The Global Financial Crisis: Explaining Cross-Country Differences in the Output Impact

Pelin Berkmen, Gaston Gelos, Robert Rennhack, and James P. Walsh
Evidence: Growth Revisions

- 2009 Growth
- Consensus Forecasts
- Changes: 4/09 – 4/08
- WEO very similar
What explains differences?

Four Areas We Look At

- Trade Linkages
- Vulnerabilities
- Policies and Policy Frameworks
- Financial Linkages
What explains differences?

Trade Linkages?

- Were manufactures exporters harder hit?
- Little correlation between commodities exports and growth impact
- Asia vs. Europe: both export manufactures but Asia less affected so channel not in manufacturing.
What explains differences?

Vulnerabilities 1: Current account deficits?

- Many of the most affected countries had large deficits
- Mostly countries in EECA
- Asian countries generally in surplus and also less affected.
- LatAm in the middle

![Graph showing current account balance vs. growth revision in percent]
What explains differences?

Vulnerabilities 2: Low reserves?

- Link is weak but in right direction
- Though pattern due to outliers:
  - Baltics and Central Asia had low reserves
  - China had high reserves
- More on this later.
What explains differences?

Policies 1: Exchange Rate Regimes?

- Many of the most affected countries had pegs
- Again, mostly in EECA
- But floaters in all regions much less affected
What explains differences?

Policies 2: Fiscal Imbalances?

- Some linkages between growth revisions and primary gap measure
- Countries with highest gaps (better fiscal positions) performed better
- Remember these were boom times in EMs
What explains differences?

Financial Linkages 1: External borrowing?

- More borrowing from rich countries generally linked to less growth
- But how is borrowing financed?

[Graph showing lending from advanced economies and growth revision, in percent]
What explains differences?

Financial Linkages 2: Leverage?

- Leverage (credit/deposits) closely correlated at all levels
- Countries in all regions with more borrowing had bigger revisions
How can we look at this systematically?

Regressions

- Plain vanilla regressions (no heteroskedasticity)
- Consensus forecast changes:
  - Avg. (Jan-Jun 2009) – Avg. (Jan-Jun 2008)
  - RHS variables generally 2008 values
Regression Results

Broad Lessons: Financial Linkages and Frameworks

- **Financial Linkages** are Most Important Factor
  - Particularly in CEE and Central Asia
- **Policy Frameworks** Much Less Important
  - Exception: Exchange Rate Regime
Regression Results

Broad Lessons: Trade and Vulnerabilities

- **Trade Linkages** important for LICs
  - Less so for EMs
- **Other Vulnerabilities** Also Quite Weak
  - Surprising Result: Reserves
On Inevitability

“Did you try...”

- We tried a lot of variables.

- There’s a list at the end.
Regression Results – Baseline 1

Financial Channel

Leverage

- (credit/deposits)
- important in almost all specifications

Credit growth

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Standard errors in parentheses
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Regression Results – Baseline 2

Exchange Rates

Pegged exchange rate

- Controlling for floats versus fixed not important

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Regression Results – Baseline 3

Europe

EU Dummy significant if included on its own

Interaction term with leverage is important

→ Accession countries were in unique situation before crisis

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Regression Results – Baseline 4

Other Financial Factors

Less important:

- Lending from Adv Econ
- Currency mismatches
- €/$-ization

Disappear w/ leverage

→ Financial channel very important no matter how measured

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How did India do?

- Revision quite low: only 2.2 percent.
- India had relatively low leverage: similar to least affected.
- Floating exchange rate.
- Positive residual:
- Good policies?
Regression Results – Financial Channel

Financial Channel

What works well:

- Leverage and cumulative credit growth

What works less well:

- Mismatches, lending from AE, though still work

Our conclusion:

- Any measure of financial linkages works, but the strongest channel was debt-fueled credit booms
Monetary Policy

What works well:

- Exchange Rate Regime

What works less well:

- Controlling for IT regimes, infl. vol., infl. Levels

Our conclusion:

- Pegs amplified financial channel; other monetary policy risks less important.
Fiscal Policy

What works well:
- Primary gap

What works less well:
- Fiscal balance, size of gov’t
- Public debt but with wrong sign (booms?)

Our conclusion:
- Strong primary gaps are indicator of space for countercyclical policy; too much heterogeneity elsewhere.
Regression Results – Trade Linkages

Using Broader WEO Sample (126 EMs, LICs)

What works well:
- Manuf. exports bad; food exports good

What works less well:
- Openness
- EM dummies

Our conclusion:
- Stronger financial position outweighed trade vulnerabilities for EMs; for LICs trade more important
Regression Results – Vulnerabilities

Current Account Balance

Sometimes matters, sometimes doesn’t.

Our conclusion:

- Size of balance seems to matter less than what is being financed
- Credit boom countries with large CADs more exposed to external shocks
- But credit boom countries are the same as large CAD countries
Regression Results – Vulnerabilities

International Reserves

- High levels of reserves did not seem to help
- Reserves/Debt, Reserves/Exports → No link
- Reserves/GDP → Sometimes associated with less growth

Our conclusion:

- Diminishing marginal returns: maybe little insurance value at such high levels (Blanchard, 2009)
- Maybe they do, but we aren’t measuring correctly
Conclusion

Why were some countries more affected?

- Large amounts of foreign borrowing, with risks multiplied by fixed exchange rates and rapid credit growth.
- Policies offered little insurance from this shock
  - Though these were AE spillovers, not domestic
  - Strong fiscal positions did help
- Trade linkages important for LICs
Did you try...

**TRADE LINKAGES**
- Share of exports to the ES (to exports to the world)
- Share of exports to the US (to exports to the world)
- Total exports to advanced economies as share of GDP
- Total exports to US as share of GDP
- Trade Openness: exports plus imports as share of GDP
- Share of soft commodities in total exports
- Share of manufacturing in total exports
- Growth Partners Change in forecast
- Percentage change in exports of goods and services at current prices
- Percentage change in exports of goods and services at constant prices
- Total exports as a share of GDP at current prices
- Dummy for countries with free trade agreements

**FINANCIAL LINKAGES**
- Total country lending from the US as a share of GDP
- Total country lending to the US as a share of GDP
- Total country lending to advanced economies as a share of GDP
- Domestic credit as a share of GDP
- Demand deposits + term, savings and foreign currency deposits as a share of GDP
- Foreign Assets minus Liabilities as a share of GDP
- Foreign Assets and Liabilities as a share of GDP

**POLICY VARIABLES**
- Central Government Overall Balance to GDP
- General Government primary balance as share of GDP
- Structural balance as a percentage of GDP
- Overall Fiscal Balance
- Primary Gap
- Classification of de facto exchange rate regime
- Dummy for inflation targeter
- General Government total expenditures net lending as a share of GDP

**INSTITUTIONAL VARIABLES**
- Country risk, ranked by composite risk rating
- Country risk, ranked by composite risk rating
- Economical risk
- Economical risk
- Financial risk
- Financial risk
- Political risk
- Political risk
- 2007-2008 Opacity score
- IMD Competitive Index - Central Bank Policy...
- IMD Competitive Index - Management of public finances over the next two years is likely to improve?
- Country policy and institutional assessment rate

**VULNERABILITIES**
- (Remittances Credits / GDP)*100
- (Remittances Net / GDP)*100
- General Government gross debt as a share of GDP
- Stock of reserve assets as a share of GDP
- Share of Advanced Manufacturing in GDP
- Current account balance as a share of GDP
- Nominal exchange rate volatility, measured as the standard deviation of monthly changes in nominal exchange rates
- Nominal effective exchange rate volatility, measured as the standard deviation of monthly changes in the effective exchange rate
- Inflation volatility, measured as the standard deviation of monthly changes in the Consumer Price Index
- Credit Default Swaps - SEN 1YR CDS
- EMBI Global
- Stock of reserve assets (eop) as a share of total external debt
- S&P Foreign currency long term debt
- Government debt to GDP
- Government debt exposed to FX risk
- Government debt exposed to rollover risk (ST debt at remaining maturity)
- Stock of reserve assets (eop) as a share of total exports of goods and services
- Total external debt less stock of reserve assets (eop) as share of GDP
- General Government gross debt less stock of reserve assets as a share of GDP

**OTHER**
- Corruption Perception Index
- Dummy for Advanced Economies
- Dummy for Middle Income Economies
- Overall restrictions index (all asset categories)
- Overall inflow restrictions index (all asset categories)
- Overall outflow restrictions index (all asset categories)
- Transparency of government policymaking.
- Financial market sophistication
- Gross national savings as a share of GDP
- Year-on-year percentage change of Consumer price index, end of period
- Year-on-year percentage change of Consumer price index, average
- Share of food, fuels and mining exports in total exports
- Food, fuels and mining exports as a share of GDP
- Financial Stress Index for advanced economies
- Financial Stress Index for emerging markets
- Financial Stress Index for advanced economies + Financial Stress Index for emerging markets
- Financial Stress index for advanced economies + Financial Stress Index for emerging markets
- Institutional Investors Credit Rating
- Cumulative growth rate between 2007-2009
- Difference in consensus forecast real GDP % change in year 2009 between average Jan-Jun 2008 and Jan-Jun 2009
- Dummy for EU members
- Gross capital formation, at current prices as a share of GDP at current prices
- Gross public fixed capital formation at current prices, as a share of GDP at current prices
- Gross private capital formation at current prices, as a share of GDP at current prices
- Average of real GDP % change in Consensus Forecast in 2006 for the year 2007
- Average of real GDP % change in Consensus Forecast in 2006 and 2007 for the year 2007