<ARTICLE>Asian Economic Crisis and Process to Recovery

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I. Introduction

We have several experiences of financial crises; Latin American financial crises in the first half of 1980's, the currency crises of Italian lira and British pound in 1992 and Mexican crisis in 1994. The Asian crisis is, however, the most unprecedented in those respects of the number of countries involved, the speed of contagion infected, and the scale of impacts to the real economy transmitted. According to the importance the enormous studies and documents are published and also distributed by internet. These are classified into three categories:

【1】 The Causes of the Crisis

Why did the crisis happen in these Asian countries ? As contrasted with the Russian crisis in mid-1998 and the Latin American crisis, the fundamentals of these Asian countries were relatively in a good performance. A considerable number of economists have been speaking on the causes why such a massive crisis happened in these special areas. The causes of the crisis can be summarized as the following four reasons.[1]

(a) structural vulnerability of the crisis countries

In the crisis countries[2], the inflow of the foreign capital was growing due to the financial liberalization. The foreign capital accelerated the economic growth of these countries, but the bulk of these capital would be gradually invested to less profitable projects, so that these countries tended to decrease the export competitiveness. In the beginning of 1997 the ratios of short term debt to reserves were extremely high in Indonesia, Korea and Thailand, 1.7, 2.1 and 1.5 respectively. In Malaysia and Philippines, they were not so severe as these three countries just mentioned, but relatively high as 0.6 and 0.8 respectively. These weak conditions of the economies brought about the sudden

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1 This part is indebted to Radelet & Sachs.
2 We usually refer to Thailand, Korea, Indonesia, Malaysia and Philippines as the crisis countries.

reversal of capital flows.

(b) over-investment due to the moral hazard

People know that in the Mexican crisis the IMF and the USA bailed out the creditors, so they believed that they would always be bailed out in Asian countries. That would be the reason why the over-investment were in short term lines of credit, since they know the collapse would happen, their only question was when.

(c) financial panic (self-fulfilling panic of investors)

Once a high level of short-term foreign liabilities relative to short-term foreign assets is attained, everyone knows that each creditor must withdraw his capital ahead of other creditor. All investors are doing the same thing. That was the essence of a huge, sudden reversal of capital flows.

(d) exchange rate devaluation of the currency

It suggests that there would have been no crisis if they have not devalued the Thai baht and the Korean won. The policy to avoid the crisis is then to maintain the fixed exchange system.

In the first stage of the Asian crisis a lot of people attributed the causes of the crisis to the Items (a) and (b) . Recent reports are, however, changing as follows:

Both (a) and (b) must be a part of the causes of the crisis indeed, but the Item (c) should have played a substantial role for the crisis to be so severe and so deep. Most people begin to admit that in the international capital market there is the structural weakness that such a crisis could be raised. P. Krugman would be the typical example who strongly insisted on (a) and (b) in the early stages, but is recently ready to admit (c) .

【 2 】 Some Policy Lessons

In the long run this is the very important issue especially for IMF. As mentioned in 【 1 】 - (c) ,defective international financial market might be one reason of the crisis, so we should discuss about the future of the international financial architecture. Furthermore we must discuss the exchange rate system in relation to the 【 1 】 - (d) , and assess whether the capital control adopted by Malaysian Prime Minister Mahathir

Mohamad was right or wrong.

【3】 Transmission of the Crisis to the Real Economy

How was the crisis transmitted to the real economy and how big were national income and employment affected? How can we avoid the serious recession due to the financial crisis? These questions are discussed and several aspects of the transmission to the real economy are described.

Though many economists are interested in 【1】 and most contributions fall under the category 【1】, I will consider here the transmission problem to the real economy, 【3】, and discuss about the causes of the crisis in another places later. We use the Mundell-Fleming model as the analytical tool. Many countries in the Asian area accomplished the export-led growth. Some of these countries import the intermediate goods from foreign countries and export the assembled final goods to attain the export-led growth. We apply the modified Mundell-Fleming model to such countries. We will then clarify the process of the recession or depression caused by the policies that the international institution or the government adopted or forced to adopt after the sudden occurrence of the Asian crisis.

II. Transmission to the Real Economy

In this section we review the economic situations since 1990 for the crisis countries, Korea, Thailand, Indonesia, Malaysia and Philippines. The sources of the statistics are mainly from the book *Asian Economy 1999* edited by The Economic Planning Agency. The figures and Tables are sometimes rearranged for our purposes.

(1) Growth rate of GDP in real terms

	Korea	Thailand	Indonesia1	Malaysia	Philippines
1990	9.5	11.2	7.2	9.7	3.0
1991	9.2	8.6	7.0	8.6	-0.7
1992	5.4	8.1	6.5	7.8	0.5
1993	5.5	8.4	6.5	8.3	2.1
1994	8.3	8.9	7.5	9.3	4.4
1995	8.9	8.8	8.2	9.4	4.8
1996	6.8	5.5	8.0	8.6	5.8
1997	5.0	-0.4	4.6	7.7	5.2
1998	-5.8	-8.0	-13.7	-6.7	-0.5

Table 1; Growth Rate of GDP (%)

In Korea and Thailand the rate of growth started to decrease in 1996, but in Indonesia and Malaysia the indications of downturns have not begun to appear yet in this year and the Philippines have just spurred the growth. Those are the situations when the sudden reversal of capital flows broke out. Above figures indicate that all crisis countries suddenly plunged into the severe recession, among of all Indonesia suffered not only the extremely bad recession but the complicated political tragedy. It was much more miserable in the per capita growth rate of nominal GDP in dollar terms (not shown) that it decreased 33.3% in Korea, 25.4% in Thailand, 29.2% in Malaysia and even worse in Indonesia.

(2) The rate of Investment

In addition to GDP, the rate of investment was also decreased, which would have an enormous effect of the future economic expansion. Table 2 shows the rate of domestic capital formation to GDP. Korea maintained over 35% until 1997, but lowered to the level of 29% in the year 1998. In Thailand the ratio changed from over 40% something to 20% something, over 30% to 18% in Indonesia, about 40% to 30% something in Malaysia and over 20% to 19% in Philippines.

(3) Value of exports and its growth rate

In spite of experiencing the considerable devaluation of exchange rate the value of exports have not increased. It may be due to the J-curve effect, but rather due to the specific characteristics of the crisis countries, which we will discuss in detail in the next section. The exports of these countries depend on how they can smoothly import the intermediate

	Korea	Thailand	Indonesia	Malaysia	hilippines
1990	36.9	41.1	30.7	31.2	24.2
1991	38.9	42.8	32.0	37.2	20.2
1992	36.6	40.0	32.4	35.1	21.3
1993	5.13	39.9	29.5	37.8	23.6
1994	36.1	40.3	31.1	4.04	23.5
1995	37.0	41.6	31.9	43.5	21.6
1996	38.4	41.7	30.7	41.5	23.1
1997	35.0	35.0	31.3	42.0	23.8
1998	29.0	24.4	18.0	33.2	19.3

Table 2; Rate of Investment to GDP (%)

	Korea	Thailand	Indonesia	Malaysia	Philippines
1990	65,016 (4.2%)	23,070 (14.9%)	25,675 (15.9%)	29,,446 (17.6%)	8,068 (4.0%)
1991	71,870 (10.5%)	28,428 (23.2%)	29,142 (13.5%)	34,362 (16.7%)	8,783 (8.9%)
1992	76,632 (6.6%)	32,472 (14.2%)	33,967 (16.6%)	40,692 (18.4%)	9,745 (11.0%)
1993	82,236 (7.3%)	36,775 (13.3%)	36,823 (8.4%)	47,099 (15.7%)	11,266 (15.6%)
1994	96,013 (16.8%)	45,130 (22.7%)	40,055 (8.8%)	58,653 (24.5%)	13,433 (19.2%)
1995	125,058 (30.3%)	56,459 (25.1%)	45,417 (13.4%)	73,865 (25.9%)	17,371 (29.3%)
1996	129,715 (3.7%)	55,721 (-1.3%)	49,814 (9.7%)	78,311 (6.0%)	20,543 (18.3%)
1997	136,164 (5.0%)	57,604 (3.4%)	53,443 (7.4%)	78,516 (0.3%)	25,228 (14.5%)
1998	132,313 (-2.8%)	54,340 (-5.7%)	49,136 (-8.1%)	73,070 (-6.9%)	29,501 (16.9%)

Table 3; Exports ($million) and Growth Rate (%)

products and the raw materials. In their export structure the decreases of the imports due to the depreciation of their currencies have impeded the development of their exports. In Table 3, the percentage of the lower

line each year shows the rate of growth of exports.

(4) Value of imports and its growth rate

	Korea	Thailand	Indonesia	Malaysia	Philippines
1990	69,844 (13.6%)	33,379 (29.5%)	21,837 (33.5%)	29,251 (30.0%)	12,206 (17.2%)
1991	81,525 (16.7%)	37,591 (12.6%)	25,869 (18.5%)	36,665 (25.3%)	11,955 (-2.1%)
1992	81,775 (0.3%)	40,686 (8.2%)	27,280 (5.5%)	39,822 (8.6%)	14,478 (21.1%)
1993	83,800 (2.5%)	45,922 (12.9%)	28,328 (3.8%)	45,610 (14.5%)	17,534 (21.1%)
1994	102,348 (22.1%)	54,459 (18.6%)	31,983 (12.9%)	59,415 (30.3%)	21,241 (21.1%)
1995	135,120 (32.0%)	70,776 (30.0%)	40,630 (27.0%)	77,601 (30.6%)	26,539 (24.9%)
1996	150,339 (11.3%)	72,323 (2.2%)	42,929 (5.7%)	78,412 (1.0%)	32,427 (22.2%)
1997	144,616 (-3.8%)	61,353 (-15.2%)	41,680 (-3.0%)	78,533 (0.02%)	35,934 (9.4%)
1998	93,282 (-35.5%)	42,895 (-30.1%)	27,390 (-34.3%)	58,177 (-25.9%)	29,660 (-17.5%)

Table 4; Imports ($million) and Growth Rate (%)

The value of imports shows exactly what the economic theory tells. Because of the income reduction and the devaluation of the exchange rate the value of imports goes down rapidly. Judging from the value of exports mentioned in (3) and the balance of trade in Table 5, the improvement of the current balance which had finally accomplished in 1998 was brought about by the rapid decrease in imports, not by the increase in exports. This would be due to the export structure of these crisis countries. Concerning to the sharp fluctuations in the exchange rate, we have already many comments (that is not our main concern) , so it would be enough to tell the facts that the rates of devaluation were

42.9% in Thailand, 48.8% in Indonesia, 50.2% in Korea, 35.0% in Malaysia and 34.2% in Philippines during the beginning and the end of 1997.

	Korea	Thailand	Indonesia1	Malaysia	Philippines
1990	-4,828	-10,309	3,838	195	-4,138
1991	-9,655	-9,163	3,273	-2,303	-3,172
1992	-5,143	-8,214	6,687	870	-4,733
1993	-1,564	-9,147	8,495	1,489	-6,268
1994	-6,335	-9,329	8,072	-762	-7,808
1995	-10,062	-14,317	4,787	-3,737	-9,168
1996	-20,624	-16,602	6,885	-101	-11,884
1997	-8,452	-3,749	11,763	-16	-10,706
1998	39,031	11,446	21,745	14,893	-159

Table 5; Balance of Trade ($million)

(5) Some fundamentals

In the discussions of fundamentals in the crisis countries the ratio of budget balance to GDP and the ratio of current balance to GDP are always referred to. The former (Table 6) is concerned with the fiscal discipline and the latter (Table 7) is considered to be an important index of the capital flight.

	Korea	Thailand	Indonesia1	Malaysia	Philippines
1990	0.4	4.9	0.4	-3.0	-3.5
1991	-0.8	4.0	0.4	-2.0	-2.1
1992	-0.3	2.5	-0.4	-0.8	-1.2
1993	0.1	1.8	0.6	0.2	-1.5
1994	0.5	2.8	0.0	2.3	1.1
1995	0.5	3.2	0.1	0.9	0.6
1996	0.0	0.9	1.4	0.7	0.3
1997	0.0	-0.3	1.4	2.4	0.1
1998	-4.2	-2.7		-1.8	-1.9

Table 6; Budget Balance to GDP (%)

	Korea	Thailand	Indonesia1	Malaysia	Philippines
1990	-0.8	-8.5	-2.8	-2.1	-6.1
1991	-2.8	-7.7	-3.7	-8.8	-2.3
1992	-1.3	-5.7	-2.2	-3.8	-1.9
1993	0.3	-5.1	-1.3	-4.8	-5.5
1994	-1.0	-5.6	-1.6	-7.8	-4.6
1995	-1.7	-8.1	-3.5	-9.9	-2.7
1996	-4.4	-8.1	-3.4	-4.9	-4.8
1997	-1.7	-2.0	-2.7	-5.4	-5.3
1998	12.5	12.3		13.0	2.0

Table 7; Current Balance to GDP (%)

IMF conditionality on fiscal policy is also related to fiscal discipline. In the beginning of the crisis, IMF had thought about East-Asian countries just as the untidy countries in financial affairs like Latin American and African countries, not to mention of Russia. Asian crisis countries have the fiscal disciplines over long periods. In 1995, five Asian crisis countries were all in surplus in public sector balance, +0.5% in Korea, +3.2% in Thailand, +0.1% in Indonesia, +0.9% in Malaysia and +0.6% in Philippines. Latin American and African countries were, on the contrary, almost in deficit, -2.8% in Uruguay, -3.6% in Bolivia, -5.9% in Mexico, -4.1% in Venezuela, -6.2% in South Africa and -10.5% in the notorious Russia.[3]

In his recent book, *The Asian Crisis* , Max Corden referred to the three distinct mechanisms by which the financial crisis have been transmitted to the real economy. The first one is the classical Keynesian mechanism via the multiplier and the acceleration principle. The contraction in the fiscal budget which is one of the main conditionality of IMF, and/or the decrease in the rate of investment shown in Table 2 cause the income reduction, which brings about the further spiral decreases of GDP via the Keynesian mechanisms. That results in the disastrous adverse effect to the real economy. Max Corden insists that this kind of recession in the crisis countries could be avoided if IMF had adopted the appropriate fiscal policy in the very first stage. The second mechanism is

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3 The figures of Latin American countries (except Mexico) and South Africa are from *World Development Report* 1997 and *Asian Economy 1999* about Mexico.

through the exchange rate devaluation. This was expected to have the favorable effects. But, as mentioned earlier, the increase in exports was not as much as the theory is supposed to. The United States blamed Japan for this insufficient increase in exports of the crisis countries, but in this paper I suppose that the cause is due to the export structure of these countries. The third mechanism is through the domestic bankruptcy. In the financial breakdown the banks cannot lend the money to the firms since bank's foreign liabilities rise drastically in the domestic currency and bank's domestic assets fall badly so that the firms cannot obtain credit. Then the firms cannot engage in the production activities, which would induce the serious recession.

To avoid these recessions, were the appropriate fiscal and monetary policies adopted? Or was the timing of the policies good even if they had been? Next section is related to these questions.

III. Mundell-Fleming Model

The basic Mundell-Fleming model is expressed as the following three equations.

$$y = C\ (y) + I\ (r) + NX\ (\frac{ep^*}{p},\ y) \tag{1}$$

$$\frac{M}{p} = L\ (y,\ r) \tag{2}$$

$$r = r^* \tag{3}$$

(1) is the equilibrium equation of goods market; NX stands for the net exports and $\frac{ep^*}{p}$ real exchange rate. (2) is the equilibrium equation of money market and (3) is the equilibrium condition for the foreign exchange market. In the world of perfect capital mobility the domestic rate of interest would be equal to the given foreign rate of interest r^*. Above three equations are reduced to two equations which have two unknowns y and e. In Figure 1, these two equations are described; GG would be the equilibrium combinations of y and e in the goods market, and AA would be those in the money market. We can see the famous doctrine that in the world of perfect capital mobility the fiscal policy is
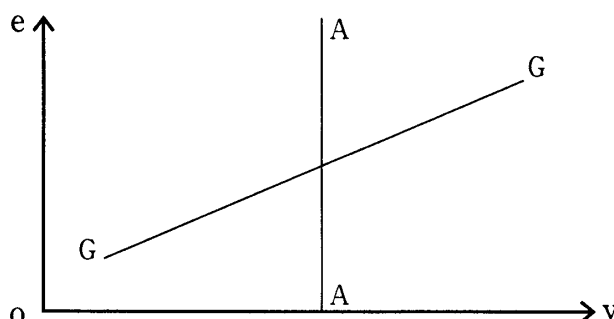
Figure 1

ineffective to raise y so that we can use only monetary policy to escape from the recession. The equilibrium national income cannot be changed by sliding GG curve up or down.

It is in the static expectation that the equilibrium condition of the foreign exchange market is to be represented by (3) . Otherwise the condition changes

$$r = r^* + \frac{e^E - e}{e} \qquad\qquad (3)\ '$$

where e^E stands for the expected exchange rate, then the second term of the right hand side means the expected rate of change in the foreign exchange rate. Depending on this change the rate of investment in the good market will be affected.

When the exchange rate is devalued, the domestic rate of interest will be going down at the equilibrium. In consequence, the speculative demand for money increases so that national income must be reduced in order to maintain the equilibrium in the money market; AA curve would be downward sloping, not the vertical line as before. Furthermore, when money supply is increasing, y must be increased since much more money demand should be necessary for the same exchange rate. As the result AA curve shifts to the right. How about r^* or e^E being larger ? Both bring about the higher r and smaller demand for money. y must be increased to maintain the equilibrium of the money market, so AA curve will move to the right also in these cases, as shown in Figure 2, where AA curve is expressed as A'A' to distinguish from the case of the straight line.
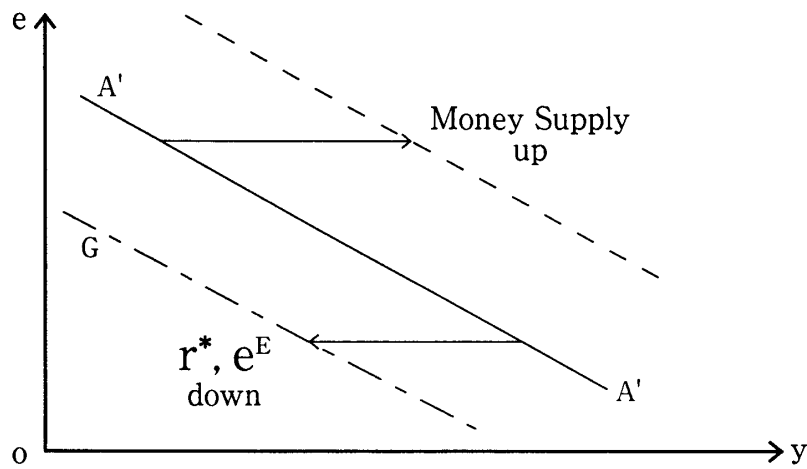
e
A'

Money Supply
up

r^*, e^E
down

A'

o → y

Figure 2

Let us consider the GG curve next. The effect of non-static expecta-
tion appears in the investment function. The devaluation of the exchange
rate will increase in investment because the domestic interest rate
declines. Compared to the case of static expectations, much more
increases in national income would be needed to maintain the equilibrium
of the goods market, because for the same increase in e, not only would
the trade balance be in surplus the increase in investment is also added.
That means the slope of GG curve is less steeper than before. As for the
comparative statics the more is the government spending, GG curve
shifts more downward, since the devaluation of the exchange rate and
the government spending have the same effects on the goods market. In
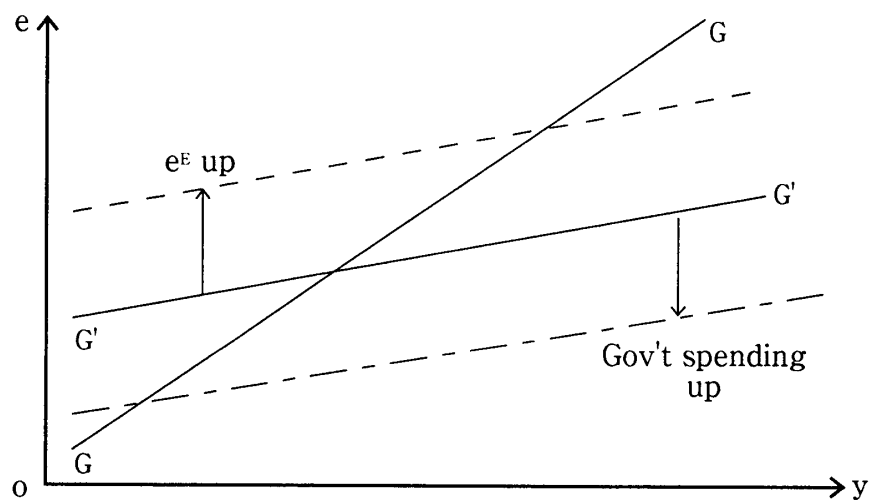
e
G

e^E up
G'

G'

Gov't spending
up
G

o → y

Figure 3

the same way people expect much more devaluation, GG curve shifts more upward. These situations are shown in Figure 3, where GG curve is expressed as G'G' curve to distinguish from the case of static expectations.

We will pay attention here to the export structure of the Asian crisis countries. These countries attained the export-led growth. They succeeded for rather short periods by importing the intermediate goods and exporting the assembled final goods. Actually there are the characteristics that the development economists always feel apprehension about.[4] In these countries the effects of the devaluation of the exchange rate sometimes ends in a disappointment, or sometimes on the contrary to the economic theory. When the exchange rate devalued, it works for exports, but against imports. The imports consist of the necessities that are needed to produce export goods, thus the export declines due to the devaluation of the exchange rate. Actually the balance of trades of the crisis countries in 1998 were improved, but due to the decreases in imports, not due to the increases in exports. Export itself has fallen off even if the J-curve effect is considered. In the next section we apply those cases to Mundell-Fleming model.

IV. Application to the Crisis Countries

In this section we suppose that the crisis countries have the special export structure mentioned above and show that the policies suggested and forced by IMF accelerated the decline of the real economy of these countries by using the modified Mundell-Fleming model. In the case of static expectation such a special export structure brings about the downward sloping GG curve (we call G"G" curve hereafter) since the devaluation of the exchange rate decreases the net exports. In the case of non-static expectations, G"G" curve does not necessarily have the downward slope since the investment effect would be added. Formally the slope of G"G" curve is described as

$$\frac{de}{dy} = \frac{\frac{\partial S}{\partial y} - \frac{\partial NX}{\partial y}}{\frac{\partial NX}{\partial e} - \frac{I_{,}e^{\varepsilon}}{e^{2}}} \tag{4}$$

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4 Development Economics in East-Asian Countries (in Japanese) p.242.

The sign of the numerator of (4) is surely positive, but the denominator is positive or negative depending on the relative magnitude of the effect of the special export structure and the investment effect through the rate of interest. It may be the straight line (just like AA line in the basic Mundell-Fleming model) depending on the situation. In the followings we have two cases but leave out the case when the absolute value of the slope of the G"G" curve be less than that of the A'A' curve. That is the case when the effect of the special export structure would be extraordinary large.

$$(Case\ A)\quad \frac{de}{dy}\ <\ 0$$

Concerning to the comparative statics to G"G" curve, the increase in government spending will shift G"G" curve rightward. Best policy combination in this case to avoid both serious recession and overshooting is to increase the government spending and the moderate relaxation of monetary policy as shown in Figure 4. The actual policies adopted, however, are the combination of tightening the government budget and restraining the money supply from the beginning of the
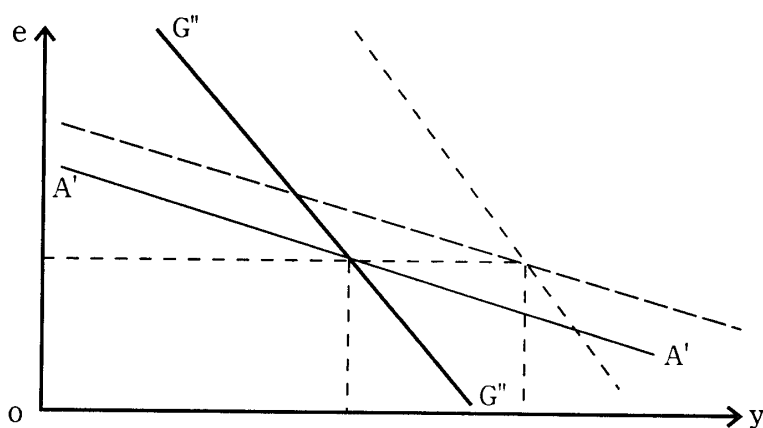

Figure 4

crisis to the middle of 1998 (drawn by the bold lines) . Then the realized national income and the exchange rate , for instance, are y1 and e1 in Figure 5. After recognizing the harmful influence of the severe recession IMF changed both the fiscal and monetary policies from contraction to expansion, so that both A'A' and G"G" moved rightward shown as dot-
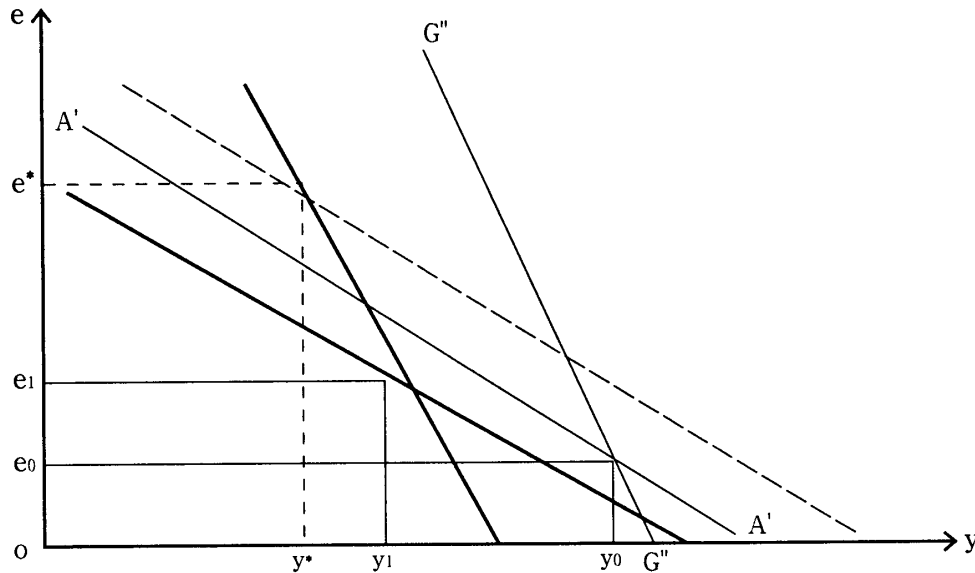
Figure 5

ted A'A' curve in Figure 5. But the fiscal policy works with a lag. Only A'A' curve shifts upward and G"G" stays as it was for a while, the situation becomes worse. The recession falls into the deep place that lead to the expectations of the further devaluation of the currencies, that will A'A' shifts upward further. The final situation would be the combination of y^* and e^* as shown in Figure 5, the combination of the worst recession and the severe devaluation of the currencies, which may be in a situation of Indonesia.

$$(Case\ B)\quad \frac{de}{dy}\ \geq\ 0$$

Also in this case fiscal contraction results in the severe recession. In addition we have the interesting case that G"G" curve is the vertical straight line , where the monetary policy does not influence the national income and the fiscal policy must be adopted to avoid the recession, just the opposite case of the basic Mundell-Fleming model, but that is the special case where the equality is realized in Case B.

Finally we refer to " the bending GG curve " suggested by P.Krugman in his *Analytical Afterthoughts in the Asian Crisis* . He considers that the effects of the exchange rate change can be divided into two parts; one is in both the high and the low levels of exchange rate and the other is the

middle of it. Both in the favorable and unfavorable exchange rate, the effects of the exchange rate on the domestic demand would be negligible. In the intermediate level of the exchange rate, however, the devaluation of the exchange rate affects to the balance sheets of the firms very badly and that leads to the contraction of the investment. He suggested the backward bending rather than the upward sloping GG curve. We cannot accept his suggestion that the intermediate level and the unfavorable level of exchange rates have the different effects on the investment. If the former has the harmful effects on the firm's balance sheets, then the latter should have more harmful effects on them because the foreign debts in the latter case would be bigger than those in the former case. Then GG curve would be (b) rather than (a) (Krugman's case) as shown in Figure 6.
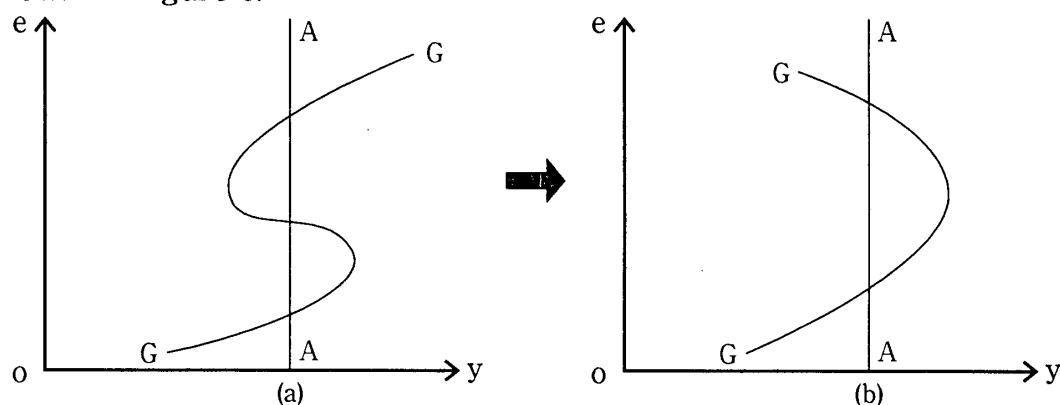

Figure 6

Adding (b) 's effect to our negative e's effect on the trade balance, the slope of G"G" curve would be less steeper, so that the same level of fiscal contraction brings about higher devaluation of the exchange rate and severe recession of national income. IMF's policy in the early stages of the crisis might have caused the severe recession in this way. What should have be done ? We might rule out the monetary policy, which usually have both positive and negative effects. Therefore,. G"G" curve shifts to the right only with the fiscal expansion, then we may have much chance of recovery about exchange rate and national income. Max Corden stated in his book ," the IMF staff are quick learners and the

5 *The Asian Crisis*, p.15.

organization is flexible, " but " too late to avoid serious recessions. "[5]

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