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Abstract

As banking has become more globalized, so too have the consequences of shocks originating in home and host markets. Global banks can provide liquidity and risk-sharing opportunities to the host market in the event of adverse host-country shocks, but they can also have profound effects across international markets. Indeed, global banks played a significant role in the transmission of the current crisis to emerging-market economies. Flows between global banks and emerging markets include both cross-border lending, which has long been recognized as responding significantly to shocks at home or abroad, and internal capital-market lending, which is the internal flow of funds within a banking organization (such as between a headquarters and its offices in foreign locations). Adverse liquidity shocks to developed-country banking, such as those that occurred in the United States in 2007 and 2008, have reduced lending in local markets through contractions in cross-border lending to banks and private agents and also through contractions in parent banks' support of foreign affiliates. Because all these forms of transmission impinge on the lending channel in recipient markets, the ownership structure of emerging-market banks does not by itself provide sufficient basis for identifying the degree of shock transmission from abroad.

Key words: bank, global, liquidity, transmission, capital markets, cross-border lending

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I. Introduction

Financial sector foreign direct investment has been much debated. To date, the balance of evidence supports the view that foreign bank entry into local banking systems is a stabilizing force for host markets and results in more efficient allocation of productive resources in globalized economies [see survey by Goldberg (2009)]. The consequences of banking globalization are not limited to lending activity. It also can lead to institutional and regulatory/supervisory improvements, which, as Mishkin (2009) forcefully argues, promote “strong property rights and a financial system that directs capital to its most productive uses [which] are crucial to achieving high economic growth and the eradication of poverty.”¹

The statement that globalization of banking is a stabilizing force may seem at odds with the view that such linkages have spread the profound difficulties in international financial markets in the crisis that began in 2007 and continued into 2009. Chart 1, on capital flows to emerging markets (by EM region), shows the dramatic changes in receipts by these regions. These capital flows encompass foreign direct investment (FDI), net portfolio equity, and net debt flows. The accumulation of foreign capital in the period since 2002 was more extreme for emerging Asia and emerging Europe. Inflows to emerging Asia have collapsed more dramatically than flows into emerging Europe and Latin America. For the latter regions, net capital inflows remain above levels experienced as recently as 2006.

What part of capital inflows to emerging markets accounts most directly for these changes? The International Monetary Fund’s April 2009 *World Economic Outlook* (WEO) report shows that global bank linkages “fuel the fire” of the current crisis to emerging markets (page 149). This pattern appears to be supported by a decomposition of private capital flows to emerging markets into component parts of FDI, bank loans, portfolio equity, and net debt securities. As shown in Chart 2, while all broad categories of inflows have posted some declines, by far the largest among these declines are those in bank loans, which—after jumping to high levels of over \$500 billion in 2007—dropped to just slightly above \$100 billion in 2008.

¹ See also the discussion by Crystal, Dages, and Goldberg (2001) and by Calomiris and Powell (2001).

Chart 1: Capital Flows to Emerging Markets, by Region
U.S. Billions

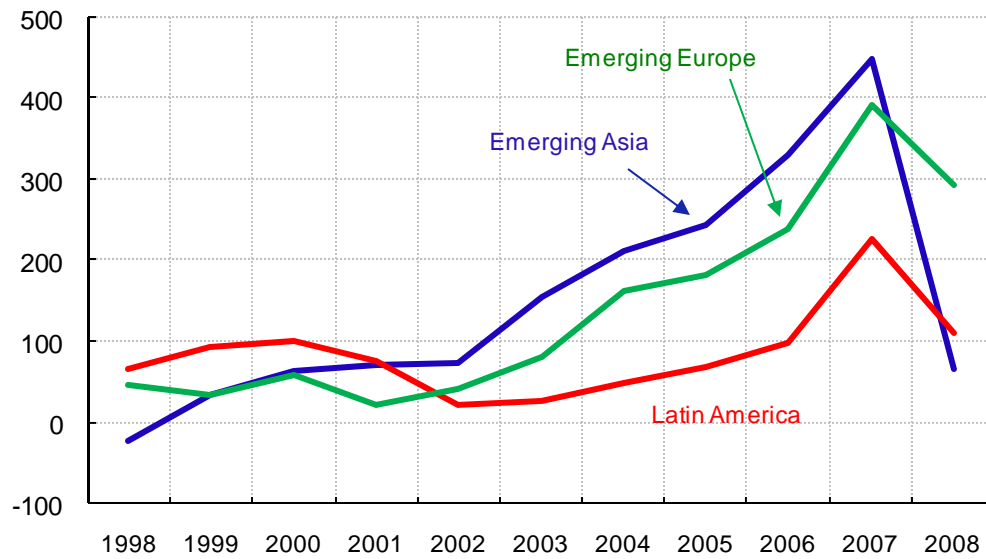
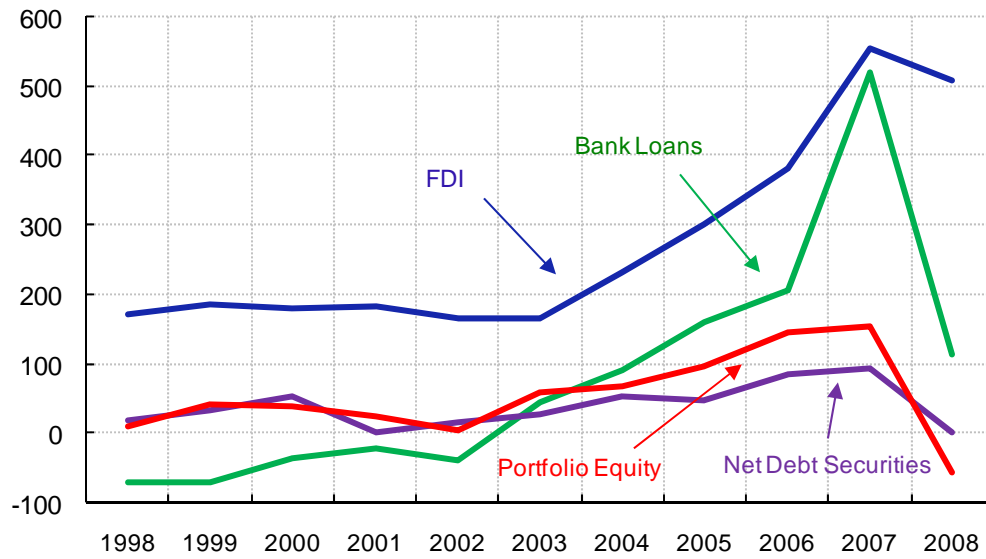


Chart 2: Private Capital Flows to Emerging Markets
U.S. Billions



Source for Charts 1 and 2: BIS Locational Banking Statistics, Bank Loans (Table 7c), Net Bond Issues (Table 11); Foreign Direct Investment from the Global Development Fund; Portfolio equity data from CEIC; also Federal Reserve Bank of NY staff estimates.

In this article our goal is to provide deeper insights into international shock transmission by global banks, focusing particularly on global banking organizations' access to different forms of liquidity. The logic presented in Section II follows an emerging literature on internal capital markets in banking that emphasizes a tiering across banks in their access to financial support when confronted with a liquidity shortfall. The basic argument begins with the Kashyap and Stein (2000) result in which small local banks that are stand-alone in structure are least able to access liquidity when market liquidity conditions tighten. By contrast, larger banks have better access to external capital markets, obtaining funds by equity-financing, interbank borrowing, and/or issuing certificates of deposits (CDs).

Banking organizations afford some other liquidity channels to affiliated banks. Houston, Marcus, and James (1997) emphasize active internal capital markets in banking organizations, with banks relying on related entities in a bank holding company to get insulation from localized shocks within the United States. Likewise, Ashcraft (2008) shows that bank holding companies are a source of strength to their affiliates, while Campello (2002) shows that parent bank insulation from access to external capital markets extends to small affiliated banks, leaving them less vulnerable to shocks than other small banks that are unaffiliated.²

Yet our specific focus is on international capital flows and bank responses to shocks at home and in host markets. For this purpose, the main exposition of the paper considers global banking. We begin with the observation that global banks lend to foreign markets through two basic modes: cross-border loans and loans extended by affiliated banks in the host markets. Both of these modes offer opportunities for international transmission of shocks, both to and from the host markets. In Section II, we build on intuitions from Cetorelli and Goldberg (2008) which considers the interactions of U.S. globally-oriented banks with their foreign affiliates. Large globally-oriented banks in the United States use their international networks to offset liquidity shocks hitting the organization in the United States. This use of internal capital markets on a global scale leads to fundamentally different consequences of both monetary policy and shocks (domestic and foreign) at home and abroad. As Cetorelli and Goldberg (2008) demonstrated, a consequence of such globalization of banking is that it weakens the lending channel for monetary policy within the United States, while extending the transmission of U.S. policy and liquidity shocks to foreign markets. The result is that the home market shocks are transmitted into the

² See also Ashcraft and Campello (2007).

lending of foreign affiliates. In the crisis beginning in 2007, this would imply reduced lending activity by foreign-owned banks in emerging markets. The flip side of these internal capital markets is demonstrated by De Hass and van Lelyveld (2009), who show that because of such internal capital markets, foreign bank subsidiaries do not need to rein in their credit supply during a (local) financial crisis at the same time that domestically-owned banks would need to do so.

The other parts of global bank flows include cross-border transactions with unaffiliated counterparties. A substantial part of these cross-border flows are to unaffiliated banks in host markets (in addition to the parts that represent direct loans to firms). If such cross-border capital inflows are important for the overall liquidity in the host market, then the external capital markets of small host country banks can be quite volatile. These banks could potentially have lending activity that is hostage to the boom and bust features of cross-border lending.

In Section III, we turn to descriptive evidence that contrasts the volatility pattern of lending to emerging markets from domestic sources and foreign sources of different types. We argue that banks with the broadest access to capital markets — those external and internal to the banking organization — might be most able to withstand a range of liquidity shocks. This access tends to be higher for larger and more globally-oriented banks, suggesting they have adjustment advantages over host banks, despite the observation that globally-oriented banks have more direct roles in international shock transmission. Section IV concludes.

II. Understanding Internal and External Capital Market Access by Banks

What can a bank do when confronted with a shock to its balance sheet? For example, consider a contraction in available liquidity that shows up in bank reservable deposits. A simplified version of a bank balance sheet can be used to compare the options available to different types of banks. Those different types of banks could be small stand-alone banks, small banks affiliated with larger bank holding companies, or large banks. The larger banks or bank holding companies can either be domestically oriented or have operations spread across global markets.

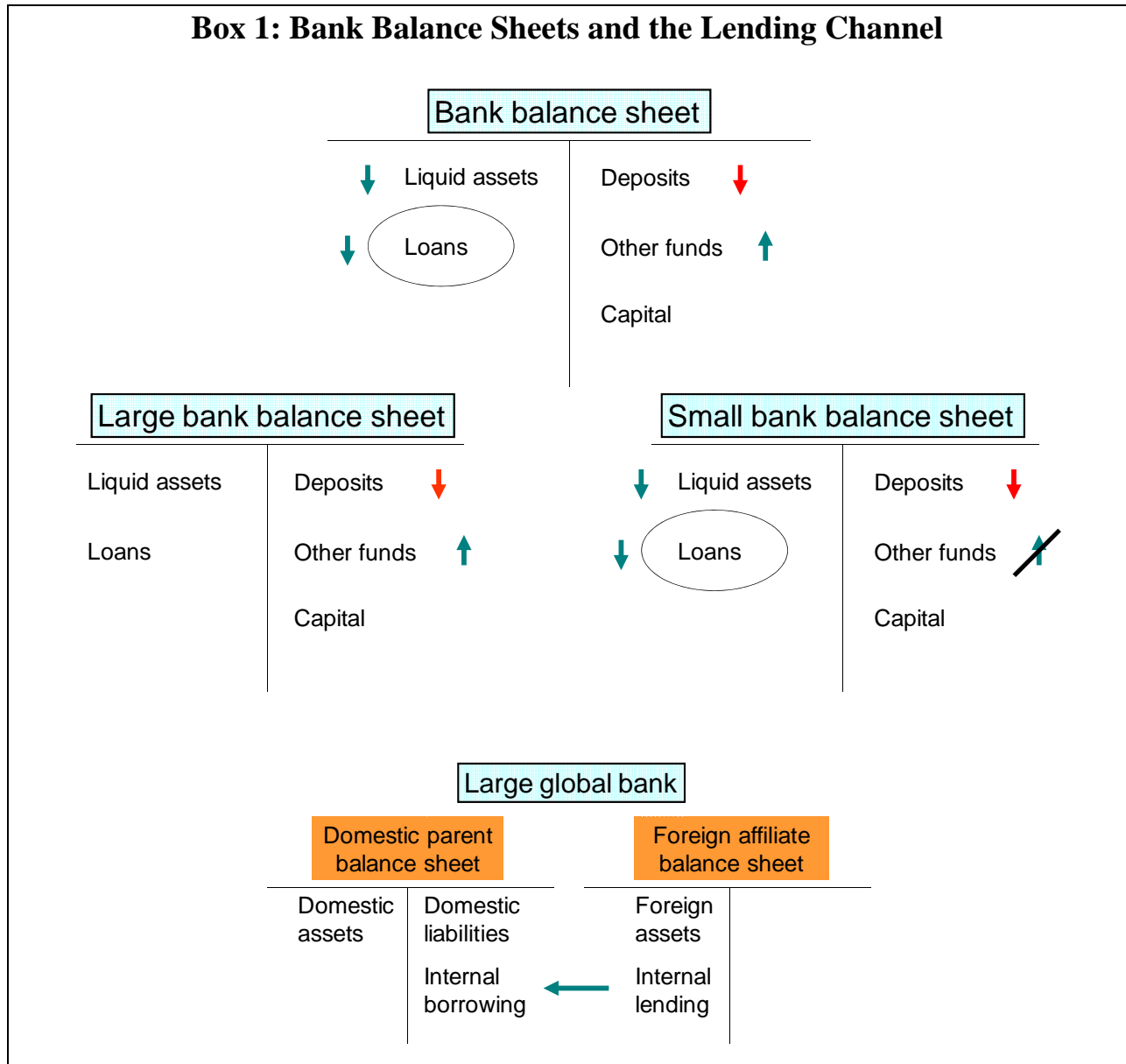
Scenarios for responses to a liquidity shock are contrasted across the bank types in Box 1, providing intuition about the relationship between shocks to deposits and the ultimate consequences for bank lending. A particular example of a balance sheet shock is a reduction in

reservable deposits arising from tighter monetary policy. The lending channel for monetary policy to be transmitted to the real economy—or more generally the link between an exogenous policy-induced change in liquidity and the amount of loans extended by a bank—arises because a bank faces a significant wedge between the cost of acquiring insured, reservable deposits and the cost of acquiring other sources of funds such as large denomination CDs, money market funds, and securities. The top panel of Box 1 shows a generic bank T-account, with bank assets on the left side of the T and bank liabilities on the right side. In broad terms, bank liabilities are divided into deposits, other funds, and bank capital; bank assets are divided into liquid assets and less liquid assets such as loans extended to bank customers. In our discussion, the initial change in the bank balance sheet is denoted with a red arrow, while subsequent responses are indicated with blue arrows.

A contractionary monetary policy that reduces the amount of reservable deposits (or other shock to bank funds) can translate into a reduction in bank lending activity when banks are unable to replace each dollar of lost deposits with other liabilities. The reduced liabilities will lead to a combination of reduced liquid assets and reduced lending. Kashyap and Stein's (2000) compelling analysis of why large banks and small banks differ in the effects of such a shock is illustrated in the middle panels of Box 1. Banks differ in their access to external capital markets that would facilitate replacing lost assets. Large banks have much better access than, for example, small stand-alone banks.

Kashyap and Stein show convincingly that the consequences of the initial liquidity shock (appearing through deposits) for lending are much weaker for larger banks (defined as being in the top 5 or 10 percent of the distribution of banks by asset size at any point in time) than for smaller banks (those in the bottom 90th percentile of banks by asset size at any point in time). The difference in the contraction rate on loans from tighter monetary policy arises because the cost of accessing funds through capital markets that are external to the bank is sufficiently high for the smaller banks, pushing the balance of adjustment to the liquidity shock onto the loan book of the bank.

Box 1: Bank Balance Sheets and the Lending Channel



Cetorelli and Goldberg (2008) argue that even among large banks there are real differences in available funding sources. Such differences are associated with the “globalness” of the banks. As shown in the lower panel of Box 1, global banks that have overseas affiliates may have an extra advantage in replacing liquidity lost from a decline in reservable deposits at home. Global banks can raise needed liquidity both from borrowing from (or lending less to) overseas affiliates. This internal capital market channel supplements the funds available to the

bank through capital markets that are external to the banking organization. Indeed, when Cetorelli and Goldberg (2008) divide the Kashyap and Stein (2000) panel of large U.S. banks into those that are domestically oriented and those that are globally oriented, it is only the globally-oriented large banks for which a significant lending channel response to monetary policy is absent. Overall, these findings emphasize that 1) foreign affiliates serve as liquidity hedges, potentially giving global banks access to capital internal to the entire banking organization; 2) such internal fund transmissions are not part of the cross-border capital flows between markets that are typically depicted in macroeconomic series; and 3) U.S. policy and liquidity shocks are damped at home, but also transmitted to affiliate markets through these channels internal to the banking organization.

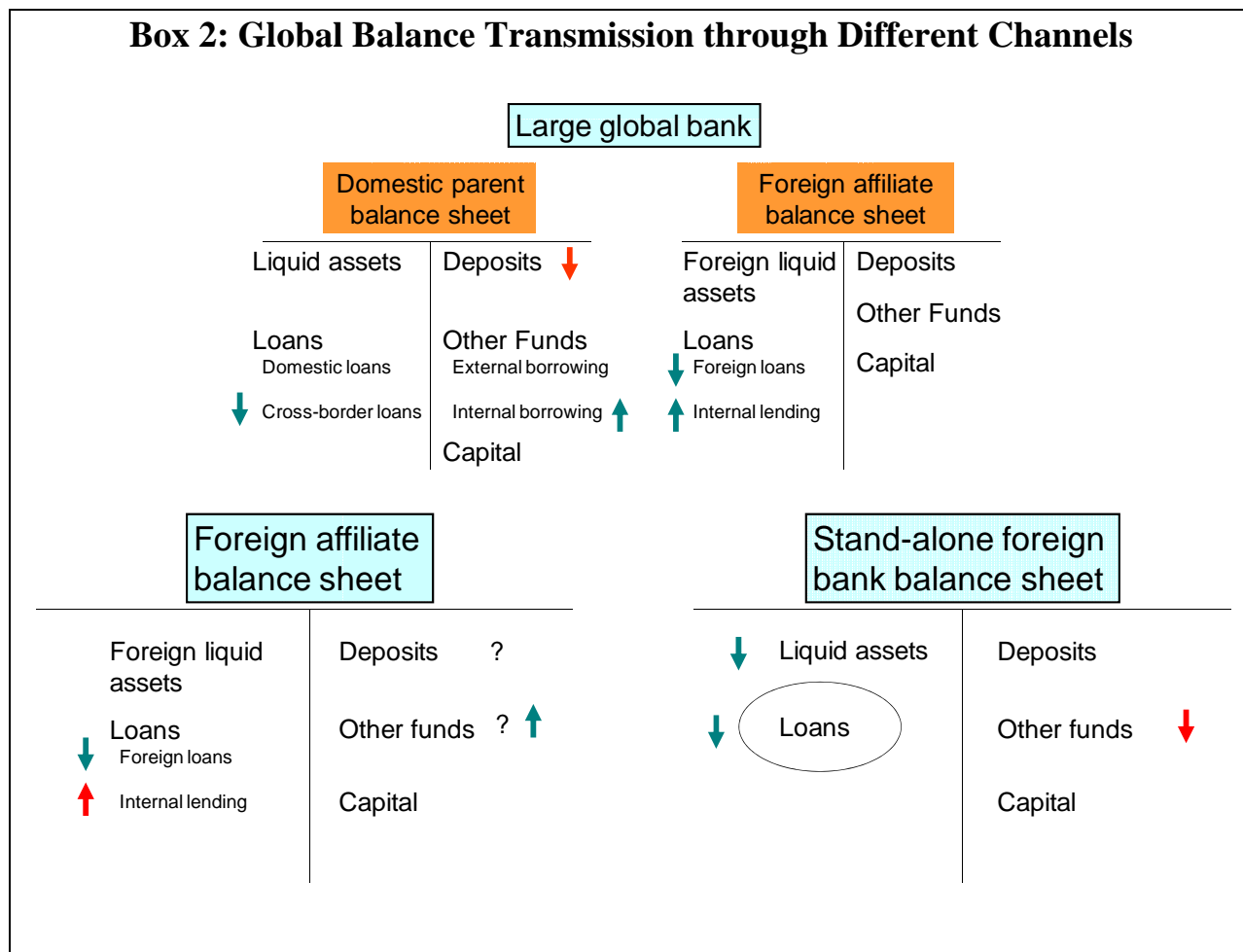
The other form of international bank lending is picked up in cross-border flows. Data on cross-border claims are available on an ultimate risk basis, accounting for any legally binding third-party risk transfers and allocated according to the risk of the ultimate guarantor. Using this data from U.S. banks for the past decade, Correa and Murry (2009) show that the transmission of policy and liquidity shocks through cross-border residents is statistical and economically significant: there is a significant reduction in the level of cross-border claims during periods of U.S. monetary tightening, pointing to the existence of a cross-border lending channel.³

Implications for Balance Sheets of Emerging Market Banks: Suppose an emerging market economy has domestically-owned, relatively small banks operating alongside the local affiliates of the overseas banks. In this context, we can delve a bit more into the balance sheets of the global banks, adding in a role for cross-border lending as well as domestic lending. We can also compare the transmission of similar liquidity shocks to the lending by the affiliated foreign-owned bank versus the lending of a stand-alone bank in the host market economy.

In the top panel of Box 2, we divided the parent bank assets into liquid assets, loans in the domestic economy, and cross-border loans. The funds available to that bank are those associated with external capital markets and internal capital markets, as previously explicated. In addition to adjusting to a shock to deposits by (net) internal or external borrowing, even those banks

³ Interestingly, during this period Correa and Murry (2009) do not find statistically significant transmission of U.S. policy into the foreign office claims on local residents. This finding is still to be reconciled with the Cetorelli and Goldberg (2008) result that during a period of U.S. monetary policy tightening the overseas affiliates appear to have lending relies less on the state of the parent bank balance sheet.

without affiliates abroad can attempt to insulate domestic lending by pushing more of the lending adjustment onto cross-border loans. Whether or not this is feasible depends on the form of loan commitments and lines of credit extended by this bank in different markets. However, suppose some global banks use cross-border lending, known to be more volatile, as a way of adjusting to shocks at home or abroad.



The bottom panel of Box 2 compares the balance sheet response to a decline in deposits of a foreign affiliate bank with the balance sheet response of a stand-alone bank in the host market. The foreign affiliate transfers funds to the parent via internal lending. If an increase in deposits or other funds are not available as an offset, this affiliate bank may either reduce liquid assets or loans in the host market economy. This reduction in loans was discussed by Cetorelli and Goldberg (2008) as part of the international lending channel.

The stand-alone bank in the host market may have impaired lending from a different part of the balance sheet. It may be that this bank relies on cross-border flows as a key liability source, especially when local capital markets are not deep. In this case, consider the effects of the foreign bank reduction in cross-border lending. Instead of deposits being the initial point for triggering adjustment, for this bank the “Other funds” part of the balance sheet declines. Again, without offsetting alternative funding sources, the loans extended might contract in line with the reduced availability of cross-border funds. Foreign ownership within the domestic banking system is not necessary for international transmission of shocks and the lending channel.

III. Bank Funding and Lending Volatility in the Financial Crisis

In this section we focus on the volatility of capital flows to emerging market regions in the crisis that pummeled the global economy from late 2007 through the present. The main data sources applied for this purpose are the Bank for International Settlements’ (BIS) Consolidated International Banking Statistics, which reports positions of BIS reporting banks with respect to counterparties in countries around the world, and U.S. data on bank international exposures collected by the Federal Financial Institutions Examination Council (FFIEC). The data from these two sources include details on cross-border lending by banks and local claims by foreign owned banks in various economies. The BIS data are consolidated across banks in all countries reporting to the BIS, while the FFIEC data are specifically focused on banks that report to U.S. regulatory authorities. We conclude with a comparison of lending by foreign-owned and locally-owned banks in Latin American economies.⁴

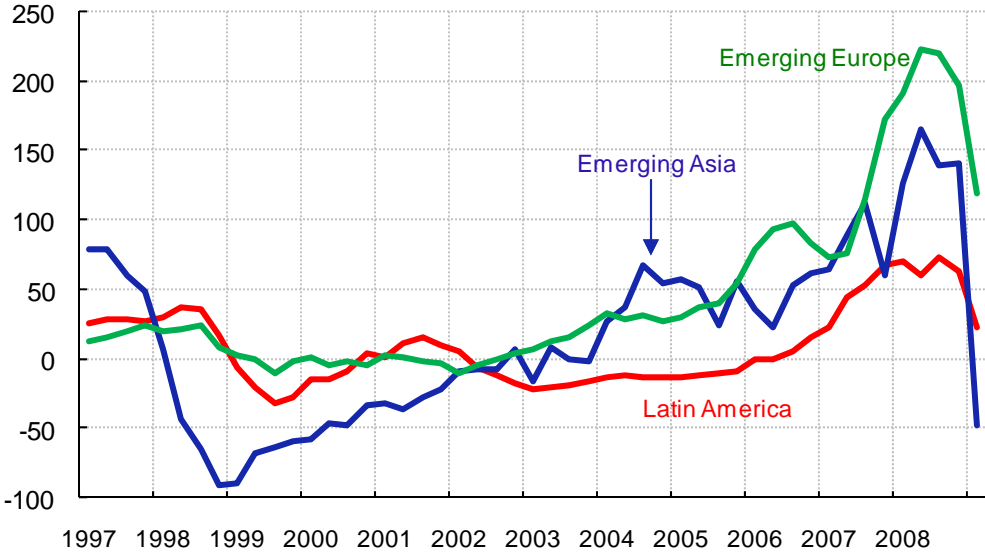
Recall from Charts 1 and 2 that, in the recent crisis period, declines in measured capital flows to emerging market regions have been dominated by reduced bank loans. Also recall that the two main categories of bank loans are cross-border lending (included in those charts) and local claims, which are extended by the overseas affiliates of reporting banks. In Chart 3 we present BIS data on cross-border lending to emerging markets. Data through yearend 2008 shows the sharp dislocations in international capital markets from banks and with respect to specific emerging markets. The exchange rate-adjusted contraction in cross-border lending was most

⁴ Of course any change reflected in the lending data may be the result of variations in both supply *and* demand. The results presented here show the existence of basic correlation in the data. Deeper examination to identify a separate supply shock is left for future analysis.

acute in the larger EMEs (China, Korea, Russia, and Brazil). Flows to Emerging Asia declined into negative territory by end of 2008, after peaking earlier that year. Declines in cross-border lending to Latin America and Emerging Europe were substantially disrupted as well but remained in positive territory.

Chart 4 focuses specifically on flows from one of the BIS reporting countries, the United States. A comparison across charts shows that the U.S. reporting banks have a different orientation in cross-border lending compared to the aggregate BIS statistics. On average, the U.S. banks tend to have relatively lower initial positions in Emerging Asia and higher positions in Latin American countries. By 2007, cross-border claims on Latin America had recovered to levels in place before the Argentine crisis of 2001. While these flows were still increasing in early 2008, there was a sharp retrenchment in the second half of the year. Significant cutbacks also appeared in U.S. bank cross-border lending to Emerging Asia and Emerging Europe.

Chart 3: Cross-Border Bank Lending Flows to EMEs
U.S. Billions, 12 month rolling sum



Source: BIS Locational Banking Statistics

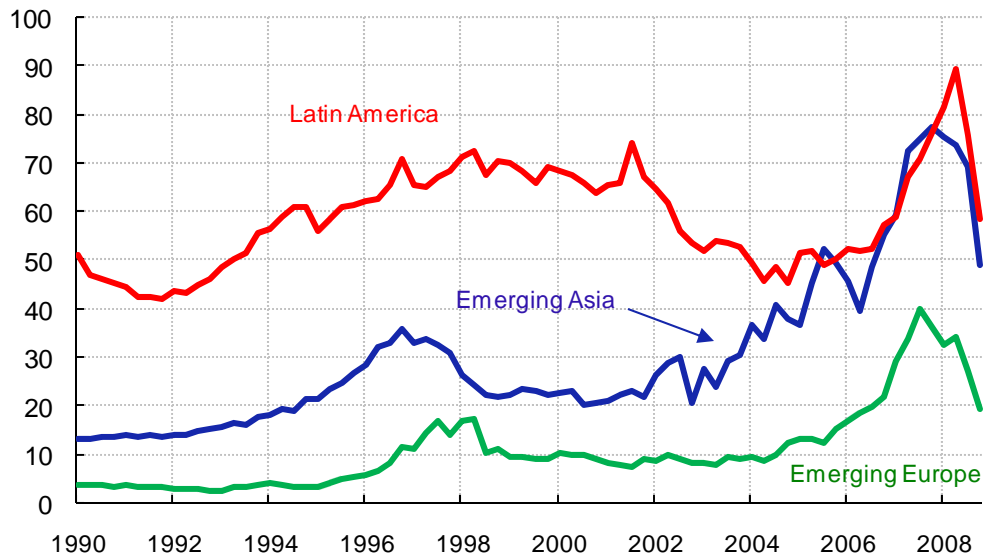
This cross-border lending can be divided according to transaction counterparties: banks, nonbank private borrowers, and public-sector borrowers. As depicted in Chart 5, more than half of U.S bank cross-border claims on Latin America go directly to private sector counterparties, with the remaining half divided between funding to the public sector and funds that are a source of external capital market financing for the emerging market banks. In the recent crisis period,

the largest retraction of cross-border funds was vis-à-vis private sector entities, followed by public sector borrowers. While the interbank lending market contracted to a lesser degree, both loans to private counterparties and to banks declined on the order of 20 percent. As noted in Section II, contractions in cross-border lending to banks reduce the funding on the balance sheets of, for example, locally-owned banks and are a source of transmission of the liquidity crisis from the United States. The liquidity shock degrades the financing conditions for smaller stand-alone banks in emerging markets. Since it is unlikely that these banks would be able to replace this liquidity at low cost, the T-account exposition argued that the stand-alone banks would have a corresponding contraction of lending in local markets.

Next, consider the internal capital market transfers between globally-oriented parent banks and their foreign affiliates. Such transfers are not captured in cross-border funding reports. However, such flows are captured in regulatory reports filed quarterly by foreign-affiliates of United States banks.⁵ Data for net internal capital market borrowing by the Latin American affiliates of U.S. banks are shown in Chart 6. These foreign-owned banks in Latin America have been net borrowers from the global banking organization in the whole interval shown in the chart. Recent data show a decline in the total internal capital market borrowing by these banks relative to peak levels seen in mid 2007. While support to Latin American affiliates continued through the crisis period, this appears to have been at somewhat reduced funding levels. As shown in Cetorelli and Goldberg (2008), foreign affiliates of U.S. banks tend to rely less on the balance sheet of the parent organization when liquidity conditions are tighter in the United States. As earlier demonstrated by van Rijckeghem and Weder (2003), spillovers across banks occur through banking centers.

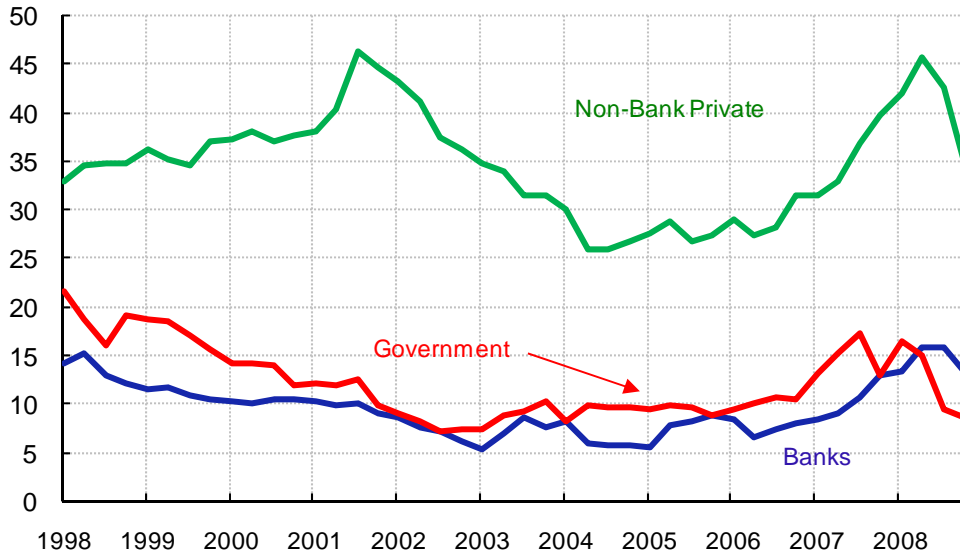
⁵ The FFIEC E-16 Country Exposure Lending Survey summarizes reports by banks (through the FFIEC 009 and 009a) on the distribution by country of claims on foreigners held by U.S. banks and bank holding companies. The FFIEC 009 schedule 1a contains a memorandum item “Net Due to (or Due from) Own Related Offices in Other Countries”, line 8595. These data reflect the internal net borrowing and lending of affiliate offices in each country with respect to the head office and all locations outside of the reporting country.

Chart 4: Cross-Border Claims of All Reporting U.S. Banks
U.S. Billions



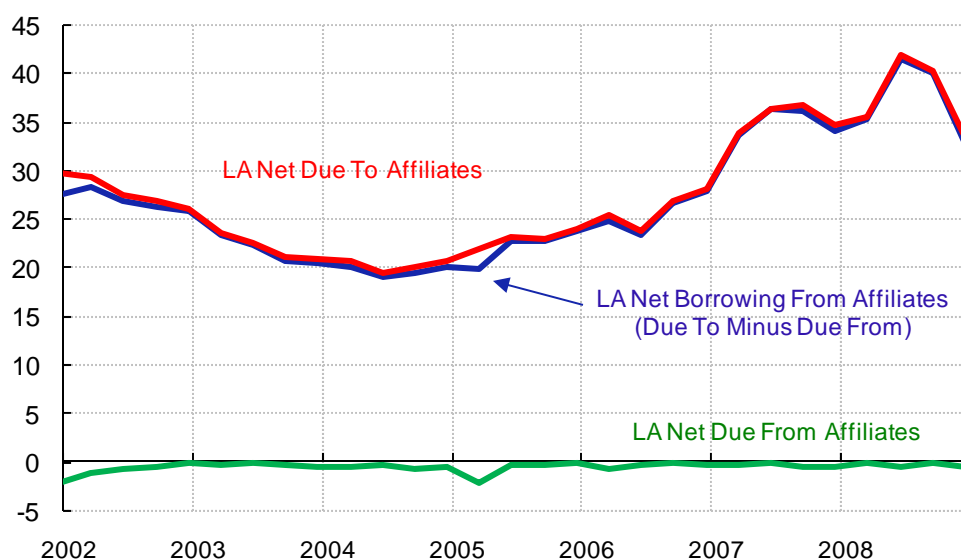
Source: FFIEC

Chart 5: U.S. Bank Cross-Border Claims on Latin America, by Counterparty
U.S. Billions



Source: FFIEC E.16 Country Exposure Lending Survey

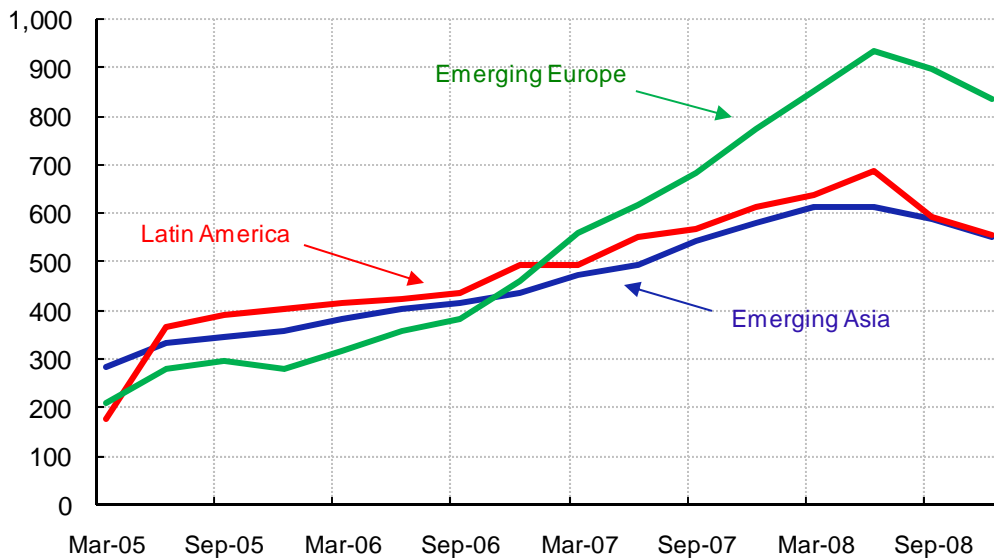
Chart 6: Net Borrowing of U.S. Banks from Latin America
U.S. Billions



Finally, we turn to lending activity within emerging market economies. Chart 7 presents the local claims extended by the foreign offices of all BIS reporting banks, specifically with respect to three emerging market regions. First, it is noteworthy that foreign-owned banks did not engage in a precipitous decline in lending within host markets. The most recent data for end of 2008 show a decline in lending in the second half of 2008 that reduced local claims to levels observed one year prior. Even in regions where local claim declines were more pronounced, these positions appear to be relatively resilient, which would be consistent with continuing commitments to host markets by parent banks under stress.

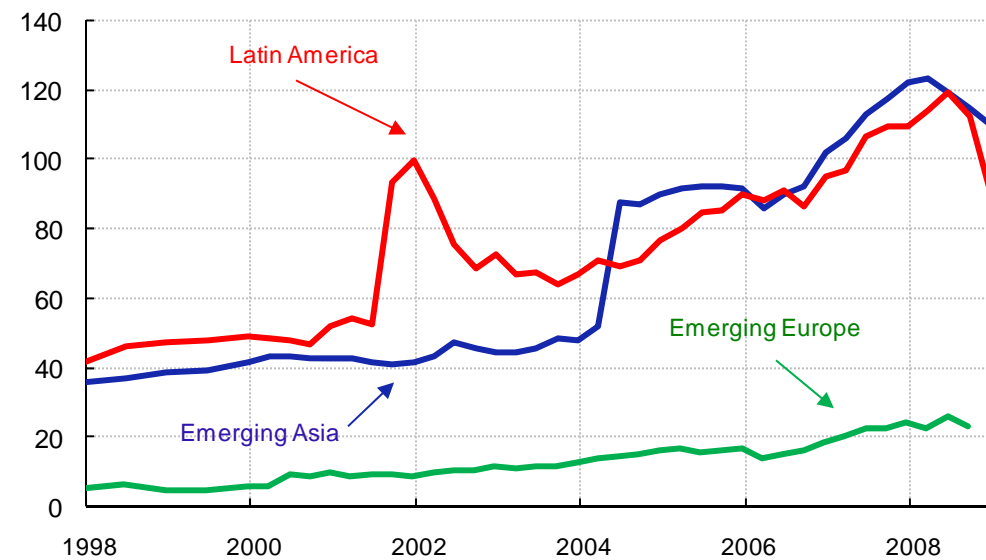
Chart 8 shows the local lending by the foreign affiliates of U.S. reporting banks. A comparison of Charts 7 and 8 underscores the well-known observation that U.S. banks have different financial sector FDI patterns than, for example, European banks which are more oriented toward Emerging Europe. These U.S. banks account for perhaps one fifth of the foreign bank local lending in Latin America and Emerging Asia, with a significantly smaller relative position in Emerging Europe. Claims extended to Latin American counterparties declined most dramatically in mid 2008, by about \$30 billion, again retracing levels to positions observed in 2007. The retrenchment was a similar order of magnitude as that which occurred in 2001 to 2002. Nonetheless, the remaining level of claims remains high by historical standards.

Chart 7: Local Claims by Foreign Affiliates of BIS Reporting Banks
U.S. Billions



Source: BIS Consolidated Risk Basis, Ultimate Risk Basis, Table 9C

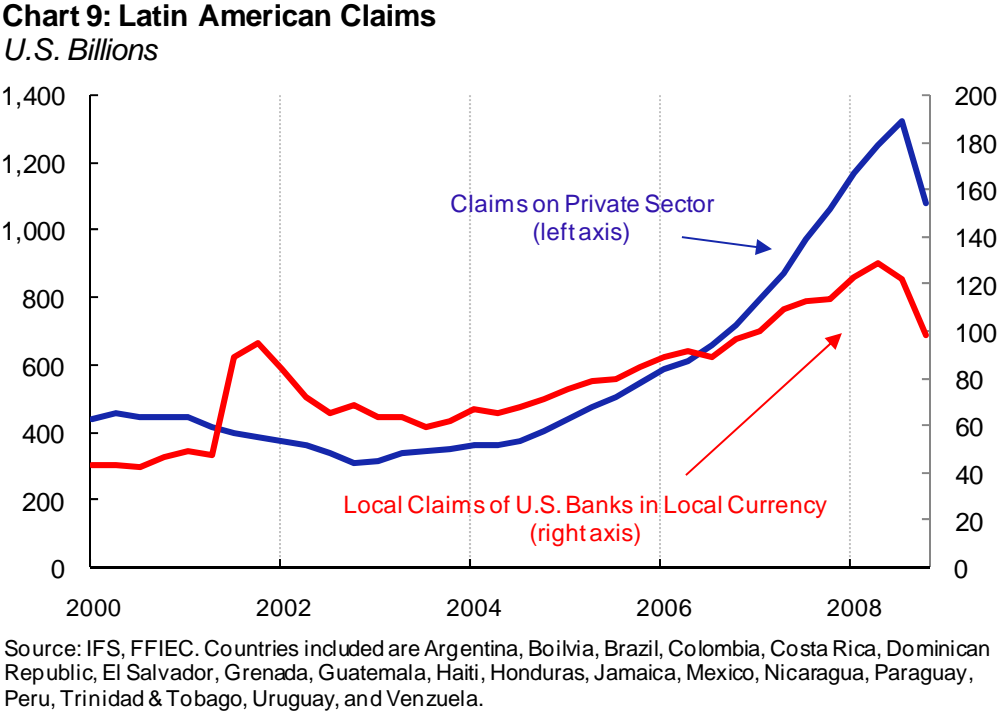
Chart 8: Local Claims of all Domestically-Owned U.S. Banks
U.S. Billions



Source: BIS Consolidated Statistics. Immediate Borrower Basis

Ultimately, adverse shocks transmitted through the internal and external capital markets available to a bank are expected to have consequences for lending by banks, as discussed in Section II. Yet, different types of banks in emerging markets will have different levels of

exposure to the cross-border and internal capital market funds. Ultimately, we expect a contraction in lending by the smaller domestically-owned banks that rely on cross-border flows, and we may see a contraction in lending by the foreign-owned banks that may have restricted parent liquidity made available to the affiliate. In Chart 9 we show the trajectories of domestically-owned and U.S. foreign-owned banks in Latin America. Note the large difference in scales of lending by these categories of banks. The domestically-owned banks, which account for the majority of lending, also account for the majority of the total contraction in claims on private sector borrowers in Latin America of over \$200 billion (7.3 percent off from 2008Q1). The contraction in local claims by US-owned banks accounts declined by a higher percentage, at nearly 20 percent, but still only a fraction of the total decline.



The reduction in internal capital market support by U.S. banks, for example, may have been limited by the liquidity facilities expanded and established by the Federal Reserve as the crisis progressed. For example, at the U.S. Term Auction Facility a majority of net outstanding dollars was extended to the larger globally active depository institutions. These firms may have

extended more liquidity to their international affiliates (or withdrawn liquidity by less) than would have been the case if such official sector interventions had not been in place.

IV. Concluding Remarks

The opening of capital markets to allow foreign bank participation, either through expanded cross-border lending activity and/or via direct entry into local banking markets, has been documented as producing significant local benefits in terms of enhanced efficiency, liquidity provision, risk-sharing, and overall superior growth opportunities. At the same time, the globalization of banking can also have profound effects on the transmission of shocks across markets and on the effectiveness of policy tools applied at home and abroad. Banks with distinct parent organizations have differential access to capital external to and internal to the banking organizations. Both foreign-owned banks and local stand-alone banks are expected to be impacted by foreign liquidity conditions but to differing degrees based on their exposure to cross-border funding and to the capital markets internal to the broader banking organizations in which they participate. Overall lending fluctuations in host market economies in response to shocks can reflect the composition of banks with exposure to these sources of investable funds.

In the recent crisis period, declines in measured capital flows to emerging market regions were dominated by the banking sector. The cross-border component of these funds exhibited the most dramatic declines, with abrupt contractions in interbank funding markets. In this same period, there was a decline in internal lending from parent and other overseas affiliates to the foreign-owned banks within emerging markets. Both types of contractions were associated with reduced lending within emerging markets, reinforcing the point that both local banks and foreign-owned banks are subject to funding conditions in global markets. The difference is that international transmission of shocks through the foreign affiliates of global banks occurred both through internal capital market transfers and only partially through cross-border lending. By contrast, smaller stand-alone banks in the host economies might be more vulnerable to foreign shocks mainly through the cross-border lending channel.

Globalization of banking is therefore transforming the way shocks transmit internationally. Global banks may be more resilient and better prepared in handling local shocks,

but global banks also facilitate enhanced international shock transmission.⁶ This does not imply a rethinking of capital market opening policies but rather argues for the importance of greater awareness of the range of effects of international integration in its various forms. A policy corollary is that, as a result of globalization, the scope of the intervention of monetary authorities increasingly extends beyond domestic borders. It is not just market shocks that are transmitted internationally but also policy interventions.

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⁶ This argument was also made recently by the vice chairman of the Federal Reserve: “... when liquidity conditions tighten in one country, globally active banks may attempt to pull liquidity from overseas affiliates, reducing the liquidity consequences at home but simultaneously transmitting the shock abroad. What is particularly interesting is that in some cases, financial linkages might now be more important for transmission than the traditional trade linkages.” (Kohn, 2008).

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