Capital-Market Liberalization, Globalization and the IMF

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MAJOR CONTROVERSY CONCERNING CAPITAL MARKET LIBERALIZATION

- IMF TRIED TO CHANGE CHARTER TO FORCE COUNTRIES TO LIBERALIZE CAPITAL MARKETS
- US TRIED TO "FORCE" KOREA TO LIBERALIZE CAPITAL MARKETS IN 1993--SUCCEEDED

AT TIME, UNSUPPORTED BY THEORY OR EVIDENCE

- CML DID NOT INCREASE GROWTH OR INVESTMENT(RODRIK)
- CML EXPOSED COUNTRIES TO GREATER RISK

Growth and capital account liberalization 1975-89 Rodrik (1998)

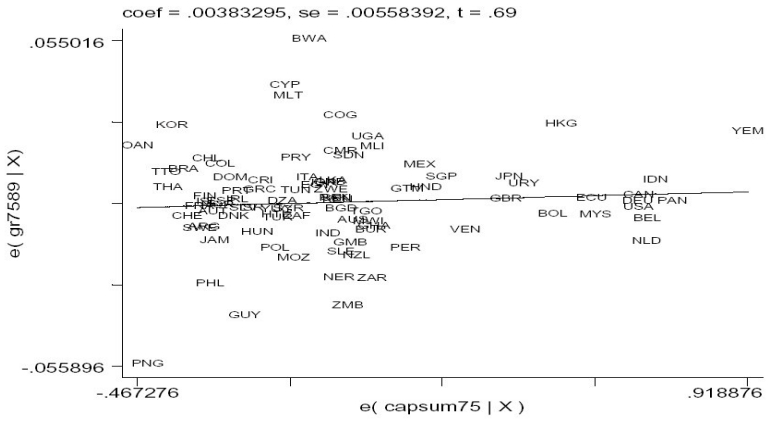

Figure 1: Partial scatter plot relating economic growth to capital-account liberalization, 1975-89 (controlling for per-capita income, secondary education, quality of governmental institutions, and regional dummies for East Asia, Latin America, and sub-Saharan Africa).

Investment/GDP and capital account liberalization 1975-89 – Rodrik 1998

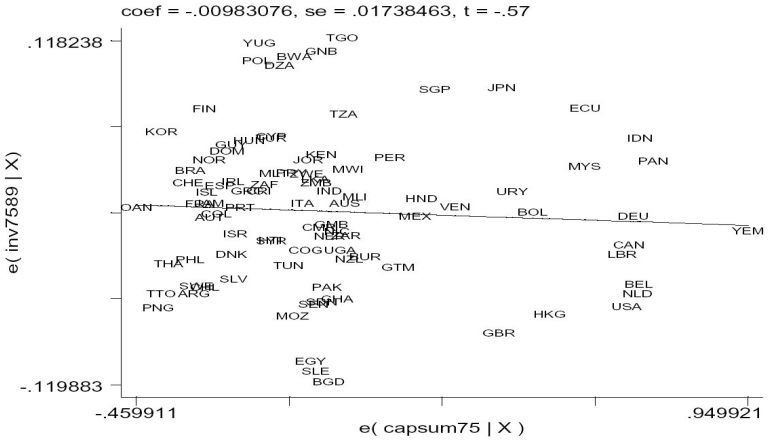

Figure 2: Partial scatter plot relating investment/GDP to capital-account liberalization, 1975-89 (controlling for per-capita income, secondary education, quality of governmental institutions, and regional dummies for East Asia, Latin America, and sub-Saharan Africa).

ADVOCACY—SPECIAL INTERESTS, IDEOLOGY, NAÏVE ECONOMICS

- FREE TRADE GOOD—THEREFORE FREE CAPITAL FLOWS GOOD
- BUT CAPITAL FLOWS, CAPITAL MARKETS ARE DIFFERENT
  - Bhagwati

GENERAL THEORY

- With limited information or incomplete markets (including imperfect risk markets), competitive equilibria are not, in general, constrained Pareto efficient.
- In a second-best world an intervention reducing one imperfection may have adverse side effects.

RISK

- WITH RISK, EVEN FREE TRADE MAY BE WELFARE DECREASING WITH IMPERFECT RISK MARKETS
  - NEWBERY STIGLITZ—PARETO INFERIOR TRADE
- CRITICISM OF CAPITAL MARKET LIBERALIZATION IS THAT THEY EXPOSE COUNTRIES TO GREATER RISK

ADVOCATES CLAIMED THE CML WOULD REDUCE RISK

- ALLOWED COUNTRIES TO BORROW IN TIMES OF NEED
- PRIMARY ARGUMENT FOR EAST ASIA—DIDN'T NEED MORE CAPITAL
- BUT IGNORED OBVIOUS EMPIRICAL EVIDENCE:
  - CAPITAL FLOWS WERE PRO-CYCLICAL
  - MAJOR CAUSE OF PROBLEMS IN LATIN AMERICA

- ALSO IGNORED BASIC THEORY
  - BANKERS LEND TO PEOPLE WHO DON'T NEED MONEY
- Developing countries are exposed to exchange rate and interest rate fluctuations
- Short-term flows react to perceived adverse shocks thereby amplifying fluctuations.

- Even if there is smoothing of small shocks, the resulting gains under concavity are smaller than the losses induced by large shocks.

CML creates volatility

- Reversal of flows:
  - During the inflow the exchange rate appreciates
  - After the outflow financial institutions are weakened, the depreciated exchange rate increases the cost of debt servicing
- Counter-cyclical monetary policy is constrained.

Why CML does not spur growth and investment

- Higher output or consumption volatility imply a higher risk premium
- If investment depends on cash flow and balance-sheet effects, negative shocks can have particularly adverse effects
- Higher interest rate volatility exacerbates the previous effects

- Output and interest rate volatility decrease debt financing and equity markets are underdeveloped.
- Short-term capital is myopic and may determine myopic policies.
- Reserves may be unnecessarily high.

DISCIPLINE: ANOTHER REASON FOR ENHANCED GROWTH?

- The “discipline of the market place” can be myopic and have adverse effects on long-term growth and stability
- Short term markets often look more at deficits, liabilities, not at “balance sheets”

Interventions

- GENERAL POINT: EXTERNALITIES ASSOCIATED WITH SHORT TERM CAPITAL FLOWS, EXTERNALITIES REQUIRE INTERVENTIONS
- Chile and Malaysia suggest that there can be successful capital market regulations.

IMF FINALLY LOOKS AT THE EVIDENCE

- Macroeconomic impact of CML (Prasad *et al.*, 2003)
- No evidence of a positive correlation between financial integration and economic growth.
- Countries that made the effort to become financially integrated faced more instability.

Total consumption annual growth rate volatility to income annual growth rate volatility (medians)
Prasad *et al.* (2003)

	1960-99	1960s	1970s	1980s	1990s
Industrial countries	0.67	0.75	0.56	0.61	0.58
More financially integrated	0.81	0.92	0.74	0.76	0.92
Less financially integrated	0.80	0.95	0.68	0.82	0.84
Total consumption = C + G. Income = output + factor income flows + terms of trade effect.					

IMF SURPRISED

- INCONSISTENT WITH “THEORY”
- BY WHICH THEY MEAN NEOCLASSICAL THEORY WITH PERFECTION INFORMATION
- But failures of neoclassical open economy theory already well documented
- The neoclassical theory (perfect information, perfect capital markets, perfect competition) cannot explain several stylized facts.
- Obstfeld and Rogoff’s “major puzzles”, failure of the interest rate parity, pro-cyclical nature of capital movements

Imperfect information and rationality

- Lessons from East Asia:
  - Widespread credit rationing due to imperfect and asymmetric information
  - Excessive leverage and the relevance of financial structure
- Market imperfections and irrationalities play a central role in economic fluctuations (irrational exuberance/pessimism)

Types of capital flows

- If FDI's have a positive effect on growth, and the aggregate effect is nil, then short-term flows have a negative effect.

FDI's may not generate growth

- FDI's include revenues from privatizations which may or may not be welfare-increasing
- Natural resource curse.
- Foreign banks acquiring domestic banks may reduce financing to SME's.
- Foreign banks may contract credit in the case of an adverse shock in the home country.

IMF BLAMES GOVERNANCE

- Problems in identifying empirically the effect of good governance.
- Good governance does not eliminate information imperfections and irrationalities.

FORMAL MODELS

- EASY TO CONSTRUCT MODELS WITH CREDIT RATIONING, IMPERFECT CAPITAL MARKETS, OVERLAPPING GENERATIONS IN WHICH CAPITAL MARKET LIBERALIZATION LEADS TO INCREASED VOLATILITY, LOWER WELFARE

Regime changes and volatility

- There are two states of nature: θ_1 and θ_2 (θ_1 is the bad state) following a Markov chain with constant transition probability π.
- In both states there are two projects: risky (R) and safe (S). Both projects last two periods.
- Monitoring of project undertaken is impossible. Loans are variable rate.

- $\beta_i^j(r, r')$; $j = S, R$; $i = \theta_1, \theta_2$ is the expected return for the borrower of
  - investment j
  - undertaken in state i
  - when the interest rate changes from r to r' in case of a regime change (if no change happens, then the interest rate will remain constant at r)
- The outcome of the project depends on the state of nature in the second period.

- Take the set of state-dependent interest rates $\{r_1 , r_2\}_i$; $i = \theta_1 , \theta_2$ such that the safe project is incentive-compatible.
- Let $\rho_i (r_1 , r_2)$ be the expected return to the lender of a loan
  - made in state $i = \theta_1 , \theta_2$
  - for given incentive-compatible $\{r_1 , r_2\}$
- Let ρ^* be the safe international rate of return and assume

$$\text{Max } \rho_1 (r_1 , r_2) < \rho^* < \text{Min } \rho_2 (r_1 , r_2)$$

- There are M^* safe projects each costing a dollar.
- Aggregate output is given by

$$Y_i = [X + G + I] / [m + s(\rho_i)]$$

- Where exports and government spending are fixed, m is the marginal propensity to import and $s(\rho_i)$ is the marginal propensity to save ($s' > 0$).

- **Closed financial markets**
  - ρ adjusts to equate savings and investments.
  - In the good state I = M*.
  - In the bad state I < M* and the interest rate is the maximum such that the safe investment is undertaken.
  - There is no output variability

$$Y_i = [\, X + G \,] / m \; ; \; i = \theta_1 \, , \, \theta_2$$

- **Open financial markets**
  - $s^* = s(\rho^*)$
  - In the good state all safe investment projects are undertaken; in the bad state there is no interest rate at which it is profitable to invest.

- Opening the capital market lowers output in the bad state and may increase output in the good state if the country borrows abroad.
- Capital flows are pro-cyclical.
- The effect on consumption is ambiguous.

Incomplete risk markets

- Two-period OLG model

$$U^j(c_1, c_2) = \ln(c_1) + \ln(c_2)$$

$$c_1 = w_t - s_t$$

$$c_2 = (1 + r_{t+1})s_t$$

- Foreigners only lend to enterprises.
- The international interest rate is variable.

Deterministic domestic technology

- The production function is neoclassical

$$Q_t = F(K_t , L_t) = L_t f(k_t) = f(k_t)$$

- Capital depreciates completely each period.
- **The closed economy**
  - the law of motion of capital is

$$k_t = s_{t-1} = .5\, w_{t-1} = .5\, g(k_{t-1})$$

  - The steady state is: $k^* = .5g(k^*)$

- **The open economy**:
  - $k_t = f'^{-1}(1+r_t) \equiv h(r_t)$
  - The expected utility of a generation at time t is

$$E_t [U] = -2\ln(.5) + 2\ln(w_t) + E_t [\ln(1+r_{t+1})]$$

  - The ex-ante expected utility is

$$E\{E_t[U]\} = -2\ln(.5) + 2E[\ln(w_t)] + E[\ln(1+r_{t+1})]$$

  - If the economy is at its steady state, CML unambiguously leads to an increase in consumption variability.

- **Impact on social welfare**:
  - Assume $E[\ln(1+r_t)] = \ln(1+r_c)$ and a utilitarian social welfare function.
  - In the open economy (α_t the income share of K):

$\partial w / \partial \ln(1+r) = - \alpha_t /(1- \alpha_t) = [(dL_t/dK_t)|_{isoquant}]k_t$

The effect on social welfare depends on

$\partial [(dL_t/dK_t)|_{isoquant}]k_t / \partial \ln(1+r_t) = A [1 - \psi^{-1}]$

A>0 ; ψ the elasticity of substitution between K and L

- If $\psi < 1$, ln(w) is a concave function of $\ln(1+r_t)$ and social welfare is decreased.
- If the social welfare function is inequality/risk averse, welfare is reduced even if ψ>1 (provided it is not too large).

Stochastic domestic production

- If $Q_t = \theta_t f(k_t)$, then $k_t = .5\ \theta_{t-1}\ g(k_{t-1})$
- **In the closed economy**:

  $E_t U^j = -2 \ln .5 + 2\ln w_t + E_t \ln (\theta_{t+1})$
  $+ \ln[f'(w_t/2)]$

- Assuming $E[\ln(\theta_t)]$ is a martingale,

  $E\{E_t[U^j]\} = -2\ln(.5) + 3E[\ln(\theta_t)]$
  $+ 2E[\ln g(k_t)] + E[\ln f'(.5\ \theta_t\ g(k_t))]$

- **In the open economy**:

  $E_t U^j = -2 \ln .5 + 2\ln w_t + E_t [\ln (1 + r_{t+1})]$
- $k_t = h(r_t/\ \theta_t)$; $w_t = \theta_t\ g[h(r_t/\ \theta_t)]$

- With <u>constant</u> international interest rate:

  $E\{\ E_t U^j\ \} = -2\ln(.5) + 2E[\ln(\theta_t)]$
  $+ 2E[\ln g(h(r/\theta_t))] + \ln (1+r)$

- CML allows for greater variability of wages (when θ is high the country can borrow more and vice versa)
- High wages today have no adverse effect on the interest rate at t+1
- If the social welfare function is sufficiently inequality/risk averse, social welfare is decreased.

- Can the access to more resources counteract the losses from greater variability?
- Consider a unitary elasticity technology and a utilitarian social welfare function.
- Assume that $E[\ln(1+r_c)]=\ln(1+r_0)$.
- Then $E[\ln(w_c)] = E[\ln(w_o)]$ and the expected utility at time t is the same in the closed and open economy.

- However, generational utility is

  $Ln(.5\ w_t) + ln(.5\ w_t\ (1+r_{t+1}))$

  where w_t and r_{t+1} are negatively correlated in the closed economy.
- It follows that there is less utility variability and higher social welfare before CML.

- With CML: $\partial\ ln(w)/\ \partial\ ln\ \theta = 1 / (1- \alpha)$
- Thus, variations in θ generate large variations in wages and therefore in lifetime utility, particularly if the share of labor is small.

- In a closed economy life-time consumption of the young does not increase in tandem with productivity.
- Moreover, the benefits of a productivity shock are shared with future generations.
- With CML the interest rate does not depend on the country's own savings.
- Productivity shocks affect only the generation working at the time of the shock.

FUTURE RESEARCH

- Neoclassical open economy modelling is at a dead-end—too many puzzles that cannot be explained
- Theories of asymmetric information, imperfect risk markets hold open promise of an alternative open market macro-economy
  - Better descriptions of what has happened
  - Markedly different policy prescriptions