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International banking with the euro[1]

The structure of the international banking market has evolved in important ways since the introduction of the euro in 1999. In comparison to legacy currencies, the use of the euro in cross-border banking transactions grew on aggregate, and the bilateral linkages within the euro area became more dispersed in the years after its introduction. However, growth in the use of the euro globally has plateaued more recently. In addition, measures of banks' presence in foreign credit markets reveal rather mixed signs of greater integration of the euro area banking system since 1999.

JEL classification: F34, G15, G21.

The introduction of the euro in 1999 was expected to usher in important structural changes in international banking. The conversion of the legacy currencies into one held the promise of efficiency gains that could help the single currency challenge the supremacy of the US dollar in international transactions. Moreover, the introduction of the euro, coupled with the ongoing process of deregulation of cross-border transactions, provided the opportunity for greater integration of the banking systems within the euro area, as banks there capitalised on lower transaction costs.

Nine years on, has the structure of the international banking system shown signs of change along the predicted lines? To address this question, this special feature relies mainly on the BIS international banking statistics, one of the few sources of data on bilateral capital flows available with a currency breakdown.[2] The first section takes a global perspective, and centres on the use of the euro (relative to the US dollar) in international banking transactions. On a global basis, the use of the euro increased in both absolute and relative terms up to the late 1990s, but has plateaued in recent years. Overall growth was primarily driven by greater activity of banks headquartered in the euro area

[1] The views expressed in this article are those of the authors and do not necessarily reflect those of the BIS. The authors would like to thank Angelika Donaubauer and Emir Emiray for their assistance with the graphs.

[2] The *BIS locational statistics by residency* include reporting banks' cross-border positions (assets and liabilities) in all currencies, and positions vis-à-vis residents in foreign currencies, broken down by the residence of the counterparty. Positions are reported for the five major currencies (US dollar, euro, Japanese yen, Swiss franc and sterling), the domestic currency of the reporting country, and residual currencies. For a complete description, see BIS (2003a,b) and Wooldridge (2002).

(henceforth, euro area banks) but also by important changes in the use of the euro by banks headquartered elsewhere, in particular UK and Swiss banks.

The second section analyses the structure of international banking activity *within* the euro area. A large body of research, relying on *price-based* measures of integration, has generally found that the interbank market in the euro area is highly integrated, whereas retail lending (ie to non-banks) has remained relatively fragmented. The *quantity-based* measures considered here are in line with this general story. The dispersion of cross-border bank linkages in the euro area has increased since the introduction of the euro, in part driven by the expansion of interbank activity. However, other measures of integration, for example the rate of foreign bank participation in domestic retail markets, have risen in some, but not all, euro area countries.

The euro and the global banking system

Since its introduction on 1 January 1999, the use of the euro in international banking (measured on a stock basis) has nearly quadrupled. Total euro-denominated claims of BIS reporting banks grew to $12.4 trillion in the second quarter of 2007, up from $3.6 trillion in the first quarter of 1999 (Graph 1, top left-hand panel).[3] In relation to other currencies, however, the euro gained in importance only during the first four years after its introduction, rising from 34% to 41% of total international claims. This share flattened after 2003, and has even edged downwards recently as the euro has lost ground to sterling.

Euro area banks …

Euro area banks are the predominant lenders of euros. Across all currencies, German and French banks report, respectively, the largest and third largest foreign claims in the BIS consolidated statistics,[4] with Dutch banks following closely behind (Graph 2, left-hand panel). Much of these claims are likely to be denominated in euros. The BIS nationality statistics, which allow for a partial reconstruction of banks' global balance sheets, suggest that more than half of German, French and Dutch banks' claims (excluding inter-office claims) are denominated in euros (Graph 2, centre panel).[5] Moreover, roughly two thirds of the global stock of euro-denominated claims (excluding inter-office claims) are booked by euro area banks (Graph 2, right-hand panel), often from their offices in major financial centres. In the United Kingdom, for example, the offices of German and Dutch banks account, respectively, for 15% and 7% of total claims (and 15% and 9% of euro-denominated claims) booked by banks located there.

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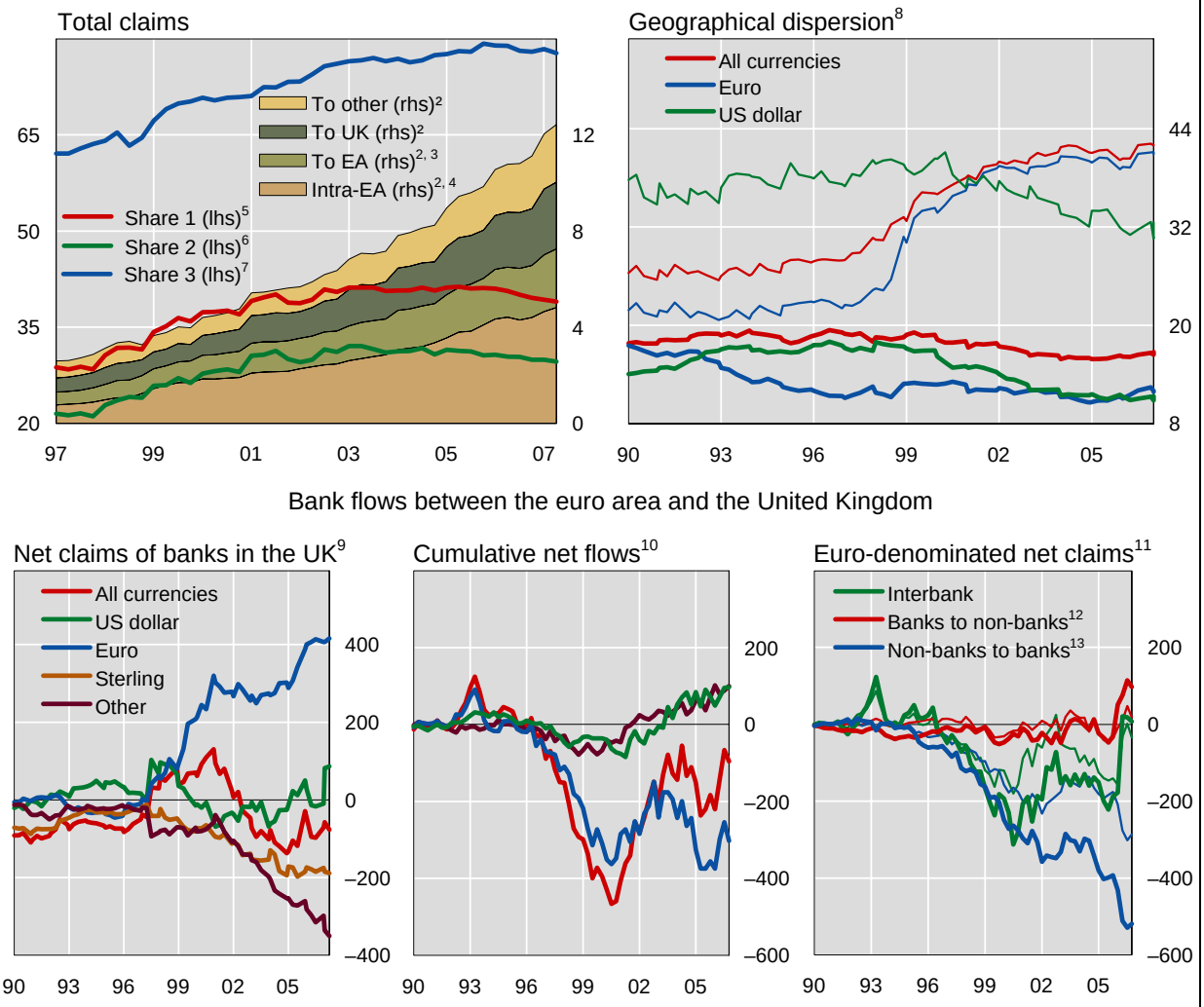
[3] Unless otherwise noted, all figures are in US dollars at constant end-2007 Q2 exchange rates.

[4] The *BIS consolidated banking statistics* track reporting banks' global exposures, broken down by the nationality of banking systems. Foreign claims are comprised of cross-border claims plus local claims extended from offices in host countries.

[5] The *BIS locational statistics by nationality* provide a breakdown of banks' total cross-border positions (in all currencies) and positions vis-à-vis residents (in foreign currencies), broken down by the nationality of the parent bank (but not by vis-à-vis country). Thus, the figures exclude euro-denominated claims on residents extended within the euro area. In addition, figures exclude euro-denominated claims on residents booked by offices in the United States and claims on all counterparties booked by offices in other non-reporting countries.

BIS reporting banks' euro-denominated positions[1]



[1] Values expressed at constant end-2007 Q2 exchange rates. [2] Stocks of outstanding euro-denominated international claims by vis-à-vis region, in trillions of US dollars. EA = euro area. [3] Excluding claims extended within the euro area. [4] Claims extended within the euro area only. [5] Share of euro-denominated claims in total international claims, in per cent. [6] Share of euro-denominated claims in total international claims other than claims extended within the euro area, in per cent. [7] Share of cross-border euro-denominated claims in total international claims extended within the euro area, in per cent. [8] The share of the total volume of international banking linkages (defined in Graph 3) that is accounted for by the smallest 75% of these linkages. Thick lines relate to the global network of banking linkages, in which individual euro area countries represent separate nodes. Thin lines relate to the network within the euro area, in per cent. [9] Vis-à-vis residents (except for sterling) and non-residents, in billions of US dollars. "Other" comprises all currencies except the US dollar, the euro, the Swiss franc, sterling and the yen. [10] From euro area residents to the rest of the world, in billions of US dollars. "Other" comprises all currencies except the US dollar and the euro. [11] Cumulative net flows from euro area residents to banks and non-banks in the rest of the world (thick lines) and in the United Kingdom only (thin lines), in billions of US dollars. [12] Cumulative net flows from banks in the euro area to non-banks in the particular vis-à-vis region. [13] Cumulative net flows from non-banks in the euro area to banks in the particular vis-à-vis region.

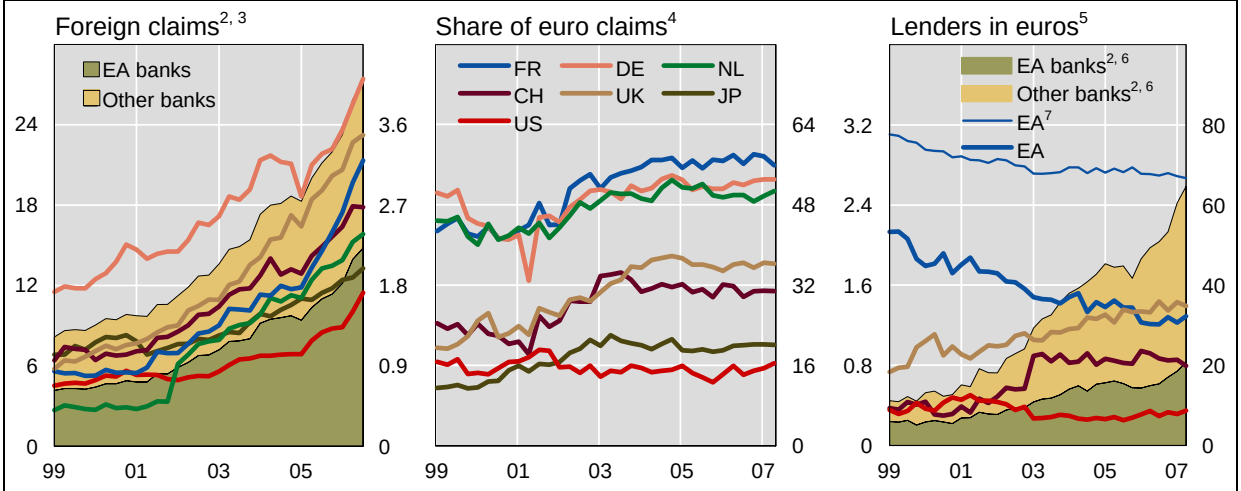
Source: BIS. Graph 1

... as well as UK and Swiss banks ...

That said, banks headquartered outside the euro area have increasingly made use of the euro since 1999, in particular UK and Swiss banks (Graph 2, centre panel). UK-headquartered banks, for example, expanded their euro lending from their home offices the most, accounting for 32% of total euro-denominated claims booked by banks in the United Kingdom in mid-2007, up from 15% in 1999 (Graph 2, right-hand panel). As a result, the share accounted for by euro area-headquartered banks fell over this same period, both in the United Kingdom and globally (same panel, thin line).

Size of banking systems and lending in euros[1]

By bank nationality



CH = Swiss banks; DE = German banks; EA = euro area banks; FR = French banks; JP = Japanese banks; NL = Dutch banks; UK = UK banks; US = US banks. Shaded areas plotted against the left-hand axis in the respective panel.

[1] Excludes inter-office positions. [2] In trillions of US dollars. [3] Total foreign consolidated claims on an immediate borrower basis, which equal cross-border claims in all currencies plus claims in all currencies extended from offices abroad. [4] Share of euro-denominated claims in total claims extended from offices worldwide excluding local euro-denominated lending within the euro area, in per cent. [5] Thick lines plot the share of claims booked by banks headquartered in a particular country or region in total euro-denominated claims extended from all banks in the United Kingdom, in per cent. [6] Credit extended by offices in the United Kingdom. [7] Share of claims booked by euro area-headquartered banks in the euro-denominated claims extended from all reporting countries, in per cent.

Source: BIS. Graph 2

Euro-denominated linkages

A graphical representation of the international banking system can help in understanding the expansion of euro-denominated activity, and the pattern of linkages among regions. Graph 3 portrays the international banking system as a network of interconnected nodes, each representing a country or region.[6] The size of each line connecting two nodes is proportional to the size of the bilateral currency-specific linkage, measured as the sum of the gross positions (assets plus liabilities) of banks in each country. While this measure does not track the *flow* of funds between nodes, it is a gauge of the overall size of banks' cross-border positions at a particular point in time.

… have driven the growth in euro-denominated activity

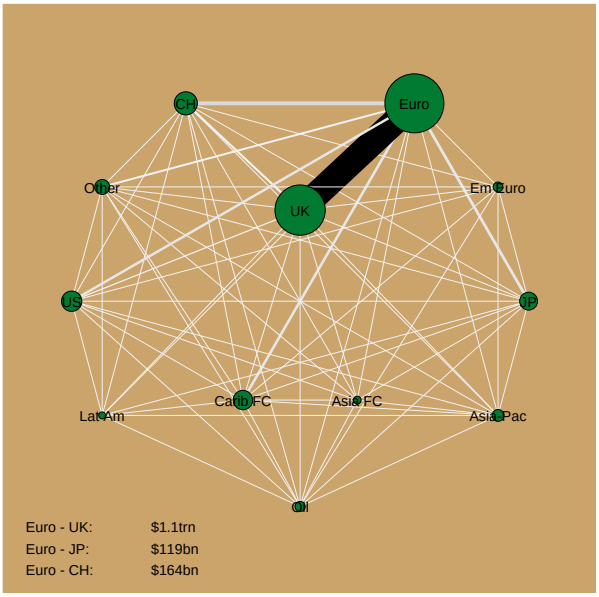
Overall, banks' gross positions in euros are concentrated in a relatively small number of regional pairs (Graph 3). The largest euro linkage, between the euro area and the United Kingdom, grew from $1.1 trillion at end-1998 to $3.9 trillion in mid-2007, contributing significantly to the overall rise in total euro-denominated claims (Graph 1, top left-hand panel).[7] A formal measure of geographical dispersion, ie the share of the total value of linkages accounted

[6] See McGuire and Tarashev (2006) for greater detail on the construction of these measures, and von Peter (in this issue) for a network analysis of global banking linkages.

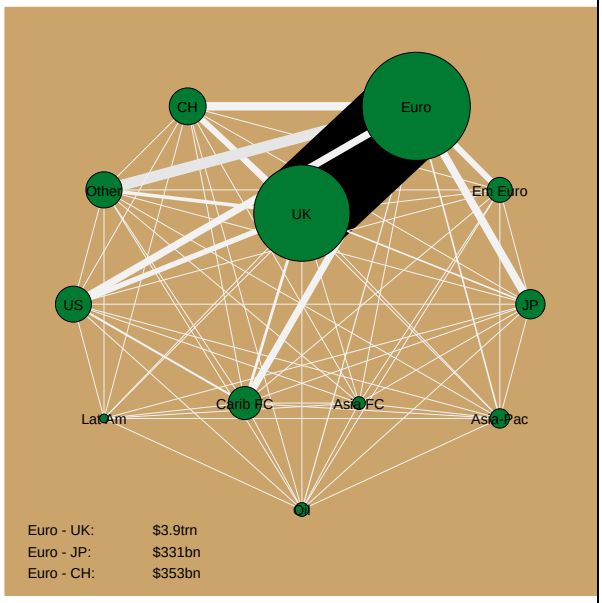
[7] By comparison, linkages in the US dollar market were generally larger than those in the euro market both at end-1998 and at mid-2007 (Graph 3, bottom panels).

Linkages in the international banking system[1]

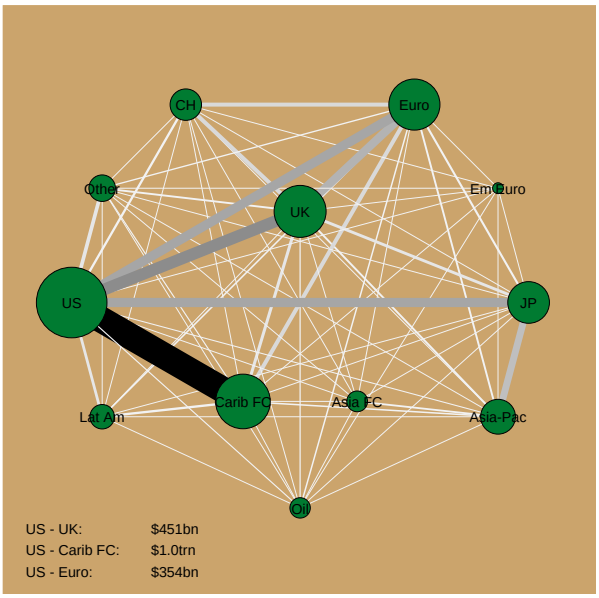
Euro: 1998 Q4



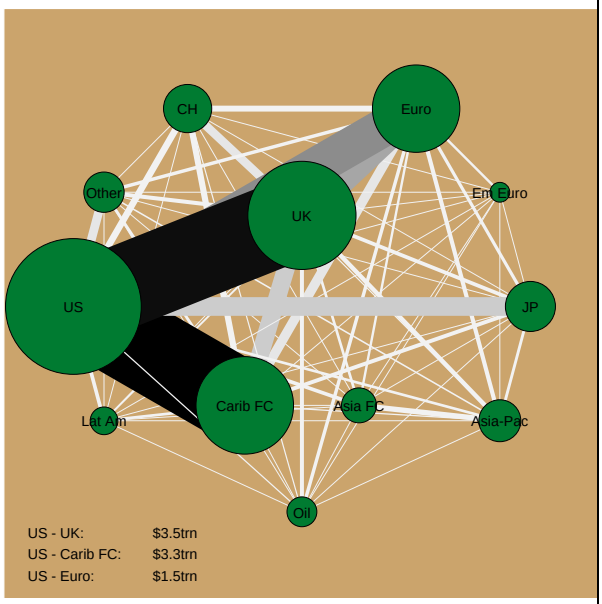
Euro: 2007 Q2



US dollar: 1998 Q4



US dollar: 2007 Q2



Asia FC = Asian financial centres (Hong Kong SAR, Macao and Singapore); Asia-Pac = China, India, Indonesia, Korea, Malaysia, Pakistan, the Philippines, Taiwan (China) and Thailand; Carib FC = Caribbean financial centres (Aruba, the Bahamas, Bermuda, the Cayman Islands, the Netherlands Antilles and Panama); CH = Switzerland; Em Euro = emerging Europe (Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, Turkey and Ukraine); Euro = euro area member states excluding Slovenia; JP = Japan; Lat Am = 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 = United Kingdom, Guernsey, the Isle of Man and Jersey; US = United States.

[1] The size of each red circle is proportional to the stock of cross-border claims and liabilities of reporting banks located in the particular geographical region. Some regions include non-reporting countries. The thickness of a line between regions A and B is proportional to the sum of claims of banks in A on all residents of B, liabilities of banks in A to non-banks in B, claims of banks in B on all residents of A and liabilities of banks in B to non-banks in A.

Source: BIS. Graph 3

for by the smallest 75% of the linkages, shows that dispersion in euro linkages has remained stable, at roughly 12% since 1999, having lost 5 percentage

points during the early 1990s (Graph 1, top right-hand panel).[8] At the same time, across all currencies, the geographical dispersion of linkages has been declining, mainly the result of greater concentration in the US dollar market.[9]

The pattern of net flows through the banking system has changed significantly over time. This can be seen in Graph 4, where nodes are connected by arrows that convey the direction and size of *net* banking flows.[10] The largest euro-denominated flows between 1990 and 1998, from the United Kingdom to the euro area, cumulated to $129 billion or almost three times more than the second largest flow, that from Switzerland to the euro area (Graph 4, top left-hand panel). Since 1999, however, other euro linkages have grown in importance. For example, geographical and currency diversification by banks in Japan has resulted in the largest euro-denominated bilateral net flow, from Japan to the euro area ($228 billion). Net flows from the euro area to emerging Europe, and from the Caribbean financial centres to the euro area, have grown as well (Graph 4, top right-hand panel).

Banks in Japan channel euros to the euro area …

Currency transformation in the United Kingdom

… as do banks in the United Kingdom

In channelling funds to the euro area, banks in the United Kingdom convert non-euro liabilities into euro-denominated claims on euro area borrowers.[11] UK resident banks have run a growing net long position in euros since 1999 (Graph 1, bottom left-hand panel). By mid-2007, euro-denominated net claims (claims minus liabilities) of these banks reached $416 billion, up from virtually nil in mid-1997. This growth has been financed by a concurrent increase in UK resident banks' net liabilities in sterling and in currencies other than the major five.

Net flows of euros from the United Kingdom have accounted for a substantial portion of the total net flows of euros to residents in the euro area (Graph 1, bottom centre and right-hand panels). Since 1990, UK residents have provided an estimated 73% of the $415 billion in euro-denominated cumulative net flows channelled via the banking system to the euro area. Much of this constituted greater claims of UK resident banks on *non-bank* borrowers in the euro area, primarily in the Netherlands, France and Spain.

Debt security liabilities difficult to track

Importantly, UK resident banks have funded part of their position vis-à-vis the euro area by issuing debt and equity securities, as opposed to deposits, which clouds the interpretation of bilateral *net* flow measures. The reason is that reporting banks generally do not know the holder of these securities liabilities once they are sold on the secondary markets, and thus are unable to

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[8] This calculation takes each euro area country as a separate node, but excludes intra-euro area linkages. The message of these dispersion measures is not significantly different if the cutoff for the smallest linkages is set between 60 and 90% of all linkages.

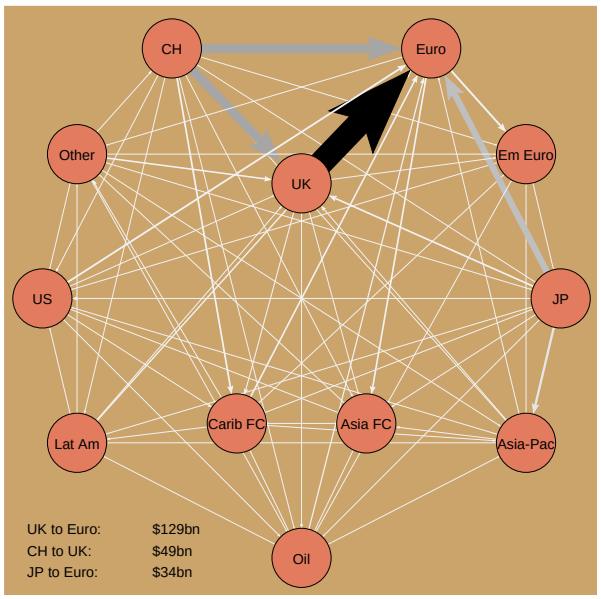
[9] Dispersion in this market dropped from 18% in 1998 to 11% in the most recent quarter, reflecting substantial growth in the US-UK and US-Caribbean linkages.

[10] These net flows are partially based on estimates. See the box on page 56 for further detail.

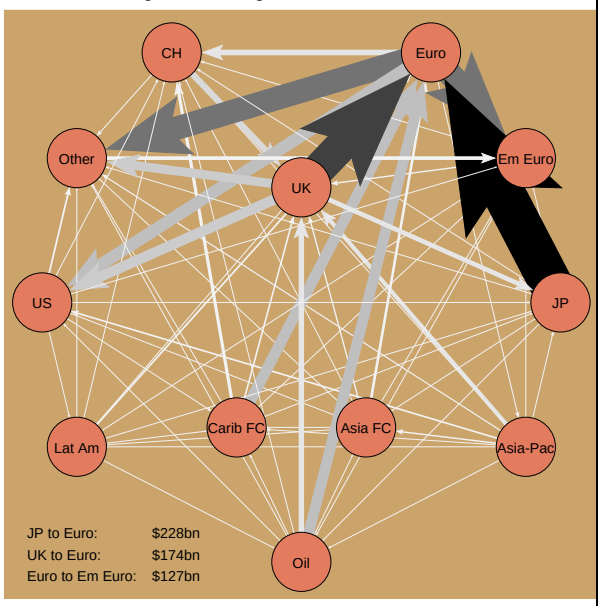
[11] The BIS statistics include only reporting banks' on-balance sheet cash positions, and do not take into account off-balance sheet hedging.

Cumulative net flows through the international banking system

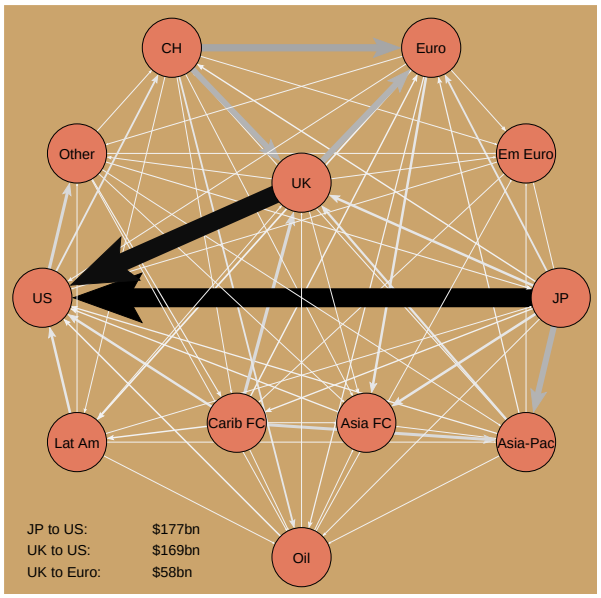
Euro: 1990 Q3–1998 Q4



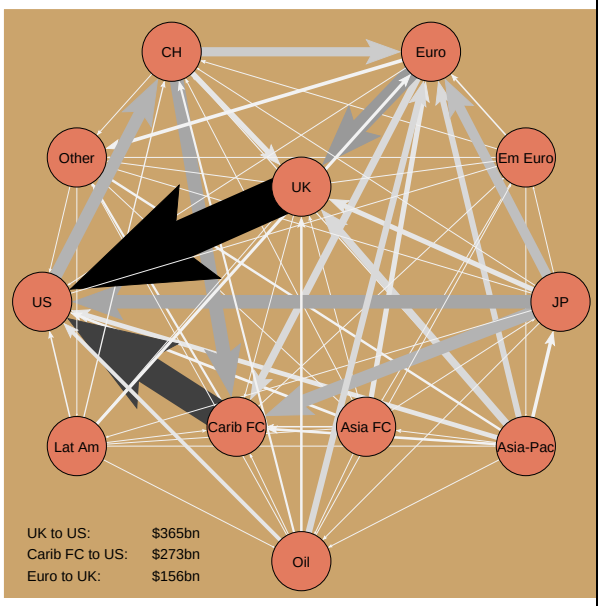
Euro: 1999 Q1–2007 Q2



US dollar: 1990 Q3–1998 Q4



US dollar: 1999 Q1–2007 Q2



See the note in Graph 3 for the definition of nodes. 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 non-banks in A on banks in B; 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.

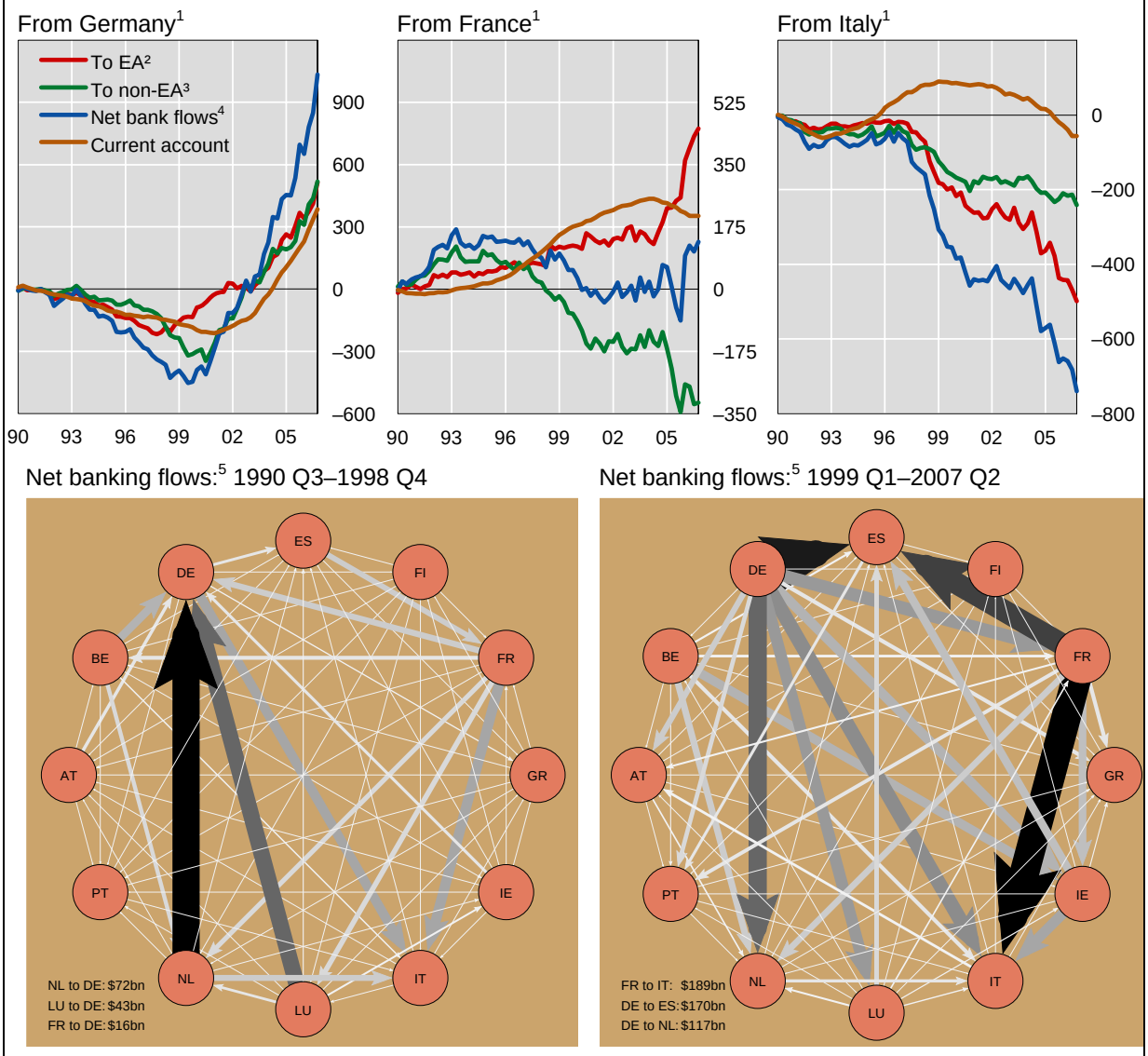
Source: BIS. Graph 4

allocate them to a particular vis-à-vis country (see box on page ●). Nonetheless, even if all of these liabilities are allocated to residents of the euro area (an admittedly conservative assumption), that region would still account for roughly 82% of the net (positive) position in euros booked by UK resident banks.

The euro and the euro area banking system

Banks in the euro area play an important role in the cross-border transfer of funds. In the case of Germany, for example, cumulative net flows (in all currencies) via the banking system to the rest of the world since 1999 have exceeded the total net outflow of capital from the country, as measured by cumulative current account balances (Graph 5).[12] Similarly, cumulative net

Cumulative net banking flows in the euro area



AT = Austria; BE = Belgium; DE = Germany; EA = euro area; ES = Spain; FI = Finland; FR = France; GR = Greece; IE = Ireland; IT = Italy; LU = Luxembourg; NL = Netherlands; PT = Portugal.

[1] In all currencies, in billions of US dollars. [2] Net banking flows to the euro area. [3] Net banking flows between the country identified in the panel heading and all countries outside the euro area. [4] Net banking flows to the rest of the world. [5] Euro-denominated cumulative flows. See the definition of cumulative net banking flows in Graph 4.

Source: BIS. Graph 5

[12] These figures should be interpreted with caution because Germany has not reported euro-denominated debt security liabilities since 1999, thus biasing upwards the estimated net bank flows from Germany. See the box on page 56 for further detail.

bank flows into Italy, estimated at more than $600 billion since end-1997, are much larger than Italy's cumulative current account deficit over this period.

Intra-euro area linkages …

Since 1999, cross-border banking activity within the euro area has been increasingly denominated in euros. On a stock basis, intra-euro area cross-border claims in this currency have grown significantly, up sixfold since 1997. As a result, euro-denominated claims accounted for 78% of total intra-euro area claims in all currencies in mid-2007 (Graph 1, top left-hand panel), up from 62% in 1998.

Has the single currency served as a catalyst for greater integration of the banking systems in the euro area? Existing research on this issue has generally found that interbank markets became more integrated with the introduction of the euro, whereas retail markets have remained fragmented.[13] Much of this research on euro area integration has paid little attention to *quantity-based* measures of international banking activity, one exception being Manna (2004). Yet such measures contain useful information about the extent to which banks have diversified their asset portfolios across countries within the euro area and expanded their foreign operations there. The remainder of this section helps to fill in these gaps by focusing first on quantity-based measures of integration of the interbank market in the euro area, and then its retail counterpart.

Cross-border activity in the intra-euro area interbank market has picked up significantly since the introduction of the euro. The annualised growth rate of overall positions in this market increased from 17% between 1990 and 1998 to 25% since 1999, boosting the stock of outstanding claims to $3.4 trillion in the second quarter of 2007. Importantly, this growth has consistently outpaced that in interbank markets elsewhere and, as a result, the euro area market currently accounts for 16% of total international interbank activity, up from 10% in 1998. Much of this has been fuelled by greater use of the euro, whose share in the interbank market hovered around 70% until 1998, but then increased steadily and has stabilised at 86% since 2003.

… have become more dispersed geographically

This growth in interbank lending has gone hand in hand with greater geographical dispersion of the gross cross-border positions within the euro area. When applied to countries in this region, the measure of dispersion introduced in the previous section exhibits a noticeable jump around the time of the introduction of the euro (Graph 1, top right-hand panel). The share of the total value of cross-border linkages (defined as in Graph 3) accounted for by the smallest 75% of the bilateral linkages within the euro area increased from 25% in mid-1998 to 34% in mid-1999 and then, gradually, to 41% by mid-2007. By contrast, the geographical dispersion of the US dollar segment of the cross-border banking market within the euro area has declined steadily since end-1998.

[13] See, for example, Baele et al (2004), Bos and Schmiedel (2006), Dominguez (2006), ECB (2006), Galati and Tsatsaronis (2001), Gropp et al (2006) and Manna (2004).

Measuring net banking flows: some challenges

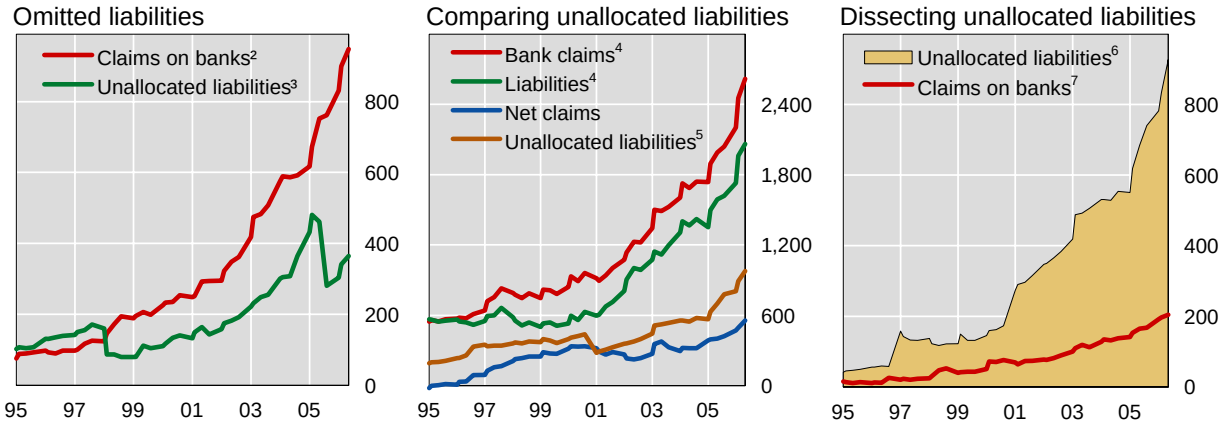
Banks' growing use of debt and equity securities markets for funding purposes has made it increasingly difficult to measure the net capital position of one country versus another. The objective of this box is to explain and quantify this issue and to describe one possible procedure for addressing it. The main challenge is that a large fraction of banks' securities liabilities are held by non-banks, which do not report in the BIS banking statistics.

Banks' liabilities are increasingly in the form of debt or equity securities rather than deposits. Such liabilities issued by BIS reporting banks grew from $382 billion at end-1995, or 4% of these banks' total liabilities outstanding, to $4.2 trillion at mid-2007, or 13% of total liabilities. This has generated two related problems which cloud interpretation of the BIS statistics. First, the trading of securities on secondary markets implies that banks cannot identify the holders of the vast majority of their securities liabilities. As a consequence, the liabilities which banks themselves cannot allocate to a particular vis-à-vis country grew from 7% to 10% of the total over the same period. Second, the distinction between *international* and *domestic* securities issuance has been blurred over time, thus making it unclear whether a particular liability is *cross-border* or not. For example, most euro area countries have not reported international euro-denominated debt security liabilities since 1999, implicitly treating such securities liabilities as domestic. However, euro-denominated debt security *claims* on banks in these countries reported by banks in *other* countries have been increasing steadily since end-1995, suggesting that much of these securities are in fact held internationally (graph, left-hand panel).

The aggregate indicators of banks' unallocated or omitted liabilities fail to convey the extent to which such liabilities may impair measures of *net* bilateral positions. For example, the stock of unallocated liabilities of banks in the United Kingdom is large relative to their reported gross liabilities to euro area residents (graph, centre panel). More importantly, these unallocated liabilities are generally *larger* than the reported *net* position of banks in the United Kingdom vis-à-vis euro area residents, implying large uncertainty about the true magnitude of this net position.

The bilateral structure of the BIS locational statistics allows for a partial correction of the data. A fraction of the unallocated debt security liabilities of banks in the United Kingdom (currently 19%) are reported as assets by banks elsewhere (graph, right-hand panel) and, thus, allocated according to the residence of these counterparties. However, a similar allocation of the large remaining fraction, which is most likely held by *non-bank* investors that are not covered by the BIS banking statistics, relies inevitably on an estimate of these investors' geographical distribution. A natural approach towards such an estimate, which is adopted for the main discussion in this special feature, is to assume that this distribution mimics the readily observable geographical distribution of reporting banks' deposit liabilities to non-banks.

Banks' securities liabilities[1]



[1] In billions of US dollars. Based on BIS locational statistics, by residency. [2] Euro-denominated debt security claims on banks in the euro area, as reported by all BIS reporting banks. [3] Euro-denominated debt security liabilities held by unidentified counterparties, as reported by banks in the euro area. [4] Total claims and liabilities of UK resident banks vis-à-vis euro area residents. [5] All instruments, as reported by UK resident banks. [6] Debt securities, as reported by UK resident banks. [7] Debt security claims of BIS reporting banks on UK resident banks.

The BIS statistics, combined with data on domestic credit to non-banks, can be used to construct measures of the degree of integration of retail banking in the euro area. These measures, constructed from the point of view of non-bank borrowers and of bank creditors, rely on the BIS consolidated banking statistics, which do not provide a currency breakdown, and which are available only after 1998. Thus, it is impossible to make comparisons with the period prior to the introduction of the euro, and to explicitly analyse the use of the euro. That said, the measures are helpful in assessing bank diversification and integration at an aggregate level.

Foreign bank participation rates ...

A first set of measures track the importance of foreign-headquartered banks in domestic lending markets across the euro area.[14] One approach is to focus on the share of direct cross-border credit in total credit to non-banks in a particular country. This is a form of financing conducted by, or at least booked at, foreign-headquartered banks' offices located outside the borrower's country of residence, and which is typically missed in domestic banking statistics. Specifically, the measure is calculated as the ratio of cross-border (*XB*) to total bank credit to non-banks, or *XB*/(*XB* + *DC*), where *DC* is domestic bank credit to non-banks.[15]

A second approach arguably captures foreign bank participation in a particular country more fully, by taking into account foreign banks' local lending, ie the lending done by these banks' offices (branches and subsidiaries) located in the borrowing country. Specifically, the measure is calculated as the ratio of reporting banks' cross-border *and* locally extended claims on non-banks to total bank credit to non-banks in the country, or $(INT + LL)/(XB + DC)$. In the numerator, international claims (*INT*) include cross-border and local claims in foreign currencies on non-banks. Local claims in local currencies, *LL*, are not broken down by sector in the BIS statistics, and thus also include lending to other banks. Hence, the measure is presented as a range – with *LL* included and excluded from the numerator – in Graph 6. A best-guess point estimate within this range is calculated by applying to *LL* the sectoral breakdown available for *INT*.

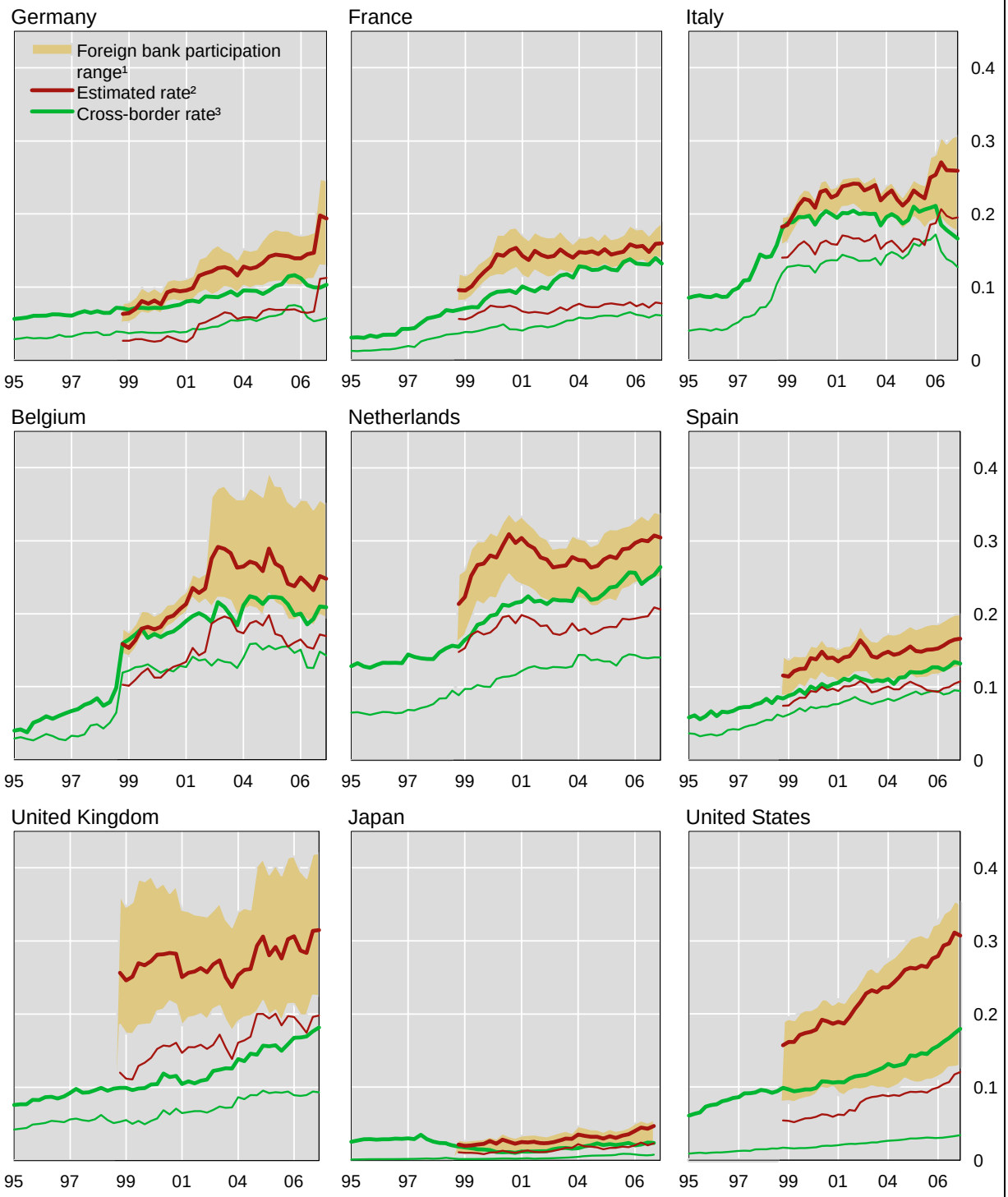
... have risen in some euro area countries

The evidence based on these measures suggests that foreign bank participation rates are rising in some, but not all, euro area countries (Graph 6). Importantly, however, where such a rise is evident, it seems to have been driven by greater participation of euro area-headquartered banks. For example, foreign bank participation has trended upwards in Germany, Spain and, more recently, Italy, but has been relatively flat in France, Belgium and the

[14] These measures, discussed in detail in the June 2005 *BIS Quarterly Review*, capture the participation of BIS reporting banks only. They may underestimate overall *foreign* participation if, for example, domestic banks are owned by foreign non-bank entities (eg private equity firms).

[15] This measure may underestimate the role of foreign institutions because it ignores local lending by foreign-headquartered banks' offices located in the country. At the same time, it may overestimate the role of foreign institutions if domestic banks' offices located abroad account for a significant share of the cross-border credit received by domestic non-bank borrowers.

Foreign bank participation rates in selected countries



[1] Ratio of international claims on non-banks (which include local claims in foreign currency) to total credit to non-banks (domestic credit plus cross-border claims). The inclusion or exclusion of local claims in local currency (on all sectors) in the numerator yields the shaded range. [2] Rate estimated by applying the sectoral breakdown from international claims to local currency claims. The thick red lines are based on data reported by all foreign banks, while the thin ones are based on data reported by banks headquartered in the euro area. [3] Ratio of BIS reporting banks' cross-border claims on non-banks to total credit to non-banks. The thick green lines are based on data for all reporting countries, while the thin ones are based on data reported by banks located in the euro area.

Sources: IMF; BIS. Graph 6

Netherlands. The rise in participation rates in the former group of countries generally reflected greater participation of banks headquartered in the euro

area (see thin lines in Graph 6), thus providing some direct evidence of greater integration. However, participation rates remain low in some euro area countries (eg in Germany and France) in comparison to the United States and the United Kingdom.

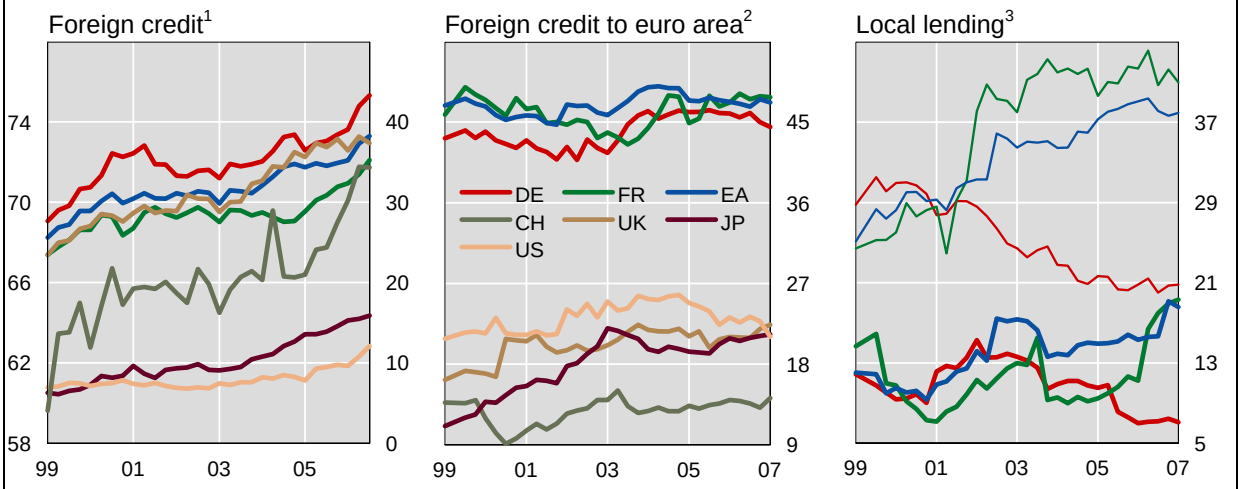
Euro area banks have expanded their foreign operations ...

Adopting the point of view of bank creditors leads to a measure of the *internationalisation* of national banking systems. The specific measure is an estimate of the size of *foreign claims* on non-banks relative to *total claims* on non-banks booked by banks headquartered in a particular country.[16] Unfortunately, the level of detail in the BIS nationality statistics does not allow for decomposing foreign credit according to the residence of non-bank borrowers. Thus, while a rise in the measure suggests greater integration of banking systems globally, it relates only indirectly to integration of the euro area banking systems.

By this measure, *all* major national banking systems have become more international over the last decade (Graph 7, left-hand panel). Foreign claims are significantly more important for euro area-headquartered banks than for Japanese and US banks, but less important than for Swiss banks. For banks headquartered in the euro area, foreign credit currently accounts for an estimated 38% of their total lending to non-banks, up from 26% at end-1999.

Internationalisation of banking systems

By bank nationality, in per cent



CH = Swiss banks; DE = German banks; EA = euro area banks; FR = French banks; JP = Japanese banks; UK = UK banks; US = US banks.

[1] Foreign credit to non-banks as a share in total credit to non-banks (see footnote 16 below); for Switzerland, left-hand scale. [2] Foreign credit to both banks and non-banks in the euro area, as a share of total foreign credit to banks and non-banks. [3] Local lending in local currency as a share of foreign credit to banks and non-banks in the euro area (thick lines) and outside the euro area (thin lines).

Sources: IMF; BIS. Graph 7

[16] For banks headquartered in a particular country, *foreign credit* to non-banks is the sum of international credit to non-banks, an estimate of local lending in local currency to non-banks booked by foreign offices, cross-border credit extended by offices abroad to non-banks in the home country and foreign currency lending to residents of the home country. *Total credit* equals *foreign credit* plus an estimate of credit extended domestically by these same banks. This is estimated by subtracting credit from foreign banks in the home country from total domestic credit data provided by the IMF.

That said, the internationalisation of euro area banks does not appear to have been driven by greater euro area bias in their foreign positions. A roughly constant share (45%) of euro area-headquartered banks' total foreign credit (to all sectors) has been extended to borrowers in the euro area since mid-1999 (Graph 7, centre panel). In addition, the portion of euro area banks' foreign credit to euro area residents that is booked *locally*, ie by bank offices in host countries, has grown slowly (Graph 7, right-hand panel). This portion currently stands at 19%, up by 7 percentage points since end-1999, and only 3 percentage points since end-2003. By contrast, the "local" portion of the foreign credit extended by euro area banks *outside* the euro area has been much larger and has been growing faster: from 25% at end-1999 to 38% most recently.[17]

… primarily outside the euro area

Conclusion

On balance, the introduction of the euro has brought about some significant changes in the structure of the international banking market. However, these changes must, in many instances, still be judged as rather moderate. Euro-denominated claims now account for a larger share of global claims than did claims in the legacy currencies. Recently, however, the use of the euro has not outpaced that of the US dollar and other currencies (primarily sterling), leaving the euro with a roughly constant share of total international banking transactions since 2003.

Within the euro area, cross-border claims have expanded significantly since the introduction of the euro, much of this expansion reflecting growth in interbank activity. Banking linkages in the euro area have grown more dispersed, suggesting greater integration of euro area banking systems. However, rates of foreign bank participation in total credit to non-banks have risen only marginally in many euro area countries, and remain below those for other developed countries, signalling that integration in euro area retail lending markets has been moderate.

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[17] The growth in this share reflects at least partially the increasing role of euro area banks in the financial systems of new EU member states (García-Herrero and Wooldridge (2007)).

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