

Determinants of international bank lending to emerging market countries

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Outline

- Trends in international bank lending
- “Push” and “pull” framework
- Economic cycles and lending
- Carry trades, exchange rate regimes, and bank flows
- Inter- and intra-regional effects

International bank lending to emerging economies

- Expansion of lending during the 1990s followed by a sharp retrenchment after the Asian crisis
- The most volatile component of international capital flows
- Diminished relative importance in the structure of international capital flows compared to the 1980s

3

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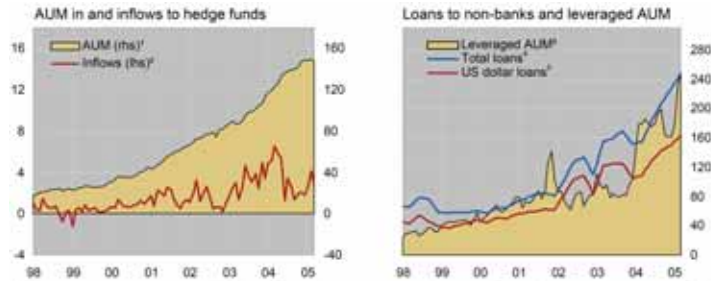
Recent trends

- High expansion of lending to hedge funds and other investment funds;
- High consolidation in banking industry at a global level: increase of claims in local currency;

4

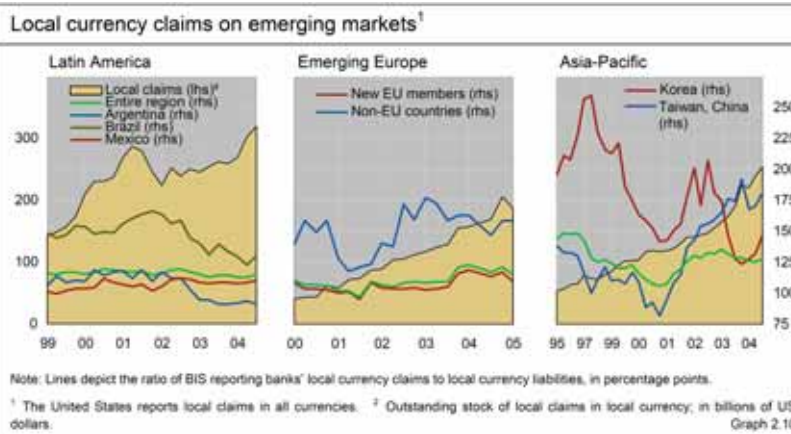
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Lending to hedge funds



¹ Total assets under management (AUM) of 1,175 hedge funds legally domiciled in the Cayman Islands, as listed in the Hedge Fund Research (HFR) database. ² Estimated net inflows into hedge funds legally domiciled in the Cayman Islands. Funds that disappear from the HFR database are assumed to have stopped reporting, and thus are not included in the calculation of net inflows in the month in which they disappear. ³ The estimate of leveraged AUM is based on the procedure detailed in P. McGuire, E. Remolona and K. Tsatsaronis, "Time-varying exposures and leverage in hedge funds", BIS Quarterly Review, March 2005. Leverage is estimated separately for different families of hedge funds by regressing hedge fund returns on a variety of market-based risk factors using a 24-month rolling regression window. This measure is a rough indicator of both on-balance sheet leverage (through debt) and instrument leverage (such as through derivatives), and cannot differentiate between the two. Leveraged AUM for a particular family is the product of total AUM (average over the 24-month window) and the estimate of leverage. Total leveraged AUM is the sum across families. ⁴ Cross-border loans of BIS reporting banks (excluding banks in Japan) in all currencies to non-banks in the Cayman Islands. ⁵ Cross-border US dollar-denominated loans of BIS reporting banks (excluding banks in Japan) to non-banks in the Cayman Islands.

Local currency claims



Note: Lines depict the ratio of BIS reporting banks' local currency claims to local currency liabilities, in percentage points.
¹ The United States reports local claims in all currencies. ² Outstanding stock of local claims in local currency, in billions of US dollars. Graph 2.10

The BIS data on international bank lending

- They are compiled from creditor's side in a consistent way (IMF balance of payments data are compiled from debtors' reports)
- Two types of data collection: *locational statistics* and *consolidated statistics*

7

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BIS *locational* international banking statistics

- Quarterly data on the gross international financial claims and liabilities of banks **resident** in a given country
- Information about international exposure of financial centers
- Breakdown by currency composition and type of borrowers

8

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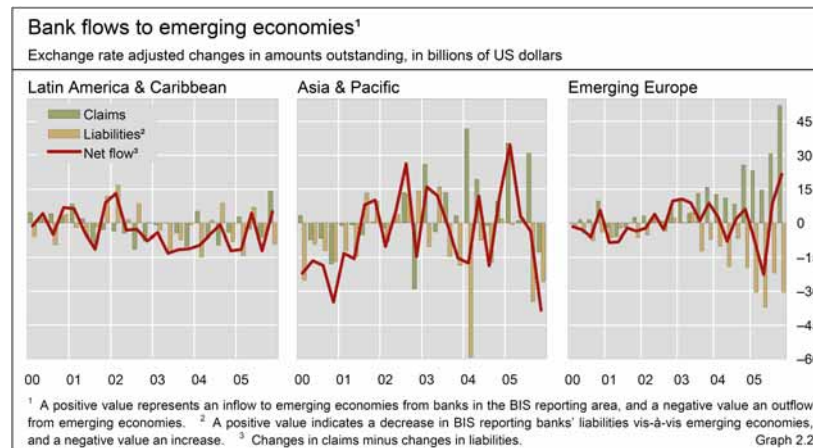
BIS consolidated international banking statistics

- Show the **maturity** and the **sectoral** distribution of banks' international claims according to the **country of origin** of those claims (the location of the head office)
- Provide a measure of country risk exposure of national banking systems

9

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Recent trends in international bank lending



10

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Patterns in international bank lending: cultural and proximity factor

- German-owned banks tend to lend more to Russia and Eastern Europe
- US and Spanish banks expanded their lending predominantly to Latin America
- French banks have a preference in lending to African countries
- Japanese banks lend more to the Asia-Pacific region

“Push” and “pull” framework

- “Push” factors are those deemed to be outside the control of a typical borrowing country (structural and cyclical conditions in lending countries)
- “Pull” factors are related to economic policies, macroeconomic performance, investment opportunities and institutional systems of borrowing countries

Push factors

- Business cycles in lending countries
- "Excess liquidity" in the major lending countries
- Risk attitude of international investors
- Changes in banking regulation

Pull factors

- Cyclical conditions in emerging market countries
- Exchange rate regimes
- Stock market trends

Some empirical findings

Determinants of aggregate international bank lending

Dependent variable: aggregate total bank flows of all lenders to each borrowing country

Explanatory factors	Coefficient	t-stat	Significance level
Real GDP cycles in lending countries	0.09	2.21	0.03
Real short-term interest rates in lending countries	0.27	3.68	0.00
Indicator of risk aversion ¹	-0.24	-4.84	0.00
Bilateral trade	0.20	2.71	0.01
Real GDP cycles in emerging economies	0.11	2.92	0.00
Bilateral exchange rate volatility ²	-0.12	-2.71	0.01
Brady operations	-0.28	-5.55	0.00
Ratio of external debt to GDP in emerging economies	-0.05	-1.27	0.21
IFC total return index in emerging economies	0.30	5.74	0.00

¹ Spread between the yield on BBB-rated corporate bonds and that on US Treasury securities. ² First lag of the variance of the bilateral exchange rate. The adjusted R-squared for this regression is 0.28 and the Durbin-Watson test is 1.82.

Economic cycle and international lending

- US banks tend to have a counter-cyclical lending pattern;
- European and Japanese banks are pro-cyclical;
- US banks appear to be less sensitive to risk aversion than European and Japanese banks (possibly because of more diversified portfolios);

Determinants of US banks lending

Determinants of US international bank lending

Dependent variable: total lending flows of US banks to each borrowing country

Explanatory factors	Coefficient	t-stat	Significance level
US real GDP cycles	-0.11	-2.40	0.02
US real short-term interest rates	-0.22	-4.12	0.00
Indicator of risk aversion ¹	0.00	0.05	0.96
Bilateral trade	0.01	0.17	0.86
Real GDP cycles in emerging economies	0.10	2.80	0.01
Bilateral exchange rate volatility ²	-0.06	-1.46	0.15
Brady operations	0.18	4.27	0.00
Ratio of external debt to GDP in emerging economies	-0.13	-2.61	0.01
IFC total return index in emerging economies	0.14	3.11	0.00

¹ Spread between the yield on BBB-rated corporate bonds and that on US Treasury securities. ² First lag of the variance of the bilateral exchange rate. The adjusted R-squared for this regression is 0.20 and the Durbin-Watson test is 1.98.

Determinants of European banks lending

Determinants of euro area international bank lending

Dependent variable: total lending flows of euro area banks to each borrowing country

Explanatory factors	Coefficient	t-stat	Significance level
Euro area real GDP cycles	0.06	1.07	0.29
Euro area real short-term interest rates	0.25	3.20	0.00
Indicator of risk aversion ¹	-0.16	-2.81	0.01
Bilateral trade	0.13	1.72	0.09
Real GDP cycles in emerging economies	0.17	4.41	0.00
Bilateral exchange rate volatility ²	-0.06	-1.24	0.22
Brady operations	-0.17	-3.21	0.00
Ratio of external debt to GDP in emerging economies	0.07	1.63	0.10
IFC total return index in emerging economies	0.32	5.80	0.00

¹ Spread between the yield on BBB-rated corporate bonds and that on US Treasury securities. ² First lag of the variance of the bilateral exchange rate. The adjusted R-squared for this regression is 0.22 and the Durbin-Watson test is 2.04.

Determinants of Japanese banks lending

Determinants of Japanese international bank lending

Dependent variable: total lending flows of Japanese banks to each borrowing country

Explanatory factors	Coefficient	t-stat	Significance level
Japanese real GDP cycles	0.21	4.27	0.00
Japanese real short-term interest rates	0.25	4.13	0.00
Indicator of risk aversion ¹	-0.21	-3.79	0.00
Bilateral trade	0.00	0.08	0.94
Real GDP cycles in emerging economies	0.03	0.89	0.37
Bilateral exchange rate volatility ²	-0.03	-0.72	0.47
Brady operations	-0.71	-19.99	0.00
Ratio of external debt to GDP in emerging economies	-0.02	-0.41	0.68
IFC total return index in emerging economies	0.17	3.88	0.00

¹ Spread between the yield on BBB-rated corporate bonds and that on US Treasury securities. ² First lag of the variance of the bilateral exchange rate. The adjusted R-squared for this regression is 0.37 and the Durbin-Watson test is 1.75.

Carry trades, bank lending and exchange rate regimes

- Carry trades stimulate bank lending to emerging economies;
- Bipolar exchange rate regimes undermine the credibility of a carry trade strategy;
- Tightly managed and intermediate exchange rate regimes foster international bank lending;

Fixed exchange rate regimes and international lending

Impact of fixed exchange rate regimes on aggregate international bank lending

Dependent variable: aggregate total bank flows of all lenders to each borrowing country

Explanatory factors	Coefficient	t-stat	Significance level
Real GDP cycles in lending countries	0.07	1.52	0.13
Real short-term interest rates in lending countries	0.27	3.31	0.00
Indicator of risk aversion ¹	-0.25	-4.64	0.00
Bilateral trade	0.19	2.38	0.02
Real GDP cycles in emerging economies	0.14	3.72	0.00
Brady operations	-0.26	-5.15	0.00
Ratio of external debt to GDP in emerging economies	-0.05	-1.24	0.22
IFC total return index in emerging economies	0.29	5.32	0.00
Interest rate differential	0.00	-0.10	0.92
Dummy for fixed exchange rate regime	0.09	2.31	0.02
Carry trade variable	-0.02	-0.59	0.55

¹ Spread between the yield on BBB-rated corporate bonds and that on US Treasury securities.

Intermediate exchange rate regimes and international lending

Impact of intermediate exchange rate regimes on aggregate international bank lending

Dependent variable: aggregate total bank flows of all lenders to each borrowing country

Explanatory factors	Coefficient	t-stat	Significance level
Real GDP cycles in lending countries	0.08	1.97	0.05
Real short-term interest rates in lending countries	0.23	3.00	0.00
Indicator of risk aversion ¹	-0.23	-4.62	0.00
Bilateral trade	0.12	1.67	0.10
Real GDP cycles in emerging economies	0.15	4.23	0.00
Brady operations	-0.27	-5.57	0.00
Ratio of external debt to GDP in emerging economies	-0.06	-1.49	0.14
IFC total return index in emerging economies	0.34	6.58	0.00
Interest rate differential	0.01	0.21	0.84
Dummy for intermediate exchange rate regime	0.08	1.96	0.05
Carry trade variable	0.09	2.40	0.02

¹ Spread between the yield on BBB-rated corporate bonds and that on US Treasury securities.

Floating exchange rate regimes and international lending

Impact of floating exchange rate regimes on aggregate international bank lending

Dependent variable: aggregate total bank flows of all lenders to each borrowing country

Explanatory factors	Coefficient	t-stat	Significance level
Real GDP cycles in lending countries	0.07	1.92	0.06
Real short-term interest rates in lending countries	0.24	3.33	0.00
Indicator of risk aversion ¹	-0.23	-4.82	0.00
Bilateral trade	0.15	2.18	0.03
Real GDP cycles in emerging economies	0.13	3.96	0.00
Brady operations	-0.29	-5.78	0.00
Ratio of external debt to GDP in emerging economies	-0.03	-0.91	0.36
IFC total return index in emerging economies	0.32	6.50	0.00
Interest rate differential	0.04	1.10	0.27
Dummy for floating exchange rate regime	-0.19	-4.81	0.00
Carry trade variable	-0.05	-2.06	0.04

¹ Spread between the yield on BBB-rated corporate bonds and that on US Treasury securities.

Inter- and intra-regional lending patterns

- Emerging markets are usually in the same “risk budget” in normal periods;
- Signs of inter-regional “lending diversion” in times of stress;
- Possibility of inter-regional hedging strategies;

Inter and intra-regional patterns in “normal” times

Regional spin-offs and diversion effects during non-crisis periods

Dependent variables: lending flows of all lenders to each borrowing country

Countries	Regional spin-offs variable ¹			Diversion effect variable ²			Adjusted R-squared
	Coefficient	t-stat	Prob.	Coefficient	t-stat	Prob.	
Argentina	0.11	4.18	0.00	0.01	0.24	0.81	0.02
Brazil	0.13	3.80	0.00	0.49	7.45	0.00	0.16
Chile	0.08	2.27	0.03	0.14	1.72	0.09	0.04
Mexico	0.31	6.08	0.00	0.05	0.50	0.62	0.11
Venezuela	0.18	3.60	0.00	-0.30	-2.81	0.01	0.03
Indonesia	0.36	2.27	0.03	0.16	2.00	0.05	0.15
Korea	0.63	7.33	0.00	0.04	0.99	0.32	0.27
Malaysia	0.08	0.97	0.33	0.11	2.77	0.01	0.05
Philippines	0.57	2.69	0.01	0.06	0.73	0.47	0.22
Thailand	0.38	4.19	0.00	0.01	0.12	0.90	0.09

¹ The regional spin-offs variable aims at capturing the bandwagon effect of lending to a given region on lending to a specific country of that region. It is created by aggregating the lending to the region to which a country belongs less the lending to the target country. ² The diversion effect variable is represented by aggregated lending flows to a geographical area other than that of the target country.

Inter- and intra-regional patterns in times of stress

Regional spin-offs and diversion effects during crisis periods

Dependent variables: lending flows of all lenders to each borrowing country

Countries	Regional spin-offs variable ¹			Diversion effect variable ²			Adjusted R-squared
	Coefficient	t-stat	Prob.	Coefficient	t-stat	Prob.	
Argentina	0.11	2.84	0.01	0.04	1.23	0.22	0.01
Brazil	0.03	1.15	0.25	-0.03	-1.40	0.16	0.00
Chile	0.55	7.78	0.00	-0.03	-0.56	0.57	0.19
Mexico	0.03	1.04	0.30	-0.01	-0.28	0.78	0.00
Venezuela	-0.06	-1.26	0.21	-0.19	-4.97	0.00	0.06
Indonesia	0.54	15.65	0.00	0.22	5.11	0.00	0.29
Korea	0.67	16.50	0.00	-0.06	-1.28	0.20	0.49
Malaysia	0.26	4.46	0.00	0.06	0.89	0.37	0.07
Philippines	0.08	1.76	0.08	0.26	4.56	0.00	0.07
Thailand	0.40	14.79	0.00	-0.33	-9.85	0.00	0.30

¹ The regional spin-offs variable aims at capturing the bandwagon effect of lending to a given region on lending to a specific country of that region. It is created by aggregating the lending to the region to which a country belongs less the lending to the target country. ² The diversion effect variable is represented by aggregated lending flows to a geographical area other than that of the target country.

Conclusions

- Both push and pull factors affect international bank lending
- Push factors seem to determine the magnitude of capital flows whereas pull factors influence their geographic distribution

Thank you!