

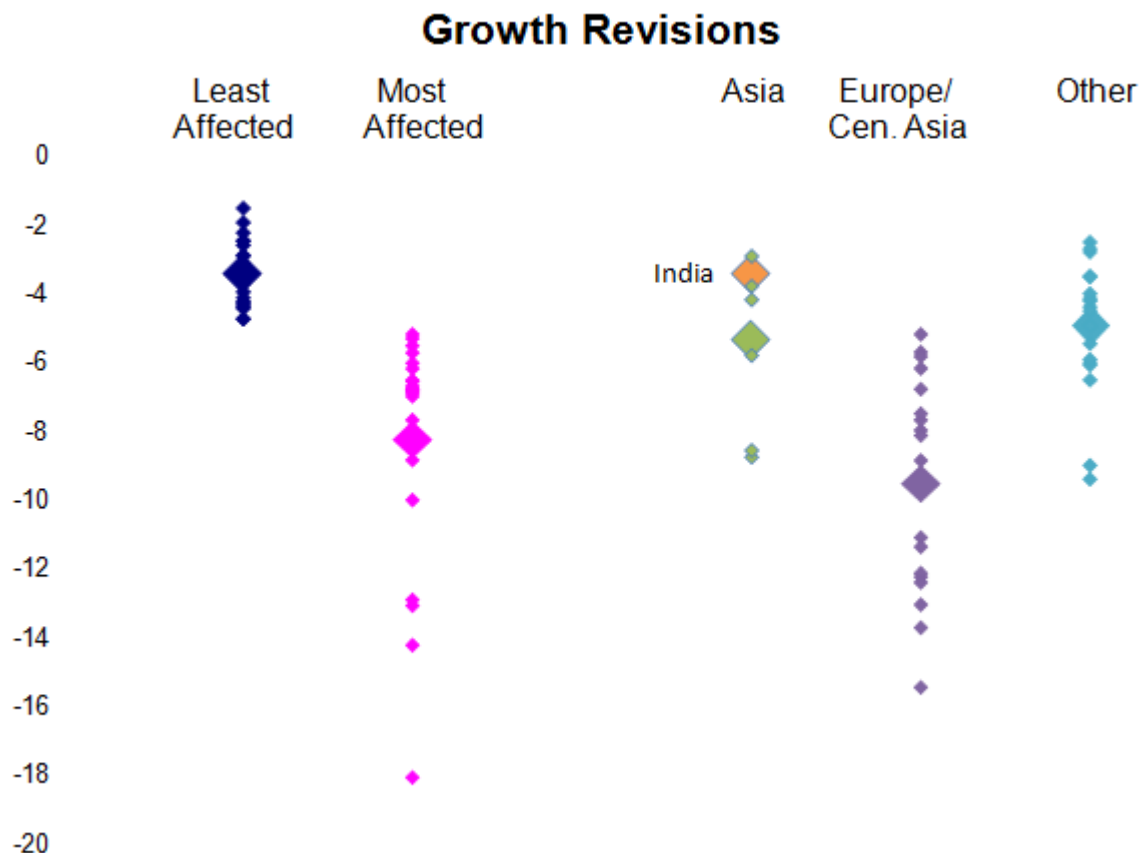
The Global Financial Crisis: Explaining Cross-Country Differences in the Output Impact

*Pelin Berkmen, Gaston Gelos, Robert
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Evidence: Growth Revisions

- **2009 Growth**
- **Consensus Forecasts**
- **Changes: 4/09 – 4/08**
- **WEO very similar**



What explains differences?

Four Areas We Look At

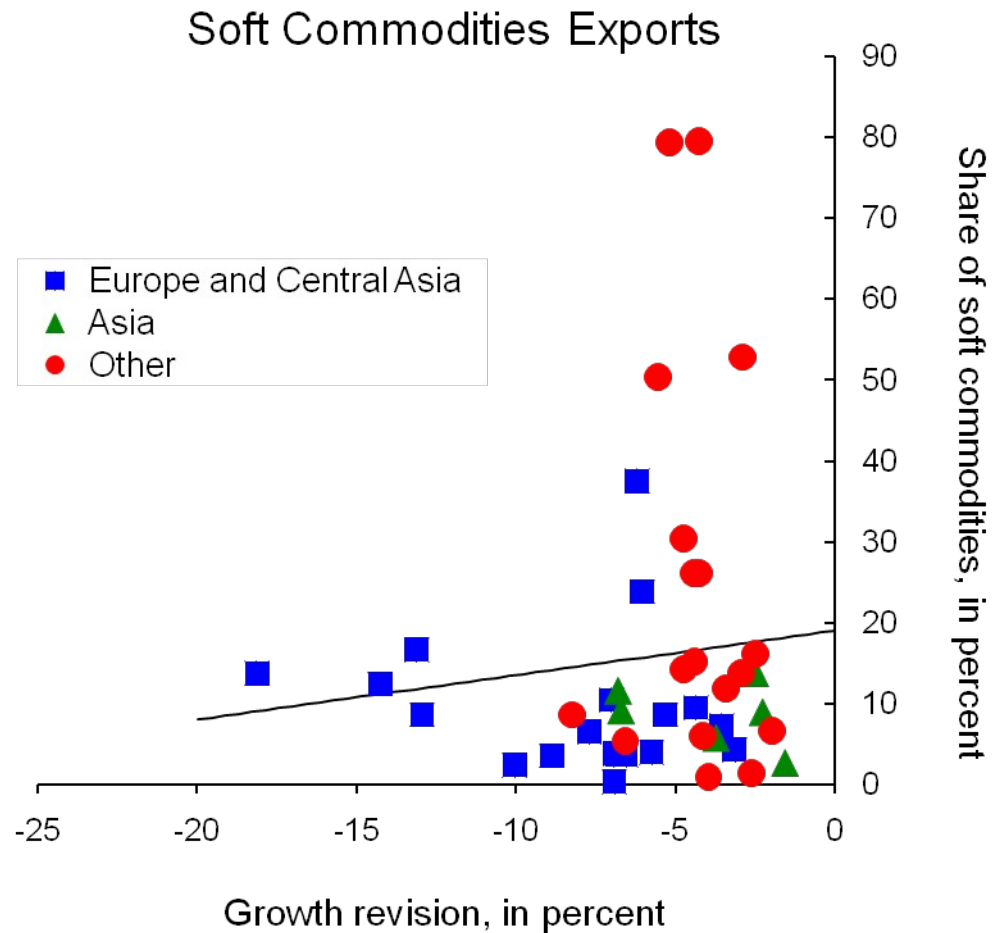
- **Trade Linkages**
- **Vulnerabilities**
- **Policies and Policy Frameworks**
- **Financial Linkages**



What explains differences?

Trade Linkages?

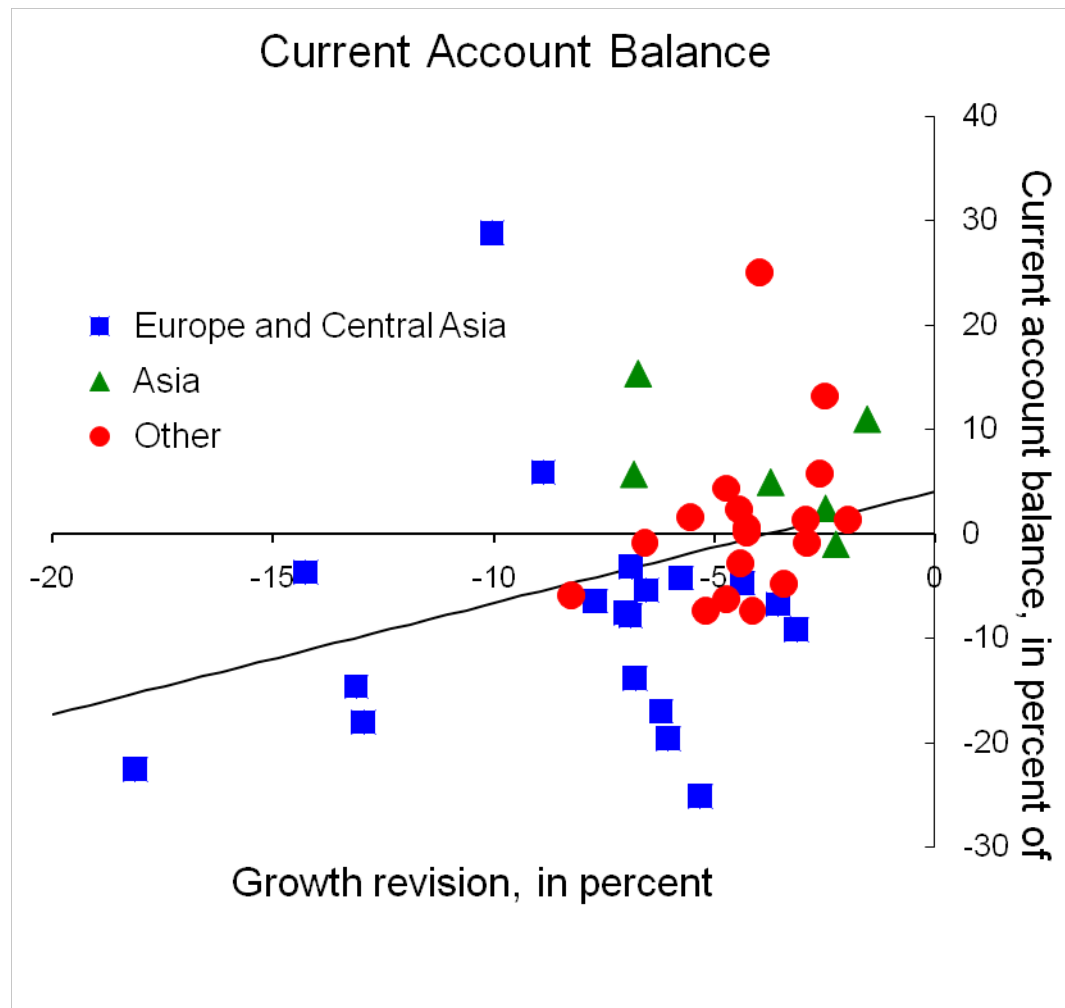
- **Were manufactures exporters harder hit?**
- **Little correlation between commodities exports and growth impact**
- **Asia vs. Europe: both export manufactures but Asia less affected so channel not in manufacturing.**



What explains differences?

Vulnerabilities 1: Current account deficits?

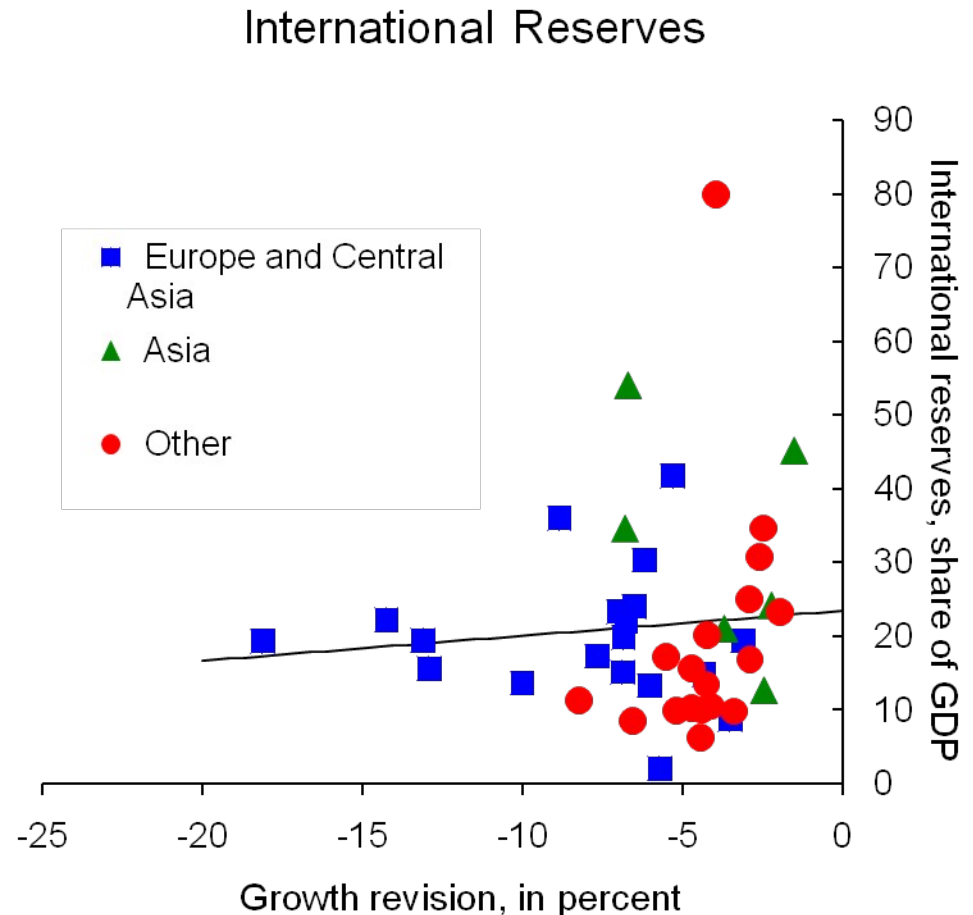
- Many of the most affected countries had large deficits
- Mostly countries in EECA
- Asian countries generally in surplus and also less affected.
- LatAm in the middle



What explains differences?

Vulnerabilities 2: Low reserves?

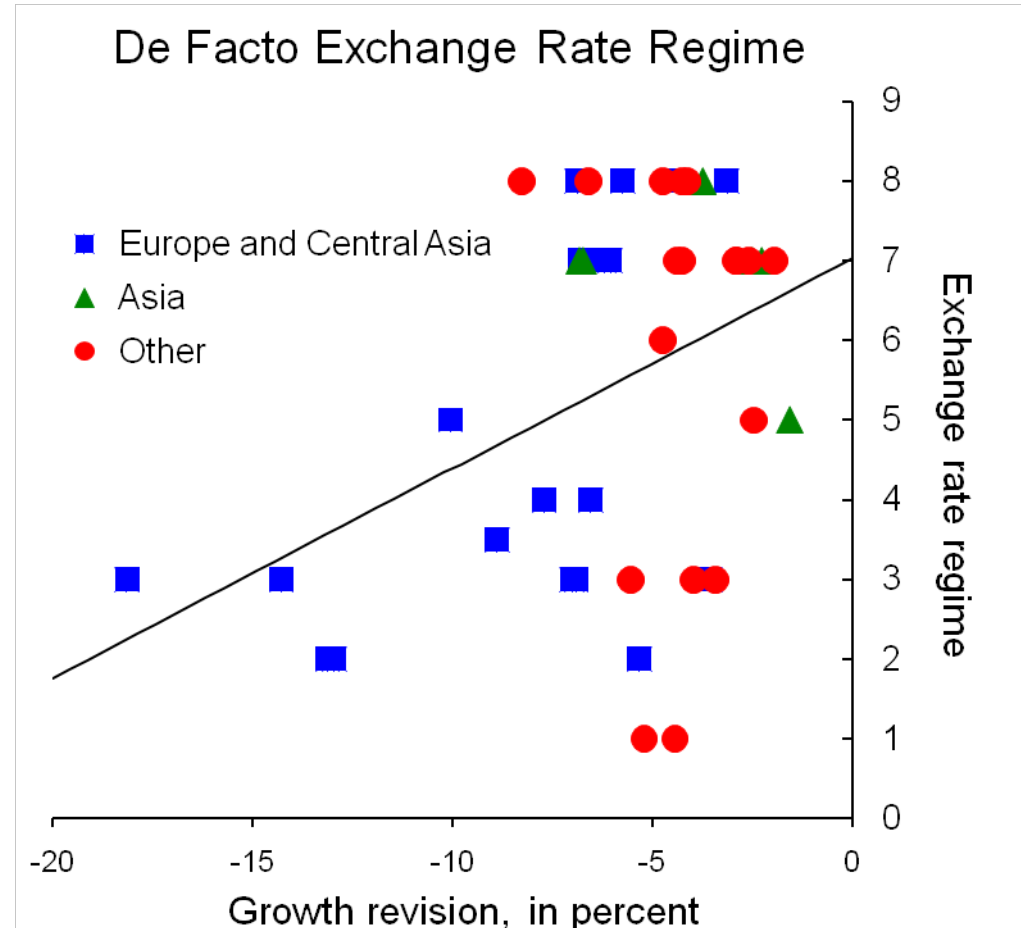
- **Link is weak but in right direction**
- **Though pattern due to outliers:**
 - **Baltics and Central Asia had low reserves**
 - **China had high reserves**
- **More on this later.**



What explains differences?

Policies 1: Exchange Rate Regimes?

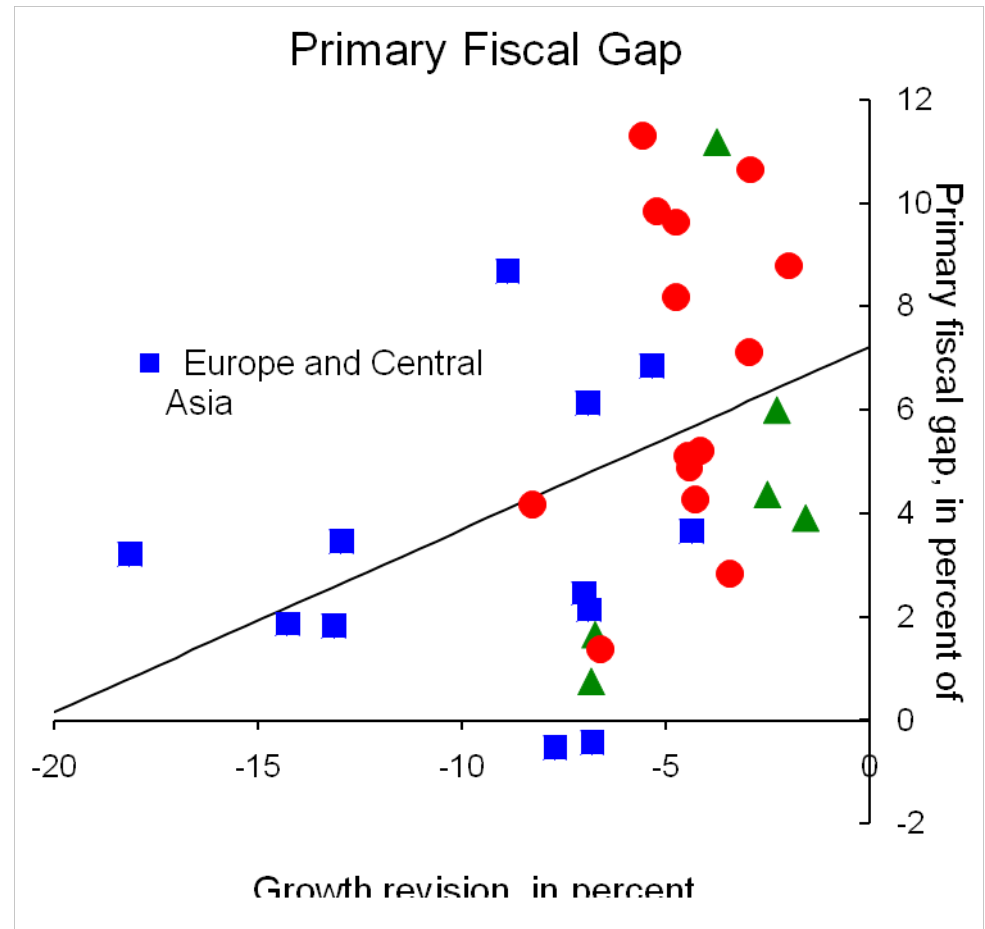
- Many of the most affected countries had pegs
- Again, mostly in EECA
- But floaters in all regions much less affected



What explains differences?

Policies 2: Fiscal Imbalances?

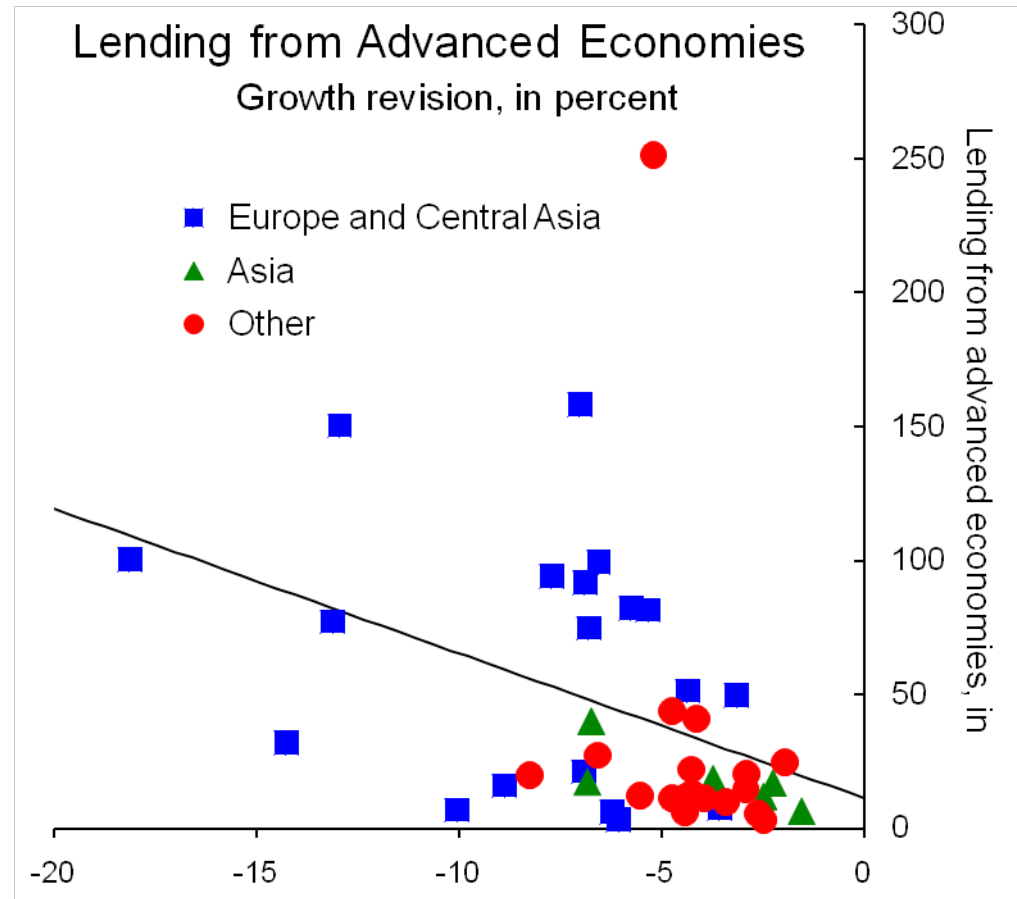
- **Some linkages between growth revisions and primary gap measure**
- **Countries with highest gaps (better fiscal positions) performed better**
- **Remember these were boom times in EMs**



What explains differences?

Financial Linkages 1: External borrowing?

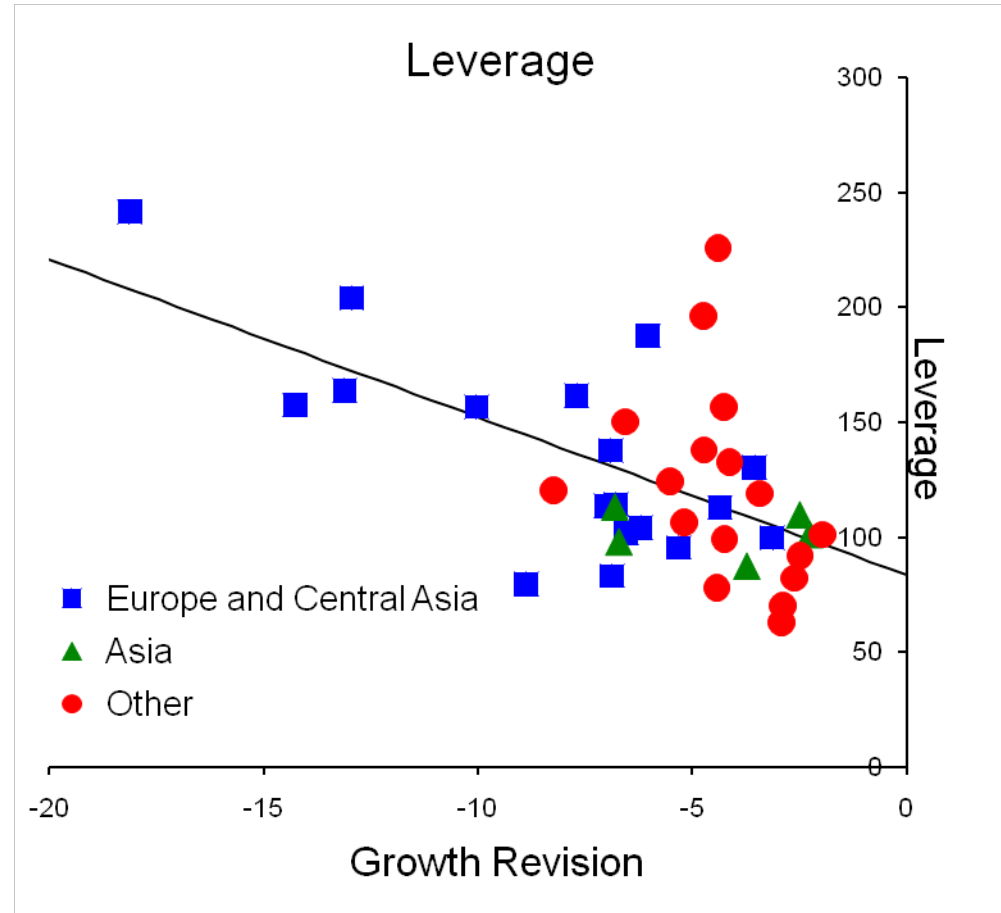
- **More borrowing from rich countries generally linked to less growth**
- **But how is borrowing financed?**



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**



Regression Results – Baseline 1

Financial Channel

Leverage

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

Credit growth

Table 1. Baseline Regression Results

Specification	(1)	(2)	(3)	(4)
Dependent variable: Change in consensus forecast				
Leverage	-0.04*** (0.01)	-0.04*** (0.01)	-0.02 (0.01)	
Leverage * EU accession dummy			-0.04** (0.02)	
Exchange rate peg dummy	-1.94** (0.87)	-1.82** (0.81)	-1.28 (0.81)	-4.27*** (1.05)
Cumulative credit growth	-0.01* (0.00)	-0.00* (0.00)	-0.01** (0.00)	
EU accession dummy		-2.29** (0.88)	3.29 (2.66)	
Primary gap				0.48*** (0.15)
Constant	0.72 (1.30)	0.44 (1.21)	-1.82 (1.54)	-7.06*** (0.98)
Observations	40	40	40	32
R-squared	0.574	0.643	0.688	0.462

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1



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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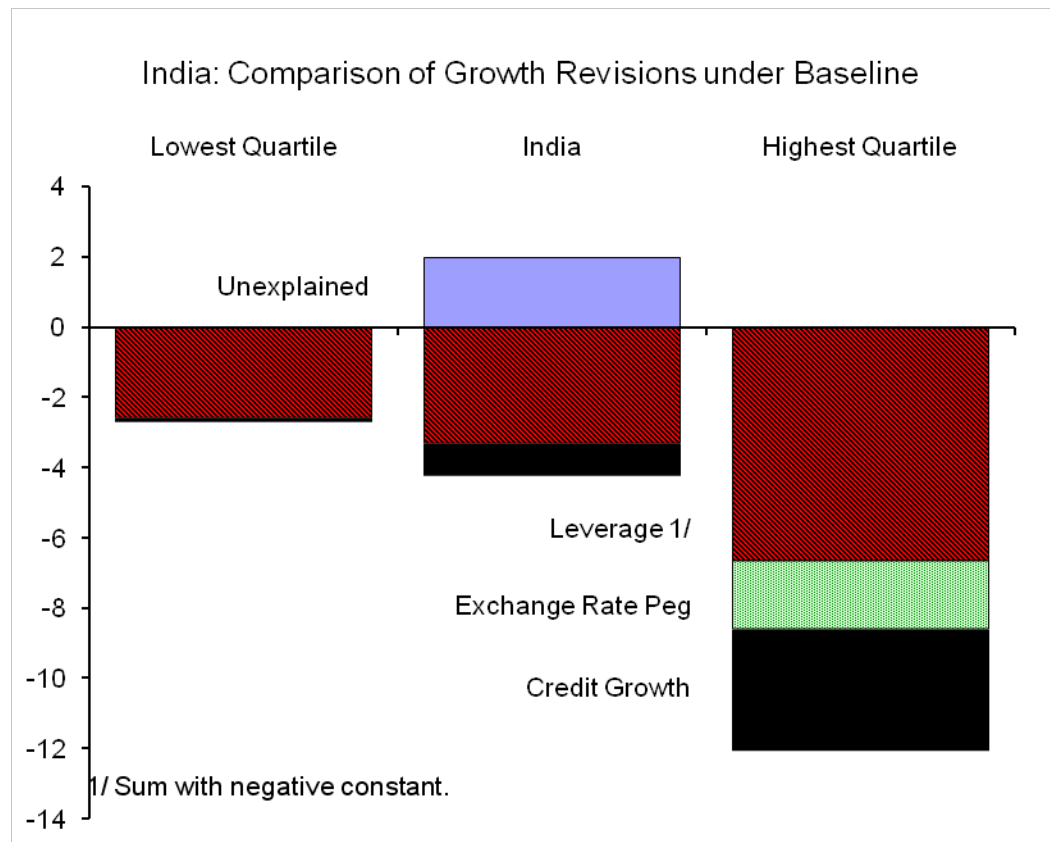
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How did India do?

- 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**



Regression Results – Policy Frameworks 1

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.



Regression Results – Policy Frameworks 2

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 current prices
Total exports as a share of GDP at current prices
Dummy for countries with free trade agreements

FINANCIAL LINKAGES

Total country lending from U.S as a share of GDP
Total country lending TO U.S as a share of GDP
Total country lending from 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
Economic risk
Economic risk
Financial risk
Financial risk
Political risk.
Political risk.
2007-2008 Opacity score
IMD Competitive Index - Central Bank Policy... Central bank policy has a positive impact on economic development
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
Nominal effective exchange rate volatility, measured as the standard deviation of monthly change
Inflation volatility, measured as the standard deviation of monthly changes in CPI
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 advanced economies
Financial Stress Index for emerging markets
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
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

