed by non-financial companies, particularly shipping firms. Panama is home to the largest ship registry in the world.

Challenges posed by cross-border financial centres

Since their emergence in the 1970s, cross-border financial centres have secured an outsize role in the global financial system. They have prospered from the shift in international intermediation away from banks towards NBFIs. Their persistence and adaptability point to the importance of factors, such as time zones, regulation and tax, that work against the natural tendency of financial activity to concentrate in a few global financial centres.

Cross-border centres offer benefits to the global financial system but also pose challenges to its smooth functioning. Their rise has put competitive pressure on global and national financial centres to reduce costs, innovate and improve the quality of their services (Rose and Spiegel (2007), Hines (2010)). At the same time, to the extent that cross-border financial centres facilitate regulatory arbitrage and obscure risks, they can undermine international efforts to strengthen the resilience of international financial intermediation.

While consolidated supervision acts as a safeguard against regulatory arbitrage in banking, the non-bank financial sector poses a greater challenge to regulatory consistency. An important step to strengthen the resilience of NBFIs is taking a less fragmented and more consolidated supervisory perspective on their activities (Carstens (2021)). The Financial Stability Board is leading international efforts to strengthen the resilience of non-bank financial intermediation (FSB (2021)).

Furthermore, cross-border centres complicate risk analysis by obscuring the ultimate source and destination of investments, and even the type of investment (Coppola et al (2021)). For example, estimates of US portfolio investment in emerging markets are about a third higher based on the nationality of borrowers as opposed to their residence, with investment via cross-border centres accounting for much of the difference (Bertaut et al (2021)). Similarly, in the case of countries where companies issue bonds via financial subsidiaries in cross-border centres, exposure to global financial market conditions may be underestimated because the bond proceeds show up as FDI (in the form of an intercompany loan) rather than portfolio liabilities. The opaqueness of activity in cross-border financial centres highlights the usefulness of complementing the residence perspective taken in the standard international statistical framework with a consolidated view based on the controlling parent (Avdjiev et al (2018)).

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Russia's pre-war position in the international banking system

John Caparusso and Bryan Hardy ①

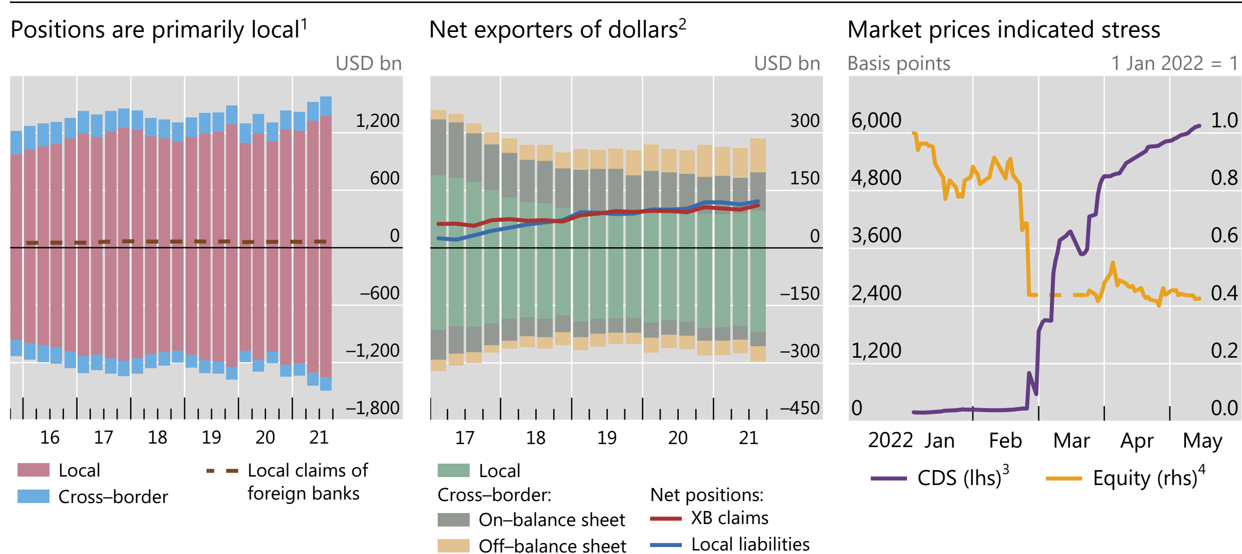
The outbreak of war in Ukraine damaged real economic activity and generated uncertainty in financial markets globally. It triggered sanctions by foreign governments and others on Russian entities and individuals, implemented largely through restrictions on their access to the international financial system. These developments have disrupted the activities of financial institutions domiciled in Russia or with links to the country.②

Using data up to end-2021 – thus prior to the war – this box examines features of the Russian banking system as well as aspects of the international banking system's exposure to the sanctions.③ In particular, it shows that domestic banks dominate the Russian banking sector and that their business is largely local. Nevertheless, market reactions suggest concerns, possibly related to these banks' USD positions and the credit risk of local borrowers. The box also reports that exposures to Russia do not seem to threaten the solvency of foreign banks. Finally, it highlights that, while the Central Bank of the Russian Federation and banks in Russia provide US dollar funding to the rest of the world, Russia is not (with a few exceptions) a significant dollar funding source for banks outside Russia.

Vulnerabilities of Russian banks

Structural features of Russia's domestic banking system limit the scope for sanctions to transmit stress through international banking channels. This system includes predominantly domestic banks, ie banks headquartered in Russia, whose share in all banks' claims on Russia has consistently been estimated at about 95% since 2015. In addition, the positions of banks in Russia are domestically oriented, with claims on and liabilities to entities in Russia accounting for 87% and 91% of the respective totals at end-September 2021 (Graph B1, left-hand panel).

Banks in Russia — Graph B1



[1] Local and cross-border positions of Russian banks and foreign banks' offices in Russia. Positive amounts relate to claims and negatives to liabilities. Local claims of foreign banks in Russia are computed from the consolidated banking statistics on an immediate counterparty basis. [2] Positive (negative) values indicate USD-denominated claims (liabilities). Graph adapted from P McGuire, "FX swaps and forwards in global dollar debt: 'known knowns' and 'known unknowns'", mimeo, 2022. [3] Average of five-year CDS spreads for Sberbank and VTB. [4] Combined market capitalisation of Sberbank and VTB. The dashed line in the right-hand panel indicates stale valuation while trading was suspended between 25 February and 23 March.

Sources: Central Bank of the Russian Federation; IMF balance of payments and international investment position statistics; Datastream; IHS Markit; BIS locational banking statistics (by residence); BIS consolidated banking statistics (immediate counterparty basis).

The sizeable USD positions of banks in Russia create some vulnerabilities to the war's repercussions. While USD assets closely match USD liabilities at the overall level (combining both on- and off-balance sheet items), there is no such match at the level of either local or cross-border positions (Graph B1, centre panel). Most of the USD liabilities come from local depositors (74% in Q3 2021), which are probably commodities exporters with dollar revenues. By contrast, the USD assets are largely cross-border, consisting of both loans and long positions in the FX swap market. Sanctions could affect cross-border and local positions differently and create a divide between them. For one, a decline in the USD revenues of depositors in Russia could lead them to withdraw USD deposits, ultimately generating a USD funding shortage for banks. In turn, impaired access to cross-border USD claims could hamstring the servicing of local USD liabilities.

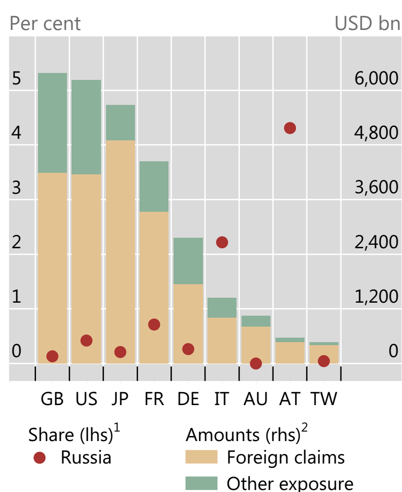
Equity prices and CDS spreads after the war's outbreak suggest great investor concerns about Russian banks (Graph B1, right-hand panel). These banks' domestic focus does not shield them from the risk that the war's repercussions worsen the solvency positions of domestic borrowers. Furthermore, the prospect of stress from cross-border or local USD mismatches likely concerns investors, to the extent that Russian banks, corporates and wealthy individuals have been effectively isolated from international payments and settlements systems for both cash and derivatives markets.④

Implications for the international banking system

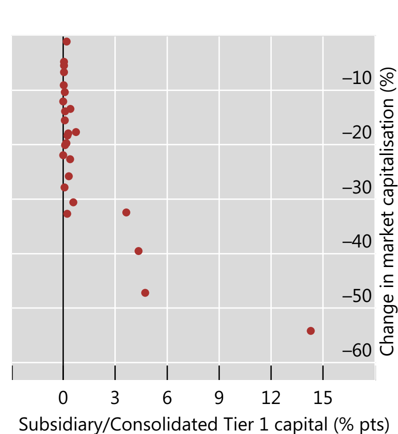
Foreign banks' consolidated claims on borrowers in Russia are small in aggregate. From the perspective of most foreign banking systems, Russia accounts for less than 1% of total foreign exposures – comprising cross-border claims, claims made by local affiliates, and off-balance sheet exposures, such as credit guarantees (Graph B2, left-hand panel, red dots). The country features in the top 10 counterparty locations for only one major banking system, Austria, where it still accounts for less than 5% of domestic banks' total foreign exposures. Across banking systems, typically only a few individual banks have material exposure to Russia.

Russia from the perspective of foreign banks — Graph B2

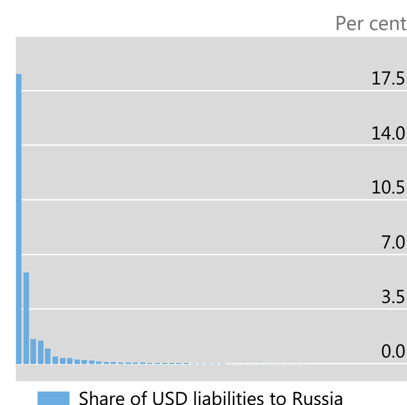
Exposure to Russia is small at the level of banking systems (end-2021)



Market capitalisation change reflects share of bank capital in Russian subsidiary[3]



USD funding from Russia small for most jurisdictions[4]



[1] Total foreign claims and other potential exposure (derivatives, credit commitments and guarantees) on all foreign counterparty countries by bank nationality. [2] Share in total exposure, ie foreign claims plus other potential exposures. [3] Horizontal axis: Tier 1 capital of Russian subsidiaries relative to parents' consolidated Tier 1 capital at end-2021 or most recent available. Vertical axis: change in market capitalisation from 17 February 2022 (one week before onset of the war in Ukraine) to 17 May 2022. [4] Cross-border USD liabilities to Russia divided by total USD liabilities. Each bar represents banks located in a given jurisdiction. The graph shows 47 jurisdictions, seven of which do not report any USD liabilities to Russia. Data as of end-2021.

Sources: S&P Capital IQ Pro; BIS locational banking statistics; BIS consolidated banking statistics (on a guarantor basis).

Zooming in on foreign banks with a physical presence in Russia, the evolution of stock prices after the outbreak of the war suggests some market concern. The negative price reactions tend to be stronger for those few banks with large equity in Russian subsidiaries as a share of consolidated capital (Graph B2, centre panel). However, solvency issues are unlikely to drive these reactions because potential full write-offs of this equity would still leave these banks with Common Equity Tier 1 ratios of at least 11%, well above the regulatory minimum. Instead, markets may be concerned that losses could impair dividend payouts and that closing previously profitable subsidiaries in Russia may affect earnings. Further, while some banks have exited Russia by selling their subsidiaries, those unable to do so may be saddled with obligations to domestic depositors.

While globally Russia is a source of dollar funding, the amounts lent are relatively small from the perspective of the international banking system, with some exceptions. At end-2021, foreign banks' US dollar funding from Russia stood at $52 billion. With 60% of it stemming from either banks in Russia or the central bank,⑤ this funding amounted to less than 0.5% of foreign banks' (on-balance sheet) USD liabilities. At the aggregate level, this share had remained consistently below 1% over the past decade. That said, the share was material for banks in a small number of jurisdictions (Graph B2, right-hand panel). Turning to off-balance sheet positions, foreign banks have taken steps to settle many outstanding obligations linked to Russia, such as dollar-rouble FX swap positions. However, vulnerabilities may surface if some derivatives positions mature without these banks being able to access the roubles needed to settle the contracts.⑥

① The views expressed are those of the authors and do not necessarily reflect the views of the BIS. ② This box does not analyse the positions of Russian banks' affiliates outside Russia or their importance to the host countries they are located in. From the perspective of Russian banks' consolidated positions, their foreign affiliates are small (<5% of assets). For host countries that report data to the BIS, the role of Russian banks in those locations is also small (<0.5% of claims). Nevertheless, these affiliates may struggle in the face of international sanctions, and they may be important to some smaller economies where data are sparser. ③ Russia began reporting data to the locational banking statistics in Q4 2015. Russia has not reported data for Q4 2021. ④ This box does not provide an analysis of the impact of SWIFT-related bans on Russian banks. ⑤ At end-January 2022, Russia's central bank reported foreign currency reserves (in the form of currency and deposits) at $152 billion, including USD, EUR and other currencies, of which $57 billion was placed with foreign banks. ⑥ See eg *Euromoney*, "Groupthink saves billions of dollars for banks on rouble FX swaps", 18 March 2022 and Risk.net, "'Dead' derivatives market leaves big Russia dealers unhedged", 9 March 2022.