Topics for Today

1.) Course Overview

2.) Some Empirical "Puzzles"

3.) A Simple 2-period Model of Intl. Borrowing & Lending

4.) The Gains from International Financial Integration

5.) Comparative Statics
   - Temporary vs. Permanent Shocks

6.) Extensions
   - Government Spending
   - Production & Investment

7.) A 2-country Model
   - endogenous interest rate

Outline

I. Current Account Dynamics (2 weeks)

OR Chpts. 1-2

- one good / one asset

II. Terms of Trade + the Real Exchange Rate (2 weeks)

OR chpt. 4

- multiple goods / one asset

III. Exchange Rate Dynamics (3 weeks)

OR chpt. 8

- Flexible prices, Mostly partial equilibrium

IV. International Risk Sharing / Portfolio Divesification (3 weeks)

OR chpt. 5

- Multiple Goods / Multiple Assets
- Complete vs. Incomplete Markets

V. International RBC Models (DSGE Models) (2 weeks)

- Investment Dynamics
- General Equilibrium

OR chpt. 7

VI. Sovereign Debt (2 weeks)

OR chpt. 6

- Incentive Compatibility + Enforcement Constraints

Some Questions

1.) What are the gains from international financial integration? Are there costs? Should nations attempt to "manage" capital flows?

2.) Should countries worry about current account deficits? Is the U.S. current account deficit "sustainable"?

3.) Why are exchange rates so volatile? Why can't we predict exchange rates?

4.) How do macroeconomic shocks get transmitted across countries? To what extent is the risk of these shocks shared across countries?

5.) Why doesn't capital flow from rich countries to poor countries?

Omitted Topics

1.) Sticky Prices, New Open-Economy Macro (NOEM)

2.) Optimal Stabilization Policies
- Monetary & Fiscal Policies
- Fixed vs. Flexible Exchange Rates

3.) International Financial Crises

4.) Growth & Development
- Political Economy Issues

Puzzles

1.) Home Bias
   - Goods Market
   - Asset Market

2.) Savings & Investment Correlations (Feldstein/Horioka)

3.) PPP Puzzle

4.) Forward Premium Puzzle

5.) Exchange Rate "Disconnect"

6.) Intl. Consumption Correlation Puzzle

7.) Backus-Smith Puzzle

Consumption Home Bias

McCallum (AER, 1995)

$$\log(T_{ij}) = \text{controls} + \delta \cdot \text{Dummy}$$

controls: distance, y_i, y_j

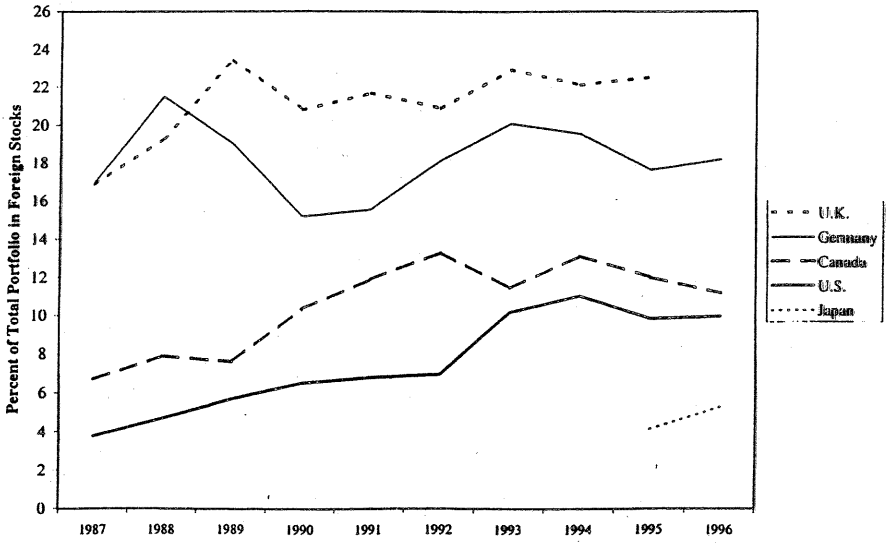
Dummy: $= 1$ for interprovincial; $= 0$ for prov-to-state

$\hat{\delta} \approx 3.1$

$\Rightarrow$ Ceteris Paribus, trade is 20 times higher between provinces than between provinces + states!

$(e^{3.1} \approx 20)$

Figure 2 HOME BIAS IN EQUITY PORTFOLIOS: 1987–1996



From Tesar and Werner (1998)

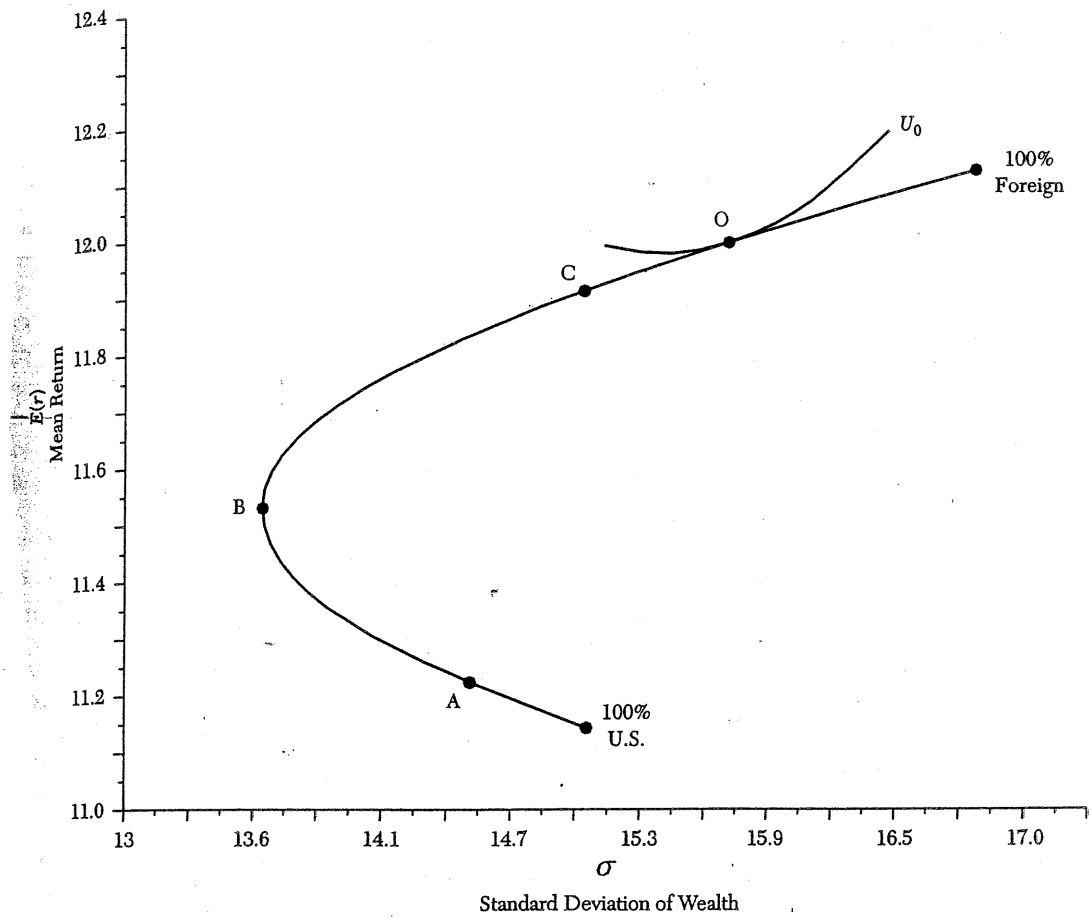


Figure 1. Risk Return Trade-Off Portfolios of U.S. and Foreign Mutual Funds

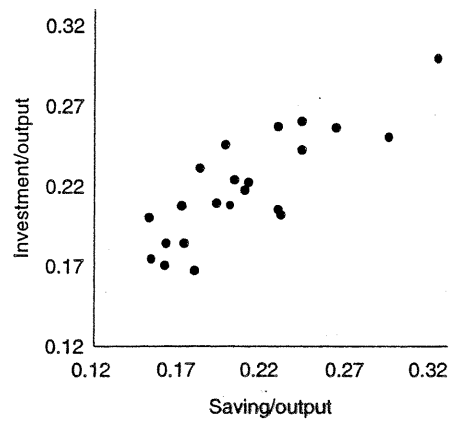


Figure 3.4
Industrial-country saving and investment rates, 1982–91

$$I/Y = 0.09 + 0.62S/Y, \qquad R^2 = 0.69\,.$$
$$\quad (0.02) \quad (0.09)$$

Table 2 FELDSTEIN–HORIOKA REGRESSIONS, $I/Y = \alpha + \beta\, NS/Y + \epsilon$, 1990–1997[a]

	No. of obs.	α	β	R^2
All countries[b]	56	0.15 (0.02)	0.41 (0.08)	0.33
Countries with GNP/cap. > 1000	48	0.13 (0.02)	0.48 (0.09)	0.39
Countries with GNP/cap. > 2000	41	0.07 (0.02)	0.70 (0.09)	0.62
OECD countries[c]	24	0.08 (0.02)	0.60 (0.09)	0.68

[a]OLS regressions. Standard errors in parentheses.
[b]Israel is excluded from all regressions in this table. If Israel is added to the samples of size (56, 48, 41), the estimates of β are (0.39, 0.45, 0.63).
[c]If one adds Korea to the OECD sample, the estimate for β rises to 0.76. Korea is included in the larger samples.

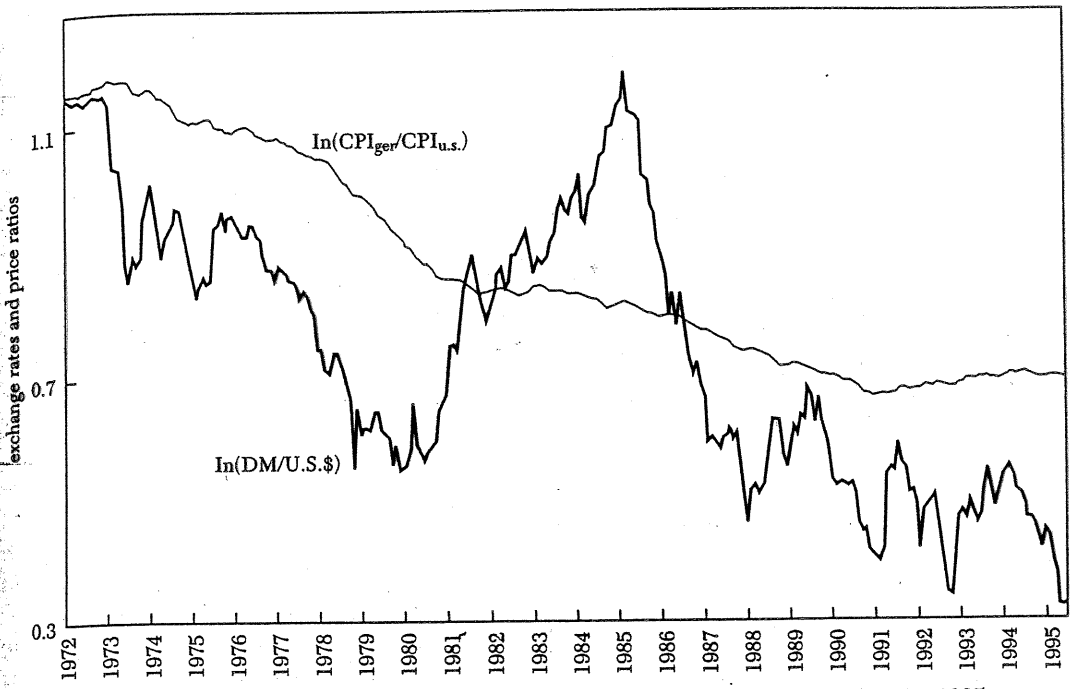


Figure 2. DM/U.S.$ exchange rate and ratio of German to U.S. CPIs, Jan. 1972–May 1995

Source: International Financial Statistics

Table 1

Regressions of Quarterly Depreciation on 3-Month Forward Premium

$\Delta s_{t+1} = \alpha + \beta(F_t - s_t) + \varepsilon_{t+1}$

	USD/GBP	USD/DEM	USD/JAY	GBP/DEM	GBP/JAY	DEM/JAY
			1976:I-1994:I			
$\hat{\alpha}_{OLS}$	-1.340	0.638	3.294	1.622	7.702	1.041
	(0.895)	(0.886)	(0.964)	(1.116)	(1.687)	(0.648)
$\hat{\beta}_{OLS}$	-1.552	-0.136	-2.526	-0.602	-4.261	-0.755
	(0.863)	(0.839)	(0.903)	(0.782)	(1.133)	(1.042)

Table 1: Predictable Excess Returns

$q_{t+1} = \alpha + \beta(i_t - i_t^*) + \epsilon_{t+1}$

Currencies	β	$\sigma(\beta)$	R^2
DEM	-1.8344**	0.8189	0.05
GBP	-2.9537***	1.1214	0.10
JPY	-4.0626***	0.7438	0.16
CND	-1.5467***	0.5305	0.05
CHF	-2.3815***	0.8068	0.09
EW Average	-2.5558***	0.6192	0.09
GDP Average	-2.9821***	0.6223	0.11

Note: $q_{t+1} = \Delta s_{t+1} - (i_t - i_t^*)$. Δs_{t+1} refers to the 3-month change in the log exchange rate. The exchange rate is measured as net-of-period rate from IFS. Interest rates are 3-month rates as quoted in the London Euromarket and were obtained from Datastream (Thomson Financial). *** and ** denote significance at respectively the 1% and 5% level. SUR system estimated from 109 quarterly observations over sample from December 1978 to December 2005. Newey-West standard errors with 1 lag. "EW Average" refers to the equally weighted average of the regression coefficients. The last row reports the GDP weighted average.

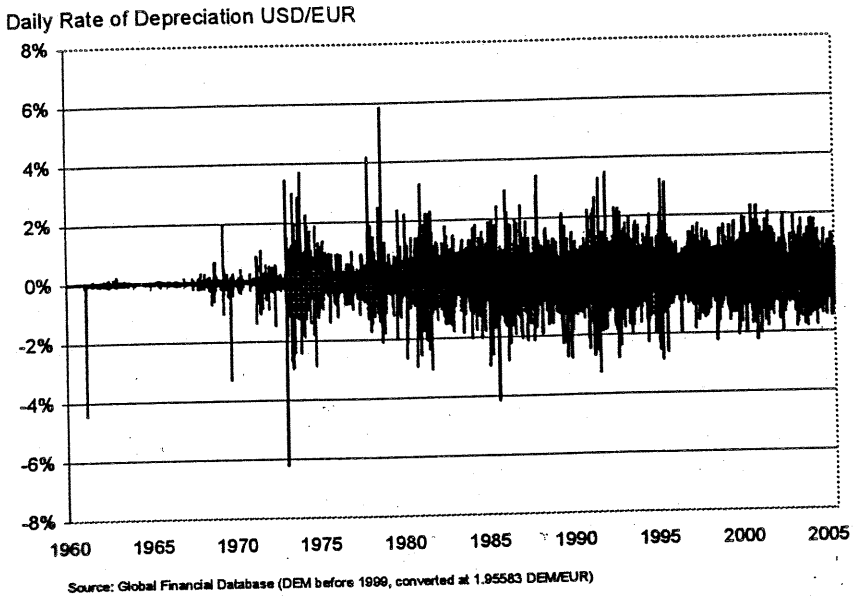


Figure 8 Mussa diagram.

Table 5.1
Consumption and Output: Correlations between Domestic and World Growth Rates, 1973–92

Country	Corr $(\hat{c}, \hat{c}^{w})$	Corr $(\hat{y}, \hat{y}^{w})$
Canada	0.56	0.70
France	0.45	0.60
Germany	0.63	0.70
Italy	0.27	0.51
Japan	0.38	0.46
United Kingdom	0.63	0.62
United States	0.52	0.68
OECD average	0.43	0.52
Developing country average	−0.10	0.05

Note: The numbers Corr$(\hat{c}, \hat{c}^{w})$ and Corr$(\hat{y}, \hat{y}^{w})$ are the simple correlation coefficients between the annual change in the natural logarithm of a country's real per capita consumption (or output) and the annual change in the natural logarithm of the rest of the world's real per capita consumption (or output), with the "world" defined as the 35 benchmark countries in the Penn World Table (version 5.6). Average correlations are population-weighted averages of individual country correlations. The OECD average excludes Mexico.

Backus-Smith Puzzle

Efficient Risk-Sharing Condition

$$\frac{u'(c_{t+1})/P_{t+1}}{u'(c_t)/P_t} = \frac{u'(c^*_{t+1})/P^*_{t+1}}{u'(c^*_t)/P^*_t}$$

$$\lambda_t = \frac{P^*_t}{P_t} = \text{real ex. rate}$$

Suppose, $u(\cdot) = \frac{1}{1-\rho} c^{1-\rho}$. Then,

$$\lambda_t = a_0 \left(\frac{c_t}{c^*_t}\right)^{\rho} \Rightarrow$$ Relative Consumption and real ex. rates perfectly correlated

A Simple Model of International Borrowing & Lending

Assumptions

1.) Only 2 periods

2.) Small Open Economy (exogenous interest rate)

3.) Endowment Economy (No production)

4.) 1 good (only intertemporal gains from trade)

5.) No Uncertainty

6.) Representative Agent (Domestic markets are complete)

Investment & the Current Account

$$\max_{C_1, I_1} \; U(C_1) + \beta U(C_2)$$

s.t.

$$C_1 + I_1 + \frac{C_2 + I_2}{1+r} = Y_1 - G_1 + \frac{Y_2 - G_2}{1+r}$$

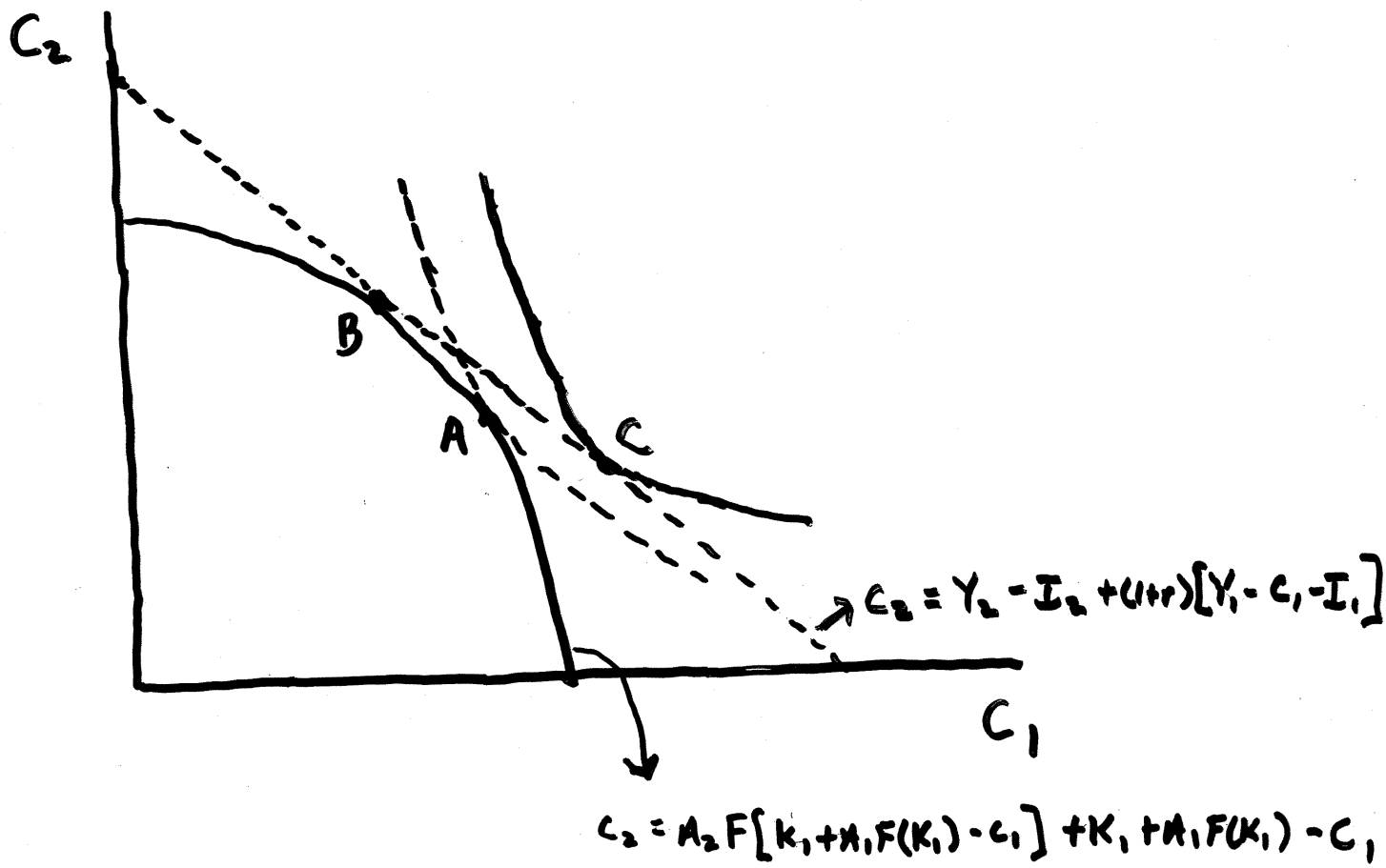
FOC's

C_1: $\quad U'(C_1) = \beta(1+r)\,U'(C_2)$

I_1: $\quad A_2 F'(K_2) = r$

Investment & the Current Acct.

Assume $r < r^A$ and $G_1 = G_2 = 0$



AB: Extra Investment

AC: Extra First-Period Consumption

BC: First-Period Current Acct. Deficit

Metzler Diagram

Since $CA_t = S_t - I_t$, can get a clearer idea of current acct. dynamics by plotting $S(r)$ vs. $I(r)$.

Suppose $G_1 = G_2 = 0$. Then since $S_1 = Y_1 - C_1$, we have

$$\frac{dS_1}{dr} = -\frac{dC_1}{dr}.$$

To compute $\frac{dC_1}{dr}$ use: a.) Euler Eq.
b.) Budget Constraint
c.) Implicit Function Theorem

$$\frac{dC_1}{dr} = \frac{\beta u'(c_2) + \beta(1+r)u''(c_2)\left\{A_1F(K_1) - c_1 - I_1 + [A_2F'(K_1+I_1) - r]\frac{\partial I_1}{\partial r}\right\}}{u''(c_1) + \beta(1+r)^2 u''(c_2)}$$

If $u(\cdot) = \frac{c^{1-1/\sigma}}{1-1/\sigma}$

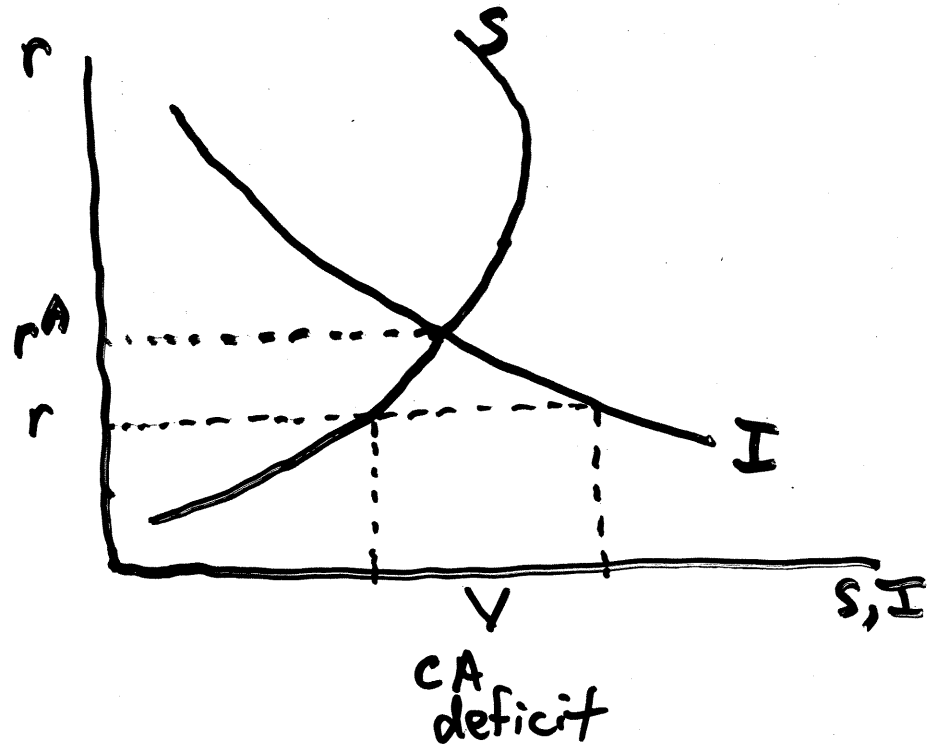
$$\boxed{\frac{dC_1}{dr} = \frac{Y_1 - c_1 - I_1 - \sigma C_2/(1+r)}{1+r+(C_2/C_1)}}$$

So in general,

Now derive I schedule, [FOC: $A_2 F'(K_1 + I_1) = r$]

$$A_2 F''(K_2) \frac{dI_1}{dr} = 1 \Rightarrow \frac{dI_1}{dr} = \frac{1}{A_2 F''(K_2)} < 0$$

Put them together,



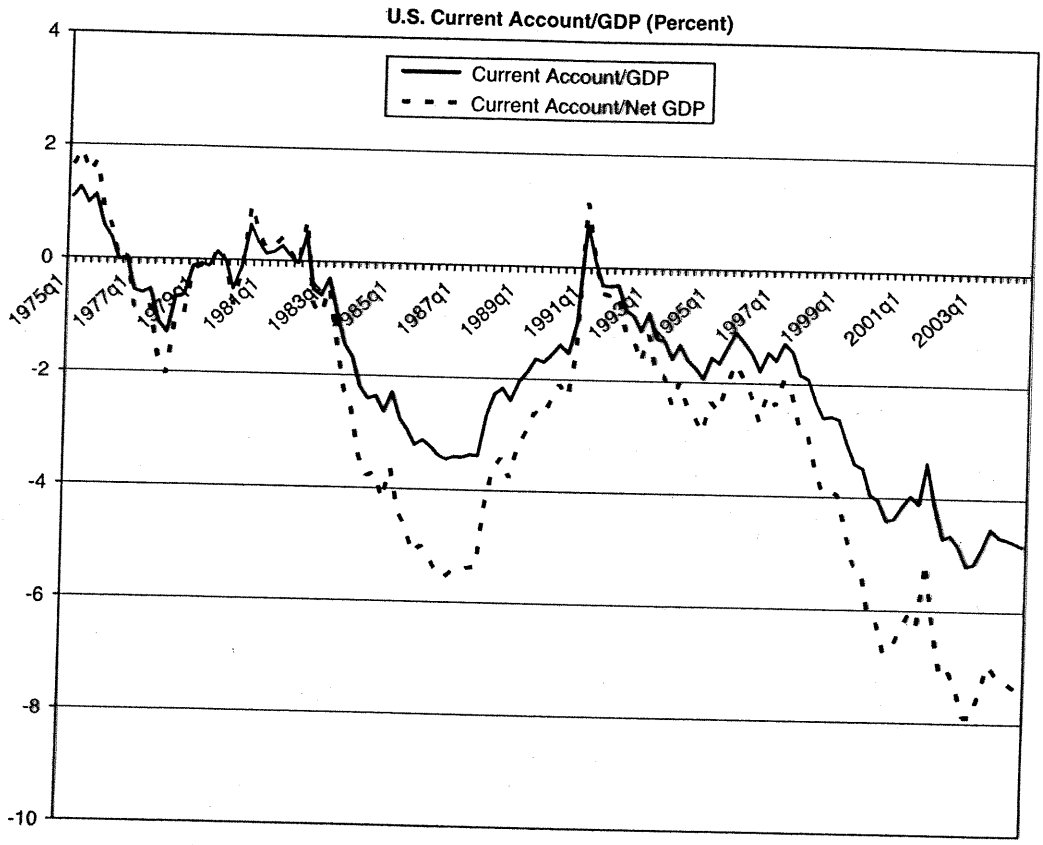


Fig. 1. U.S. current account/GDP (%).

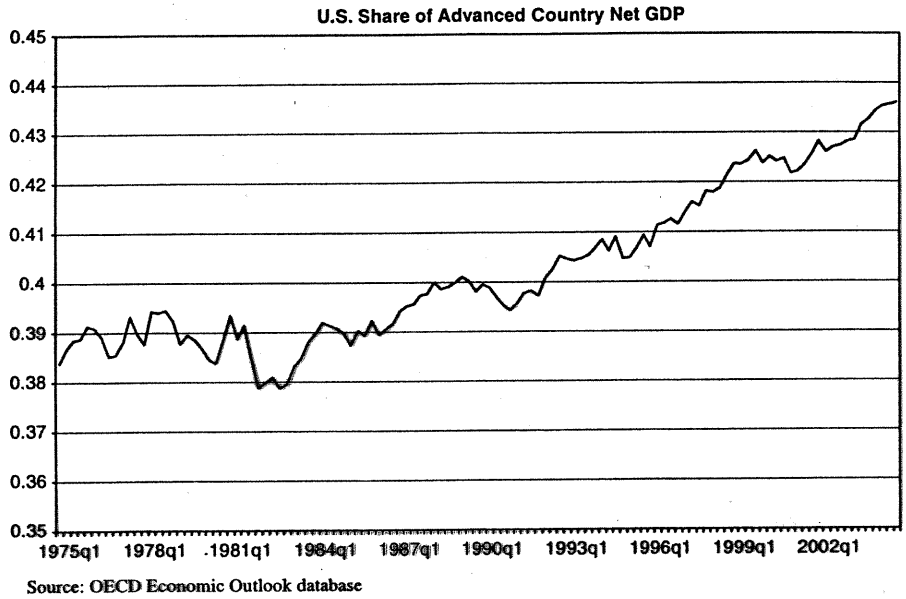


Fig. 2. U.S. share of advanced country net GDP. *Source*: OECD Economic Outlook database.