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Tracking international bank flows[1]

Activity in the international banking market has grown in recent years, both in absolute terms and relative to aggregate measures of economic activity and liquidity. By establishing a global outreach, several international banking centres have become key players in this market. This feature shows how the BIS international banking statistics can be used to track the net flow of capital through the global banking system, with a focus on the role of banks in the United Kingdom and Caribbean and Asian offshore centres.

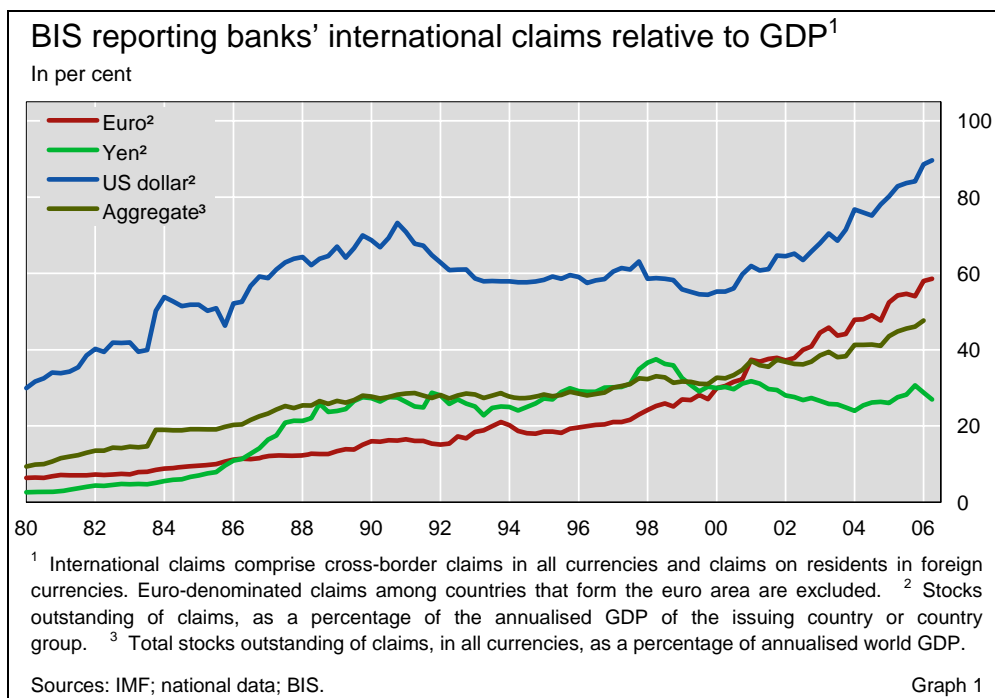*JEL classification: F34, G15, G21.*

The international banking market is a primary conduit through which funds are transferred between countries. Since 2002, cross-border lending and deposits have risen, both in absolute terms and relative to aggregate measures of real economic activity and liquidity. The structure of the international banking market has evolved over the past 30 years. While London has remained a primary financial centre, Asian and Caribbean offshore centres have expanded their global presence, and are important in the channelling of funds between countries.

This feature uses the BIS international banking statistics to quantify these developments. The first section places into perspective the growth in international banking activity in recent years, while the following section analyses the importance of international banking centres. The final section provides a convenient graphical representation of the structure of the international banking market, and analyses the net flow of bank credit between ultimate lenders and borrowers.

Growth in international banking

International banks play an increasingly important and complex role in the global financial system. In part, this growing complexity is the result of consolidation within the banking industry, globalisation and capital market integration. Cross-border claims today are over 30 times larger in absolute

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BIS reporting banks' international claims relative to GDP[1]

In per cent

- Euro[2]
- Yen[2]
- US dollar[2]
- Aggregate[3]

[1] International claims comprise cross-border claims in all currencies and claims on residents in foreign currencies. Euro-denominated claims among countries that form the euro area are excluded. [2] Stocks outstanding of claims, as a percentage of the annualised GDP of the issuing country or country group. [3] Total stocks outstanding of claims, in all currencies, as a percentage of annualised world GDP.

Sources: IMF; national data; BIS.   Graph 1

terms than 30 years ago. Relative to monetary aggregates or measures of global macroeconomic activity, international activity grew robustly in the 1980s, slowed somewhat in the 1990s and has trended upwards again since 2000.

The international banking market took off in the 1960s, when banks in London were permitted to accept foreign currency (ie non-sterling) deposits. These banks were able to attract US dollar deposits, or eurodollars, because they faced lower regulatory costs than their counterparts in the United States, which were subject to reserve requirements. The political climate at the time also helped this process along, as the former Soviet Union and oil-exporting states, in search of a store of hard currency outside the United States, deposited a significant amount of US dollars in banks in London.[2]

International banking activity has grown …

Since then, international banking activity has grown significantly, in all major currencies. The BIS international banking statistics – the most comprehensive source of information on banks' international assets and liabilities – indicate that the outstanding stock of international claims,[3] primarily loans, increased from $684 billion at end-1977 to $23 trillion in the second quarter of 2006.[4,5] The growth in this market is evident even

… relative to global economic activity …

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[2] For a thorough treatment of the development of the international banking market, see Mayer (1979), McKinnon (1979), Johnston (1983), Niehans (1984) and Krugman and Obstfeld (1991).
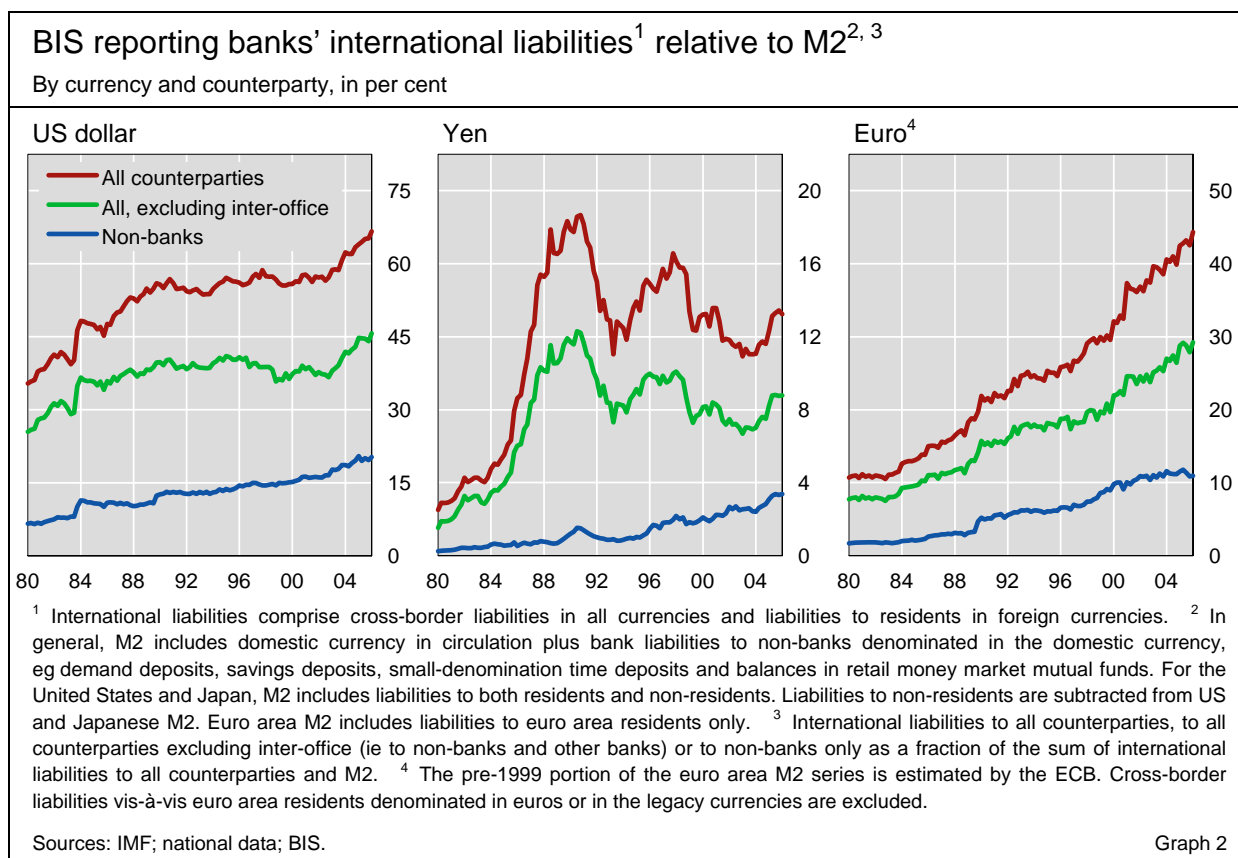
[3] International claims (liabilities) are defined as cross-border claims (liabilities) in all currencies plus foreign currency claims (liabilities) vis-à-vis domestic residents. The BIS locational banking statistics follow balance of payments concepts, and are hence based on the residency of the reporting bank. For a complete description of these statistics, see BIS (2003a,b) and Wooldridge (2002).

[4] Part of this increase is due to a widening of the reporting area. In particular, data for the Cayman Islands, Hong Kong SAR, Singapore and other offshore financial centres became available only at end-1983. Australia, Bermuda, Greece, Guernsey, the Isle of Man and Portugal joined the reporting population in or after 1998. Banks located in these countries accounted for less than 5% of total claims of BIS reporting banks in 2006.

when scaled by measures of overall economic activity. Graph 1 portrays cross-border claims of banks in all reporting countries as a ratio of world GDP, as well as a decomposition of this ratio by currency. Total international claims of BIS reporting banks rose from roughly 10% of world GDP in 1980 to 28% at end-1990. This ratio stagnated over the 1990s, in part reflecting the retrenchment of Japanese banks, but has been on the rise since end-1999, reaching 48% by early 2006.[6]

... and measures of liquidity

Banks' liabilities, primarily deposits, have grown along with their claims. Cross-border liabilities can be combined with domestic liabilities (eg domestic currency deposits in resident banks) to yield a measure of "liquidity" in a particular currency.[7] Graph 2 plots banks' international liabilities – to (i) non-banks, (ii) non-banks and other banks or (iii) all counterparties (ie including

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BIS reporting banks' international liabilities[1] relative to M2[2, 3]

By currency and counterparty, in per cent

US dollar — Yen — Euro[4]

Legend: All counterparties; All, excluding inter-office; Non-banks

[1] International liabilities comprise cross-border liabilities in all currencies and liabilities to residents in foreign currencies. [2] In general, M2 includes domestic currency in circulation plus bank liabilities to non-banks denominated in the domestic currency, eg demand deposits, savings deposits, small-denomination time deposits and balances in retail money market mutual funds. For the United States and Japan, M2 includes liabilities to both residents and non-residents. Liabilities to non-residents are subtracted from US and Japanese M2. Euro area M2 includes liabilities to euro area residents only. [3] International liabilities to all counterparties, to all counterparties excluding inter-office (ie to non-banks and other banks) or to non-banks only as a fraction of the sum of international liabilities to all counterparties and M2. [4] The pre-1999 portion of the euro area M2 series is estimated by the ECB. Cross-border liabilities vis-à-vis euro area residents denominated in euros or in the legacy currencies are excluded.

Sources: IMF; national data; BIS.   Graph 2

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[5] Throughout this feature, the term "euro area" refers to the group of 12 countries that adopted the euro in 1999. In addition, all calculations exclude euro-denominated cross-border positions within the euro area.

[6] The currency distribution of international claims has also evolved. The US dollar share of international bank claims dropped from 73% in mid-1984 to 52% in mid-2006 (evaluated at constant 2006 Q2 exchange rates). Over the same period, the share of euro-denominated claims (including the euro legacy currencies prior to 1999) rose from 11% to 27%.

[7] During the 1970s and 1980s, a relatively large literature on the growth of the eurocurrency market emerged. In part, this was driven by concerns that US dollars placed in banks outside the United States would contribute to inflationary pressures in the United States and dull the effect of domestic monetary policy. See McKinnon (1979), Niehans and Hewson (1976) and Mayer (1979).

inter-office deposits) – as a fraction of the sum of total international liabilities in that currency and the corresponding monetary aggregate M2.[8] In each of the major currencies, international liabilities have risen as a share of liquid funds in recent years, in line with the GDP-based ratios reported in Graph 1. US dollars held in banks outside the United States are 30–50 percentage points larger than the corresponding ratios for the euro or the Japanese yen, underscoring the importance of the US dollar as an international currency.

Graph 2 also indicates that there has been a sustained shift towards greater liabilities to non-banks since the mid-1990s.[9] In the US dollar market, for example, positions vis-à-vis these entities in the United Kingdom and Caribbean offshore centres, which host many non-bank financial entities, accounted for much of this. Across all currencies, liabilities to non-banks currently account for 29% of total international liabilities, up from 22% in 1996 and 18% in 1988.

On the whole, however, interbank activity dominates both the claims and liabilities side of banks' balance sheets. Short-term misalignments in the demand for and supply of funds to end-use borrowers can mean that deposits in banks may be temporarily passed on to other banks. If so, each leg of this chain is reflected in the aggregate claims figure, and can generate what appear to be swellings in interbank loan flows. In mid-2006, inter-office claims accounted for an estimated 32% of total cross-border deposits, while lending to other banks accounted for an additional 39%.

The importance of international banking centres

Banks located in a few countries constitute the core of the international banking market. The United Kingdom has been the largest international banking centre (IBC), a focal point for the lending and depositing of foreign currencies. Asian and Caribbean offshore centres later emerged as regional banking hubs, and currently rival the United Kingdom in terms of overall activity.

The size and scope of the operations of banks located in these IBCs are large relative to aggregate economic activity in the host countries. Table 1 illustrates this point by reporting international liabilities of banks located in a particular country or country group, as a proportion of GDP. The United Kingdom and Asian and Caribbean offshore centres (as well as Luxembourg and Switzerland) clearly stand out, with liabilities/GDP ratios of 285% or more in 2006. Elsewhere, these ratios were 62% or less.

Banks in IBCs …

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[8] The definition of M2 varies slightly by country but generally includes domestic currency in circulation, demand deposits, savings deposits, small-denomination time deposits and balances in retail money market mutual funds. Importantly, M2 is in domestic currency and excludes domestic interbank deposits and all eurocurrency deposits.

[9] See McGuire (2004) for a discussion of the shift towards lending to non-bank borrowers in the United States by banks in the United Kingdom.

Identifying international banking centres						
In per cent						
	Liabilities to total[1]			Liabilities to GDP		
	1990	1998	2006	1990	1998	2006
Euro area[2]	16	23	26	21	36	62
United States[3]	10	10	11	11	11	20
Japan	20	9	4	45	22	23
Other developed countries[4]	4	4	5	22	27	44
United Kingdom	21	21	27	143	154	285
Luxembourg	3	4	2	1,834	2,127	1,324
Switzerland	5	5	5	165	207	317
Caribbean offshore centres[5]	9	9	7	–	4,787	5,608
Asian offshore centres[6]	10	12	5	628	491	386
Developing countries[7]	0	0	3	–	–	16

[1] International liabilities of banks located in each country or country group at the beginning of the year, as a share of all BIS reporting banks' total international liabilities. International liabilities comprise cross-border liabilities in all currencies and liabilities to residents in foreign currencies.   [2] Excludes Greece and Luxembourg. Euro-denominated cross-border liabilities contracted within the euro area are excluded.   [3] Excluding liabilities to residents in all currencies.   [4] Australia, Canada, Denmark, Norway and Sweden.   [5] The Bahamas, the Cayman Islands and the Netherlands Antilles.   [6] Hong Kong SAR and Singapore.   [7] Brazil, Chile, India, Korea, Mexico, Taiwan (China) and Turkey.

Sources: IMF; national data; BIS.   Table 1
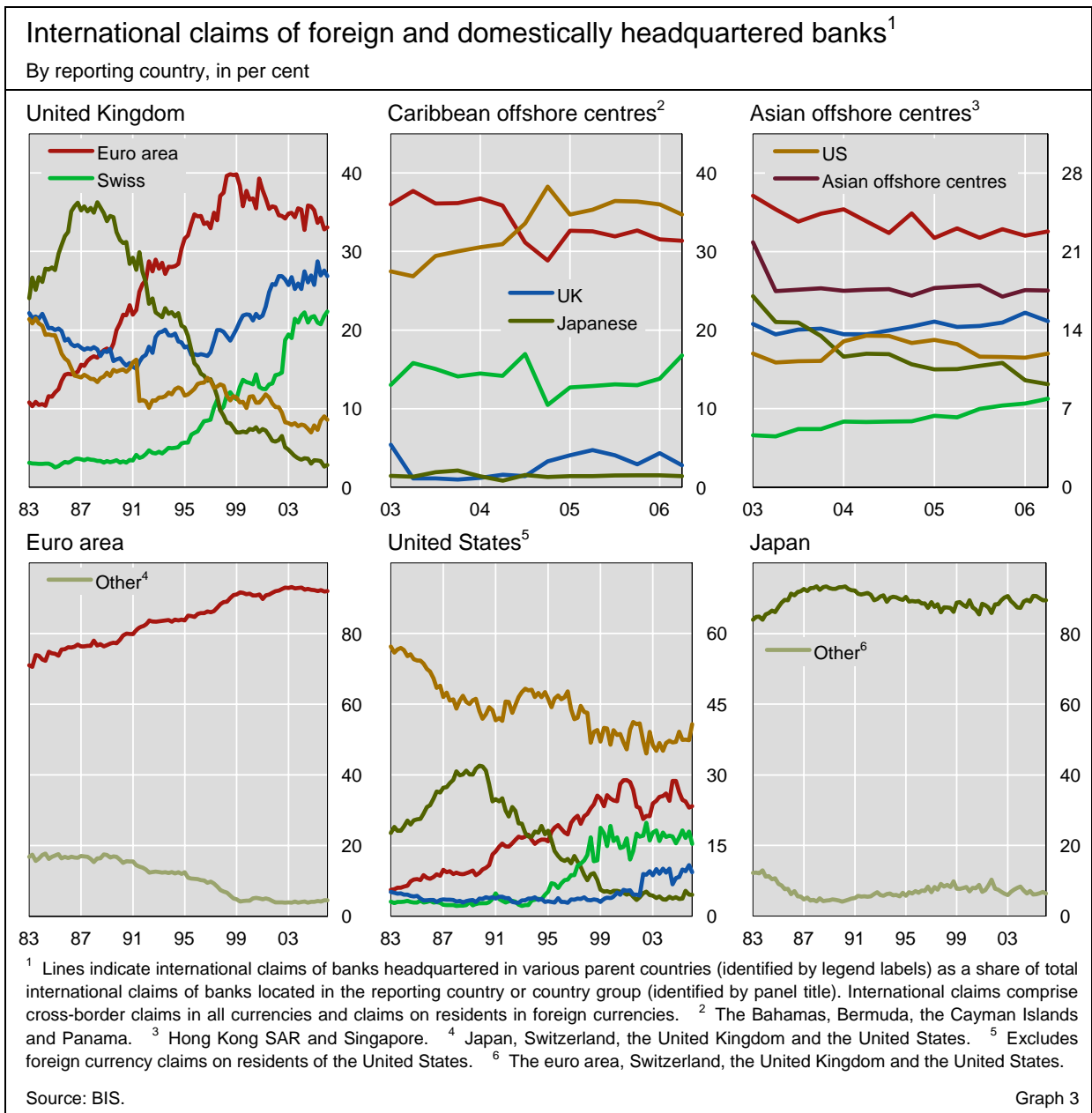
Activity in some IBCs is dominated by internationally active *foreign* banks. In the United Kingdom and Caribbean and Asian offshore centres, for example, banks headquartered in the United States, the euro area (primarily Germany) and Switzerland account for the bulk of international claims (Graph 3, top row). Japanese banks were once dominant in London and Hong Kong, although their cross-border claims declined in the 1990s with the downturn in the Japanese economy and the deterioration in the health of the domestic banking sector. In contrast to the experience in these IBCs, domestic banks (ie banks headquartered in the reporting country) tend to be dominant in other countries (Graph 3, bottom row).

The structure of the global banking system can be viewed as a network of interconnected nodes, each representing a hub or particular geographical region.[10] Graph 4 provides one representation of the network of bilateral linkages between regions. The size of each node corresponds to the share of resident banks' cross-border claims in total cross-border claims of BIS reporting banks, and is thus an indicator of the relative importance of particular countries.[11] The thickness of the lines (or links) between regions corresponds

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[10] The country groups OIL, LAT, EM EUROPE and ASIA PAC in Graphs 4 and 5 include both reporting and non-reporting countries. Bahrain (OIL), Brazil, Chile and Mexico (LAT), Turkey (EM EUROPE) and Taiwan (China) (ASIA PAC) all started to report data after 2000. Similarly, UK includes positions of banks in the United Kingdom as well as Guernsey, the Isle of Man and Jersey for 2006.

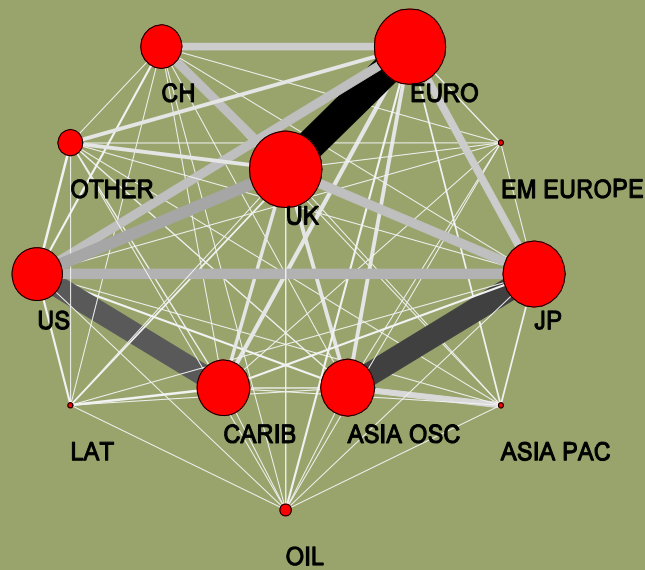[11] Foreign currency claims on residents are not included in Graph 4.

International claims of foreign and domestically headquartered banks[1]

By reporting country, in per cent

United Kingdom / Caribbean offshore centres[2] / Asian offshore centres[3] / Euro area / United States[5] / Japan

[1] Lines indicate international claims of banks headquartered in various parent countries (identified by legend labels) as a share of total international claims of banks located in the reporting country or country group (identified by panel title). International claims comprise cross-border claims in all currencies and claims on residents in foreign currencies.   [2] The Bahamas, Bermuda, the Cayman Islands and Panama.   [3] Hong Kong SAR and Singapore.   [4] Japan, Switzerland, the United Kingdom and the United States.   [5] Excludes foreign currency claims on residents of the United States.   [6] The euro area, Switzerland, the United Kingdom and the United States.

Source: BIS.   Graph 3

to the *sum* of cross-border claims between the regions, and is a gauge of the size of aggregate cross-border positions.

Bilateral linkages vary significantly between country pairs. For much of the last 20 years, the links between banks in the United Kingdom and the euro area (at roughly $4 trillion), and between banks in the United States and the Caribbean (roughly $2 trillion), were the largest. Aggregate positions between the United States and the United Kingdom, and between Switzerland and the euro area, were relatively significant as well. At the onset of the Asian financial crisis in 1997, Japanese banks still had significant positions vis-à-vis their offices in Hong Kong and the United Kingdom. By mid-2006, their cross-border positions vis-à-vis banks in Asian offshore centres had declined in relative terms.

Linkages in the international banking system[1]

1997

2006

ASIA OSC = Hong Kong SAR, Macao and Singapore; ASIA PAC = China, India, Indonesia, Korea, Malaysia, Pakistan, the Philippines, Taiwan (China) and Thailand; CARIB = Aruba, the Bahamas, Bermuda, the Cayman Islands, the Netherlands Antilles and Panama; CH = Switzerland; EM EUROPE = Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, Turkey and Ukraine; EURO = euro area countries; JP = Japan; LAT = Argentina, Brazil, Chile, Colombia, Mexico and Peru; OIL = OPEC member states (excluding Indonesia) plus Russia; OTHER = Australia, Canada, Denmark, New Zealand, Norway and Sweden; UK = the United Kingdom plus the offshore centres Guernsey, the Isle of Man and Jersey; US = the United States.

[1] The size of each red circle is proportional to the outstanding stock of cross-border claims of reporting banks located in the particular geographical region. Some regions include countries which do not report data. The thickness of a line between regions A and B is proportional to the sum of claims of banks in A on residents in B and claims of banks in B on residents of A. The size of the circles and thickness of the lines are scaled by the overall stock outstanding, and thus are not directly comparable across panels.

Source: BIS.   Graph 4

Tracking the flow of capital

Through lending, accepting deposits, or purchases of foreign securities, banks play a role in the transfer of capital between countries. The above analysis touches only indirectly on the United Kingdom's and Asian and Caribbean offshore centres' role as redistributors of financial capital. This section attempts to fill this gap by analysing *net* flows of funds among banks in different geographical regions, with a focus on the flows through banks in these IBCs.

The BIS locational banking statistics track the net flow of financial capital between any two regions which is channelled through the banking system. For concreteness, consider measuring the cumulative net flow of funds over a given period between the residents of country A and the residents of country B. A portion of funds transferred between these residents will be external to the banking system – the purchase of a US Treasury by a non-bank outside the United States, for example – and thus are not covered by the BIS international banking statistics. The portion which *is* routed through the banking system equals the sum of three components. The first is the cumulative net claim flows (claims minus liabilities) to non-banks in country A reported by banks located in country B. The second is the counterpart to this, the cumulative net flows reported by banks in country A to non-banks in country B. Finally, there is the net interbank component.[12]

Graph 5 presents the net flow of capital channelled through banks, cumulated over two periods (1990–97 and 1998–2006). This allows for a comparison of the net flow of funds through banks before and after the Asian financial crisis. Each arrow in Graph 5 provides two pieces of information: the direction of net capital flows between two given regions and the relative size of these flows (indicated by its thickness).
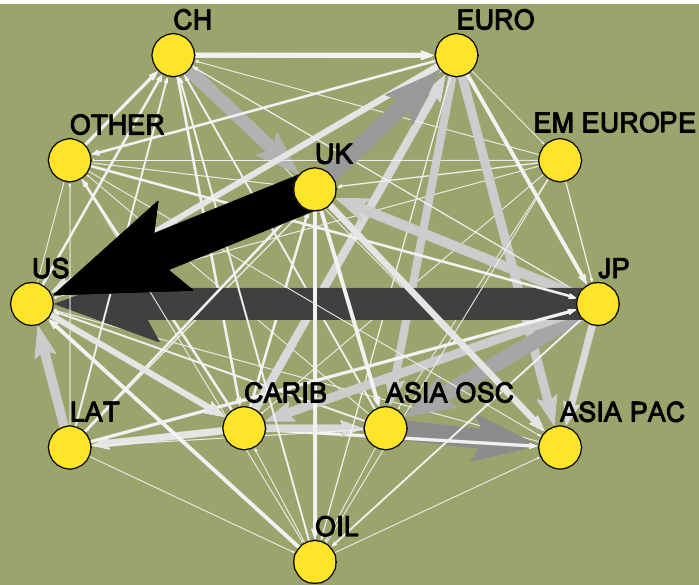
Between 1990 and 1997, the United States and emerging Asia-Pacific stood out as the main net borrowers on the international banking market, whereas Japan was the main provider of funds (Graph 5, top panel). In line with the renewed growth of its current account deficits over this period, the United States experienced a net inflow of $433 billion via the banking market. Roughly 85% of this was provided by Japanese and UK residents. At the same time, residents of Japan and the countries that now comprise the euro area jointly exported $195 billion to Asian offshore centres and emerging Asia-Pacific, accounting for 74% of the overall net banking flows into these economies.

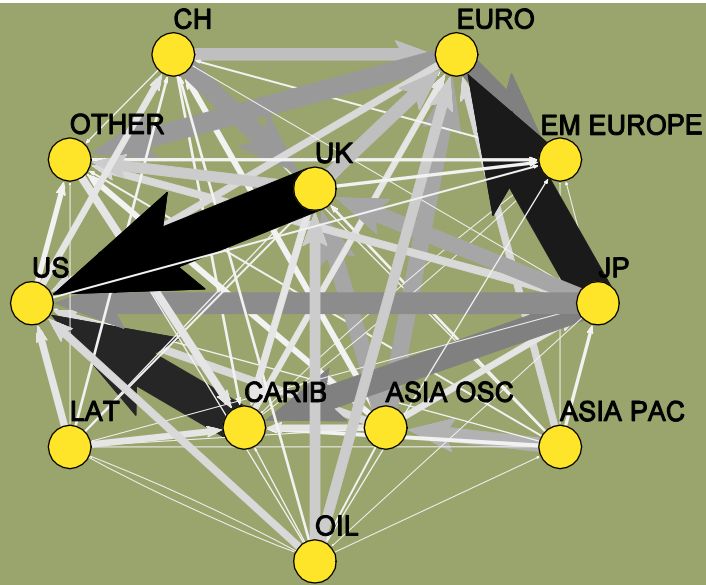[12] Unlike net flows to non-banks, the net interbank flows reported by any country pair should be roughly equal. A net inflow reported by banks in country A vis-à-vis banks in country B should be reported as a corresponding outflow by banks in country B. In practice, different populations of banks on the reporting and vis-à-vis side of the data can create some, albeit small, discrepancies. In calculating net interbank flows, we chose the larger asset and liability positions reported across the two sets of reporting banks. Some regions include countries which do not report data. If, for example, country B is not a reporter, then flows from banks in country B to non-banks in country A will be missed. This is potentially a large component of total flows through the banking system for some regions. Finally, a small portion of banks' total liabilities is debt securities liabilities, which are often not allocated to a particular vis-à-vis country.

Net flow of funds through the international banking system[1]

ASIA OSC = Hong Kong SAR, Macao and Singapore; ASIA PAC = China, India, Indonesia, Korea, Malaysia, Pakistan, the Philippines, Taiwan (China) and Thailand; CARIB = Aruba, the Bahamas, Bermuda, the Cayman Islands, the Netherlands Antilles and Panama; CH = Switzerland; EM EUROPE = Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, Turkey and Ukraine; EURO = euro area countries; JP = Japan; LAT = Argentina, Brazil, Chile, Colombia, Mexico and Peru; OIL = OPEC member states (excluding Indonesia) plus Russia; OTHER = Australia, Canada, Denmark, New Zealand, Norway and Sweden; UK = the United Kingdom plus the offshore centres Guernsey, the Isle of Man and Jersey; US = the United States.

[1] The thickness of an arrow is proportional to the amount of cumulative net bank flows between regions. Net flows between regions A and B equal the sum of: (1) net claims (assets minus liabilities) of banks in A on non-banks in B; (2) net claims of banks in B on non-banks in A; and (3) net interbank flows between A and B. Some regions include countries which do not report data. The thickness of the arrows is scaled by the overall flows cumulated over the respective period, and thus is not directly comparable across panels. In contrast to Graph 4, the size of the circles has no significance.

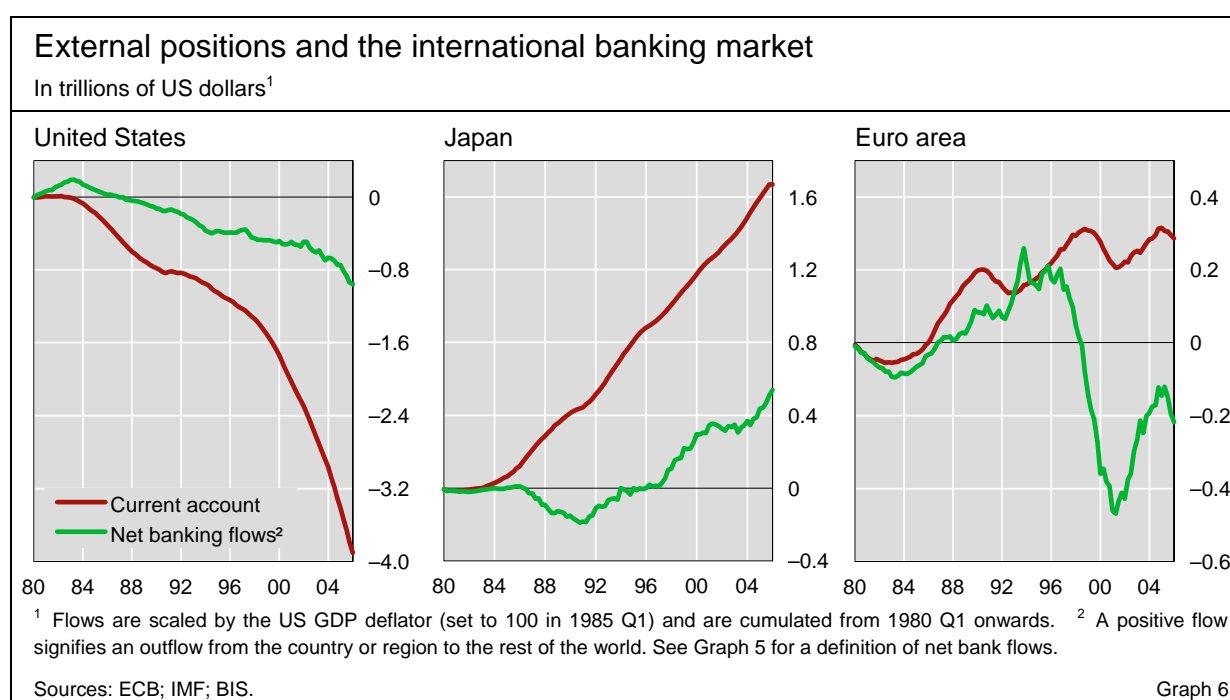Source: BIS.   Graph 5

By mid-2006, the euro area had joined the United States as a main importer of funds on the international banking market, while the size and direction of net bank flows had changed between various country pairs (Graph 5, bottom panel). Between 1998 and 2006, funding from Japanese residents accounted for only 18% of the $764 billion in cumulative net bank flows into the United States (down from 38% between 1990 and 1997), with the remainder provided mostly by residents of the United Kingdom and Caribbean offshore centres. Japanese residents were again the largest exporters of capital through banks during this period ($642 billion), with 40% of this flowing to residents in the euro area. Over this same period, the flow of funds between Japan and Asian offshore centres dried up, reflecting both the retrenchment of Japanese banks from their overseas operations and the growing surpluses in emerging Asia in the wake of the Asian financial crisis. In contrast to the pre-crisis period, Asian offshore centres became important exporters of capital. Together with oil-exporting countries, they provided an estimated $450 billion in net funds via the banking system, mainly to residents of the United Kingdom and the euro area.

Net bank flows reflect in part the overall external position of individual countries or regions. A country's total net financing requirement in a given period can be expressed as the sum of net financial outflows from the public and private sectors which, by the balance of payments identity, is equal to the current account balance. Thus, a comparison between the current account balance and net international banking flows sheds light on the portion of a country's net financing requirement which is routed via the banking system, as opposed to via financial markets.

Net bank flows reflect current account balances

Graph 6 presents this comparison for the United States, the euro area and Japan. By mid-2006, roughly one quarter of the cumulative current account flows into the United States were routed through the banking system. Similarly,

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External positions and the international banking market

In trillions of US dollars[1]

United States   Japan   Euro area

Current account
Net banking flows[2]

[1] Flows are scaled by the US GDP deflator (set to 100 in 1985 Q1) and are cumulated from 1980 Q1 onwards.   [2] A positive flow signifies an outflow from the country or region to the rest of the world. See Graph 5 for a definition of net bank flows.

Sources: ECB; IMF; BIS.   Graph 6

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only a small portion of Japan's current account surplus has been channelled through the banking system, although this share has increased substantially over the last decade, from 5% in 1997 to 32% at mid-2006. In the euro area, net bank flows closely tracked the movement of cumulative current account balances up to 1995 and between 1999 and mid-2006. By contrast, from end-1995 to mid-1998, net inflows to the euro area, mainly from the United Kingdom, Japan and Asian offshore centres, coincided with current account surpluses and the accumulation of reserves in this region.

As highlighted in Graph 5, a sizeable portion of net credit flows between regions is not transacted directly, but is intermediated by banks in IBCs, in particular in the United Kingdom and Asian and Caribbean offshore centres. The indirect flows between ultimate borrowers and lenders which are routed through IBCs can be analysed using time series regressions. In each regression, the dependent variable is quarterly net bank flows from an IBC to a large economy (the United States or Japan or the euro area). The explanatory variables are net bank flows from other geographical regions to the IBC, or the net flow (in foreign currency) from bank and non-bank residents of the IBC to local banks.[13] A statistically significant *positive* regression coefficient indicates that an increase in the net flows from a geographical region *to* an IBC tends to be associated with an increase in the net flows from this centre *to* a particular country. By contrast, a *negative* coefficient suggests that a large economy and another geographical region tend to provide funds *in tandem* to the IBC in focus.

Banks in IBCs intermediate ...

The results of this exercise are presented in Table 2. The prevalence of positive regression coefficients suggests that IBCs are indeed intermediaries in the global flow of capital. In addition, the regressors explain up to 50% of the variability of net bank flows between IBCs and major economies. This result is particularly interesting given that the dependent and explanatory variables are related only contemporaneously while some of the net banking flows may be intermediated with a lag. Since all the variables are expressed in standard-deviation units, the coefficient estimates reveal *directly* the impact of a *typical* change in an explanatory variable. Taken at face value, a one-standard-deviation increase in the quarterly net flow of funds from oil-exporting countries to the United Kingdom – or $4.5 billion – corresponds to a 0.18 standard-deviation – or $3.4 billion – increase in flows from the United Kingdom to the United States.

... between ultimate lenders and borrowers

Table 2 also reveals some distinct patterns in the global flow of funds through IBCs. For example, residents of Caribbean and Asian offshore centres appear to be significant sources of foreign currency funds for banks located in these centres. This helps explain the large net banking outflows from these areas, as portrayed by Graph 5, in the absence of commensurate cross-border inflows. In addition, there is evidence that some of the net banking flows between Asian countries and major economies have been routed through IBCs.

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[13]   For example, domestic residents, which are not included in Graph 5, channelled a cumulative $136 billion in foreign currency to banks in Asian offshore centres, and $19 billion to banks in Caribbean offshore centres, between 1998 and 2006.

International banking centres as redistributors of net international bank flows									

Caribbean offshore centres

	CH	C OSC residents	EE	Euro area	JP	OIL	Other	UK	US	Adj R^2
US	0.12 [2.61]	0.35 [2.39]				0.16 [2.45]		0.59 [5.41]		0.51
JP	0.23 [2.88]		0.16 [1.94]	−0.32 [−2.43]			−0.32 [−2.40]	0.37 [2.15]	0.18 [1.58]	0.34
Euro area			0.31 [2.76]		−0.33 [−2.21]					0.22

United Kingdom

	A OSC	AP	CH	C OSC	EE	Euro area	JP	OIL	UK residents	US	Adj R^2
US		0.21 [2.08]	0.46 [4.22]	0.35 [3.45]		0.29 [2.64]	0.40 [3.46]	0.18 [1.94]			0.39
JP	−0.25 [−1.97]	0.21 [2.14]	0.23 [1.88]	0.32 [4.08]		0.49 [4.62]			0.20 [1.73]	0.38 [3.52]	0.38
Euro area		0.33 [2.84]	0.29 [2.52]	0.28 [2.07]	−0.18 [−1.55]		0.47 [4.71]		0.24 [1.97]	0.30 [2.05]	0.33

Asian offshore centres

	A OSC residents	AP	EE	Euro area	JP	LAT	UK	US	Adj R^2
US	0.23 [1.99]	0.45 [2.66]		0.45 [2.57]	0.33 [3.29]				0.23
JP	0.36 [3.57]	0.46 [2.55]	0.18 [1.94]	0.62 [3.56]		0.17 [1.81]	0.46 [5.14]	0.13 [1.61]	0.45
Euro area	0.30 [3.98]	0.56 [3.68]			0.56 [7.45]		0.28 [2.98]	0.25 [3.82]	0.50

A OSC = Hong Kong SAR, Macao and Singapore; AP = China, India, Indonesia, Korea, Malaysia, Pakistan, the Philippines, Taiwan (China) and Thailand; CH = Switzerland; C OSC = Aruba, the Bahamas, Bermuda, the Cayman Islands, the Netherlands Antilles and Panama; EE = Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, Turkey and Ukraine; JP = Japan; LAT = Argentina, Brazil, Chile, Colombia, Mexico and Peru; OIL = OPEC member states (excluding Indonesia) plus Russia; OTHER = Australia, Canada, Denmark, New Zealand, Norway and Sweden; UK = the United Kingdom plus the offshore centres Guernsey, the Isle of Man and Jersey; US = the United States.

Note: The sample covers the 90 quarters between 1984 Q1 and 2006 Q2. White heteroskedasticity-consistent t-statistics are in square brackets. A dependent variable is net bank flows from an IBC (identified by the table's subheadings) to another region (identified by the row headings). An explanatory variable is net bank flows from the region indicated in the column heading to the IBC. All variables are scaled by their standard deviation. See Graph 5 for a definition of net bank flows. In each regression, the selected explanatory variables are those that maximise the goodness-of-fit measure, adjusted R^2. Intercept estimates are not reported. Table 2

Specifically, net flows from emerging Asia-Pacific to the United Kingdom and Asian offshore centres help explain net flows from these IBCs to the euro area, Japan and the United States. Similarly, part of the net flows from Japan to the euro area and the United States appear to be routed via the United Kingdom and Asian offshore centres. This complements the information on *direct* banking flows (recall Graph 5) to provide a fuller picture of the flow of credit between Asia and the rest of the world.

The estimated regression coefficients should be interpreted with caution since several factors have not been controlled for. For example, the regressions do not include deposits by residents in *domestic* currencies, as these are not reported in the BIS banking statistics. Such deposits, however, may account for a significant portion of the funding of banks in IBCs and, thus, be a key determinant of net flows between these centres and major economies. In addition, the regressions do not incorporate information on asset prices, which would also be an important factor behind net banking flows.

Conclusion

This feature employed the BIS statistics in order to explore the growth in the international banking market, and shed light on the evolving role of IBCs. Underpinned mainly by interbank activity, the size of this market has increased recently not only in absolute terms but also relative to aggregate measures of economic activity and liquidity.

A contribution of this feature has been to provide a convenient graphical representation of the net flow of funds through the international banking system. At a broad level, cumulative bank flows co-move to some extent with regional external positions, as captured by current account balances. A large fraction of these flows have been channelled through banks in IBCs, which act as intermediaries in the international banking market.

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