Lectures 4 & 5: Crises in Emerging Markets

L4 (I)  Boom & bust in EM capital flows

   (II) Currency mismatches & currency crashes

L5 (III) Early Warning Indicators

Appendices

   • Goals & instruments when devaluation is contractionary
   • The car crash analogy
Crises in Emerging Markets: Part I

• (I) Boom & bust in EM capital flows
  • I.1 Three cycles
  • I.2 External shocks (*push factors*)
  • I.3 Sudden stops and managing outflows
  • I.4 Contagion
I.1: 3 cycles of capital flows to emerging markets

1. **1975-81** -- Recycling of petrodollars, via bank loans

   **1982**, Aug. -- *International debt crisis* starts in Mexico

2. **1990-96** -- New record capital flows to emerging markets

   1994, Dec. -- Mexican peso crisis

   **1997**, July -- Thailand forced to devalue & seek IMF assistance => beginning of *East Asia crisis* (Indonesia, Malaysia, Korea...)

3. **2003-08** -- New capital flows into EM countries, incl. BRICs...

   2008-09 -- **Global Fin. Crisis**: Iceland; Latvia; Ukraine;

   2010-12 -- **Euro crisis**: Greece, Ireland, Portugal...

   2015-16 -- **Commodities crash**: Ghana, Nigeria, Azerbaijan, Brazil...
3 waves of capital flows to Emerging Markets:

- late 1970s, ended in the intl. debt crisis of 1982-89;
- 1990-97, ended in East Asia crisis of 1997-98;
- and 2003-2008, ended ... perhaps now?
I.2 Push factors

(i) The role of US monetary policy

• Low US real interest rates contributed to EM flows in late 1970s, early 1990s, and early 2000s.

• The Volcker tightening of 1980-82 precipitated the international debt crisis of 1982.

• The Fed tightening of 1994 helped precipitate the Mexican peso crisis of that year.
  – as predicted by Calvo, Leiderman & Reinhart (1993).

• Will the Fed tightening of Dec. 2015 precipitate new EM crises?
After Fed “taper talk” in May 2013, capital flows to Emerging Markets reversed again.

(ii) Another push factor: “Risk on / risk off”

Capital flows to EMs fall when risk fears (VIX) are high

(↓ in graph)

Kristin Forbes, 2014

http://www.voxeu.org/article/understanding-emerging-market-turmoil

Notes: Data on private capital flows from IMF's IFS database, Dec. 2013. Capital flows are private financial flows to emerging markets and developing economies. Volatility index measured by the Chicago Board's VIX or VXO at end of period. 2013 data are estimates.

1.3 Sudden Stop

≡ sharp disappearance of private capital inflows

Often associated with recession.

[See appendices, incl. car crash analogy]
Alternative Ways of Managing Capital Outflows

A. Allow money to flow out (but can cause recession, or even banking failures)

B. Sterilized intervention (but can be difficult, & only prolongs the problem)

C. Allow currency to depreciate (but inflationary)

D. Reimpose capital controls (but probably not very effective)
1.4 Contagion

The Global Financial Crisis was quickly transmitted to emerging markets in September 2008.
Categories/Causes of Contagion

• “Monsoonal effects” (Masson, 1999): Common external shocks
  • E.g., US interest rates ↑ or ρV↑
  • world recession, or
  • $ commodity prices ↓ …

• “Spillover effects”
  • Trade linkages
  • Competitive devaluations
  • Investment linkages

• Pure contagion
  – Stampede of herd
  – Imperfect information (“cascades”)
  – “Wake-up call”: investor perceptions of, e.g., Asian model or odds of bailouts
  – Illiquidity in international financial markets.
(II) Currency mismatches & crashes

• II.1 The unpopularity of devaluation

• II.2 Contractionary effects
  – esp. balance sheet effect

• II.3 Reasons for currency mismatch

• II.4 Did original sin end after 2001?
II.1  Devaluations are unpopular

After a devaluation, heads of state in developing countries lose their jobs...

...in the 1960s, **twice as often** within 1 year of devaluation (30%) as compared to control group (14%)

Richard Cooper (1971).  (Criterion was 10% devaluation)

**Updated to 1971-2003:**

**twice as often** within 6 months of devaluation (43 cases out of 109 = 23%) vs. no-devaluation (12%).

Difference is highly significant statistically at 0.5% level.

(Criterion is 25% devaluation, incl. 10% acceleration, and 3-yr. window.)

Why are devaluations so unpopular?

• The public feels their leaders have misled them?

• Pass-through to import prices & inflation?

• Contractionary impact on the real economy
  – such as via balance sheet effect?
  – Yes, this may be the main reason.

Frankel (2005)
II.2 Contractionary Effects of Devaluation

In the standard model, devaluation raises price competitiveness, thereby boosting TB. Why, then, is devaluation so often associated with loss of GDP?
Are devaluations contractionary?

Empirical evidence

In the 1990s currency crises, devaluations apparently were contractionary due to the balance sheet effect.


- Bebczuk, Galindo & Panizza (2006):
  Devaluation is contractionary only for the fifth of developing countries with \((\text{external $ debt)/GDP} > 84%\); it is expansionary for the rest.

- Cavallo, Kisselev, Perri & Roubini (2002)
The balance sheet effect

In currency crises such as late-90s’, loss in output depends on foreign-denominated debt times real devaluation.

II.3 Why do debtor countries develop currency mismatch, & weak balance sheets?

1. “Original sin:” Investors in rich countries are unwilling to acquire exposure in currencies of developing countries. -- Hausmann (1999)

2. *Adjustable currency pegs* create a false sense of security: only currency volatility persuades borrowers to avoid unhedged $ liabilities. -- Eichengreen (1999), Velasco (2001)

3. *Moral hazard*: borrowing in $ is a way well-connected locals can put the risk onto the government. -- Dooley (2000); Krugman (1999); Wei & Wu (2002)...

4. *Procrastination of adjustment*: when foreign investors suddenly lose enthusiasm, the government postpones adjustment by shifting to short-term & $-denominated debt.
In the months leading up to the Dec. 94 Mexican peso attack, debt composition shifted... from peso-denominated (Cetes) to $-linked (tesobonos)...
…and from longer term to shorter.
II.4: The rise of local-currency debt

“Original sin” turned not to be so entrenched after all: EM borrowers moved from fx-denominated debt to local-currency debt after 2001.

Many developing country governments increasingly borrow in terms of local currency rather than foreign.

Sources: Joint External Debt Hub, Quarterly External Debt Statistics; and IMF staff estimates and projections.

International Monetary Fund, 2014
Warning sign: although currency composition has continued to shift from fx-denomination to local currency in the case of public debt, it has reversed in the case of corporate debt, in some EMs.

(III) Early Warning Indicators
Which countries have withstood shocks well? (pull factors)

- III.1 Pre-GFC studies
  - esp. currency crises of the 1980s & 90s.
  - Top EWIs: reserves, RER...

- III.2 The GFC
  - Lessons learned after 2001
  - Who fared worse in the 2008-09 global shock?

- III.3 The 2013 “taper tantrum”.
III.1 Which EMs are hit the hardest in crises?

• In past studies of past crises, incl. 1982, 1994, & 1997-98,

• Early Warning Indicators that worked well include:
  – Foreign exchange reserves
    • especially relative to short-term debt;
  – Currency overvaluation (i.e., real appreciation);
  – Current account deficits.
  – *Composition* of capital inflows.

• E.g.,
The variables that showed up as significant predictors most often in pre-2008 country crises:

(i) reserves and (ii) currency overvaluation

% of studies where leading indicator was found to be statistically significant
(total studies = 83, covering 1950s-2009)

Source: Frankel & Saravelos (2012)
Many EM countries learned lessons from the crises of the 1990s, which better prepared them to withstand the 2008-09 GFC excl. Europe (periphery and Central & Eastern Europe).

- More flexible exchange rates
- Higher reserve holdings
- Less fx-denominated debt
  - More local-currency debt
  - More equity & FDI
- Fewer Current Account deficits
- Less pro-cyclical fiscal policy.
  - Stronger government budgets in 2003-08 boom.
China, in particular, piled up foreign exchange reserves.

International Reserve Holding as a ratio to GDP

Aizenman, Cheung & Ito (2014)

Note: For the country groups, the group’s aggregate IR is divided by the group’s aggregated GDP.
EM countries used post-2003 inflows to build international reserves


Figure 15: Emerging Market International Reserves
Source: IMF IFS, April 2014, Deutsche Bank Research
Developing Countries Used Capital Inflows to finance CA deficits in 1976-1982 & 1990-97; but not 2003-08.

1st boom (recycling petro-dollars)

stop (international debt crisis)

2nd boom (emerging markets)

stop (Asia crisis)

3rd boom (carry trade & BRICs)

José De Gregorio
Capital Flows and Capital Account Management
IMF

Source: International Monetary Fund, World Economic Outlook. Latin America and developing Asia are simple averages across countries. Latin America: Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela. Developing Asia: China, India, Indonesia, Korea, Malaysia, Philippines and Thailand.
Emerging markets (EME) corresponds to the IMF's weighted average definition.
Best and Worst Performing Countries in Global Financial Crisis of 2008-09 -- F&S (2012), Appendix 4

GDP Change, Q2 2008 to Q2 2009

Top 10
- China
- India
- Morocco
- Egypt, Arab Rep.
- Indonesia
- Jordan
- Sri Lanka
- Argentina
- Poland
- Australia

Bottom 10
- Lithuania
- Latvia
- Ukraine
- Estonia
- Macao, China
- Russian Federation
- Georgia
- Mexico
- Finland
- Turkey

64 countries in sample
Foreign exchange reserves are useful

• One purpose is dampening appreciation in the boom, – thus limiting current account deficits.
• Another is the precautionary motive: Reserves were the best predictor of who got hit in the 2008 Global Financial Crisis.
  • Dominguez, Hashimoto & Ito (2012)
  • Frankel & Saravelos (2012)
  – This was the same Warning Indicator that also had worked most often in studies of earlier crises.
Other predictors (besides fx reserves) of who got into trouble† in 2008-09 GFC

• Current Account
• National Savings
• Bank credit growth, vs. bank reserves
• Short-term debt / exports

† Criteria for “trouble”: loss of GDP, loss of IP, currency market, equity market & need to go to the IMF.

Actual versus Predicted Incidence of 2008-09 Crisis
Frankel & Saravelos (JIE, 2012)
Bottom line for Early Warning Indicators in the 2008-09 crisis

Frankel & Saravelos (2012)

• Once again, the best predictor of who got hit was reserve holdings (especially relative to short-term debt),

• Next-best was the Real Exchange Rate.

• This time, current account & national saving too.

• The reforms that most EMs (except E. Europe) had made after the 1990s apparently paid off.
III.3 The next clean experiment -- Which EM countries were hit the hardest by the “taper tantrum” of May-June 2013?

• Those with big current account deficits,
• or with inflation/exchange rate overvaluation.
• Less evidence that reserves helped this time.

• Recent studies:
Taper talk was followed by greater depreciation among a group of **fragile EMs** than **others**.

www.nber.org/papers/w19980.pdf

“We group emerging markets into those with ‘robust’ fundamentals (current account surpluses, high international reserves and low external debt) and those with ‘fragile’ fundamentals and, intriguingly, find that the stronger group was more adversely exposed to tapering news than the weaker group. News of tapering coming from Chairman Bernanke is associated with much larger exchange rate depreciation, drops in the stock market, and increases in sovereign CDS spreads of the robust group compared with the fragile group. A possible interpretation is that tapering news had less impact on countries that received fewer inflows of funds in the first instance.”
Countries with worse current accounts were hit by greater currency depreciation after May 2013.

Countries with higher inflation rates were hit by greater currency depreciation after May 2013.

Countries with high inflation rates suffered depreciation & bond yield increases, in the year starting May 2013.
Countries hit in April-July, 2013, had experienced real appreciation and big capital inflows.

Countries that held excess fx reserves in 2012 suffered smaller depreciations in 2013, the taper tantrum year.


Currency depreciation (% vs. $) in 2013
Conclusion

• Many EMs learned lessons from the 1980s & 1990s, and by 2008 were in a stronger position to withstand shocks:
  – More flexible exchange rates
  – More fx reserves
  – Less fx-denominated public debt
  – Stronger budget positions
  – Stronger current account positions.

• Some backsliding over 2009-15:
  – Weaker budgets
  – Inflation
  – Current account deficits
  – The return of fx-denominated *private* debt.
Appendices

(1) Goals and instruments when devaluation is contractionary.

(2) The Car Crash Analogy
Appendix (1): Goals & Instruments when devaluation is contractionary

Why were the real effects of the Asia currency crises severe?

- High interest rates raise default probability.
  The IMF may have over-done it – according to Furman & Stiglitz (1998); and Radelet & Sachs (1998);

- Devaluation may be contractionary.

- Possible channels include:
  - real balance effect &
  - balance-sheet effect.
Would some other combination of devaluation vs. monetary contraction in the 1990s crises have better maintained internal and external balance?

Textbook version:

When external balance shifts out, there exists an optimal combination of devaluation and interest rate rise to satisfy the external finance constraint without causing recession.

1998 version:

Apparently there existed no such combination, if reserves had been allowed to run low and $ debt to run high.
Textbook version: there exists a combination of devaluation and interest rate rise that will satisfy external finance constraint without causing recession.
Lesson-of-1998 version:
There may exist no combination that avoids recession, if reserves have already been allowed to run low and dollar debt to run high.
Appendix (2):
The Car Crash Analogy

Sudden stops:
“It’s not the speed that kills, it’s the sudden stops”
– R. Dornbusch

Superhighways:
Modern financial markets get you where you want to go fast, but accidents are bigger, and so more care is required.
– R. Merton
Is it the road or the driver? Even when many countries have accidents in the same stretch of road (Stiglitz), their own policies are also important determinants; it’s not determined just by the system.

Contagion also contributes to multi-car pile-ups.

– L.Summers
Moral hazard -- G7/IMF bailouts that reduce the impact of a given crisis, in the LR undermine the incentive for investors and borrowers to be careful. Like air bags and ambulances.

But to claim that moral hazard means we should abolish the IMF would be like claiming that drivers would be safer with a spike in the center of the steering wheel column. – M.Mussa

Correlation does not imply causation: That the IMF (doctors) are often found at the scene of fatal accidents (crises) does not mean that they cause them.
**Reaction time:** How the driver reacts in the short interval between appearance of the hazard and the moment of impact (speculative attack) influences the outcome. Adjust, rather than procrastinating (by using up reserves and switching to short-term $ debt) – J.Frankel

**Optimal sequence:** A highway off-ramp should not dump high-speed traffic into the center of a village before streets are paved, intersections regulated, and pedestrians learn not to walk in the streets. So a country with a primitive domestic financial system should not necessarily be opened to the full force of international capital flows before domestic reforms & prudential regulation.

=> There may be a role for controls on capital inflow (speed bumps and posted limits). -- Masood Ahmed