Fischer, Bernhard; Mayer, Thomas

Working Paper

The Impact of rising international interest rates on developing countries: The South Korean experience

Kiel Working Papers, No. 153

Provided in cooperation with:
Institut für Weltwirtschaft (IfW)

Suggested citation: Fischer, Bernhard; Mayer, Thomas (1982) : The Impact of rising international interest rates on developing countries: The South Korean experience, Kiel Working Papers, No. 153, http://hdl.handle.net/10419/46800

Kieler Arbeitspapiere
Kiel Working Papers

Working Paper No. 153

The Impact of Rising International Interest Rates on Developing Countries: The South Korean Experience

by

Bernhard Fischer and Thomas Mayer

Institut für Weltwirtschaft an der Universität Kiel

Kiel Institute of World Economics
Department IV
Düsternbrooker Weg 120, 2300 Kiel 1

Working Paper No. 153

The Impact of Rising International Interest Rates on Developing Countries: The South Korean Experience

by

Bernhard Fischer and Thomas Mayer

August 1982

Abstract

This paper evaluates the impact of rising international interest rates on the South Korean economy during the seventies with the help of an econometric macro model. The results show that there was an induced reduction of investment and GDP, yet inflationary pressures were somewhat mitigated by a lowering of capital inflows.

The Impact of Rising International Interest Rates on Developing Countries: The South Korean Experience*

I. Introduction

In the last decade developing countries had to cope with two substantial external shocks in the form of oil price boosts in 1974 and in 1979. The first oil price shock was still working its way through the economies when in the middle of the seventies an additional event affected the world economy. The major industrial countries tightened their monetary policies in order to lower domestic inflation with the result that there has been a distinct upward movement in the level of international interest rates. This has been further enforced by the Reagan administration in the US. As a consequence, both the developed and developing countries of the eastern and western hemisphere find themselves now exposed to conditions of external borrowing completely different to those prevailing in the beginning of the seventies. Our hypothesis is that developing countries, being large borrowers on the international financial markets, are especially hard hit by the interest rate increase.

The present study tries to evaluate the impact of rising international interest rates on a hitherto economically rather successful NIC, South Korea, by the use of an econometric ma-

* This paper reports research undertaken with financial support provided by the "Deutsche Forschungsgemeinschaft". The authors wish to thank J. B. Donges, S Gupta, J. Roth for helpful suggestions and M. Salden for programming assistance.

cro model. South Korea is of special interest in this context because of its high dependence on foreign capital inflows to finance domestic investment. In difference to most of the existing econometric models for South Korea[1] we treat capital flows as being determined endogenously by the model. This allows us to study the effects of international interest rate changes on the performance of the South Korean economy.

The remainder of the paper is structured as follows: Section 2 gives an outline of the model and its application to the Korean economy. Section 3 presents the simulation results and section 4 contains some concluding comments.

II. Analytical Framework

The use of an econometric macro model allows us to depict the linkages of the monetary with the real sector of the economy such that the working of the interest rate shock through the economy can be illustrated. We consider this approach superior to running regressions over reduced form equations as this technique provides only little insight into the macroeconomic adjustment mechanisms of an economy.

With the emphasis of the study being on short run and dynamic adjustments the model is in its character Keynesian and mainly demand determined[2]. It reflects the structure of the

---

[1] See f.e. Lee, Chong (1979), Otani, Park (1976) and Shin, Kim (1981).

[2] This implies the assumption that there is unemployment of productive factors. We judge this more realistic for the Korean economy during the seventies than the full employment assumption.

Korean economy and is specified for quarterly time periods. A schematic representation of the theoretical model equations is given in Table 1. For exposition purposes it is useful to distinguish between a real and a monetary sector.

a. The real sector

Real consumption (C^r) is determined by a permanent-income type consumption function (with Y_t^r being real income) which has as further arguments seasonal dummy variables (D1,D2,D3) [eq. 1]. The accelerator mechanism governs real investment (I^r). In order to take into account domestic credit restraints in form of credit rationing for the investors, real money ($\frac{M^2}{P}$) is also included as an explanatory variable in the investment equation (eq. 2). Imports (IM^r) are a function of real income, the relationship between domestic (P) and foreign prices (PIME), and seasonal dummy variables. The lagged endogenous variable is included in order to depict partial adjustment processes (eq.3). Like in the import function, the export variable (EX^r), lagged one period, is, together with the relationship between export prices (PEXE) and domestic prices (P) and a time trend variable (T), included in the right-hand-side of equation (4) to take into account adjustment delays in exporting. The real sector of the model is completed by the national accounts identity equating real GDP to the sum of real consumption, investment, government expenditures (G^r) and the trade balance (EX^r-IM^r) [eq. 5].

Table 1 - A Macro Model for the South Korean Economy

Real Sector

Consumption	(1)	C_t^r	$= a_o + a_1 Y_t^r + a_2 C_{t-1}^r + a_3 D1 + a_4 D2 + a_5 D3$
Capital Formation	(2)	I_t^r	$= b_o + b_1 (Y_t^r - Y_{t-1}^r) + b_2 (M2/P_t) + b_3 D1 + b_4 D2 + b_5 D3$
Imports	(3)	IM_t^r	$= c_o + c_1 Y_t^r + c_2 (P_t/PIME_t) + c_3 IM_{t-1} + c_4 D1 + c_5 D2 + c_6 D3$
Exports	(4)	EX_t^r	$= d_o + d_1 EX_{t-1}^r + d_2 (PEXE_t/P_t) + d_3 T$
Gross Domestic Product	(5)	Y_t^r	$= C_t^r + I_t^r + G_t^r + EX_t^r - IM_t^r$

Monetary Sector

Price Equation	(6)	P_t	$= e_o \left(\frac{M2_t}{M2_{t-1}}\right) \cdot Y_t^{r\,-e_1} \cdot \left(\frac{M2_{t-1}}{P_{t-1}}\right)^{e_2} \cdot P_{t-1} \cdot EIR_t^{e_3} \cdot DI_t^{-e_4}$
Currency/Money-Ratio	(7)	$(C/M2)_t$	$= f_o + f_1 Y_t^r - f_2 \cdot DI_t + f_3 (C/M2)_{t-1} + f_4 D1 + f_5 D2 + f_6 D3$
Money Multiplier	(8)	m_t	$= 1/((1-R_t) \cdot (C/M2)_t + R_t)$
Money Stock	(9)	$M2_t$	$= m_t \cdot B_t$
Base Money	(10)	B_t	$= DC_t + NFA_t$
Net Foreign Assets	(11)	NFA_t	$= g_o + g_1 PEXE_t + g_2 EX_t^r - g_3 PIME_t - g_4 IM_t^r + g_5 \cdot ER_t \cdot KIM_t + g_6 EAO_t^r + g_7 NFA_{t-1} + g_8 DUM$
Net Capital Imports	(12)	KIM_t	$= h_o + h_1 DI_t^r - h_2 FI_t^r - h_3\, EER_t^r$
Expected Exchange Rate	(13)	EER_t^r	$= i_o + i_1 ER_t^r + i_2 ER_{t-1}^r + i_3 ER_{t-2}^r + i_4 ER_{t-3}^r + i_5 ER_{t-4}^r$

Definitional Equations

Export Prices	(14)	$PEXE_t$	$= ER_t \cdot PEX_t$
Import Prices	(15)	$PIME_t$	$= ER_t \cdot PIM_t$
Real Exchange Rate	(16)	ER_t^r	$= ER_t \cdot USP_t/P_t$
Expected Inflation Rate	(17)	EIR_t	$= (P_{t-1} - P_{t-5})/P_{t-5}$

* superscript r indicates real value of the variables

b. The monetary sector

The price equation (eq. 6) is derived from an ordinary demand for money function, which can be written in log-linear form as follows

$$\text{(i)} \quad \log \left(\frac{M2}{P}\right)^{d}_{t} = a_o + a_1 \log Y^{r}_{t} + a_2 \log DI_t - a_3 \log EIR_t$$

In this equation M2 stands for money (the broader definition), P for prices, Y^r for real income, DI for the nominal interest rate on bank deposits and EIR for the expected annual rate of inflation. The superscript d indicates that equation (i) describes the desired demand for real money.

Allowing for partial adjustment processes we can rewrite (i) and obtain

$$\text{(ii)} \quad \log \left(\frac{M2}{P}\right)_t = \log \left(\frac{M2}{P}\right)_{t-1} + \lambda \left[a_o + a_1 \log Y^{r}_{t} + a_2 \log DI_t - a_3 \log EIR_t - \log \left(\frac{M2}{P}\right)_{t-1}\right]$$

where λ is the adjustment coefficient[1].

Solving equation (ii) for $\log P_t$ and rearranging the terms we obtain equation (6) of Table 1.

---

[1] Recall that partial adjustment implies

$$\log \left(\frac{M2}{P}\right)_t - \log \left(\frac{M2}{P}\right)_{t-1} = \lambda \left[\log \left(\frac{M2}{P}\right)^{d}_{t} - \log \left(\frac{M2}{P}\right)_{t-1}\right]$$

By substituting equation (i) into the above equation we yield equation (ii).

Equation (7) to (13) explain the money supply process. The currency-to-money relation (C/M2) is determined by real income and the domestic interest rate together with seasonal dummy variables. The lagged endogenous variable depicts adjustment delays (eq. 7). The money multiplier (m) is determined by the reserve requirements for the commercial banks (R) and the currency-to-money ratio (eq. 8). Nominal money supply is given as the product of multiplier and monetary base (B) [eq. 9]. The latter consists of a domestic credit component (DC) [sum of central bank credits to the private and the public sector] and the net foreign assets of the central bank (NFA) [eq. 10]. The NFA variable is a function of the balance-of-payments components (with PEXE being export prices in domestic currency, KIM net capital imports in foreign currency, ER the exchange rate and EAO^r errors and omissions in the trade balance) and a u-shaped trend variable (DUM)[1] reflecting the additional influence of the first oil price shock not explained by the other variables (eq. 11). Net capital imports (KIM) are assumed to be a function of real interest rate differences (with FI^r being foreign real interest rates) and the real expected exchange rate (EER^r). Although capital flows were controled by the Korean government to some extent we believe that, even if these controls were effective, market forces were not completely out of order in determining capital imports to South Korea. As we do not intend to explain mainly speculative

[1] This time trend variable decreases from the beginning of the estimation period, reaches its minimum in the fourth quarter of 1974 and increases again.

capital movements, we consider interest rates as well as exchange rate expectations in real terms (eq. 12). Finally equation (13) describes the real expected exchange rate as a function of the current and past real exchange rates (ER^r).

c. The complete model

Basically all variables related to the government sector and the central bank (i.e. government expenditures [G^r], central bank credits to the private and public sector [DC], the reserve ratio [R], the nominal exchange rate [ER], and the domestic interest rate[1] [DI^r]) as well as those variables related to the world market (i.e. export [PEX] and import prices [PIM] in foreign currency, the international interest rate [FI^r] and the foreign price level [USP] are treated as exogenous to the model. Furthermore, several other variables theoretically not related to the Korean economy nor the world market (i.e. the dummy variables [D1,D2,D3,DUM], the time trend [T] and errors and omissions in the balance of trade [EAO^r]) are also included in the model. Given the values for these exogenous and the predetermined variables, the numerically specified model can be solved for the endogenous variables[2].

We expect a change of the level of international interest rates to work its way through the economy in the following

[1] Interest rates have been controlled by the South Korean government.

[2] As the model is non-linear, an iterative solution algorithm like, for example, the Gauss-Seidel procedure can be applied.

way: An increase of international interest rates induces a reduction of net capital imports according to equation (12). This can be either due to an increase in gross capital exports (including higher debt services) or to a reduction in gross capital imports. The change of net capital imports affects net foreign assets of the central bank via equation (11) and, consequently, the monetary base (eq. 10). The implied reduction of the monetary base diminishes money supply (eq. 9) and leads via equation (6) to a reduction of the price level. Thus, through equation (3), imports are lowered.

The change in money supply and in the price level induces a change in real money and influences the availability of credits to the investors (eq. 2). The effects on GDP in the first round are then determined by the change in the trade balance, investment, and, consecutively, by the change in consumption. The change in GDP, determined by the equations of the real sector, feeds back into the monetary sector via equations (6) and (7) and starts the next round in the simultaneous solution process. Evidently, the resultant quantitative impact of the considered international interest rate increase is governed by the estimated parameter values for the model system. Nevertheless, real domestic absorption (i.e. consumption and/or investment) is expected to fall. Whether the effect of the interest rate shock on South Korean GDP is, as one might expect, negative or turns out to be zero or positive in sign depends on the one hand on the size of the induced import cutback and on the other on the change in real money and investment.

d. Estimation

Quarterly data were obtained from the IMF, International Financial Statistics. The sample period for estimation (and solution) is taken to be from the third quarter of 1973 to the fourth quarter of 1979, with earlier quarters used for lagged values as required. Real variables are expressed in 1975 constant prices and in billions of won with the exception of net capital imports which are expressed in billions of current US-Dollars. All indices refer to 1975 as the base year. We take the US consumer price index, the US nominal interest rate for medium-term government bonds minus US-inflation rate and the Won to US-Dollar exchange rate as proxies for the foreign price level, real foreign interest rates and the Korean exchange rate. Hence export and import prices in foreign currency refer to the respective price indices in US-Dollars to the 1975 base year. The ratio for reserve requirements is calculated as a weighted average of the reserve ratios on demand, savings, and time deposits[1]. Finally we approximate the expected annual rate of inflation by the rate of inflation lagged one period.

For estimation purposes we divide the model into one recursive and one simultaneous block of equations. The recursive block consists of the definitional equations for the export prices, import prices, the expected inflation rate, the export

---

[1] Bank of Korea, Economic Statistics Yearbook, Seoul, various issues.

function, the net capital import function and the function for the real expected exchange rate[1]. The simultaneous blocks consists of the remaining model equations.

We employ Ordinary Least Squares (OLS) for the estimation of the recursive equations and Two Stage Least Squares (TSLS) for the simultaneous equations. Results are presented in Table 2. In the equations of the real sector all coefficients have the expected sign and are mostly statistically significant as indicated by the t-values. The residuals of the import function appear to be serially correlated as indicated by the high h value[2]. For the currency-to-money-ratio-function h is not computable. For the remaining equations the hypothesis of first order serial correlation cannot be accepted.

The parameter for the relation between export prices and domestic prices in equation (4), for the growth of money variable in equation (6) as well as the coefficients for the real domestic interest rates in equations (7) and (12) proved to be not significantly different from zero and are therefore set to nought. Furthermore, as simulation experiments with the model showed that a change in the (insignificant) constant of equation (11) influences the results of the system,

---

[1] The last two equations are excluded from the block of simultaneous equations because we use the Almon-lag technique to study the influence of the lagged real exchange rate on net capital imports. From the reduced form estimates of equations (12) and (13) we calculate the coefficients h_3, and i_0 to i_5. Our computer package does not yet allow the combination of Two-Stage-Least-Squares with Almon lags.

[2] Durbin's h-statistic was computed for all equations containing lagged endogenous variables. As this test is strictly speaking applicable only for large sample sizes not too much weight can be given to the h values in the present case.

Table 2 - Regression Results for Behavioural Equations[1]

		Method	F-Statistic	$\bar{R}^2$	DW-Statistic	h-Statistic
Consumption	(1)' $C^r_t = -119.446 + 0.429Y^r_t + 0.206C^r_{t-1} + 543.914D1 +$ (-2.768) (13.240) (3.304) (7.486) $489.003D2 + 534.549D3$ (10.040) (9.526)	TSLS	795.368	0.99	1.674	0.877
Capital Formation	(2)' $I^r_t = -708.833 + 0.186(Y^r_t - Y^r_{t-1}) + 34.611(M2_t/P_t) +$ (-4.881) (2.475) (18.075) $384.167D1 + 322.715D2 + 286.513D3$ (1.454) (3.095) (2.037)	TSLS	82.033	0.94	1.206	--
Imports	(3)' $IM^r_t = -65.046 + 0.024Y^r_t + 34.013(P_t/PIME_t) + 0.490IM^r_{t-1}$ (-2.817) (2.882) (1.355) (3.433) $+32.128D1 + 45.560D2 + 27.458D3$ (1.813) (3.434) (1.630)	TSLS	72.775	0.96	2.532	-1.979
Exports	(4)' $EX^r_t = -5.926 + 0.367EX^r_{t-1} + 3.430T$ (-0.534) (1.892) (3.083)	OLS	107.911	0.90	2.029	-0.494
Price Equation	(6)' $\log P_t = 0.241 - 0.320\log Y^r_t + 0.127\log(M2_{t-1}/P_{t-1}) +$ (2.941) (-1.909) (3.082) $0.907\log P_{t-1} + 0.015\log EIR_t$ (23.823) (2.261)	TSLS	1525.13	0.99	1.879	0.273
Currency/Money-Ratio	(7)' $(C/M2)_t = 0.117 + 0.000003Y^r_t + 0.237(C/M2)_{t-1} - 0,024D1 -$ (3.911) (1.609) (1.038) (-3.118) $0.025D2 - 0.009D3$ (-5.789) (-1.956)	TSLS	19.297	0.83	1.898	--
Net Foreign Assets	(11)' $NFA_t = 12.994 + 14.832PEXE_t + 3.104EX^r_t - 10.511PIME_t -$ (0.099) (2.790) (2.402) (-2.579) $8.449IM^r_t + 0.339KIM_t + 0.876EAQ_t + 0.764NFA_{t-1} +$ (-3.956) (1.656) (2.974) (5.650) $21.889DUM$ (1.673)	TSLS	153.163	0.99	1.815	0.651
Net Capital Imports	(12)' $KIM_t = 2.711 - 0.023FIR^r_t - 0.005EER^r_t$ (8.553) (-1.870) (-7.296)	OLS	18.11	0.71	2.512	—
Expected Exchange Rate[2]	(13)' $EER^r_t = 0.145ER^r_t + 0.172ER^r_{t-1} + 0.200ER^r_{t-2} +$ $0.228ER^r_{t-3} + 0.255ER^r_{t-4}$					

[1] Figures in parantheses under coefficients are t-ratios; the F-statistics and the adjusted R^2s are taken from OLS estimates not reported here. - [2] Implied by the estimation of the reduced form of (12) and (13) with the Almon-lag technique.

this parameter also is restricted to zero in all further simulation experiments. The reduced form estimation of equations (12) and (13) was carried out with a second degree polynomial weighting structure over four lags, which yielded the best fit for net capital imports[1]. The weights of equation (13) were calculated from the lag coefficients and normalized to unity[2].

III. Simulations

US nominal interest rates have increased in the time period 1972-1979 from about 5 per cent to a little more than 10 per cent. We try to investigate the impact of this doubling of foreign interest rates on the South Korean economy with help of the model by comparing two simulation runs. In the first run we use the model to describe the historical time path of the South Korean economy in the period from 1973/3 to 1979/4. This simulation also serves the purpose to test the explanatory power of the model. Next we assume that US nominal interest rates had remained at their 1972 level and simulate the induced time path of the economy. A comparison of the two simulation runs will then reveal the impact of the interest rate increase on the South Korean economy.

---

[1] The estimation result is:

$$KIM_t = \underset{(8.553)}{3.711} - \underset{(-1.870)}{0.023}\, FIR^r_t - \underset{(-1.085)}{0.00075}\, ER^r_t - \underset{(-2.471)}{0.00088}\, ER_{t-1} -$$

$$\underset{(-7.311)}{0.00102}\, ER^r_{t-2} - \underset{(-2.994)}{0.00116}\, ER^r_{t-3} - \underset{(-1.798)}{0.00129}\, ER^r_{t-4}$$

[2] They were obtained by dividing each respective lag coefficient through the sum of lag coefficients.

a. Control simulation

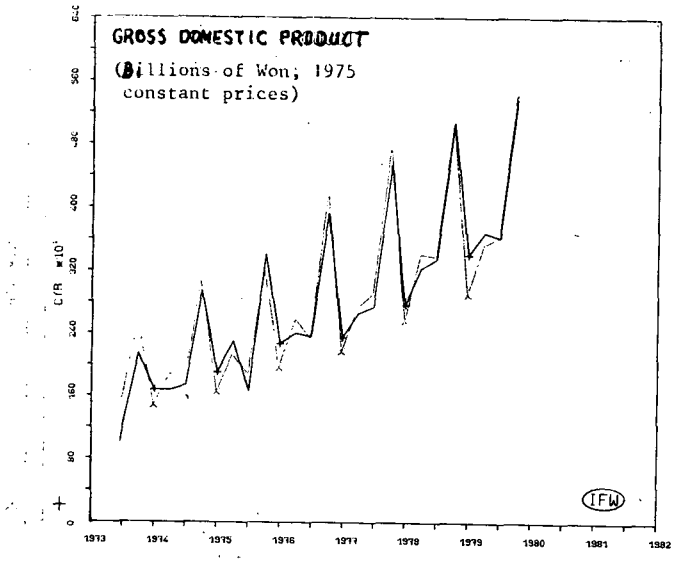
We used the Gauss-Seidel procedure to solve the model. Convergence was reached for every solution. The results of the base simulation appear to be quite reasonable. The actual and simulated values of selected variables are plotted in Chart 1. Table 3 presents the mean-absolute-percentage-errors (MAPE) of the endogenous variables. In spite of the high degree of endogeneity of the model and severe fluctuations of important variables in the 1974-1975 period the values seem satisfactory. The rather high MAPE for the net foreign assets is due to the erratic changes of capital imports. Yet the performance of these variables do not pose a severe problem to the overall performance of the model in explaining the historical time paths of other endogenous variables.

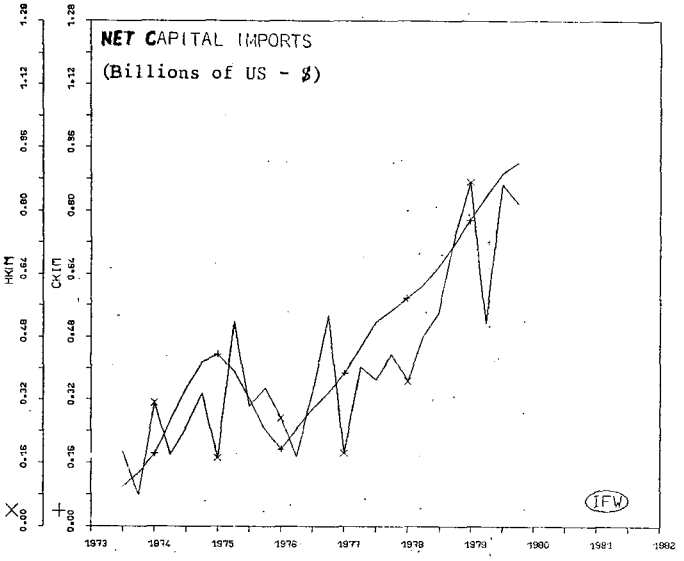
b. Interest Rate Simulation

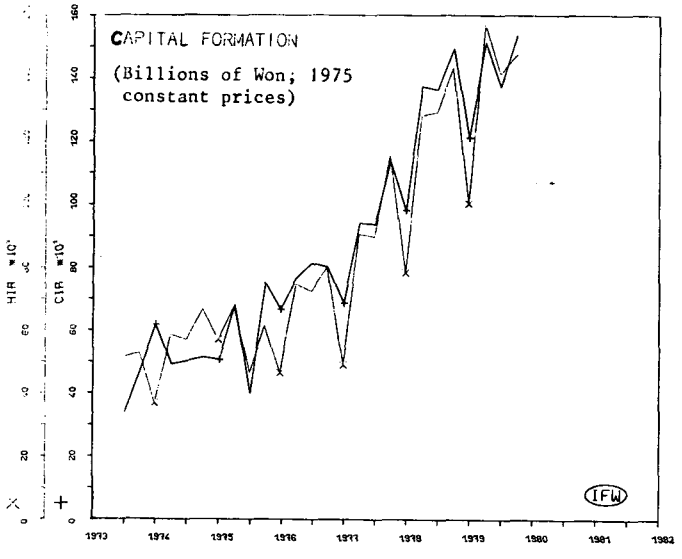
The effects of rising international interest rates are depicted in Table 4. The figures indicate the percentage deviation of a simulation with constant foreign interest rate from the historical simulation for the most important variables.

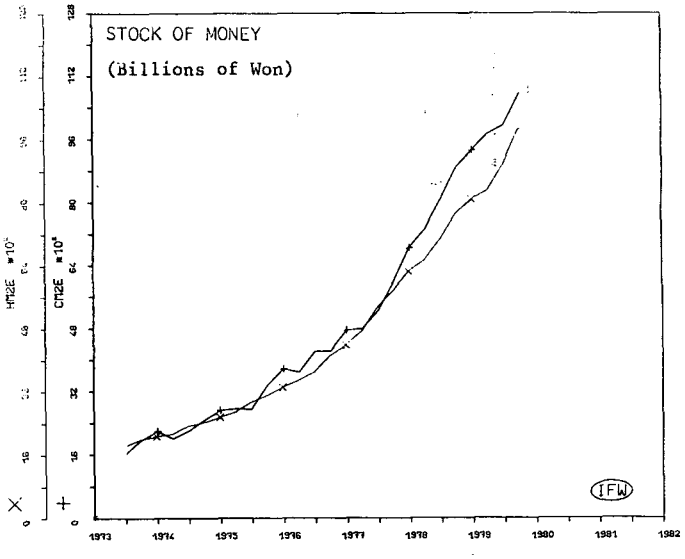
With foreign interest rates held constant at their 1972 level, the net foreign capital inflow is much higher than in the historical simulation. This leads to an increase in nominal money supply. As domestic prices follow the moneatry ex-

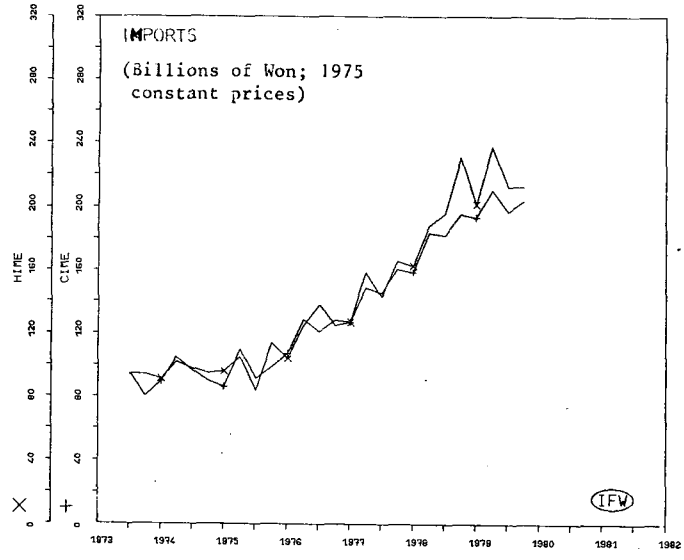
Chart 1 - Actual (X) and Simulated (+) Time Path of Selected Variables, 1973/3 - 1979/4











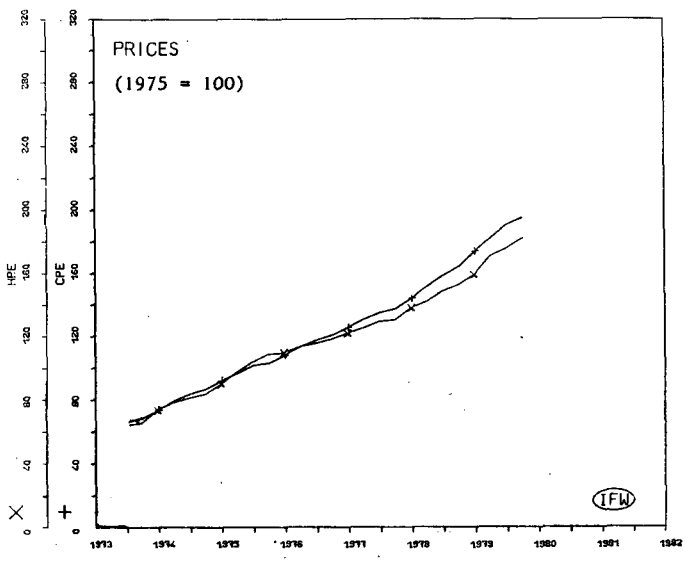


Table 3 - Mean Absolute Percentage Error (MAPE) for Endogenous Variables during Historical Simulation, 1973/3 - 1979/4

Consumption (in 1975 Won)	6.14
Investment (in 1975 Won)	15.19
Imports (in 1975 Won)	5.79
Exports (in 1975 Won)	10.53
Gross domestic product (in 1975 Won)	9.09
Money: M2 (nominal)	8.04
Consumer Price Index (1975 = 100)	4.02
Monetary base (nominal)	6.73
Net foreign assets of the central bank (nominal)	41.97
Currency/money ratio	2.72
Money multiplier	5.35
Capital imports (in current US-Dollars)	38.08

Table 4 - Constant Interest Rate Simulation: Percentage Deviations from the Control Simulation

		Consumption	Investment	Imports	Money	Prices	Capital imports	GDP
1973	3	0.21	1.37	0.14	0.39	-0.02	21.99	0.49
	4	0.19	0.61	0.20	0.36	0.03	11.60	0.16
1974	1	0.19	0.72	0.25	0.46	0.06	12.65	0.29
	2	0.23	1.16	0.28	0.73	0.10	12.35	0.37
	3	0.22	1.17	0.37	0.82	0.17	10.89	0.34
	4	0.16	0.93	0.40	0.76	0.24	7.89	0.13
1975	1	0.13	0.92	0.40	0.76	0.30	6.28	0.19
	2	0.14	0.84	0.35	0.89	0.34	8.96	0.20
	3	0.13	1.30	0.45	0.96	0.39	11.81	0.21
	4	0.10	0.68	0.44	0.91	0.44	17.93	0.08
1976	1	0.20	1.32	0.52	1.13	0.47	32.03	0.32
	2	0.22	1.22	0.50	1.35	0.52	25.61	0.31
	3	0.14	0.90	0.53	1.23	0.59	20.77	0.17
	4	0.07	0.77	0.48	1.18	0.63	16.24	0.05
1977	1	0.06	0.91	0.48	1.14	0.66	14.69	0.07
	2	0.05	0.67	0.42	1.18	0.68	13.07	0.06
	3	-0.01	0.49	0.41	1.08	0.70	11.19	-0.04
	4	-0.04	0.35	0.35	0.97	0.69	11.33	-0.04
1978	1	-0.01	0.56	0.37	0.99	0.67	12.27	0.00
	2	0.00	0.42	0.33	0.99	0.65	12.48	0.01
	3	0.00	0.41	0.34	0.95	0.63	11.89	0.00
	4	0.01	0.38	0.31	0.91	0.60	11.63	0.01
1979	1	0.07	0.68	0.35	0.98	0.57	11.31	0.11
	2	0.09	0.54	0.33	1.01	0.56	10.50	0.11
	3	0.08	0.55	0.34	0.98	0.55	9.66	0.09
	4	0.10	0.58	0.34	0.99	0.55	12.06	0.10

pansion with some delay, real money supply first grows and stimulates investment. This induces an increase in GDP and consecutively in consumption and in imports. The higher imports can be sustained because of higher capital imports.

By the end of 1976 the GDP time path converges with the control simulation. This is mainly because at that time prices have caught up with nominal money supply thus reducing the accelerating effect of real money growth on investment. The increase in prices has also caused imports to stay at a relatively high level in spite of the convergence of GDP with the control simulation.

It is interesting to note that the economy required more than three years to adjust to the interest rate shock. In this time the accumulated losses of output were around 0.7 per cent of the 1976 real gross domestic product.

IV. Conclusions

From our computations we may conclude that the accumulated losses due to rising international interest rates during the seventies were substantial for the Korean economy.
The reason is the rather long time period until the economy has adjusted to the new situation. Hence a policy which reduces the dependence on foreign capital and sterilizes the effects of capital movements on money and prices would contribute to

economic stability in South Korea. One way to mobilize domestic resources for capital formation would be to liberalize financial markets. The likely increase of domestic interest rates would stimulate savings and allow for increased credit expansion without inflationary pressures. Thus the rise in savings would compensate for the fall in net capital imports due to increased international interest rates.

REFERENCES

Lee, J. and M. Chong, "A Macroeconomic Model for the Korean Economy", Quarterly Economic Review, Sept. 1979, pp.21-33.

Otani, Ichiro and Yung Chul Park, "A Monetary Model of the Korean Economy", IMF Staff Papers, Vol. 23, 1976, No. 1, pp. 164-199.

Shin, H.C. and D. S. Kim, "A Short-Term Forecasting Model for the Korean Economy", Quarterly Economic Review, Sept. 1981, pp. 23-39.

DATA SOURCES

Bank of Korea, Economic Statistics Yearbook, Seoul, various issues.

International Monetary Fund (IMF), International Financial Statistics, Washington, various issues.