
Domestic Institutions and the Bypass Effect of Financial Globalization

Jiandong Ju
(IMF and U of Oklahoma)

and

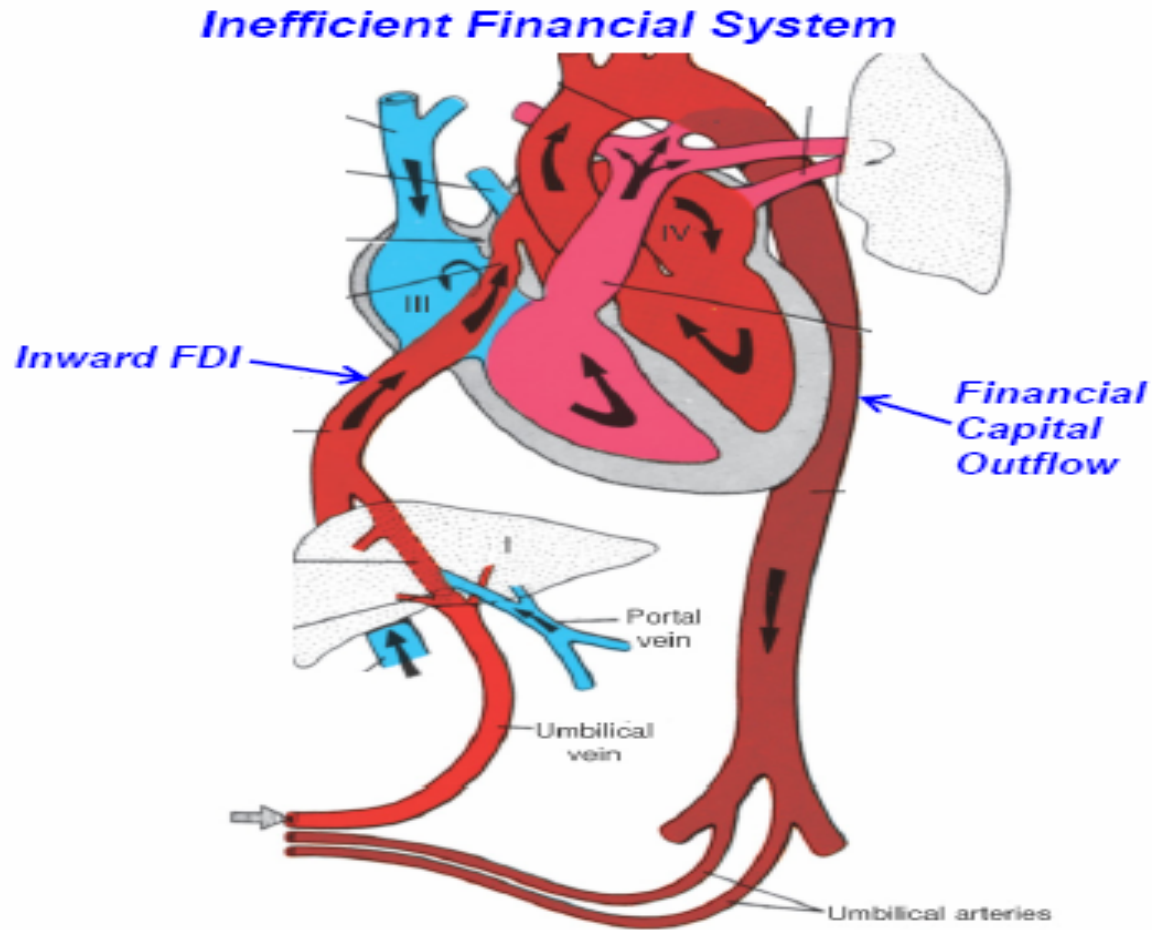
Shang-Jin Wei
(U of Columbia, IMF and NBER)

Some Facts: Two-way Capital

Table 1: Patterns of Capital Flows by Country Groups, 1990-2004
(Unit: current U.S. dollars per person)

Year	Country Group	Per Capita Net FDI Outflows	Per Capita Net Financial Capital Outflows
		(average within the group)	(average within the group)
1990	Developed Countries	165	-1564
	Emerging Markets	-756	1541
	Other Developing Countries	-226	-483
1995	Developed Countries	275	-1773
	Emerging Markets	-1462	2184
	Other Developing Countries	-273	-437
2000	Developed Countries	1204	-2486
	Emerging Markets	-1668	3680
	Other Developing Countries	-406	-281
2004	Developed Countries	1120	-1382
	Emerging Markets	-1671	5556
	Other Developing Countries	-569	-138

Capital Bypass Circulation



Empirical Findings in the Literature

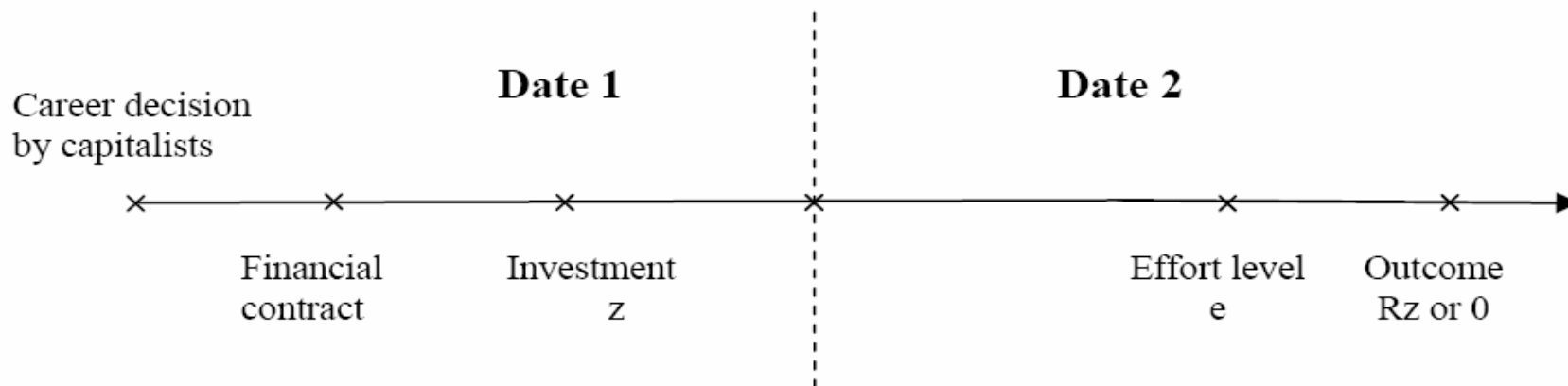
- Alfaro, Kalemli-Ozcan, and Volosovych (2005): weak institutions discourage inflow of capital.
 - Prasad, Rajan, and Subramanian (2006): aggregate capital goes from poor to rich countries, while FDI goes from rich to poor countries.
 - Wei (2006): higher levels of financial development tend to reduce inward FDI but increase inflows of financial capital.
-

The objective of this Paper

- To develop a theory of international capital flow determined by various domestic institutions (financial system, corporate governance, and property rights protection)
 - Somewhat surprising result: international capital flows would generally lead to a complete bypass of inferior financial institution and corporate governance.
-

The Model

- K capitalist with each born with 1 unit of capital and endogenously choosing to be an entrepreneur or a financial investor.
- Each entrepreneur manages one project. There is a moral hazard problem.



The Moral Hazard Problem

- External capital = x ; total capital $z = x+1$

$$\max_{x,y,z,R^E} U = z\lambda R^E + (1+r)(1-y) \quad (1)$$

$$\text{subject to : } y \leq 1 \quad (2)$$

$$z \leq x+y \quad (3)$$

$$[\lambda(R - R^E) - c/\theta]z \geq (1+r)x \quad (4)$$

$$\lambda^H R^E \geq \lambda^L R^E + b \Leftrightarrow \lambda R^E \geq b \quad (5)$$

where $R = 1 + F'_k(L, K) = 1 + F'_k(1, K/L)$

The Solution

$$R^E = \frac{b}{\lambda} \quad (6)$$

$$z = \frac{1+r}{(1+r) + c/\theta + b - \lambda R} \quad (7)$$

$$U = \frac{b(1+r)}{(1+r) + c/\theta + b - \lambda R} \quad (8)$$

Free Entry Condition

$$U = \frac{b(1+r)}{(1+r) + c/\theta + b - \lambda R} = (1+r)(1+f)$$

$$\lambda[1 + F'_k(1, K/L)] = (1+r) + \frac{c}{\theta} + \beta \quad (9)$$

$$= (1+r) + \rho \quad (10)$$

Capital Revenue Sharing Rule

- The expected marginal product of capital
- = gross interest rate + intermediation cost + pay to the entrepreneur

$$\lambda [1 + F'_k(1, K/L)] = (1 + r) + \frac{c}{\theta} + \beta \quad (9)$$

$$= (1 + r) + \rho \quad (10)$$

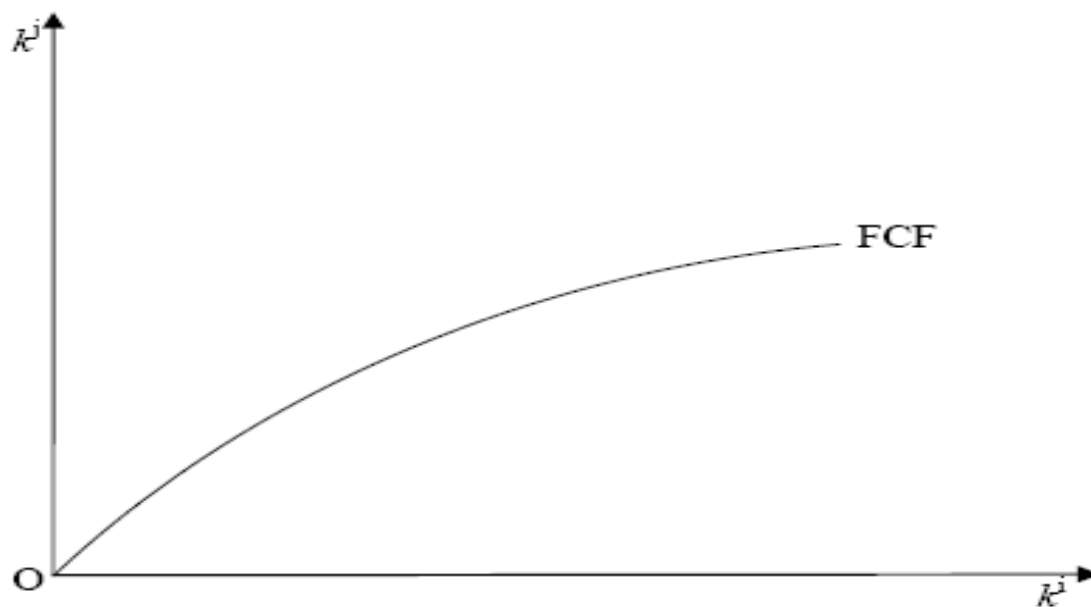
λ measures the strength of property rights protection.

θ measures the quality of financial institution.

β measures the quality of corporate governance.

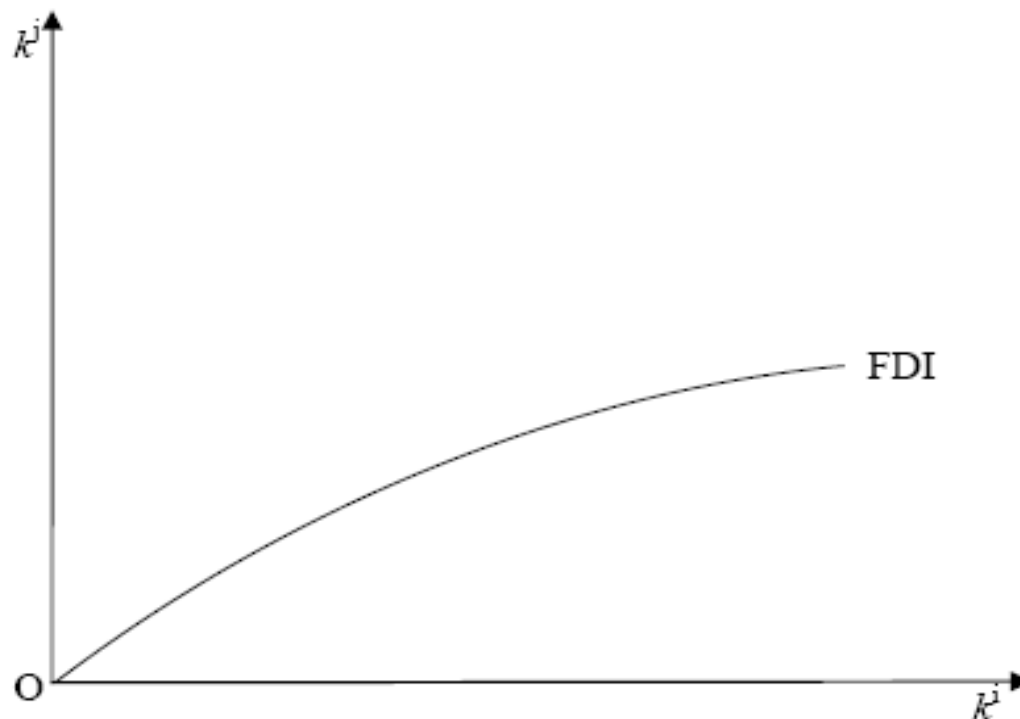
$$\beta = \frac{bf}{1 + f}$$

Financial Capital Flow



$$\text{FCF: } r^i = r^j \Leftrightarrow \lambda^j \left[1 + F'_k(1, K^j/L^j) \right] - \lambda^i \left[1 + F'_k(1, K^i/L^i) \right] = \rho^j - \rho^i$$

FDI



$$\text{FDI: } \lambda^j [1 + F'_k(1, K^j/L^j)] - \lambda^i [1 + F'_k(1, K^i/L^i)] = 0$$

Financial Capital Flow and FDI

$$\text{FCF: } r^i = r^j \Leftrightarrow \lambda^j [1 + F'_k(1, K^j/L^j)] - \lambda^i [1 + F'_k(1, K^i/L^i)] = \rho^j - \rho^i$$

$$\text{FDI: } \lambda^j [1 + F'_k(1, K^j/L^j)] - \lambda^i [1 + F'_k(1, K^i/L^i)] = 0$$

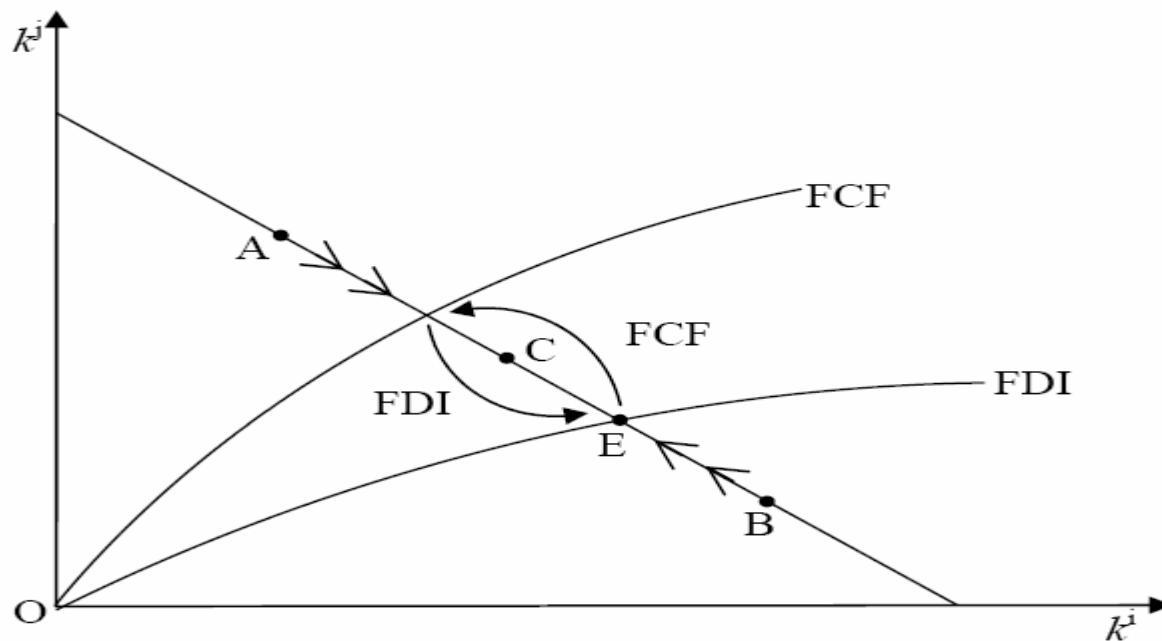


Figure 1: Boundary Conditions for Capital Flows

Two-Way Capital Flows

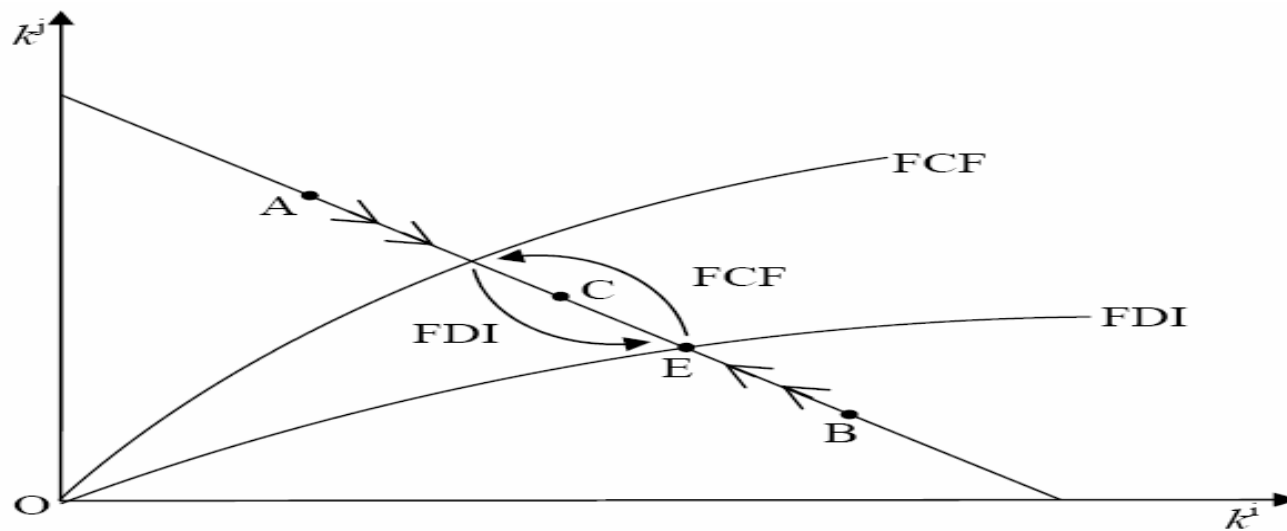
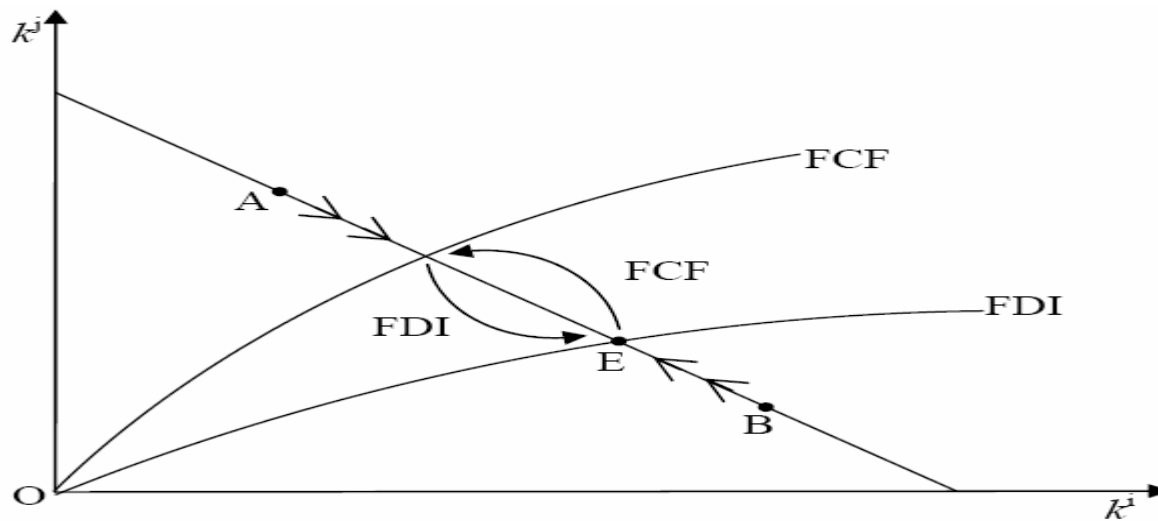


Figure 1: Boundary Conditions for Capital Flows

- The key insight of the complete capital bypass circulation is that FDI inflow and financial capital outflow reinforce each other so that in equilibrium a corner solution must occur.

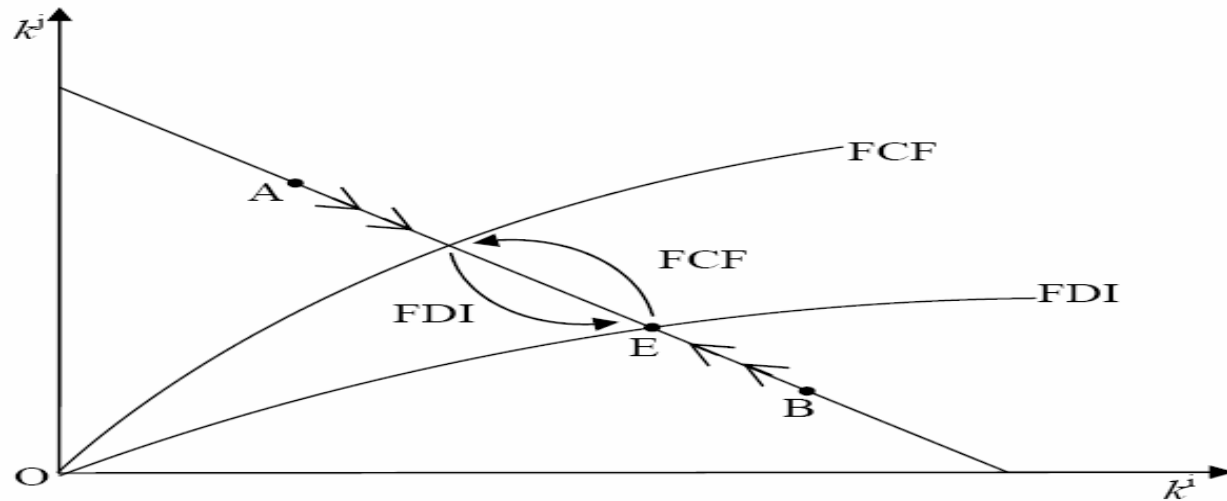
FDI in Equilibrium

$$\text{FDI: } \lambda^j [1 + F'_k(1, K^j/L^j)] - \lambda^i [1 + F'_k(1, K^i/L^i)] = 0$$



- A country with worse property rights protection receives less FDI in the equilibrium.

Net Capital Flow



- **Effectively capital abundant:**

$$\lambda^j [1 + F'_k(1, k^{j0})] > \lambda^i [1 + F'_k(1, k^{i0})] \Leftrightarrow \lambda^j \left(1 + \frac{1 - \alpha}{(k^{j0})^\alpha} \right) > \lambda^i \left(1 + \frac{1 - \alpha}{(k^{i0})^\alpha} \right)$$

- **Country i is a net exporter of capital if and only if the country is effectively capital abundant.**

Proposition 1

- *(A) In a frictionless world capital market, the unique equilibrium of capital flow is a complete capital bypass circulation in which all capital owned by the country with lower collective quality of financial institution and corporate governance leaves the country in the form of financial capital outflow, but physical capital (and projects) reenters the country in the form of FDI.*
 - *(B) The FDI flows less into the country with worse property rights protection.*
 - *(C) The country runs a capital account surplus if and only if the country is effectively capital abundant.*
-

Frictions and Capital Flows

■ FCF-out

$$\begin{aligned} r^i &\leq r^j - \tau^{ij} \\ \lambda^j [1 + F'_k(1, K^j/L^j)] - \lambda^i [1 + F'_k(1, K^i/L^i)] &\geq \rho^j - \rho^i + \tau^{ij} \end{aligned} \quad (11)$$

■ FCF-in

$$\begin{aligned} r^j &\leq r^i - \tau^{ji} \\ \lambda^j [1 + F'_k(1, K^j/L^j)] - \lambda^i [1 + F'_k(1, K^i/L^i)] &\leq \rho^j - \rho^i - \tau^{ji} \end{aligned} \quad (12)$$

Frictions and Capital Flows

$$U^{id} = \frac{b^i (1 + r^i)}{(1 + r^i) + c/\theta^i + b^i - (\lambda^j R^j - \eta^{ij})} - (1 + r^i)d^{ij} \geq U^i \Leftrightarrow$$

■ **FDI-out** $\lambda^j [1 + F'_k(1, K^j/L^j)] - \lambda^i [1 + F'_k(1, K^i/L^i)] \geq \frac{b^i d^{ij}}{(1 + f^i + d^{ij})(1 + f^i)} + \eta^{ij}$ (13)

■ **FDI-in** $\lambda^j [1 + F'_k(1, K^j/L^j)] - \lambda^i [1 + F'_k(1, K^i/L^i)] \leq -\frac{b^j d^{ji}}{(1 + f^j + d^{ji})(1 + f^j)} - \eta^{ji}$ (14)

Two-Way Capital Flows

$$\rho^j - \rho^i < -\frac{b^j d^{ji}}{(1 + f^j + d^{ji})(1 + f^j)} - \eta^{ji} - \tau^{ij} = C_I$$

$$\rho^j - \rho^i > \frac{b^i d^{ij}}{(1 + f^i + d^{ij})(1 + f^i)} + \eta^{ij} + \tau^{ji} = C_{II}$$

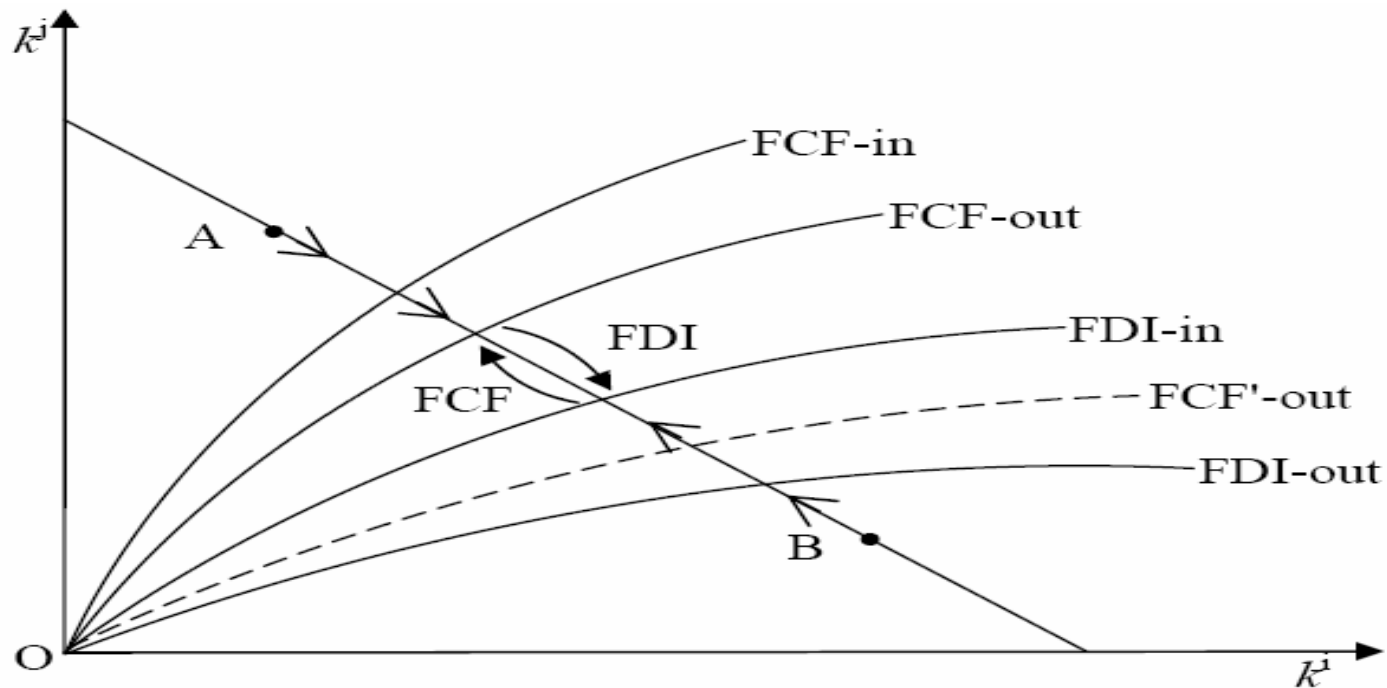


Figure 2: Boundary Conditions with Barriers to Capital Flows

One-Way Capital Flows

$$C_I < \rho^j - \rho^i < C_{II}$$

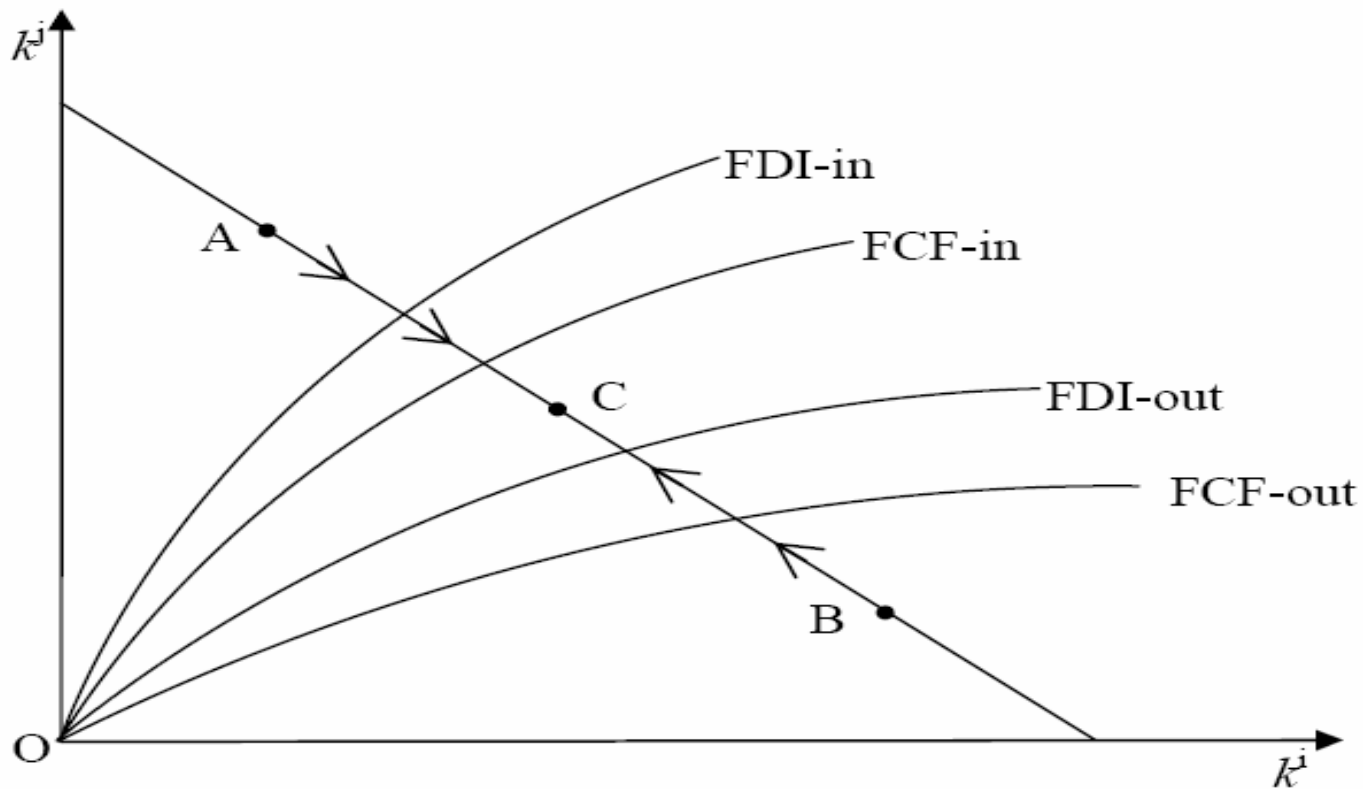


Figure 3: One-way Capital Flows

Proposition 2

- *If the difference in the collective agency costs between two countries is larger than the costs of capital flows the unique equilibrium in world capital market is a pattern of two-way capital flows that completely bypasses the inefficient financial system/weak corporate governance.*
 - *Otherwise there will be one-way capital flows. Either financial capital or FDI will flow out of an effectively capital abundant country into an effectively labor abundant one.*
-

Comparative Statics

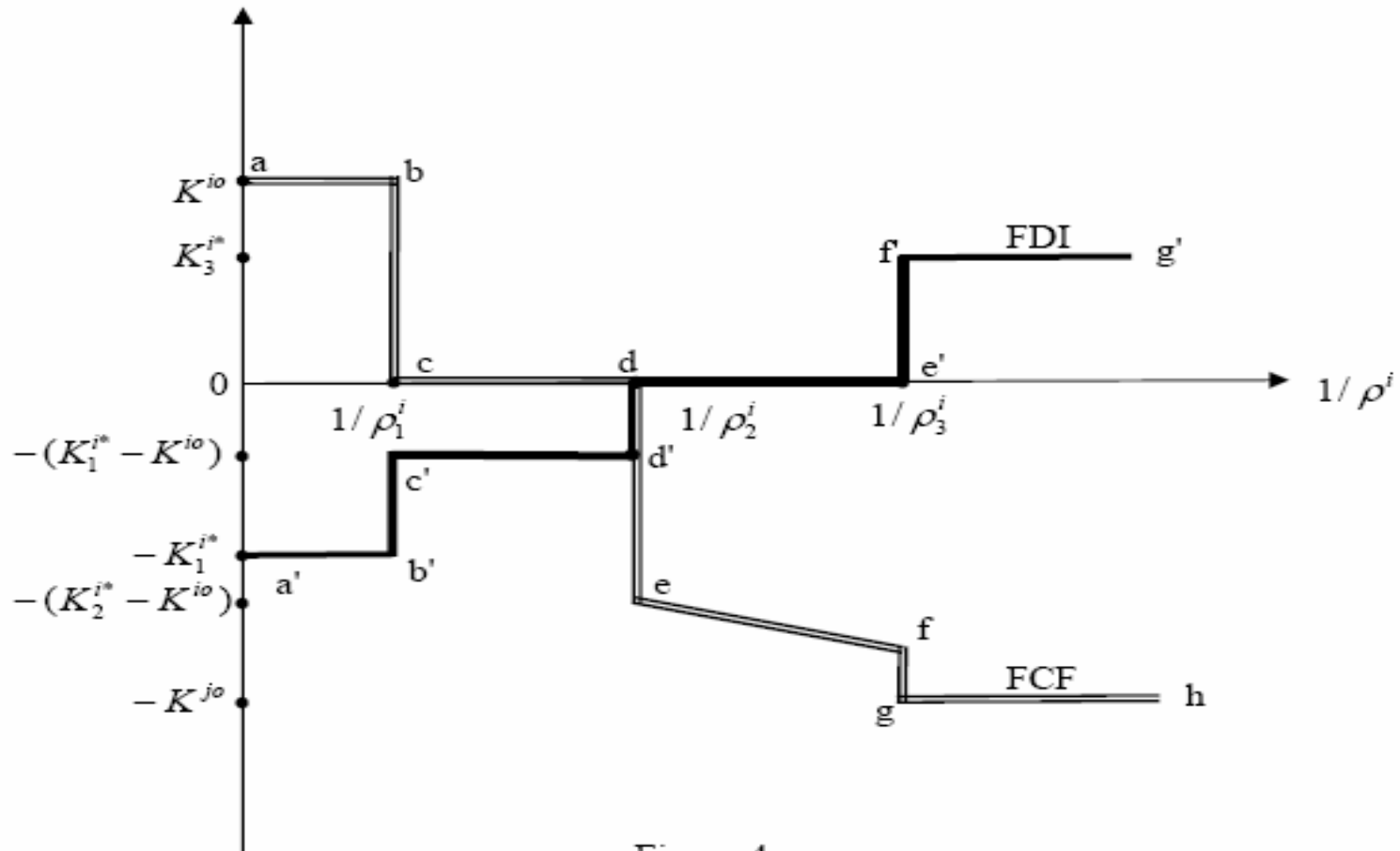


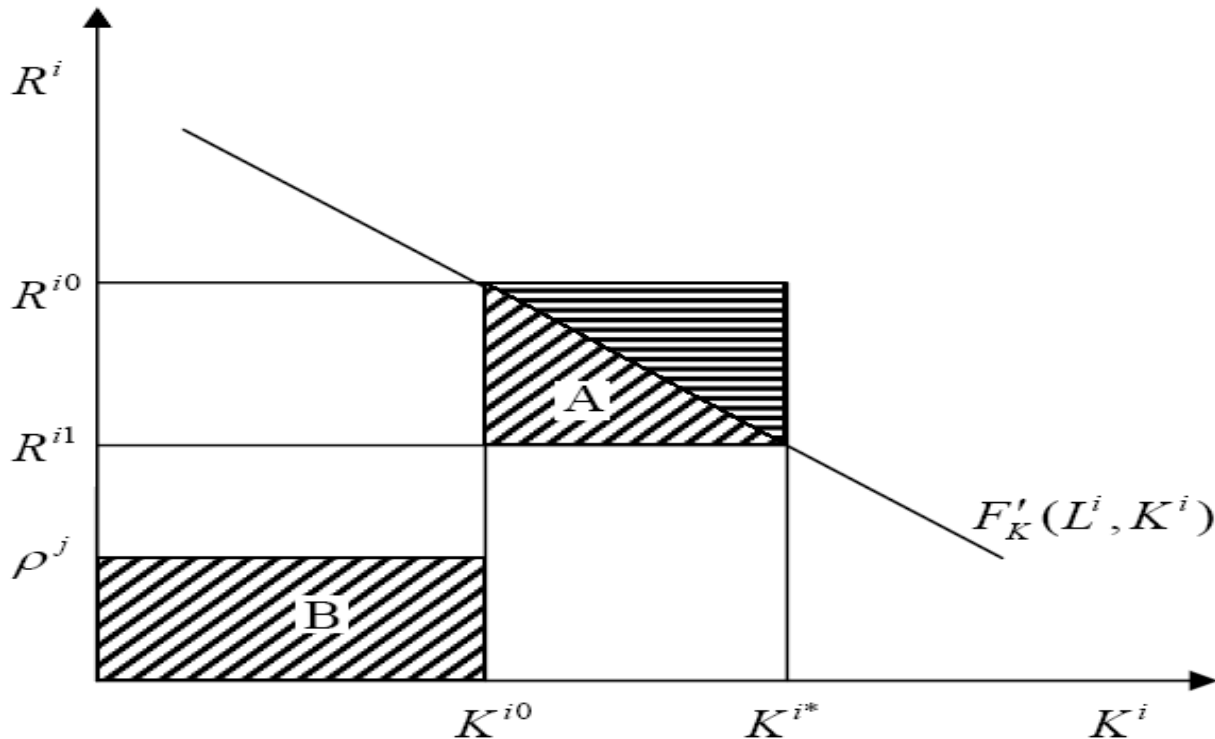
Figure 4

Propositions 3 and 4

- *As the collective quality of financial institution and corporate governance improves, net FDI outflow increases, but net financial outflow decreases.*
 - *As property rights protection improves, net FDI outflow and net financial outflow of the country decline.*
-

Welfare Impact

$$\begin{aligned} W^{i1} - W^{i0} &= \lambda^i \left[\int_{K^{i0}}^{K^{i*}} F'_k(L^i, K^i) dK^i + F'_k(L^i, K^{i*}) (K^{i0} - K^{i*}) \right] - \rho^j K^{i0} \\ &= A - B \end{aligned}$$



Welfare Impact

$$\begin{aligned} W^{j1} - W^{j0} &= \lambda^j \left[\int_{K^{j0}}^{K^{j1}} F'_k(L^j, K^j) dK^j + F'_k(L^j, K^{j1}) (K^{j0} - K^{j1}) \right] + \rho^j K^{i0} \\ &= A^j + B \end{aligned}$$

Propositions 5

- *The world welfare must improve from free capital mobility.*
 - *The country with higher collective quality of financial institution and corporate governance gains from global capital mobility.*
 - *For the country with an inferior financial institution and corporate governance, however, the welfare effect involves a trade off between an efficiency gain from better capital allocation and a loss of revenue previously accrued to domestic entrepreneurs and financial institution.*
-

Conclusions

- **The expected value marginal product of capital is the sum of the interest rate, the cost of financial intermediation, and the cost of weak corporate governance.**
 - **Domestic financial system and capital mobility are substitutes: inferior financial institution and corporate governance is completely bypassed by two-way capital flows.**
 - **The welfare effect is country dependent: the country with an inferior corporate governance/financial system may not gain from the bypass.**
-