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Bank health and lending to emerging markets[1]

Over the past decade, many emerging markets have increased their dependence on credit from foreign banks. However, the ongoing financial crisis may prompt banks to reassess their exposures to these economies. Panel regression analysis of data since the early 1990s indicates that a deterioration in bank health is associated with a decline in the growth of credit to emerging markets.

JEL classification: F34, G15, G21.

The ongoing financial crisis has raised questions about the resilience of international bank credit to emerging markets. Severe funding constraints caused by liquidity shortages in the interbank market and, more recently, market concerns about banks' health have prompted banks to reassess their global balance sheet positions.[2] Emerging markets may be vulnerable since a significant reduction in foreign bank credit could have a negative impact on the real side of these economies, particularly those which have relied heavily on financing from banks that have been at the centre of the storm.

To cast some light on these issues, this article examines the link between bank health and foreign bank credit to emerging markets from a long-term perspective. The first section highlights emerging markets' growing dependence on such credit, and summarises the evolution of internationally active banks' exposures to these borrowers since the early 1990s. The extent to which these exposures have been generated by banks' offices in the borrower countries differs significantly across emerging markets. Since these local claims are often funded locally, they are arguably less sensitive to external shocks than banks' cross-border credit.

The second section analyses how foreign banks' credit to emerging markets responded to changes in bank health and global market conditions prior to the ongoing financial crisis. The analysis relies on a panel regression framework that incorporates the BIS international banking statistics, which track credit from the world's major banking systems to emerging markets. A robust finding is that deterioration in banks' health and stresses in mature

[1] The views expressed are those of the authors and do not necessarily reflect those of the BIS. The authors would like to thank Emir Emiray and Carlos Mallo for valuable help with the data.

[2] See the Highlights section on the international banking market on pages 25–30 of this issue.

interbank markets from the early 1990s to mid-2007 consistently led to slower growth in international credit to emerging markets. By contrast, locally extended credit was largely insensitive to changes in creditor banks' health.

The third section considers developments in bank lending to emerging markets since mid-2007. Out-of-sample predictions based on the regression estimates provide a useful benchmark for evaluating the actual extension of credit during the recent period of stress. The general finding is that credit growth to emerging markets between mid-2007 and mid-2008 was stronger than what might have been expected given the regression estimates. That said, there are signs that, for some banking systems, the growth in credit to emerging markets has slowed.

Trends in foreign bank credit to emerging markets

Overall, foreign bank credit to emerging markets has expanded significantly in recent years. Outstanding foreign claims on these economies quadrupled after mid-2002, reaching $4.9 trillion by mid-2008. Against this backdrop, the financial crisis has brought to the fore concerns related to the size of these exposures and to the sustainability of emerging markets' dependence on foreign bank credit.

This section examines the size of foreign bank credit to emerging markets, first from the perspective of borrower countries and then from that of creditor banking systems. The analysis relies on the BIS consolidated banking statistics reported on an immediate borrower basis, which provide internationally comparable measures of national banking systems' exposures to country risk. Banks headquartered in a particular reporting country provide information on their foreign claims on borrowers in up to 200 vis-à-vis countries. Foreign claims equal "international" claims plus local currency claims extended by offices in the borrower country, or "local-in-local" claims. In turn, banks' international claims equal cross-border claims in all currencies plus foreign currency claims extended by offices in the borrower country.

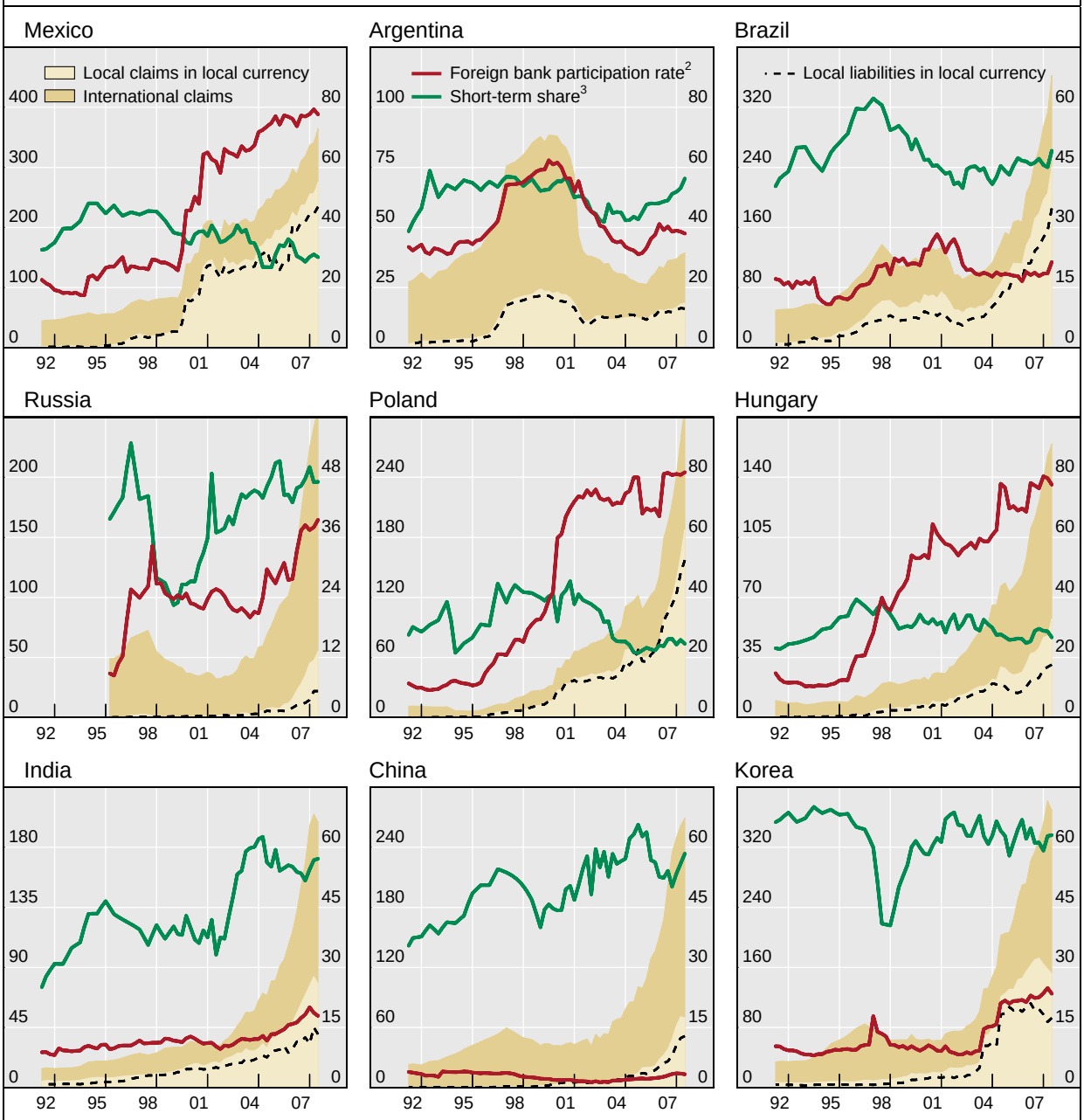
Dependence of emerging markets on foreign bank credit

Foreign bank credit has surged since 2000 …

BIS reporting banks' claims on almost all emerging markets reached all-time highs in 2008 (Graph 1). Foreign claims on the new EU member states have been growing strongly since 2000, reflecting the integration of these economies with the rest of the continent. For example, through mid-2008, claims on Hungary rose sevenfold, while claims on Poland and the Czech Republic increased by a factor of 10. Over the same period, foreign claims on Russia and on the major emerging markets in Asia-Pacific roughly quintupled. By contrast, foreign claims on Latin American countries, which experienced regional financial crises at the beginning of the decade, grew more slowly or even fell in some cases. For example, in mid-2008, the outstanding amount of foreign claims on borrowers in Argentina stood at half its 2001 level.

Many emerging markets appear to have grown increasingly *dependent* on credit from foreign banks. A direct measure of such dependence is the foreign

Foreign claims on selected emerging markets[1]



[1] Shaded areas and dashed lines are billions of US dollars (lhs); solid lines are shares, in per cent (rhs). The sum of international claims (cross-border claims in all currencies and foreign currency claims extended locally by foreign offices) and locally extended claims in local currency equals total foreign claims. Some reporting banking systems do not provide information on their local liabilities in local currency (eg Austria). [2] See footnote 3 in the text for a description of how this rate is calculated. [3] Share of short-term claims in total international claims.

Sources: IMF; BIS consolidated statistics; BIS locational statistics by residency. Graph 1

bank participation rate, or the share of the total credit received by the non-bank residents of a particular country which is extended by foreign-headquartered banks (red lines in Graph 1).[3] This rate has been increasing steadily since

[3] More precisely, the numerator of this ratio equals the sum of BIS reporting banks' international claims on non-banks in country *k* and these banks' total local-in-local claims on country *k*, both from the consolidated statistics. The assumption is that local-in-local claims, for which the BIS statistics do not provide a sectoral breakdown, are extended to non-banks

1990 in Poland, Hungary and Mexico and stood at roughly 80% in the second quarter of 2008. In Argentina, the measure of dependence on foreign bank credit declined after the crisis in 2001–02 but is currently rather high at 40%, similar to that in Russia. By contrast, credit extended locally by Chinese, Indian and Korean banks has kept up with the rise in foreign claims, leading to lower foreign bank participation rates.[4]

... driven by banks' local operations

Several factors might arguably affect the extent to which foreign claims adjust to shocks originating outside the borrower country.[5] One is the share of local-in-local claims in the total foreign claims on particular economies. Local-in-local claims (light shaded areas in Graph 1) tend to be funded by local-in-local liabilities (dashed black lines) and are also likely to reflect long-term incentives of foreign banks to buttress their strategic role in particular emerging markets. Thus, for a given level of dependence on foreign banks, countries where most foreign bank credit is in the form of local-in-local claims are likely to be more insulated from shocks that affect creditor banks but are external to the respective economies.[6] This suggests that Mexico might be less vulnerable to such shocks than Hungary, and Brazil less vulnerable than India (Graph 1).

Short-term claims have greater rollover risk

Another factor that influences the sensitivity of bank credit to adverse shocks is the residual maturity structure of this credit (Graph 1, green lines). Information about residual maturity is available only for international claims. A greater share of short-term international claims leaves borrowers more exposed to rollover risk and, thus, to shocks affecting creditor banks.[7] This share has differed across emerging markets, ranging from roughly 30% in the case of Hungary, Mexico and Poland to 50% or more for Brazil, China, India and Korea.

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only. The denominator of the ratio is the sum of domestic credit to non-banks in country *k* (from the IMF International Financial Statistics) and BIS reporting banks' total cross-border claims on non-banks in country *k* (from the BIS locational banking statistics by residence). See BIS *Quarterly Review*, June and September 2005, for further discussion.

[4] Another, less direct measure of dependence is the ratio of foreign bank claims to borrower country GDP. Outstanding foreign claims on many emerging European economies in mid-2008 amounted to between 100 and 200% of annual GDP, up from 50% or less in 2001.

[5] A large literature (eg Claessens et al (2001), Cull and Martinez-Peria (2007), Detragiache et al (2008) and Domanski (2005)) has analysed the extent to which foreign banks affect the efficiency, risk management standards and financial stability of emerging markets. In addition, Peek and Rosengren (2000) find that, in contrast to local-in-local claims, cross-border claims on emerging markets tend to contract during periods of stress.

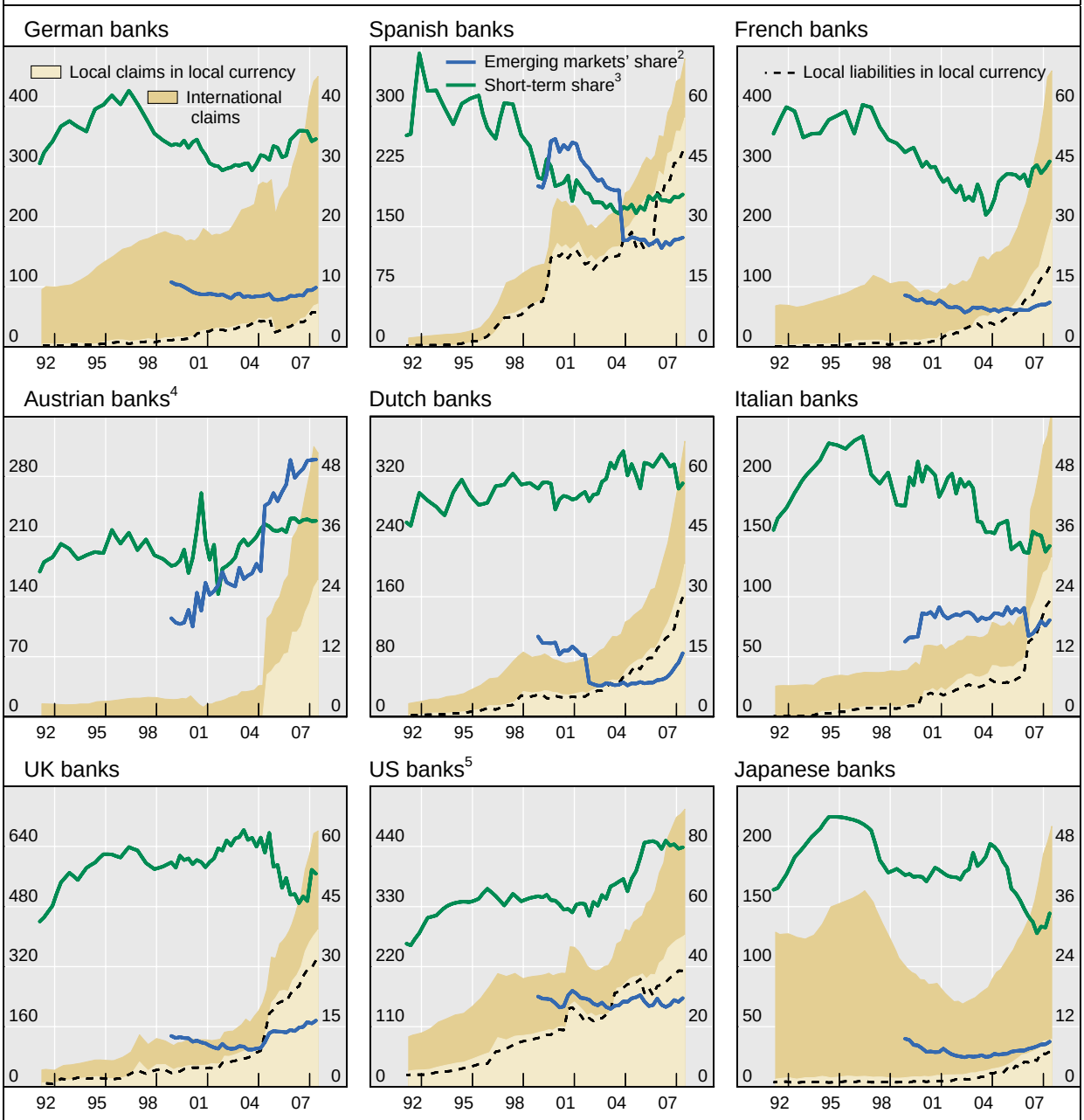
[6] This argument would be weakened if, for example, funding problems in their home countries induce banks to tap deposits in emerging markets in order to finance lending elsewhere.

[7] The degree to which external shocks are transmitted to emerging markets also depends on the maturity structure of creditor banks' *liabilities*. Specifically, these banks are themselves more vulnerable to shocks when a greater share of their liabilities are short-term. However, the BIS international banking statistics do not include information on the maturity structure of liabilities.

Banks' exposures to emerging markets

Graph 2 shows foreign claims on all emerging markets from the perspective of reporting banking systems. For most, the growth rate of foreign claims accelerated in the current decade, especially in the case of UK and Italian banks. The noteworthy exception is Japanese banks, whose withdrawal from

Foreign claims on emerging markets, by national banking system[1]



[1] Shaded areas and dashed lines are billions of US dollars (lhs); solid lines are shares, in per cent (rhs). The sum of international claims (cross-border claims in all currencies and foreign currency claims extended locally by foreign offices) and locally extended claims in local currency equals total foreign claims. [2] Share of foreign claims on emerging markets in total foreign claims. [3] Share of short-term claims in total international claims. [4] Austria does not report local liabilities in local currency, and only started reporting local claims in local currency in Q2 2005. [5] Prior to 2006, the United States reported cross-border claims and local claims in all currencies, instead of international claims and local claims in local currency.

Source: BIS consolidated statistics. Graph 2

Asia-Pacific emerging markets during and after the 1997 Asian financial crisis has reversed only since 2003.

Exposures are generally small relative to total assets ...

Despite being large from the borrowers' perspective, foreign claims on emerging markets are generally a small portion of banks' total foreign claims. This share has remained quite stable for most of the major banking systems, ranging between 10% and 20% since 1999 (Graph 2, blue lines). Austrian banks, whose claims on emerging markets in mid-2008 accounted for roughly half of their total foreign claims, are an exception.

... and differ by type ...

The structure of foreign claims differs significantly across banking systems. As noted above, banks may adjust their international more than their local-in-local claims in response to shocks originating outside the borrower country, primarily because international claims are more likely to require external funding. At one end of the spectrum, local-in-local claims account for the bulk of Spanish and Dutch banks' total foreign claims on emerging markets. At the other, they represent less than 20% of German and Japanese banks' total foreign claims on these borrowers.

... and by maturity

The residual maturity of international claims, a determinant of the ease with which banks can adjust their exposures, also differs across banking systems. In the case of Dutch and US banks, for example, the short-term share of total international claims on emerging markets has been on an upward path since the beginning of the 1990s and currently stands at roughly 60% and 80%, respectively. These banks should, in principle, be in a position to adjust large portions of their exposures to emerging markets relatively quickly. By contrast, Spanish, Italian and Japanese banks do not enjoy such flexibility. Hovering at around 60% by the mid-1990s, the share of short-term credit in these banks' exposures to emerging markets declined steadily thereafter to below 40% by mid-2008.

Determinants of foreign bank lending to emerging markets

Existing work on the determinants of foreign credit to emerging markets has often relied on the BIS international banking statistics, and thus offers some guidance in terms of both model specification and the choice of possible explanatory variables.[8] Indeed, a recent study has found a strong link between total lending to emerging markets and indicators of funding pressures in global interbank markets (World Bank (2008)).

Potential drivers of claim growth include ...

The analysis below builds on this literature, but with a sharper focus on the relationship between banks' health and the growth in credit to emerging markets. It relies on market-based indicators of bank health, and separately

[8] A large part of this existing work attempts to explain foreign bank lending to emerging markets using "gravity" models in which the size of bilateral linkages is related to home and host country macroeconomic variables as well as geographic, historical and institutional factors (Rose and Spiegel (2002) and Papaioannou (2008)). Other related articles focus on total borrowing by emerging market countries, and explain the mix of local and cross-border lending by foreign banks with local macroeconomic variables (Garcia-Herrero and Martinez-Peria (2005)). In turn, Goldberg (2001) finds that US banks' lending to emerging markets is sensitive to US macroeconomic conditions.

examines how changes in these indicators affect the growth rate of international and local-in-local claims.

Empirical strategy

The empirical analysis is based on a panel regression specification where the dependent variable, $Y_{j,k,t}$, is the growth rate of either the stock of international claims or local-in-local claims reported by banking system *j* on borrowers in emerging market *k*.[9] The general specification can be written as follows:

$$Y_{j,k,t} = \alpha_{j,k} + \beta_1 X^1_{j,t} + \beta_2 X^2_{k,t} + \beta_3 X^3_{j,k,t} + \varepsilon_{j,k,t}$$

... indicators of bank health ...

where the X^i matrices denote three blocks of explanatory variables. The first block is comprised of indicators of funding conditions and bank health, and is the primary focus of the analysis (Graph 3). This block includes the spread between three-month US dollar Libor and the three-month US Treasury rate (TED spread), an increase in which is thought to signal funding pressures in the interbank market. This block also includes bank health indicators *specific* to each national banking system *j*: banks' equity returns,[10] banks' average expected default frequencies (EDFs) and the volatility of the market value of banks' assets.[11] A rise in EDFs or asset volatility, or a drop in equity returns, would indicate a perceived deterioration in banks' health and is expected to be associated with slower credit growth to emerging markets.

... macroeconomic controls ...

The second block contains a set of *control* variables that capture country-specific macroeconomic conditions. It includes real GDP growth rates (current and lagged) for both the banking system's home country and the borrower country, and the (current and lagged) percentage change in the borrower country exchange rate against the US dollar. The block also includes a one-period lag of the *overall* rate of foreign bank participation in the borrower country as a measure of banking system openness ("FBP overall" in Table 1).

... and measures of bilateral linkages

The third block contains a set of controls to capture bilateral characteristics that could have an effect on credit growth. It includes the real short-term interest rate differential, an increase in which would signal a rise in the relative rate of return on investment in emerging markets. In addition, it includes the growth in the banking system's home country's exports to and imports from the borrower country, which are expected to enter with a positive sign, as well as the banking system-specific foreign bank participation rate in

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[9] The consolidated banking statistics were reported semiannually until 1999, and quarterly thereafter. Non-overlapping semiannual growth rates are used in the empirical analysis. These are calculated based on outstanding stocks of claims which have been booked in various currencies but reported in US dollars (converted using contemporaneous exchange rates). Thus, the growth rate of claims is affected by movements in exchange rates.

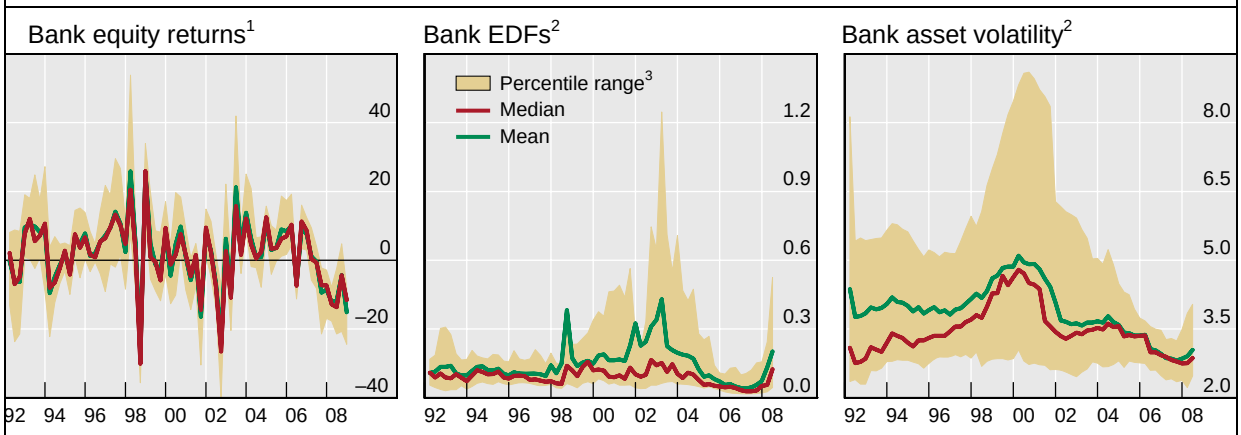
[10] The "banking sector" sub-index (or closest equivalent) of the major stock market index for each reporting country is used to measure banks' equity returns. For some countries, this is supplemented with stock price data for individual banks headquartered in that country.

[11] Estimates of banks' EDFs and asset volatility are from Moody's KMV. Bank-level figures are averaged to generate time-varying health measures for each banking system. Only data for large internationally active banks are used.

borrower country *k* ("FBP specific" in Table 1). All else equal, claim growth should be higher vis-à-vis countries with more open financial systems, as

Measures of banking system health

In per cent



Countries included in the calculation are: Austria, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Spain, Switzerland, Sweden, the United Kingdom and the United States.

[1] Total equity returns (quarterly) on the banking sector sub-index of the major equity index for each country combined with equity price data for the largest banks headquartered in some of the countries listed above. [2] Based on quarterly data for the largest banks headquartered in each of the countries listed above. [3] The range between the 10th and 90th percentiles of a particular measure in a given quarter.

Sources: Bloomberg; Moody's KMV; BIS calculations. Graph 3

captured by the *overall* foreign bank participation rate mentioned above. However, individual banking systems which account for a larger share of total credit to non-banks in a particular borrower country *k* may find it difficult to further expand their presence. If so, the banking system-specific rate of participation should enter the regression with a negative sign.

Data availability places some restrictions on the size and dimension of the panel data used in the analysis. The sample is unbalanced in the sense that not all data are available for all borrower countries and banking systems for the first half of the 1990s. The estimates presented below are based on a sample covering the period from Q1 1992 (or earliest available for each creditor-borrower pair) through Q2 2007, which excludes the recent period of financial crisis. Only those creditor-borrower pairs where total foreign claims exceed $1 billion at least once during the sample period are retained, leaving a panel of 13 banking systems and 19 emerging markets. Many growth rate observations are extremely large, primarily due to bank mergers or to new institutions entering the reporting population of banks, both of which can lead to sudden jumps in the outstanding stock of claims vis-à-vis particular countries. To address this, a dummy variable which equals one for any growth rate above the 95th percentile in the pooled sample is used as a control, and the growth rate is censored at the 95th percentile.[12]

[12] The inclusion of this dummy significantly increases the regression fit since much of the overall variance in the dependent variable is contained in these observations. All the regression specifications in Table 1 were re-run excluding these observations, and the estimated coefficients on the variables of interest changed little.

The broad bank health measures used here, and the fact that claims on emerging markets represent a relatively small part of the overall balance sheet for many banking systems, suggest that many types of shocks to bank health are exogenous from the perspective of individual borrower countries. Nonetheless, several estimation techniques are used to address potential endogeneity problems. Specifically, the above model is first estimated using ordinary least squares with various combinations of current and one-period lagged values of the explanatory variables, and then using instrumental variables regressions, taking one-period lags as instruments.

Empirical results

Claim growth reflects funding conditions ...

Consistent with the World Bank (2008) study, tensions in the global interbank market, as captured by increases in the TED spread, are associated with lower claim growth. The estimated coefficients on this variable are statistically significant and stable when the dependent variable is international claims (Table 1, columns 1–6). The coefficient estimates from model 6 suggest that a 10 basis point increase in the TED spread would lead to a roughly 1 percentage point reduction in the semiannual growth rate of international claims.

... bank health ...

The coefficients on the bank health indicators are of the expected sign and are statistically significant when international claims is the dependent variable. Higher bank equity returns and lower EDFs are associated with higher growth rates, and the statistical significance and magnitude of the coefficients change little across specifications. Model 6 implies that a rise of one standard deviation (roughly 30 basis points in the pooled sample) in banks' EDFs is associated with a 3 percentage point decrease in the semiannual growth rate of international claims. Similarly, a one standard deviation rise in banks' equity returns (roughly 17 percentage points) is associated with an 8.5 percentage point increase in the semiannual growth rate. In contrast to international claims, the coefficients on these regressors are statistically insignificant when the growth in local-in-local claims is used as the dependent variable.

... and measures of openness of the borrower country

The foreign bank participation rates also enter the regressions with the expected signs, and are generally statistically significant. Emerging markets with more open banking systems experience higher rates of growth in international claims, as evidenced by the positive coefficient on the overall rate of foreign bank participation in each borrower country (FBP overall). However, the negative coefficient on the banking system-specific participation rate (FBP specific) suggests that growth in credit from individual banking systems slows as their presence in the borrower country increases.

Other explanatory variables are (in some specifications) also important for both international and local-in-local claims. All else equal, a larger interest rate differential between the parent and borrower countries is associated with higher claims growth. In contrast, the measures of bilateral trade linkages generally do not enter significantly.

Bank health and lending to emerging markets[1]

Sample period: Q1 1992 or earliest available for each country and banking system until Q2 2007

	International claims[2]						Local-in-local claims[2]	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 5	Model 6
TED spread	–0.0017***	–0.0011***	–0.0012***	–0.0011***	–0.0011***	–0.0008*	–0.0009	–0.0008
Bank equity returns	0.88***		0.55*	0.53*	0.52*	0.50*	0.32	0.66
Bank EDF		–9.60***	–9.37***	–9.60***	–9.68***	–9.98***	2.41	0.82
Bank asset volatility			–98.08	–99.52	–100.64	–129.38**	–213.66	–159.03
GDP growth (creditor)	–0.34	0.18	–0.35	–0.37	–0.37	–0.40	–0.28	–0.90
Lag GDP growth (creditor)	0.60*	–0.12	0.35	0.30	0.30	0.30	1.37***	1.69***
GDP growth (borrower)	0.28***	0.32***	0.29***	0.30***	0.30***	0.21***	0.43***	0.30**
Lag GDP growth (borrower)	0.01	0.18***	0.05	0.06	0.06	0.10	–0.29*	–0.24
Lag FBP overall				0.05	0.06*	0.07**	–0.11**	–0.10*
Lag FBP specific					–0.14	–0.26***	–0.15**	–0.11
Exchange rate change						–0.09***		–0.10***
Lag exchange rate change						0.00		0.06*
Real interest rate differential						0.01***		0.01***
Lag real interest rate differential						0.002		–0.001
Growth in imports						–0.01		0.01
Lag growth in imports						–0.01		0.02
Growth in exports						0.00		0.05
Lag growth in exports						–0.01		–0.01
R-squared	0.09	0.30	0.23	0.24	0.24	0.26	0.46	0.45
Number of obs	5,527	5,588	5,527	5,527	5,527	5,288	3,944	3,716

[1] One, two and three asterisks denote statistical significance at the 10%, 5% and 1% level, respectively. The TED spread, bank equity returns, bank EDFs and bank asset volatility are contemporaneous, but are instrumented with one-period lags. Regressions also include a lagged dependent variable, a full set of banking system dummies, borrower country dummies, a dummy for the first half of the year and dummy variables to capture bank mergers for three banking systems. The dependent variables are censored at the 95th percentile in the pooled sample, and each regression includes a dummy which is set to one when the censoring occurs. These dummies significantly increase the regression fit. [2] Semiannual growth rates.

Table 1

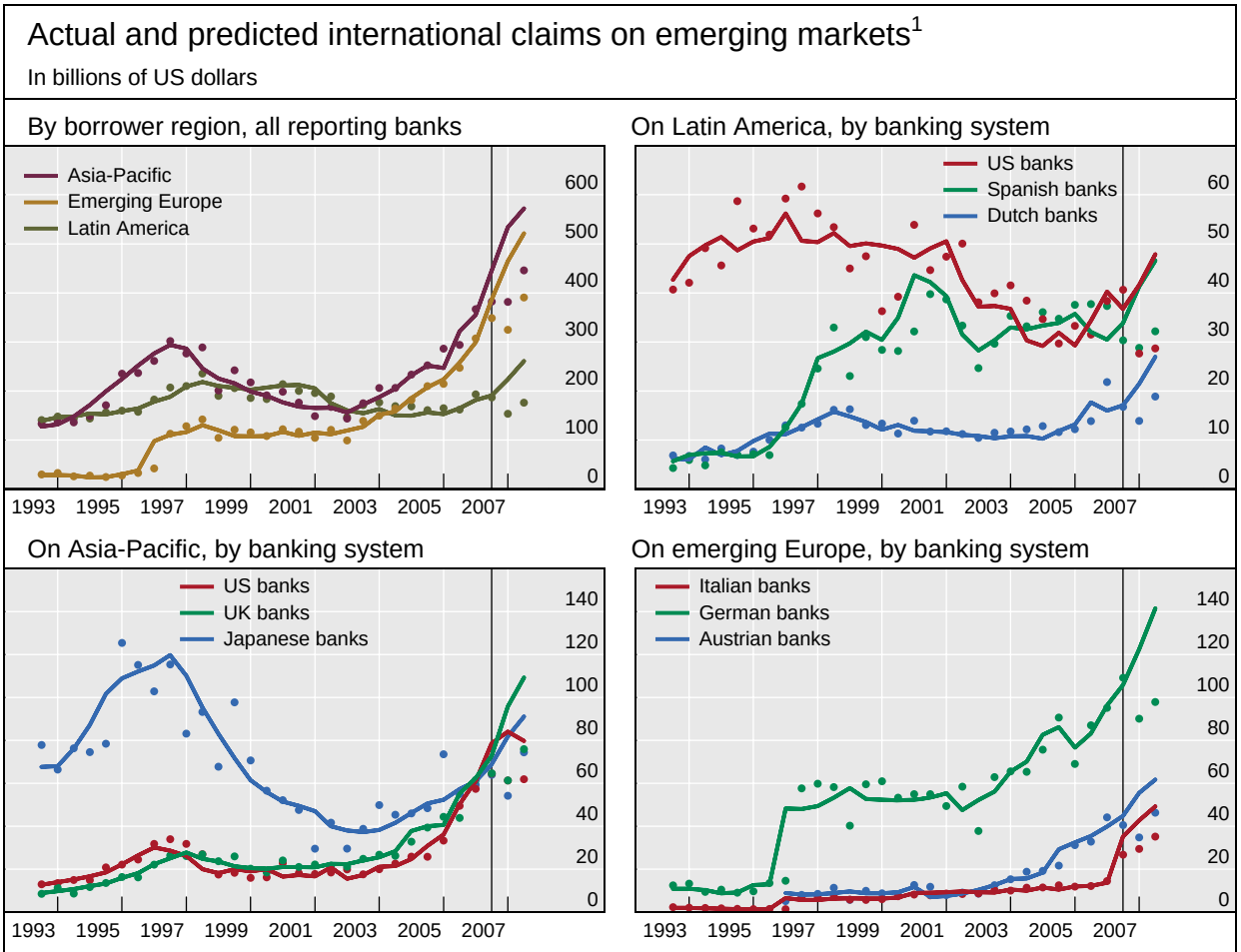
Lending to emerging markets during the crisis

Credit to emerging markets remained robust through mid-2008 ...

How well has bank credit to emerging markets held up during the recent period of financial crisis? Out-of-sample analysis on the basis of the panel regression coefficients reported in Table 1 can help answer this question. Specifically, the coefficients from model 6 are used to generate predicted growth rates both in- and out-of-sample, which are applied to the actual outstanding stock of international claims in the previous period. The results of this exercise are presented in the upper left-hand panel of Graph 4, where the solid lines show the actual level of international claims, and the dots of the same colour indicate their predicted level. In short, the two out-of-sample estimates (to the right of the vertical line) lie below the level of realised international claims for each of the emerging market regions, suggesting that credit to emerging markets has held up better than historical statistical relationships would imply.

Actual and predicted international claims on emerging markets[1]

In billions of US dollars



[1] Solid lines depict the actual stock of international claims, while dots show the stock predicted by applying the growth rates implied by model 6 in Table 1 to the previous period's stock of actual international claims. The coefficient estimates in this model are based on data through the first half of 2007, indicated by the vertical black line in each panel. The upper left-hand panel shows the actual and predicted stock of international claims on each region, aggregated across those banking systems and borrower countries included in the sample. The remaining panels indicate the stock of actual and predicted international claims for those banking systems which are the largest lenders to the region in the panel heading. For the purposes of this graph, Latin America includes Argentina, Brazil, Chile, Mexico and Venezuela; Asia-Pacific includes China, India, Indonesia, Korea, Malaysia, the Philippines and Thailand; and emerging Europe includes the Czech Republic, Hungary, Poland, Russia and Turkey.

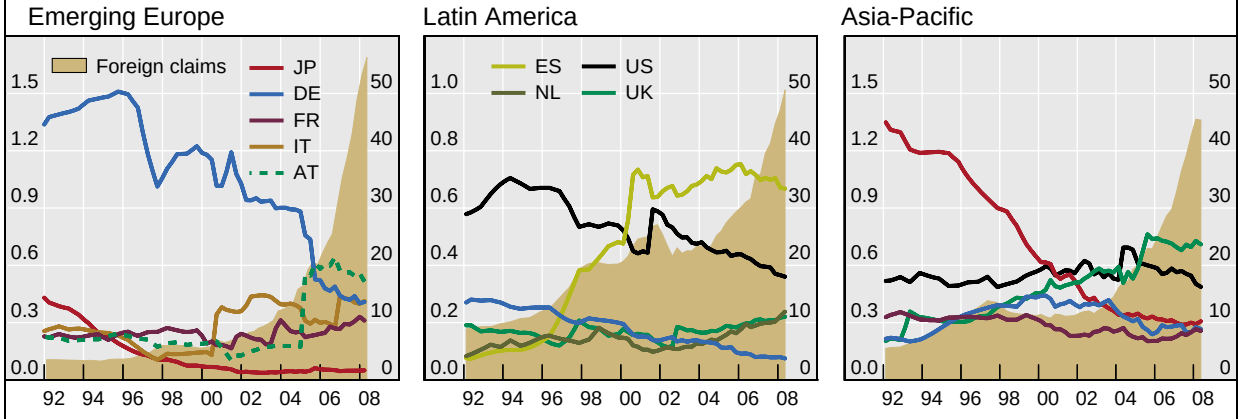
Sources: BIS calculations. Graph 4

The banking systems which drive credit growth in a particular emerging market region differ significantly across regions (Graph 5). For example, Spanish and US banks are the largest foreign banks in Latin America, while Austrian, German and Italian banks are dominant in emerging Europe. Thus, one might expect that regions are affected differently by external shocks to bank health, depending on which banking systems are affected and dominant in a particular region. The remaining three panels of Graph 4 show banking system-specific actual and predicted international claims on each region. Again, the results show that credit growth has remained more robust than might have been expected.

... but signs of a slowdown have emerged

That said, growth in international claims to emerging markets has already started to slow for several key banking systems. For example, the year-on-year growth in all BIS reporting banks' international claims on all emerging markets peaked at 34% in the second quarter of 2007, but subsequently dropped to 23% by the second quarter of 2008. While many banking systems reported a fall in growth rates, those of Austrian, Canadian, US and French banks decreased the most, but remained positive in each case. Data on signings of syndicated and bilateral international loans from Dealogic, available at a higher frequency and with a shorter lag, provide some evidence on lending activity through October 2008. As shown in Graph 6, the volume of signings of international loans to borrowers in emerging markets remained relatively robust during much of the crisis period, but has shown some signs, albeit tentative, of a slowdown in recent months.

Key creditors to emerging markets[1]



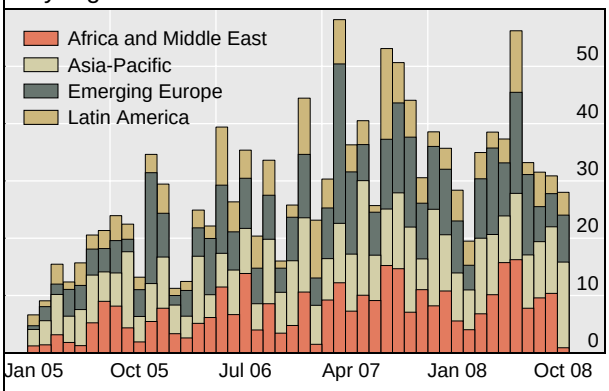
AT = Austrian banks; DE = German banks; ES = Spanish banks; FR = French banks; IT = Italian banks; JP = Japanese banks; NL = Dutch banks; UK = UK banks; US = US banks.

[1] Shaded area (lhs) plots total consolidated foreign claims (immediate borrower basis) on each emerging market region; in trillions of US dollars. Foreign claims include loans, debt and equity securities claims, but exclude contingent exposures such as credit commitments and guarantees. Lines (rhs) plot the share of total foreign claims on a particular region accounted for by banks headquartered in the countries shown in the legends; in per cent.

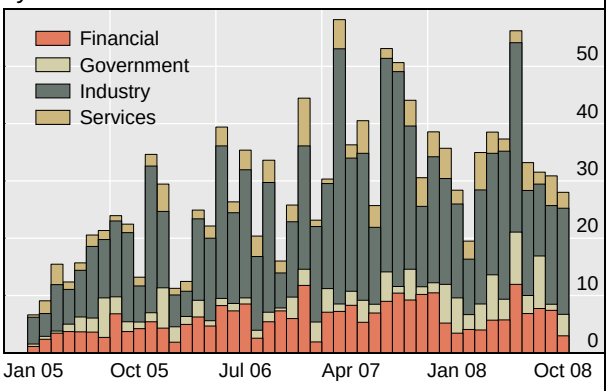
Source: BIS consolidated banking statistics. Graph 5

Signings of international loans to emerging markets[1]

By region



By sector



[1] Includes syndicated and bilateral loans. In billions of US dollars.

Source: Dealogic.

Graph 6

Conclusion

The results in this article point to a clear longer-term link between measures of bank health and the growth in foreign bank credit to emerging markets. Panel regression analysis indicates that, in the past, negative shocks to bank health were associated with slowdowns in credit growth. Despite the severity of the financial crisis, lending to emerging markets has held up relatively well through mid-2008, with lower but generally still positive growth rates. Whether the fundamental relationship between bank health and credit growth implied by the empirical model has changed in the most recent period of turmoil, or whether the deterioration in bank health will induce larger contractions in bank credit to emerging markets in the future, remains to be seen.

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