Capital Flow Types, External Financing Needs, and Industrial Growth: 99 countries, 1991-2007

Joshua Aizenman and Vlad Sushko
UCSC and the NBER, BIS
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Overview

- Examine the differential impact of portfolio debt, portfolio equity, and FDI inflows on 37 manufacturing industries, about 100 countries, 1991-2007, extending Rajan-Zingales (1998).

- We utilize external finance dependence measures in a series of cross-sectional regressions of manufacturing industries' growth rates.

Overview, cont.
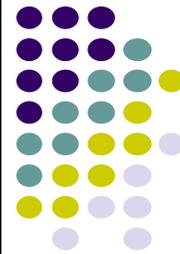
- Net portfolio debt inflows are negatively associated with growth during the mid 1990s.

- Surges in portfolio equity inflows also exhibit a negative association with aggregate growth in the manufacturing sector.

- Equity inflows exhibited economically significant positive impact on the growth of financially constrained industries, unlike their negative impact on the average manufacturing growth rate.

- FDI inflows exhibit a positive association with aggregate manufacturing growth during most of the sample period, both on the growth of financially constrained industries, and on the average manufacturing growth rate.

We augment the regression approach of Rajan and Zingales (1998) as follows:

$$Growth_{j,k} = \alpha + \boldsymbol{\beta}' \begin{bmatrix} debt_k \times EXF(std)_j \\ equity_k \times EXF(std)_j \\ FDI_k \times EXF(std)_j \end{bmatrix} + \boldsymbol{\gamma}' \begin{bmatrix} debt_k \\ equity_k \\ FDI_k \end{bmatrix} + \boldsymbol{\delta}' \boldsymbol{Country\ Controls} +$$

$$+ \boldsymbol{\theta}' \boldsymbol{Industry\ Dummies} + \phi(value\ added\ share_{j,k}) + \varepsilon_{j,k} \qquad (1)$$

where each of the three types of net financial inflows in country *k* is interacted with external finance dependence of sector *j*; bold letters indicate vector notation. For the baseline, instead of using country dummies we include a comprehensive set of country level controls. The remaining set of controls follows the initial methodology, with industry level dummies.

Conditional on the comprehensive set of country level controls, this specification allows us to identify potential financial "bottlenecks" by separating the direct impact of financial inflows on industry growth from the impact weighted by the industry's need for external finance.

For robustness, we also consider a more restrictive specification with country and industry dummies:
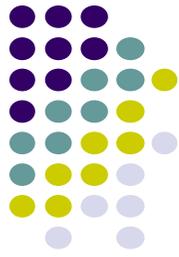
$$Growth_{j,k} = \alpha + \beta' \begin{bmatrix} debt_k \times EXF(std)_j \\ equity_k \times EXF(std)_j \\ FDI_k \times EXF(std)_j \end{bmatrix} + \delta' \textbf{Country Dummies} + \theta' \textbf{Industry Dummies} +$$

$$+ \phi(value\ added\ share_{j,k}) + \varepsilon_{j,k} \qquad (2)$$

- Regression specification (2) completely controls for cross-country variation only measuring the effect of private capital inflows on growth through the external financing channel.

- We re-did these regressions lagging the RHS variables one period, and the results are robust.

Methodology

- **The RZ measure:** We compute a backward looking measure as the 5-year average of the difference between capital expenditures and cash flow from operations, divided by capital expenditures, for 1991 through 2007, each year taking the industry median, and we standardize the measure such that it has zero mean and unit variance to generate *EXF(std).*

- Additional controls: trade openness, general government consumption/GDP, *inflation*, secondary school enrollment rate, infant mortality, *fertility*, private sector credit to GDP ratio, and gross domestic savings to GDP. As with the financial flows, these controls enter as 5-year averages. Ease of doing business rank (1 to 183), regional dummies, and income dummies. In the most restrictive specification we use country dummies instead of country level controls.

Table A2: List of industries and the sample average external finance dependence.

Industry	ISIC Rev. 2, 3(4) Digit	EXF(Std), 1991-2007 Avg.
Drugs and medicines	3522	3.193
Manufacture of primary iron and steel products (excluding forging and casting operations)	371	0.881
Manufacture of briquettes of lignite, at mining site or from purchased coal	354	0.550
Tobacco products	314	0.547
Manufacture of pasta-based convenience food products	312	0.401
Shipbuilding and repairing	3841	0.344
Narrow fabrics, braids, lace	3211	0.261
Basic chemicals, excl. fertilizers	3511	0.203
Manufacture of pesticides and other agro-chemical products	351	0.172
Petroleum refineries	353	0.146
Footwear of paper	341	0.129
Office, computing, and acounting machines	3825	0.086
Structural clay products, cement, lime and plaster, other non-metallic mineral products	369	0.085
Soft drinks, wines, and liquors	313	0.054
Manufacture of plastics in primary forms and of synthetic	3513	0.016

rubber		
Plastic products	356	-0.001
Pulp, paper, paperboard articles	3411	-0.003
Electrical industrial machinery, electrical appliances, other electrical apparatus	383	-0.024
Rubber products, tyres and tubes	355	-0.037
Photographic and optical goods, professional and scientific equipment, watches and clocks	385	-0.056
Radio, television, and communication equipment	3832	-0.071
Artists' canvas and tracing cloth	390	-0.075
Bakery products, dairty, grain mill, canning and preserving, sugar factories, vetetables and animal oils and fats	311	-0.084
Footwear, except vulcanized or moulded rubber or plastics footwear	324	-0.111
Made-up textile articles, except apparel	321	-0.129
Sawmills, planing and other wood mills, other wood and cork products	331	-0.150
Motor vehicles and parts	3843	-0.153
Machine shop work: machining, tooling and fabricating including repairs	382	-0.206
Glass and glass products	362	-0.236
Manufacture of pipe fittings of non-ferrous metal; non-ferrous wire and cable from purchased rod	381	-0.302
Aircrafts, railroad, and other transport equipment	384	-0.308
Printing and publishing	342	-0.562
Manufacture of textile window blinds and shades	332	-0.604
Fur dressing and dyeing industries	323	-0.727
Manufacture of fur apparel, accessories, trimmings	322	-0.851
Paints, varnishes, lacquires, soap, cosmetics, other chemical products	352	-1.119
Manufacture of primary products of precious and non-ferrous metal (excluding forging and casting operations)	372	-1.149

Controls

	Dependent Variable:
yg_5yavg	annual output growth rate, industry level, 5-year average (UNIDO)
va_5yavg	annual value added growth rate, industry level, 5-year average (UNIDO)
	Capital Flows:
debt × EXF(std)	net portfolio debt inflow / GDP, 5-year average (IFS) x standardized external fin. dep. (Compustat)
equity × EXF(std)	net portfolio equity inflow / GDP, 5-year average (IFS) x standardized external fin. dep. (Compustat)
FDI × EXF(std)	net portfolio FDI inflow / GDP, 5-year average (IFS) x standardized external fin. dep. (Compustat)
debt	net portfolio debt inflow / GDP, 5-year average (IFS)
equity	net portfolio equity inflow / GDP, 5-year average (IFS)
FDI	net portfolio FDI inflow / GDP, 5-year average (IFS)
	Additional Controls:
privatecredit	private credit, % GDP, 5-year average (WDI)
fertility	log of total births per woman, 5-year average (WDI)
schoolsecond	secondary school male enrollment rate, 5-year average (WDI)
govtcons	general gov't final consumption expenditure / GDP, 5-year average (WDI)
savings	gross domestic savings / GDP, 5-year average (WDI)
openness	(imports + exports) / GDP, 5-year average (WDI)
inflation	annual percent change in consumer prices, 5-year average (WDI)
businessindex	ease of doing business index, 1 through 183, 1 being the highest (WDI)
income dummies	hign income OECD, high income, upper middle, lower middle, and low income
region dummies	East Asia & Pacific, Europe and Central Asia, LAC, Middle East and North Africa, South Asia, Sub-Sa
country dummies	104 country dummies
industry dummies	37 industry dummies by ISIC Rev.2 3 digit classification
value added share	share of industry j in total manufacturing value added of country k, 5-year average

Impact of Net Portfolio debt Inflows

- Net portfolio debt inflows are negatively associated with growth during the mid 1990s.

- The magnitudes of the negative effect of surges in portfolio debt inflows on growth are substantial in the late 1990s for a number of countries.

- The effect of debt inflows on growth in the 2000s is rather muted.

Impact of Net Portfolio Equity Inflows
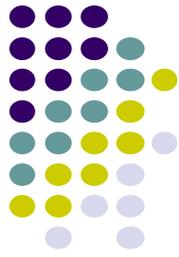
-Surges in portfolio equity inflows exhibit a negative association with aggregate growth in the manufacturing sector, but a significant positive impact on the growth of financially constrained industries

-The inflow surge during the financial liberalization period, 1993-4, is associated with a sharp decline in aggregate manufacture. sector growth, but a rise in the growth of relatively more financially constrained industries.

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Impact of FDI Inflows
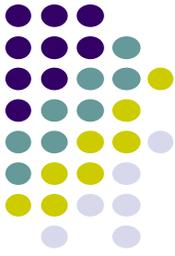
FDI inflows exhibit a positive association with aggregate manufacturing growth during most of the sample period.

Possible interpretations
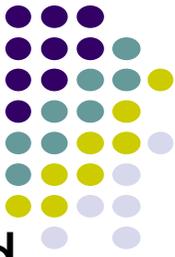
- Debt and equity inflows have at best mixed association with growth, and tend to be associated with negative growth effects for large surges.

- FDI is the most stable of the three broad types of private capital inflows as well as the only one significantly positive correlation with manufacturing sector growth.

- Focusing on externally financially dependent industries, we find frequent oscillations between debt, equity, and FDI financing of growth.

- Tentative evidence of herding from one type of financing to another as "bottlenecks" are repeatedly formed when one source takes too much precedence over the other.

Financial Sector Ups and Downs and the Real Sector: Big Hindrance, Little Help
Joshua Aizenman, Brian Pinto Vladyslav Sushko

Overview

- Examine how financial cycles affect the economy through their impact on 8 real economic sectors in 28 countries,1960-2005, paying particular attention to large or sharp contractions.

- Construction is the most responsive to financial sector growth. Government, public utilities, & transportation exhibit significant sensitivity to lagged financial sector growth.

- Sharp financial fluctuations have asymmetric effects, the majority of real sectors adversely affected by contractions but not helped by expansions.

- The adverse effects of financial contractions are transmitted almost exclusively by the financial openness channel with IR mitigating these effects with a sizeable (10 to 15 times greater) impact during sharp financial contractions.

Overview, cont.
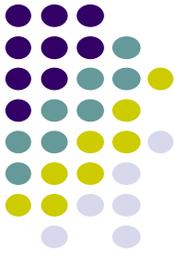
- Effects are magnified during particularly large financial contractions (with interaction coefficients 2 to 3 times greater than when all contractions are considered).

- Consequent upon a financial contraction, the most severe real sector contractions occur in countries with high financial openness, relative predominance of construction, manufacturing, and wholesale and retail sectors, and low IR.

- Abrupt financial contractions are more likely to follow periods of accelerated growth, indicative of "up by the stairs, down by the elevator dynamics."

The sectors:

Finance; Agriculture; Construction; Government; Mining Manufacturing; Public utilities; Transportation

Thanks for you attention