Credit Market Imperfections and Patterns of International Trade and Capital Flows

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Abstract

Two Simple Models to illustrate how corporate governance, contractual enforcement, and the balance sheet condition of the business sector etc. can affect the patterns of international trade and capital flows in the presence of credit market imperfections

Model I: Patterns of International Capital Flows

The Closed Economy:

A unit mass of homogeneous **Agents,** each endowed with $\omega < 1$ units of **the input**.
Physical Capital produced by the projects run by the agents.

- each agent can run at most one project.
- each project converts one unit of the input to R units of physical capital.

→To run the project, one must borrow $1 - \omega$ from those who don't run the project.

Consumption Good produced at the end of the period, with $y = f(k)$, with $f' > 0 > f''$.

To Run or Not to Run?: Running the project → $Rf'(k) - r(1-\omega)$;
Not running the project → $r\omega$

Profitability Constraint (PC): $Rf'(k) \geq r$,

Credit Constraint: The borrower can pledge only up to $\lambda Rf'(k)$ for the repayment ($0 \leq \lambda \leq 1$).

Borrowing Constraint (BC); $\lambda Rf'(k) \geq r(1-\omega)$,

λ: the quality of contractual enforcement, of corporate governance, efficiency of the credit market, the state of financial development
ω; borrower net worth or the balance sheet condition of the business sector.

The Closed Economy Equilibrium:

Both (PC) and (BC) must hold. One of (PC) and (BC) must be binding:

(1) $r = \min\{1, \lambda/(1-\omega)\}Rf'(k)$.

Resource Constraint:

(2) $k = R\omega$.

Equilibrium Interest Rate: $r = \min\{1, \lambda/(1-\omega)\}Rf'(R\omega)$

increasing in ω if $1-\lambda > \omega > \eta/(1+\eta)$, where $\eta \equiv -kf''/f'$.

The World Economy with North and South ($\lambda_N \geq \lambda_S$, $\omega_N > \omega_S$).

The input and the consumption good are tradeable (physical capital is not.)

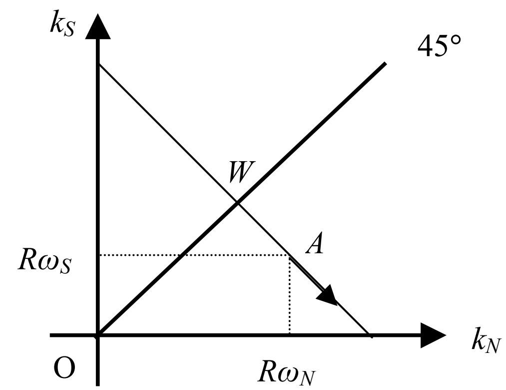
Autarky:

$k_N = R\omega_N > R\omega_S = k_S$.

$r_N = \min\{1, \lambda_N/(1-\omega_N)\}Rf'(R\omega_N)$??? $r_S = \min\{1, \lambda_S/(1-\omega_S)\}Rf'(R\omega_S)$

Financial Integration:

World Resource Constraint:



(4) $k_N + k_S = R(\omega_N+\omega_S)$.

The Equalization of the Interest Rates:

(5) $\min\{1, \lambda_N/(1-\omega_N)\}f'(k_N) = \min\{1, \lambda_S/(1-\omega_S)\}f'(k_S)$.

If $\lambda_S/(1-\omega_S) \geq 1 \rightarrow k_N = k_S$.

If $\lambda_S/(1-\omega_S) < 1 \rightarrow k_N > k_S$.

If $r_N = \min\{1, \lambda_N/(1-\omega_N)\}Rf'(R\omega_N) > r_S = \min\{1, \lambda_S/(1-\omega_S)\}Rf'(R\omega_S)$

$\rightarrow \quad k_N > R\omega_N > R\omega_S > k_S$

This occurs when $\boldsymbol{\lambda_S << \lambda_N}$, or even when $\lambda_N = \lambda_S = \lambda$, if $1-\lambda > \boldsymbol{\omega_N > \omega_S} > \eta/(1+\eta)$.

Extensions: Positive Feedback from k to ω or from k to λ $\rightarrow$ Endogenous Inequality

Model II. Patterns of International Trade

Ricardian model with a continuum of tradeable goods, $z \varepsilon [0,1]$, symmetric Cobb-Douglas preferences, similar to Dornbusch-Fischer-Samuelson (1977).

A unit mass of homogeneous **Agents**, each endowed with $\omega < 1$ units of **Labor**
Tradeable Goods produced by the projects run by agents

- Each agent can run at most one project.
- Each project in sector z converts one unit of labor to R units of good z.

→ To run the project, one must hire $1-\omega$ units of labor from those who don't run the project.

To Run or Not to Run?:	Running the project in sector z	→	$p(z)R - w(1-\omega)$.
	Not running the project	→	$w\omega$

Profitability Constraint (PC-z): $p(z)R \geq w$

Credit Constraint: Only up to $\lambda\Lambda(z)p(z)R$ can be pledged for the wage payment.

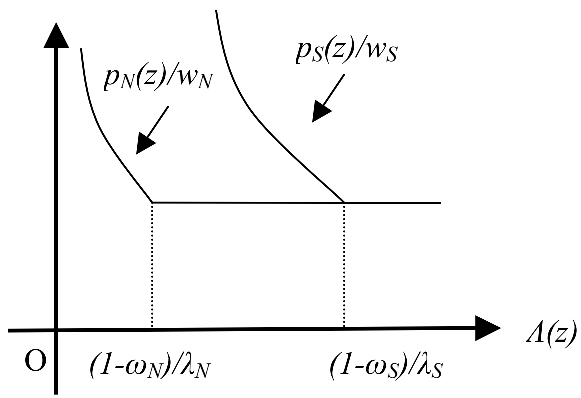
Borrowing Constraint (BC-z); $\lambda\Lambda(z)p(z)R \geq w(1-\omega)$,

$0 \leq \lambda \leq 1$: country-specific factors
$0 \leq \Lambda(z) \leq 1$: sector-specific factors, continuous and increasing in z.

The Closed Economy Equilibrium: The economy produces in all the sectors.
Both constraints, (PC-z) and (BC-z), must hold. One of them must be binding in each z:

(8) $p(z)/w = \max\{1, (1-\omega)/\lambda\Lambda(z)\}/R$

(BC-z) is binding in $\Lambda(z) < (1-\omega)/\lambda$
(PC-z) is binding in $\Lambda(z) > (1-\omega)/\lambda$

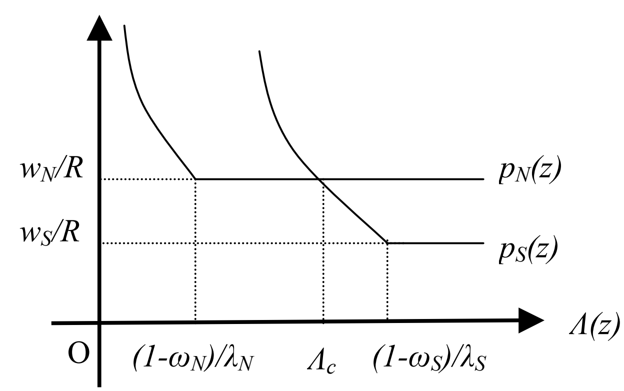


World Economy with North and South ($\omega_N > \omega_S$, $\lambda_N \geq \lambda_S$).

Autarky Equilibriums:

(12) $p_j(z)/w_j = \max\{1, (1-\omega_j)/\lambda_j\Lambda(z)\}/R$ ($j = N, S$)

North (South) has absolute advantage (disadvantage).



Trade Equilibrium

$$w_N > w_S \quad \leftrightarrow \quad \begin{cases} p_N(z) > p_S(z) \text{ for } z < z_c. \\ p_N(z) < p_S(z) \text{ for } z > z_c. \end{cases}$$

North (South) has comparative advantage in low (high)-indexed sectors.