THE INTERRELATIONSHIP OF MONETARY POLICY, FOREIGN INVESTMENT, AND CURRENT ACCOUNT IN THE INDONESIAN ECONOMY

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CHAPTER I

INTRODUCTION AND BACKGROUND

Purpose of the Study

The rising prominence of the East and Southeast Asian economies in the last two decades has raised interest among economists regarding the economic policies followed by these countries. While Taiwan, S. Korea, Singapore, and Hongkong have received a majority of the attention, the other three countries in South East Asia (Indonesia, Malaysia, and Thailand) have recently been the subject of research and study. These three newly industrialized economies have been seen as countries that appear to follow the same path of economic development as the four "dragons." The economic policies studied range from monetary policy, fiscal policy, structural adjustment, saving and investment, to the terms of trade. Indonesia is one of these newly industrialized countries and is the subject of this research.

Two recent comprehensive studies on monetary policy in Asian countries, including Indonesia, are Fry (1989a), and Tseng and Corker (1991). These studies investigated the implementation of monetary policy in these countries. Specifically the targets and instruments of their monetary policy were examined, as well as the liberalization of interest rates and financial markets.

On structural adjustment, the International Monetary Fund (IMF) has published a number of studies[1]. The focus is usually the elimination or reduction of a deficit in the balance of payments, although the resumption of higher rates of economic growth, and the achievement of structural changes that would prevent future payments and stabilization problems are also among the objectives of structural adjustment. In short, structural adjustment is intended to make the economy of these countries less vulnerable to future

[1]. See for example Streeten (1988), and Aziz (1990)

shocks. The current account position is one of the central issues of structural adjustment. Most of the studies cover several countries, and do not focus on the Indonesian economy.

Foreign investment, especially foreign direct investment, has also been one of the main factors fueling economic growth in Indonesia for the last two decades. During 1980-1989, foreign direct investment flows to East Asia and the Pacific comprised 29.81 percent of total foreign direct investment flows to developing countries. Of the amount directed to Asian economies, Indonesia received 8.18 percent. By comparison, S. Korea received 8.17 percent, Malaysia 24.64 percent, China 37.01 percent, Thailand 12.74 percent, and the Philippines 5.37 percent. *[2]* Despite increased amounts of foreign direct investment in Indonesia, studies of foreign investment have usually encompassed a wide group of developing countries.

Given the rising prominence of the Indonesian economy, a study is necessary encompassing monetary policy, foreign investment, and current account in a simultaneous model. Therefore the objective of this study will be an attempt to link monetary policy to foreign investment (capital account) and the current account in a simultaneous equation framework. Specifically, it will address several questions:

(1). How has monetary policy in Indonesia reacted to different macroeconomic variables? How does monetary policy affect foreign investment (foreign direct investment, portfolio investment, long-term capital, and short-term capital) and the current account? There are other macroeconomic variables that are associated with monetary policy such as the real exchange rates, net foreign assets, and foreign debt. Different monetary authorities will react differently to various macroeconomic variables depending on their priorities. This model, analyses the Indonesian monetary authority's reaction to assorted economic variables.

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[2]. See Finance and Development, March 1992, pp. 50-51, a quarterly publication of the IMF and the World Bank.

(2). How does foreign investment or the capital account affect monetary policy? Since foreign investment has played a significant role in the Indonesian economy, we would like to investigate its effect on monetary policy and other macroeconomic variables. Specifically we would like to see what factors attract or deter inflows of foreign investment to Indonesia and how foreign investment affects national saving and investment. The study investigates foreign investment by dividing it into three categories; Foreign Direct Investment, Portfolio Investment, and Other Capital Inflows.

(3). How are national saving and investment affected by the presence of foreign investment and monetary policy? What are the factors that affect saving and investment in the Indonesian economy?

(4). How is the rate of growth of economy affected by , as well as impacts on, all these macroeconomic variables?

Organization of the Dissertation:

The dissertation is organized as follows. Chapter I is an introduction and a background of the study. This chapter elaborates the purpose of the study and provides a general view of the recent liberalization experience of Indonesia. Chapter II is a review of recent literature on this matter. Chapter III discusses the design and the description of the model. Chapter IV gives a discussion of the estimation procedures and their results. Chapter V details simulation procedures and their results. Finally, Chapter VI provides a conclusion and recommendations for future research.

General Review of Indonesian Economy

This study focuses on the period of 1978 - 1992. During this period there have been numerous policies implemented to spur economic growth and to open the economy to the more dynamic international trade, instead of relying only on oil revenues. This has been a period when Indonesia has gone through many economic policy changes. During this time Indonesia executed devaluation, tax reform, financial sector reforms, postponement of

major capital intensive projects, flexible exchange rate management, waves of deregulation of foreign trade and industry, rollback of non-tariff barriers, tariff reform, improvement in the climate for investment, relaxed investment restrictions, simplified industrial licensing, development and revitalization of a listless stock exchange, and an all-out effort to capture foreign markets for non-oil exports. There is a trend from inward looking (import substitution) policies into outward looking (export market) policies. High levels of economic growth fueled by the oil booms of the 1970s gave way to recession in 1982 when the price of oil began to fall. The oil price plummeted in 1986 and practically put an end to the inward looking policies that relied on oil revenue. Nevertheless, Indonesian economists have generally seen this end of the oil bonanza as a blessing in disguise. It weakened resistance from vested interest groups to restructuring the economy away from the state domination, and gave impetus to the private sector. The results have been impressive. Non-oil exports revenue jumped to surpass oil exports. Foreign investment reached a record level. Indonesia has become a favorite destination for foreign direct investors from the Four Little Dragons- Hongkong, Singapore, Taiwan, and South Korea- who were faced with rising wages and appreciating currencies at home. The inflow has been especially higher since the Four Little Dragon lost their generalized system of preference (GSP) to the US market, while Indonesia still enjoys the lower import tariff under the US GSP. The most popular investments destination so far has been in labor intensive, low- to medium-technology industries such as footwear, food canning, textiles, wood processing, metal working, chemicals, paper and pulp, electronics, and hotels. By 1989, Indonesia had become an area for one of the highest returns on investment in Asia. A ranking of return on investment by country in Asia is as follows[3]: (1) Singapore 31.7 percent, (2) Indonesia 31.3 percent, (3) Malaysia 29.3 percent, (4) Hongkong 22.3 percent, (5) Thailand 21.9 percent, (6) Taiwan 20.4 percent, (7) Philippines 16.9 percent,

[3]. Source: US Department of Commerce

(8) Korea 16.1 percent, and (9) Japan 13.6 percent. Given the remarkable economic success, the Indonesian economy still has a long way to go to achieve the of standard of living enjoyed by those developed economies. The increased economic activity has overwhelmed the country's physical infrastructure. Roads, harbors, power plants, telecommunication and water treatment facilities are all straining under pressure. The government has pushed the private sector to undertake these high capital investment areas, something that was forbidden in the past.

In connection with our model, we turn our attention to the major policies implemented during the period under study in order to gain a more clear understanding of the empirical results of our model.

Recent Deregulations.

There were many deregulations by the Indonesian government to spur economic growth during the period under this study. It started by deregulation of the banking sector in June 1983, allowing the market to determine interest rates. Previously, interest rates were determined by the central bank, Bank Indonesia.

One of the main reason for Indonesia's deregulation was the decrease in world oil price. The economy could no longer rely on oil exports to maintain economic growth in progress. The government budget was no longer large enough to finance fiscal expenditures to maintain the momentum and progress of economic growth. It could no longer rely on oil revenue to make reliable economic plan. The expansive role of fiscal policy decreased. The economy, which once had an external surplus from the oil boom, had to face the possibility of an external deficit due to the decrease in the oil price at the end of the 1980s. The economy could lose its growth momentum, a condition that may not come again. With these deregulations plus a devaluation in 1986, policy makers expected the economy to provide a low cost of production relative to other competitors, which ultimately would boost non-oil export commodities. Private sector investment was

designed to take over the role of government investment.

Chronologies of the deregulation in the Indonesian economy during the 1980s can be summarized as follows:

Domestic Credit and Deregulation in Banking Sector

Major economic deregulation by the Indonesian government in the 1980s began in the banking industry. A decree was issued on June 1, 1983 that reduced the central bank authority to implement credit. Commercial banks, both government or privately owned, could have their own policy in implementing credit. Therefore, the interest rate of most assets are determined by the market. The Central bank no longer intervenes with interest rate ceilings. The Central bank no longer subsidizes interest rates, except for a very special case. The Central bank significantly reduced its role in credit rationing. Commercial banks are on their own. In this period, professional bankers and bank managers prospered in the true capitalistic market system. There was no more government hand.

Previously, the central bank determined different interest rates for different sectors of economy. These interest rates were reviewed periodically and different sectors of the economy were assessed with the possibility of a new interest rate. Private commercial banks and seven government commercial banks[4] abide by the interest rate policies issued by the Indonesian central bank, Bank Indonesia. There were no foreign banks in operation in Indonesia until the 1983 deregulation. For lending purposes, sectors of the economy were divided into the following classifications: (1) medium term investment credit. This sector is divided into 9 sub-sectors. They include areas of general investment, plantation credit for small farm, replanting, rehabilitation and development of export commodity plants, private national plantations, construction of paddy fields, and credit to cooperative

[4]. These seven state banks are: Bank Bumi Daya, Bank Dagang Negara, Bank Exim, Bapindo, Bank Rakyat Indonesia, BNI 46, Bank Tabungan Negara.

enterprises, (2) small scale investment credit (KIK), (3) permanent working capital credits (KMKP), (4) short-term credits of state banks. This sector is divided into 21 sub-sectors. This covers areas of supply and distribution of rice, paddy and corn by BUUDs and KUDs (village cooperative enterprises), credit for the government salt company and its related subcontractors, wheat flour mills, fertilizers and insecticides, agricultural produce, animal husbandry, fishery, handicraft and poultry. This area also includes industrial and service sectors, such as cement, sugar, paper, textile, cooking oil, transportation, printing, domestic trading companies, imported goods, and government projects. (5) Other credit, divided into three sub-sectors, credit for house ownership, credit for Indonesian students, and credit for student dormitories.

There are 6 categories of interest rates charged by Bank Indonesia (central bank). Each of the sub-sectors mentioned above falls into one of these categories of interest rates. The cement industry for example, will have a different interest rate than the transportation industry, and the interest rate of credit for wheat flour mills is different from fertilizer industry.

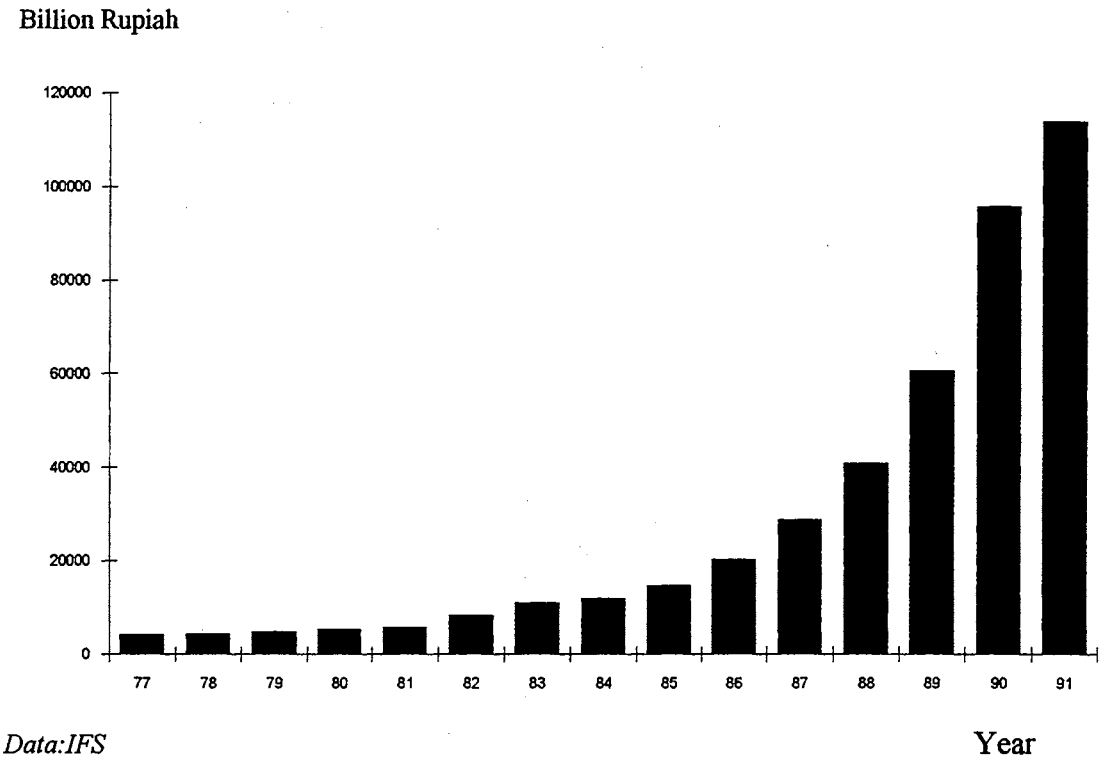
Lending rates also changed periodically. For the period of May 31, 1972 to April 11, 1973, interest rates ranged from 12 percent up to 36 percent per annum. Sugar, imported goods, domestic trading activities, certain government projects, and tourist industries are at the highest rate category. For the period of April 12, 1973 to April 8, 1974, interest rates ranged from 9 percent to 24 percent per annum. Again, tourism, importation and its distribution activities, domestic trading activities, and certain government projects fall into the highest category. For the period of April 9, 1974 to December 27, 1974, interest rates ranged from 9 percent to 24 percent per annum. Tourism industry, imported goods and its distribution activities, and certain government projects fall into the highest category. For the period of December 28, 1974 to March 31, 1976, interest rates ranged from 9 percent to 24 percent per annum. Tourism industry, imported goods and its distribution activities fall into the highest category. For the period of April 1, 1976 to December

31,1977, interest rates ranged from 9 percent to 24 percent per annum. Tourism industry, and imported goods and its distribution activities fall to the highest category. For the period of January 1, 1978 to January 17, 1982, interest rates ranged from 9 percent to 21 percent per annum. Import and its distribution activities fall into the highest category. For the period of January 18, 1982 to May 30, 1983, interest rates ranged from 9 percent to 18% per annum. Import and its distribution activities fall into the highest category. Special credits on special cases were reviewed by the government with 21% per annum interest rate consideration. By June 1, 1983, interest rates were determined by individual commercial banks. But for credit extended to special priorities, or certain projects, deemed as an important priority by the government, the interest rate averaged 12 percent per annum, with the exception of the special priority in export sector, which is 9 percent per annum, and the special priority in housing sector, which is 5 to 9 percent per annum.

The nominal amount of domestic credit poured into the banking system during the 1980s rose significantly. The average growth rate of domestic credit in the period of 1978-1991 was 27.65 percent per year. The period of 1985-1990 recorded the highest average growth of 48.84 percent per year. As shown in the following graph, this was the period of the greatest expansion of domestic credit for the Indonesian economy. The sharply stepped-up economic activity in 1989-1990 created an excessive demand in the economy. The economy overheated by 1990. Inflation in calendar year 1990 reached 9.53 percent, up from 5.97 percent in 1989. By 1991, there was a significant decrease in domestic credit. This is attributed to an effort by monetary authorities to contain the overheating economy.

The amount of domestic credit can be divided into domestic credit into government sector and domestic credit to private sector. For the purpose of our analysis, this division of domestic credit will be used in our study.

Graph 1: Domestic Credit



Data:IFS

The rate of growth for domestic credit is detailed in the following table:

Table 1: Rate of growth for domestic credit in percentage

1978: 4.55	1982: 46.45	1986: 37.37	1990: 58.34
1979: 8.55	1983: 31.24	1987: 39.60	1991: 18.88
1980: 10.93	1984: 8.21	1988: 43.89	
1981: 7.26	1985: 23.55	1989: 48.31	

Data: Recalculated from IFS.

Prior to deregulation in June 1983, the central bank also set the policy for interest rates on time deposits at government commercial banks. All government commercial banks abided by this policy. The following table shows different interest rates for selected dates set by the central bank for various terms to maturity on time deposits.

Table 2: Time Deposit Interest Rate Prior to Deregulation of June 1, 1983[5].

(Monthly rates in percentage)

	MONTHS					
	Less than 3	3	6	12	18	24
Effective from:						
Oct. 1, 1968	1.5	4	5	6	na	na
March 17, 1969	1.5	3	4	5	na	na
May 1, 1969	1	2	3	4	na	na
July 10, 1969	1	1.5	2.5	3	na	na
Sept. 15, 1969	1	1.5	2	2.5	na	na
Jan.1, 1970	1	1.5	1.75	2	na	na
May 31, 1972	.75	1	1.25	1.5	na	na
April 12, 1973	.50	.75	1	1.25	na	na
April 9, 1974	.50	.75	1	1.50	2	2.5
Dec. 28, 1975	.50	.75	1	1.25	1.75	2
Jan. 13, 1977	.25	.50	.75	1.00	ab	2
Jan. 1, 1978	dib	dib	.50	.75	ab	1.25
May 1, 1983	dib	dib	dib	.75	ab	1.25
June 1, 1983	dib	dib	dib	dib	dib	dib

Note:
na = This time deposit is not available.
ab = This deposit has been abolished or is no longer offered by government commercial banks.
dib = The rate for this deposit is determined by individual bank and no longer subject to restriction from the central bank.

[5]. Taken from Indonesian Financial Statistics-Bank Indonesia, monthly publication, various issues.

Since October 1968, the central bank has guaranteed time deposits and paid a subsidy in the amount of 1/3 of the interest which the government commercial banks pay for 6 and 12 month time deposits. Starting on March 17, 1969, the subsidy for 12 month time deposits was reduced to 1 percent. By May 1, 1969, all subsidies were abolished. This was a period when most investors put their time deposits in Singapore and Hongkong commercial banks or other more stable countries. These steps to guarantee and subsidize the time deposits were taken by the government to bring the money back into the country. In fact, early in Indonesia's first five year economic plan, there was a successful step by step effort by monetary authorities to gain credibility and trust from depositors.

Starting on April 9, 1974, the central bank paid a subsidy of 8 percent and 15 percent per annum on time deposits with maturities of 18 and 24 months respectively. By December 28, 1974, the subsidies on 18 and 24 month time deposits had decreased to 6 percent and 9 percent per annum respectively. By January 13, 1977, the 18 month time deposits scheme was abolished, and the subsidy on 24 month time deposits had been reduced to 6 percent per annum.

By January 1, 1978, the subsidy on 24 month time deposits was reduced to 4.5 percent per annum on amounts up to 2.5 million rupiahs and 1.5 percent on any excess over 2.5 million rupiahs. This subsidy was again reduced by May 1, 1983 to 1.5 percent per annum on amounts up to 2.5 million rupiahs and 1 percent per annum on any excess over 2.5 million rupiahs.

On June 1, 1983, the deregulation decree freed all these restrictions, and each bank was free to set their own interest rates for different types of time deposits. Since then, the kinds of time deposits offered in the banking system have been more complex. Most of these deposits are offered by banks with incentives, such as a lottery drawing for a large amount of money, gifts or overseas travel.

Another decree was issued on October 27, 1988 to liberalize the financial sector. Indonesia has consistently adopted a policy of no restrictions on foreign currency transfers

since 1971. However, financial and banking activities usually were closed to foreign players. This deregulation decree allowed foreign banks to become players in the Indonesian economy through mergers with local private banks. Anyone can open a new bank with initial capital of Rp 10 billion (about US$ 5.9 million, converted at that time)[6]. The presence of foreign banks in the domestic market facilitates the need for capital of multinational companies and joint venture companies. This changed the way monetary policy was conducted by the monetary authority.

This decree also freed the government owned companies to choose their bank. Previously, government owned companies were required to bank with a government bank. After this decree they could choose to put 50 percent of their funds in privately owned banks. The competition among commercial banks to attract customers became very tight. By the end of 1990, only about 2 years after the October 1988 decree, 63 new private banks had opened for business, bringing the total to 174 private banks. Furthermore, the number of bank branches country-wide had more than doubled to 4500. There were 8 foreign joint venture banks licensed, and hundreds of smaller community credit banks in rural areas were established.

For consumers, the entry of so many new banks expanded the number of credit and saving products offered, and in general nudged consumer service to a higher level. Competition among commercial banks is fierce compared to the time prior to the October 1988 decree. Newspapers are filled everyday with competitive bank's advertising to attract customers. Many of these banks are now open seven days a week. Hijacking of each other professional managers in the banking industry was unavoidable.

Another decree issued in March 1989 was to require commercial banks to keep 25 percent of their funds in the form of foreign exchange. This is to create a liquid moneymarket to support stock market exchange. This increase in net foreign assets may

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[6]. The activities were limited to only 6 big cities. Foreign banks are not allowed to open branch in a less developed area. Hence, these foreign banks concentrated in Jakarta, the capital and biggest city.

or may not have an effect on monetary policy and other macroeconomic variables. In January 1990, a decree was issued to require commercial banks to allocate at least 20 percent of their total credit into small business enterprises.[7]

Deregulation in Fiscal Sector

In January 1, 1984, a new income tax (PPd) law was enacted to replace the old Dutch tax system. In April 1, 1985, a new sales tax (PPN) law was enacted. In 1986, a new property tax (PBB) law was enacted. These new taxations system were designed to support the step by step liberalization of the economy.

With this new income tax law, tax payers have the responsibility to calculate their own tax liability or tax refund. With the old tax system, the tax man would calculate and decide how much each business and each individual had to pay. Responsibility is shifted to the tax payer under the new income tax law, thus reducing a lot of red tape and inefficiency. This may have a positive effect on foreign investment inflows.

The government budget has relied primarily on oil revenue to finance economic growth since the 1970s. The world recession in the early 1980s and the collapse of world oil prices in 1986 pushed the government to take action to shift its emphasis to non-oil export commodities. A plot of oil and non-oil export commodities from Indonesia is shown in graph 2. During the oil boom of the 1970s, oil revenue was the main contributor to Indonesian growth. The primary effort to increase non-oil export commodity was to maintain a competitive real exchange rate. After the 1986 devaluation, the competitive real exchange rate was maintained by containing inflation and rupiah depreciation.

Revenues from income, sales, and property taxes were ignored in the 1970s. In 1983, when the new taxation laws were enacted, the revenue from these taxes was only about nine percent of total government revenue. By 1989, the revenue from these taxes

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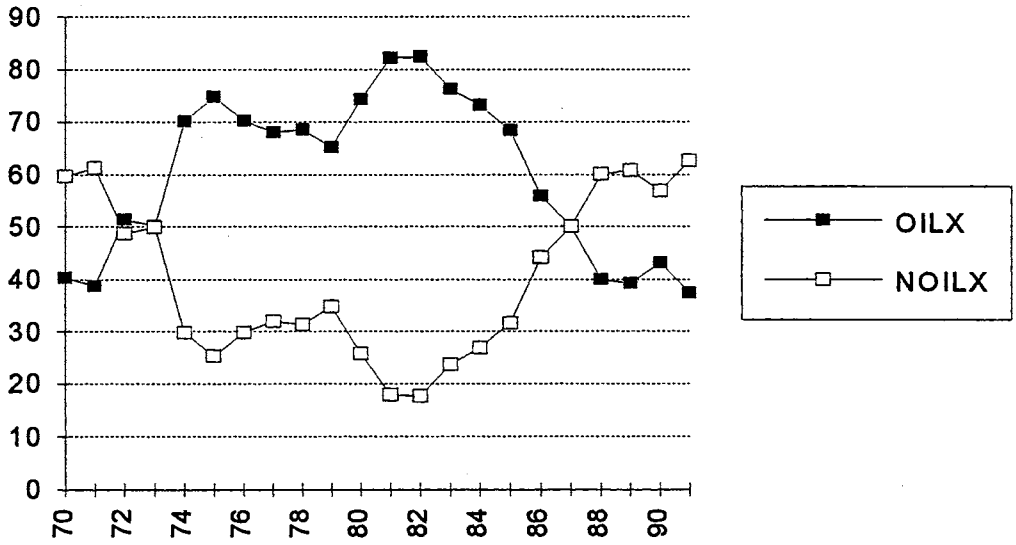
[7]. There are still a lot problem in this area. Many banks could not meet this requirement due to the incapability's of the small businesses to absorb the credit.

accounted for 29.5 percent of total government revenue.

During the gulf war, there was a significant increase of government revenue from oil sales. This improved the deficit in Indonesia's current account. It was decided not to put this windfall money into the overheated economy.

Graph 2: Oil vs Non-Oil Export Commodities

PERCENT



Source of data: Central Bureau of Statistics of Indonesia

In 1985, a decree (Inpres No. 4, 1985) was issued to temporarily privatize the customs agency. SGS Holding SA, a Switzerland company won the bid to do almost all activities which were formerly executed by the customs agency. This policy was designed to reduce or eliminate red tape and to reduce the cost of production in general[8]. This, in turn, would make manufacturers more competitive in export markets. The effect of this policy was clearly to reduce the cost of production, which in turn increased investment.

[8]. In 1992, the responsibility of customs was handed back to Customs Agency. At this time, it is still difficult to tell whether the old habit of red tape will return or not.

Deregulation in Import and Industrial Sector

The import sector of the Indonesian economy was heavily regulated. One reason the government always cited to defend this policy was that the country needed to control the limited foreign exchange reserves. To import certain goods, businesses were required to go through a company that was licensed by the government to import that good.

These rent seeking practices produced a high cost economy that made it difficult for non-oil commodities to compete in the export market. Two main decrees were issued to tackle this problem. On May 6, 1986, a decree was issued that exporters can import their input needs without going through the licensee. Another decree in October 25, 1986 was made to change non tariff barriers (quota) on many different kinds of imported goods into tariff barriers.

On the specific industries, there were some deregulations that followed. In May 1990, companies in the electronic and drug industries, whether they are for export or not, could import their needs without going through the licensee. The agricultural industry was also deregulated by changing the protection status of several key commodities from non-tariff barriers into tariff barriers.

Previously, all domestic needs for steel were supplied by Krakatau Steel, a government owned company. Beginning July 1992, companies in the steel industry can choose to import steel or to buy it domestically from Krakatau Steel.

All these policies affect the cost of production, by cutting rent seeking activities. Lower cost will in turn affect exports and attract foreign direct investment.

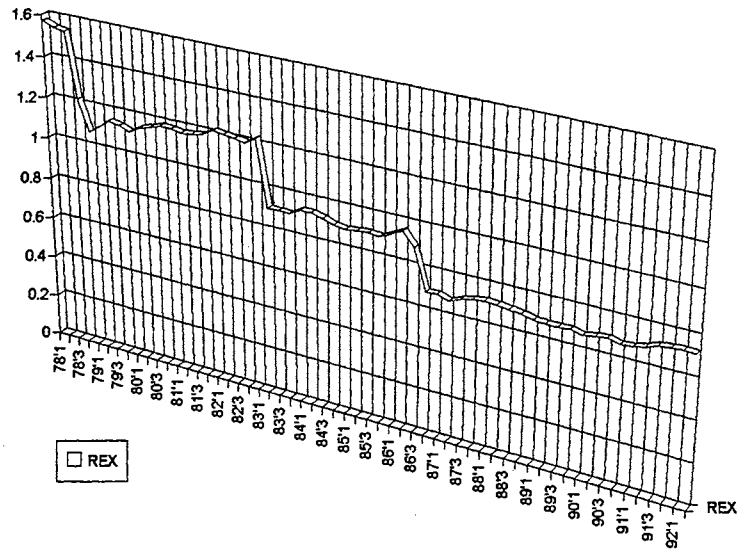
Devaluation

To be able to compete internationally, the policy maker realized that goods had to be cheap in the international market. Besides reducing the red tape that made the cost of production so high, the devaluation of rupiah currency was also a reasonable policy choice. The devaluation of the rupiah was executed on September 12, 1986. There was

about a 40 percent devaluation against US dollar[9]. Since September 12, 1986, there has been no further devaluation, but rupiah currency is handled by a managed floating system that allows the rupiah to undergo a continuous depreciation against major foreign currencies. A continuing depreciation of the rupiah against the US dollar and Japanese Yen will deteriorate the balance of payments because most Indonesian foreign debts are denominated in US dollars or Yen. The model discussed later will attempt to explain the effect of this depreciation on other macroeconomic variables. The following figure, graph 3, shows the real exchange rate trend from 1978-1991. It is a downward trend, as

Graph 3: Real Exchange Rate Behavior

Real Exchange Rate



Quarterly

Data: Recalculated from IFS.

discussed above, directed to maintain a low real exchange rate for export market target.

[9]. There had been two other devaluations prior to this time; in 1971 and in 1978

Stock exchange

On December 20, 1988, the stock exchange was deregulated. Foreign players are now allowed to take part and purchase up to 49 percent of the shares of a company listed in the stock exchange. Prior to this, on December 24, 1987, government decided to discard the requirement that the stock market had to maintain a maximum 4 percent swing in the price of a share traded in the stock market.

There are two stock market exchanges in Indonesia. The Jakarta Stock Exchange (JSE) is managed by P.T. Bursa Efek Jakarta (BEJ) in Jakarta, and Surabaya Stock Exchange (SSE) is managed by P.T. Bursa Efek Surabaya (BES) in Surabaya. Now, they are both privately run. The Jakarta stock exchange (BJE) was founded (resuscitated) in 1976 when the government established a regulatory agency and a national investment company to promote the development of a securities market. The Surabaya stock exchange was founded in 1989. There were 147 companies listed on the JSE by July 1992, with capitalization of shares at US$ 12 billion. Foreign investors held 22.7 percent of the shares on the JSE by August 1992. This policy affected the portfolio investment inflows. But since this policy was just implemented in December 1988 (practically the first quarter of 1989) and our observation data ends at the fourth quarter of 1991, this effect may not influence the result in our model.

Recent developments include the privatization of the Jakarta Stock Exchange. Besides this, there is a need to consolidate the market by merger among small brokers. BAPEPAM will be acting as a regulator in a capacity similar to the Security & Exchange Commission in the United States. Most of the activities in the capital market involved fund raising through stock selling. Bond activities are not a popular means of fund raising so far.

Deregulation in Specific Areas

In domestic shipping transportation, rent seeking activities were abolished by the November 21, 1988 decree. Previously, the routes on domestic sea cargo and shipping transportation were monopolized by several companies. At the same time there was also deregulation to reduce the non-tariff barriers on plastic raw materials.

In June 1989, it was decided that all government owned companies (BUMN) should go through periodic evaluation. Based on liquidity, rentability and solvability, these government owned companies should be categorized into the condition of: very healthy, healthy, less healthy, and unhealthy. This creates a competitive climate for these government owned companies to become more efficient. Most of them usually carried losses and gave the argument that they are agents of development instead of profit making institutions.

A decree, Inpres No. 5, 1984, was issued to simplify the number of permits needed to conduct business activities. This created the certainty required for new business or business expansion. For example what permits and how many permits are needed to build a hotel, an office center, or a factory ?.

The last deregulation was on June 1993. This series of economic deregulation can be summarized as follows: (1) In foreign investment policy, the number of sectors of industry closed to foreign companies was reduced from 51 to 34. (2) In trade policy, tariff rates on 297 items are to be reduced to within 5 to 20 percent. The ban on automotive imports of completely built up (CBU) form was removed, replaced by a tariff. Car industry protection in the last 20 years was seen as a failure that only created inefficiency and high car prices in the domestic market.*[10]* In the heavily protected soy bean industry, the tariff was reduced from 30 percent to 0 percent but only for imports from the

[10]. For comparable car, the price of car in Indonesia is about 2.5 to 3 times more expensive than the price of car in United States.

United States. However, since this is a very recent deregulation, observed data for this study is not likely to show the effects of this policy. Data for this study ends with the fourth quarter of 1991 for most variables. In any case, data more recent than the first quarter of 1992 are not available.

Performance since the New Order Regime

Indonesia gained its independence from Netherlands on August 17, 1945. Struggling to find its identity and trying to keep the country united, practically no attention was paid to the economy from the independence day until the military take-over in 1965 by Mr. Suharto.[11] This new regime, called the New Order Regime, wasted no time, focusing more attention on the country's economic problems. A group of Ph.D. economist who had graduated from American universities[12] was given the responsibility of organizing the crippled economy. These economists started their job with inflation rates of 650 percent per year in 1966 and with almost no market economy structure available[13] .

By 1969, Indonesia started its first five year economic plan, which is popularly called "Pelita". Since 1968 until the time of this study, there had been 5 Pelita as follows: The 1st Pelita, 1969-1973, the 2nd Pelita, 1974-1978, the 3rd Pelita, 1979-1983, the 4th Pelita, 1984-1988, and the 5th Pelita, 1989-1993. This study and model examined the period of the third Pelita through the fifth Pelita.

For comparison of how the Indonesian economy has grown since the New Order Regime, several statistics from International Financial Statistics (IFS) were calculated and presented it in the following table.

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[11]. Mr. Suharto is still the president of the country at the time of this study. Mr. Suharto won the election for the sixth time in March 1993.

[12]. Press and media referred to this group as the "Berkeley mafia" after the Californian campus, UC Berkeley. Although not all of them graduated from UC Berkeley, several the most senior among them were from UC Berkeley.

[13]. See The Economist magazine, April 17, 1993: A Survey of Indonesia "Wealth in its grasp."

Table 3: Performance of the New Order Regime

	GNP US$ Mil	GNP/Cap US$	Inflation % per annum	Ratio of Foreign Debt to GNP	Ratio of Export plus import to GNP
1967	5,602.9	50.65	109.52	N/A	.26
1970	9,068.4	75.90	12.93	insignificant	.29
1975	29,125.3	214.68	19.03	.22	.47
1980	69,274.3	469.69	18.01	.19	.55
1985	83,788.9	508.95	4.71	.33	.44
1991	110,958.8	590.96	9.24	.37	.57

Compared to the early era of the New Order regime, the per capita income has increased by 11.67 times. Inflation has been kept under control. The economy is more open as is shown by the increasing ratio of exports plus imports to gross national product. The increased ratio of foreign debt to gross national product probably indicates an alarming sign that something needs to be fixed. The increase of foreign debt will reduce the creditworthiness of the country.

The economy has also shifted from heavy reliance on agricultural products to the manufacturing and services sectors. The shift can be seen in the composition of sectors of industry during these 5 Pelita in table 4 on the following page. The secondary sector increased from 12 percent in the 1st Pelita into 26.2 percent in the 5th Pelita., while the primary sector decreased from 54.1 percent in the 1st Pelita into 33.6 percent in the 5th Pelita. The service sector also increased from 33.9 percent into 40.2 percent over the same period.

Another way to view these changes is by looking at the growth rate of each sector over the same period. Table 5 shows the yearly average growth of each sector. The secondary sector increased at a much higher rate than the primary sector over all these 5 Pelitas. The

same thing is also true for the services sector.

The primary sector experienced the slowest rate during the entire Pelita. The principle effort focuses on the secondary and services sectors.

Table 4: Composition of GDP by Sector (in percentage) *[14]*

	P E L I T A				
	1st (1969-73)	2nd (1974-78)	3rd (1979-83)	4th (1984-88)	5th (1989-93)
Primary sector (Agricultural & Mining)	54.1	47.1	39.2	39.9	33.6
Secondary Sector (Industry, Construction)	12.0	16.5	21.0	21.6	26.2
Tertiary/Service Sector (Commerce, banking, transportation, govt, etc)	33.9	36.5	39.9	38.5	40.2
Total	100	100	100	100	100

[14]. Sources: Central Bureau of Statistics, and Center for Policy Studies (CPS), Jakarta.

Table 5: Annual Average Rate of Growth (in percentage)[15]

	P E L I T A				
	1st	2nd	3rd	4th	5th
Primary Sector (Agricultural and Mining)	6.6	3.4	2.8	1.8	3.2
Secondary Sector (Industry and Construction)	15.9	14.2	9.3	10.1	11.1
Services Sector (Commerce, banking, transportation, etc)	9.4	9.5	7.9	6.2	7.3
Total GDP	8.6	7.2	6.1	5.2	6.8

Structural Transformation on the Export Composition

Due to the decreasing of the oil price of the 1980s, Indonesia tried to push the export of non oil commodities. These structural changes are reflected in the increased share of the non-oil economy in GDP. The manufacturing sector became the most important source of economic growth. With over 12% growth a year, manufacturing accounted for about one quarter of GDP growth during the period of 1983-1990.[16]

A comparison of exports of oil & gas vs non oil commodities is made in table 6. The export of oil & gas decreased from 74.77 percent of total export in 1975 into only 37.39 percent in 1991, while the non-oil commodity export increased from 25.23 percent in 1975 into 62.61 percent in 1991. This demonstrates the increase in competitiveness of

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[15]. Idem.

[16]. See: Trends in Developing Economies 1991, published by the World Bank, Washington D.C., 1991, page 280.

Indonesian non-oil commodities in the international market. This is one factor that would attract foreign investment inflows into the country.

Table 6: Export Composition[17]

	Oil & gas export	Non Oil & gas commodity export
1975	74.77%	25.23%
1980	74.24%	25.76%
1985	68.42%	31.58%
1991	37.39%	62.61%

Foreign Investment Policy

The Investment Coordinating Board is an agency established in 1967 to help the economy to recover and to set policy for inviting foreign investment into the country. This board coordinates the incentives to attract investment from domestic (domestic investment) and foreign sources (foreign investment). Periodically, this agency will evaluate and issue a policy about which sector of industry or which part of the country (geographically) is still open or closed to new foreign or domestic investments.

For foreign investment, Japanese companies have always been on the top of the list in investing in Indonesia. In fact, Indonesia has been the 4th largest recipient of Japanese foreign direct investment after the US, UK, and Australia.

Table 7 shows cumulative foreign investment approval from 1967 up to December 31, 1992.

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[17]. Central Bureau of Statistics, and Center for Policy Studies (CPS), Jakarta, Indonesia.

Table 7: Cumulative of Foreign Investment Approvals[18]

(Ranking of Investment Value by Industry Sector)
1967 - Dec. 31, 1992
The Top 15 Sector

Industry sector	Number of projects	Value in million of US$	% from total
1. Chemical Industry	317	12,524.5	19.9
2. Hotel	101	6,587.7	11.1
3. Mining	122	5,975.0	9.5
4. Metal Goods Industry	432	5,524.8	8.8
5. Housing	42	5,379.5	8.5
6. Paper Industry	38	4,523.2	7.2
7. Basic Metal Industry	44	4,395.9	7.0
8. Textile Industry	361	4,334.3	6.9
9. Non Metallic Mining Industry	59	3,076.9	4.9
10. Food Industry	110	1,794.1	2.8
11. Office Industry	28	1,633.3	2.6
12. Transportation Industry	32	1,535.5	2.4
13. Other Services	239	1,203.7	1.9
14. Wood Industry	122	835.0	1.3
15. Plantation	43	705.6	1.1

Among the top fifteen (15) investor countries, cumulative foreign investment approval increases from 1967 to 1992 are as follows: Japan (20.7 percent), Hongkong (8.3 percent), Taiwan (6.2 percent), South Korea (4.7 percent), United States (4.3 percent), United Kingdom (3.9 percent), Netherlands (3.6 percent), Singapore (3.3 percent),

[18]. From Investment Statistic of Indonesia, December 1992. Published by The Investment Coordinating Board, Indonesian Government, Jakarta, Indonesia. These numbers exclude oil & gas, banking, non bank financial institution, insurance, and leasing.

Germany (3 percent), Australia (2 percent), Luxembourg(1.7 percent), Switzerland (.9 percent), Panama (.8 percent), France (.4 percent), Belgium (.4 percent) *[19]*.

Current Problems

Given the performance of Indonesian economy, there are several problems that might reduce the ability to maintain this progress. They are:

1. Rent seeking activities:

Although the wave of deregulation is clearly gaining ground, there continuous to be a lot of pressure from several groups that were closed to the power to monopolize certain industry. *[20]*

2. The increase of debt burden:

The foreign debt has increased dramatically. Foreign debt has increased at an average rate of 35.5 percent over the period of 1984-1990. Mismanagement of this debt mirrors the debt problem of Latin American countries. Secondly, it will ultimately reduce the expansive ability of fiscal instruments. A recent development in this foreign debt occurred when the government put a restriction on overseas borrowing. Overseas borrowing of over US$5 million has to be approved by a new government agency established to tackle the rising Indonesian foreign debts. There has been discussion of releasing the windfall revenue of oil from the gulf crisis to pay off some of these debts. At the end of 1988, Indonesia's total foreign debt, including undisbursed amounts, reached US$ 58 billion. The sharp increase in foreign debt of the mid of 1980s was also due to the appreciation of the US dollars and the Yen. Graph 4 below shows the trend of foreign debt during the period of 1978-1989.

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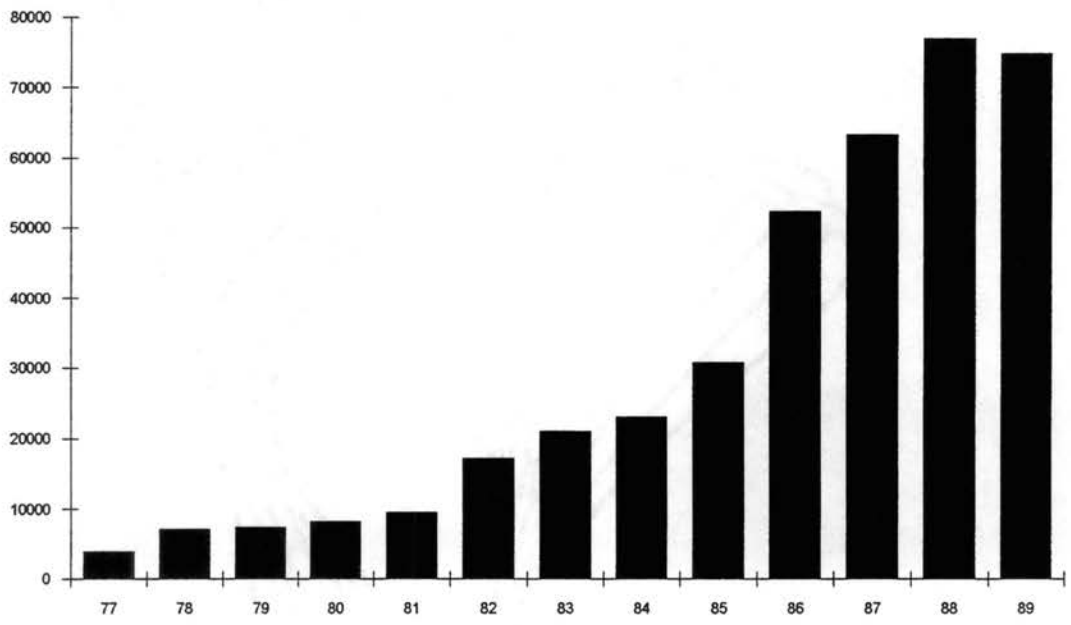
[19]. Idem. These numbers exclude oil & gas, banking, non bank financial institution, insurance, and leasing.

[20]. See: The Economist magazine, April 17, 1993: A Survey of Indonesia "Wealth in its grasp".

Graph 4: Foreign Debt Trend

Billion Rupiah



Data: IFS

Year

3. The post Suharto stability:

Mr. Suharto has openly talked about his desire to retire. Due to the inexperience of the country with peaceful transfers of power, the stability which is basic for economic growth may be in jeopardy. There have been only 2 presidents in the history of the Republic of Indonesia since 1945.

4. The rise of Mainland China and Eastern Europe, and Vietnam:

The opening of Mainland China and Eastern Europe for investor, and their competitiveness in terms of low labor cost, facilities, tax holiday, etc, create alternatives for foreign direct investment. This also makes it more difficult to arrange a soft long-term loan. Vietnam has been another attractive newcomer in Southeast Asia for foreign direct investment destination.

5. The world recession and protectionism :

The world recession is clearly making Indonesian economic growth slower. In addition

to this, the tendency for protectionism in industrial countries will possibly be a future problem for Indonesian economic growth. There is already pressure in the United States to lift Indonesian textile exports from the US generalized preference system.

Comparison with Several Other Economies in South East Asia

As impressive as it is, compared to the other three new industrialized economies of South East Asian, Indonesia still maintains the lowest rank in term of per capita income, although it has the largest economy. In terms of controlling inflation, Indonesia is still behind Malaysia and Thailand. In terms of infrastructure, they all probably have the same problem.

Taken all together, the climate of openness in the economy, and the steady growth of the other Southeast Asian economies should finally benefit the Indonesian economy.

Table 8 compares the performance of these 4 developing economies of Southeast Asia.

Table 8: Performance Comparison by Countries[21]

	GNP US$ Mill	GNP per capita US$	Inflation Rate(%)	Ratio of Export plus Import to GNP
Indonesia	102,514.1	571.75	9.24	.53
Malaysia	40,542.3	2282.79	2.63	1.63
Thailand	79,347.3	1414.89	5.95	.81
Philippines	44,292.7	720.44	14.18	.61

[21]. Numbers are recalculated from IFS, published by IMF.

CHAPTER II

LITERATURE REVIEW

Monetary Policy

There has been a long debate in monetary theory concerning the proper intermediate target or indicator of monetary policy. The traditional indicators used have been the interest rate and the money supply. Other alternatives to these traditional indicators are the monetary base,[22] liquid asset measures (de Kock and Radecky: 1990), commodity prices (Hilton: 1990), and credit measures. The use of credit measures was brought to the attention of economists because of its potential usefulness in formulating and communicating central bank policy. Among the proponents of credit measures are Benjamin Friedman, Joseph Stiglitz, and Alan S. Blinder.[23]

In formulating the model for this study, one must examine the way monetary policy is conducted in Indonesia. A monetary policy reaction function is estimated to discover how the monetary authorities conduct policy over the period of 1978.1 to 1992.1. Credit measures in the form of domestic credit are used as the dependent variable that responds to several economic variables.

In basic monetary theory, it is commonly understand that monetary policy is used to combat inflation. It is also closely associated with the prevailing interest rate. Inflation has been the primary target of monetary policy. Most of the time, monetary policy, will be sensitive to changes in the inflation rate of a country. Inflation rates are crucial to monetary policy. In addition, there are other variables that also concern monetary authority. In this situation, an attempt is made to estimate a monetary reaction function that includes all variables that are possibly a concern of the monetary authority

[22]. Many studies have done in this area, especially studies that relate to the St. Louis model.

[23]. For example, see Blinder and Stiglitz (1983); Bernanke and Blinder (1988); Benjamin Friedman (1983).

in conducting its monetary policy.

Although monetary policy should be conducted to provide stable long-term economic growth, different countries have different priorities about which macroeconomic variables are to be its greatest concern. It is very possible for a certain macroeconomic variable to be the main priority to the monetary authority of one country but the lowest priority to another.

Monetary policy reaction functions have been used by several studies to determine if there is a systematic monetary policy pursued by a country's monetary authority. Generally, this monetary policy reaction function shows the reaction of the monetary authority in executing its policy toward several different macroeconomic variables.

Three previous studies have estimated monetary policy reaction functions. A study on developing economies by Fry (1989a) used the change in domestic credit (DDCR) as the dependent variable in its monetary policy reaction function.*[24]* Explanatory variables include the change in net foreign assets divided by gross national product (DNFAR), the difference between domestic and United States inflation (INFGAP), the change in net domestic credit to the government sector divided by gross national product (DDCGR), the rate of change in the world market dollar price of oil (DOILP), the ratio of government and government-guaranteed foreign debt to gross national product (DETY), and finally the square of the debt over gross national product ratio (DEYS). This monetary policy reaction function is specified to discover whether or not the developing countries sterilize inflows of net foreign assets to achieve some money target. This reaction function is also specified to indicate whether or not monetary authorities react to any other economic events. For example, developing countries central bank might squeeze credit when domestic inflation exceeds U.S. inflation or when oil prices rise. Central banks might also squeeze domestic credit to the private sector when credit requirements of the

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[24]. See Fry (1989a), p.211.

government increase; in such cases, the coefficient of DDCGR would be significantly less than one. The complete sterilization implies a value of -1 for the coefficient of DNFAR.

Another study on developing economies by Fry (1991a) also used the change in domestic credit scaled by GNP (DDCY) as the dependent variable in its monetary reaction function. This monetary reaction function is designed to discover whether or not monetary authorities in the sample of developing countries have pursued a systematic monetary policy. He used the following explanatory variables in his monetary policy reaction function: the lag of foreign liabilities defined as the lag of end-of-year stock of the country's net cumulated foreign liabilities converted into domestic currency and divided by gross national product (FLY_{t-1}); the lag of the ratio of foreign debt to gross national product ($DETY_{t-1}$); the change in net foreign assets of the banking system scaled by gross national product (DNFAY), and its lag ($DNAY_{t-1}$); the widening gap between domestic inflation and inflation in the united States (INFGAP), and its lag ($INFGAP_{t-1}$); oil price inflation (DOILPL) and its lag ($DOILPL_{t-1}$); the lag of real exchange rates expressed in natural logarithms as proxy for the price of nontradable goods in relation to import prices ($REXL_{t-1}$); the change in net domestic credit to the government scaled by gross national product (DNDCGY), and its lag ($DNDCGY_{t-1}$).

Monetary authorities might tighten monetary policy when the lags of foreign indebtedness $DETY_{t-1}$ and FLY_{t-1} were high, so the signs of these variables are expected to be negative. DNFAY is expected to have a negative coefficient since it is designed to detect any systematic "sterilization" of the effects of such assets' acquisition on the money supply. The sign of the INFGAP coefficient is expected to be negative since monetary authorities might squeeze domestic credit in response to a widening gap between domestic and United States inflation. The sign of DOILPL would be negative if the monetary authority squeezes domestic credit in response to high oil price inflation, and will have a positive sign if the monetary authority accommodates higher oil prices by increasing domestic credit. The $REXL_{t-1}$ variable would have a negative coefficient if a restrictive

monetary policy pursued after devaluation. A positive coefficient would suggest that the monetary authority accommodated price increases caused specifically by the devaluation. The sign of DNDCGY is be expected to be positive as the monetary authorities might squeeze domestic credit to the private sector when the credit requirements of the government increase. A zero coefficient on DNDCGY would imply a complete neutralization of the public sector's credit requirements. A partial offset would produce a coefficient between zero and one.

A comparison study of developed country on the monetary policy reaction function was done by Abrams (1980) for the U.S. economy. This study used the Federal Funds Rate as the dependent variable. The explanatory variables were: deviation of the unemployment rate from a desired level, the rate of inflation, the surplus in the balance of payment, the percentage effective devaluation in the foreign price of the dollar, and, finally, the deviation of money growth from target growth rate.

Foreign Investment

Foreign investment represents foreign capital inflows to a country. Capital inflows into a country consist of three different flows; foreign direct investment, portfolio investment, other flows that do not belong in the foreign direct investment or portfolio investment. Foreign aid is major part of the last category. Foreign investment is also referred to as the capital account in this study.

Many studies of foreign capital inflows have been conducted. Some of the studies take all foreign inflows (in the sense of all foreign investment) into their investigation or take only the foreign direct investment part of the capital inflows. In this study, an attempt is made to separate these three capital inflows to see a more detailed effect of them individually. It should be noted at this point that no study is known to have investigated portfolio investment separately.

On foreign direct investment (FDI) studies, Fry (1992), showed that foreign direct

investment (FDI) affected the national investment, national saving, growth, and the balance of payments on current account. There were several findings in this study. In the eleven developing countries used as a control group, FDI reduced domestic investment, which means FDI is a close substitute for other capital inflows; but for the five Pacific Basin developing economies, FDI increased capital formation and is not a substitute for other capital inflows. Another finding was that FDI had a significant negative impact on national saving. However, the negative effect of FDI on national saving in the five Pacific Basin developing economies implies that FDI could have a negative effect on the current account in excess of its negative effect through increased domestic investment. On growth, foreign direct investment has a positive effect on sixteen of the sample countries, but for eleven of the sample countries foreign direct investment negatively affected growth. In addition, for the five pacific basin developing economies, the effect of foreign direct investment is negative for growth, but not significant. This insignificant coefficient of foreign direct investment indicates that foreign direct investment does not exert a significantly different effect from domestically financed investment on the rate of growth. The effect of foreign direct investment on the current account is significant and negative in the entire sample of countries. The main conclusion of this study is that the effect of FDI differs from one group of countries to another. In some, its effects are immiserizing, while in others its effects are similar to domestically financed investment.

Edwards (1990) elaborated on the economic determinants of foreign direct investment (FDI) in less developed countries as follows: (a) Per capita income was included as a proxy for the inverse of the return on capital, so its sign is expected to be negative. (b) He adds the ratio of foreign trade to gross domestic product (GDP). The coefficient of this variable is expected to be positive. (c) Real GDP is included as a measure of the size of the economy and the potential extent of the scale of economies. Its coefficient is expected to be positive. (d) Domestic investment ratio. Edwards assumes that domestic and foreign investments are complements. So the coefficient of the domestic investment ratio is

expected to be positive. (e) The share of government consumption in GDP as an indicator of the size of the government is included. He expects this coefficient to be negative. (f) He evaluates international competitiveness represented by the real exchange rate. The study uses the Summers and Heston measure of the real exchange rate, and given the way this real exchange rate defined, its coefficient is expected to be positive.

Edwards estimated his model using 60 developing countries, including Indonesia, and used data from 1971 to 1981. He used 6 different definitions and manipulations of the foreign direct investment as a dependent variable. With little deviation, he obtained the results for the coefficient of each variable.

Lucas (1993) is used a simple model of derived demand for foreign capital by a multiple product monopolist to explore the sensitivity of direct foreign investment to production cost in seven Asian countries, including Indonesia. The study uses annual data. He found governments in these countries concerned with restraining wage escalation and limiting the role of organized labor, partially in order to attract foreign investment. He found foreign direct investment inflows to be less elastic with respect to the cost of capital (including taxes) than to wages, and to be more elastic with respect to the aggregate demand in export markets than to domestic demand. The results as to whether domestic capitals complement foreign capitals are mixed, though in the majority of cases a positive association prevails. Most prior empirical studies of foreign direct investment reviewed by Lucas (1993) consistently find the size of the domestic market to be important. But this study found only a weak positive association between the size of domestic consumption spending and foreign direct investment. This is contrary to conventional wisdom. The study also found a weak positive association between foreign direct investment and higher foreign exchange reserve coverage (and hence diminished prospects of currency depreciation). The study also found that foreign direct investment is somewhat responsive to incomes in major export markets.

Kindleberger (1972) cited the sales of the product of foreign direct investment, labor

costs, capital costs, technology and management, government expenditure, taxes, external economies and diseconomies, amortization, nationalism, and the discount rate. Kindleberger did not estimate this model. These are all hypothetical variables that should be included in the determination of foreign direct investment.

In a discussion about foreign direct investment in heavily indebted developing countries, a study by de Vries (1990) comes to the conclusion that foreign direct investment inflow cannot be expected to grow when a country has a mounting debt. However, his study does not estimate the variable empirically. His result, which uses the statistical history of foreign direct investment and foreign debt in those sample countries, suggests the use of a debt variable in the foreign investment model for the purpose of empirical estimation.

In a study about new trends and policy problems of foreign investment in the commonwealth developing economies, Cable and Persaud(1987) listed the following as determinants of foreign direct investment: (a) The general business climate and investor confidence in the domestic market, or the strength of demand of the domestic market and or regional market. This can be captured with a per capita income or consumption variable.[25] (b) Tax incentives. Indonesia, and all other Asian countries, offer such incentives. The question, however, is not whether it is offered but how much is offered. The difficulty is to obtain data for this variable. Furthermore, the complicated nature of the investment incentive tax structure suggests the exclusion of the tax variable from so many studies that try to relate comparative tax incentive to foreign direct investment.[26] (c) Trade policy and special zones. Many developing countries are seeking to attract export-oriented investment in a context where there is a high level of protection which

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[25]. According to Cable and Persaud (1987). a survey of foreign direct investment in Malaysia showed the largest numbers of foreign direct investment were motivated by the lure of the Malaysian market and only 10% were motivated by labor-cost consideration.

[26]. For detailed discussion, see Jun (1989), Giovannini and Hines (1990).

raises domestic costs. This makes it difficult to export and to attract foreign direct investment intoexport activities. Where comprehensive liberalization is not feasible, a second best solution is a free trade zone. Such zones can also serve as a focus for infrastructure development considered necessary for export-oriented activities. The operation of these special zones has produced mixed results. For the purpose of this study this factor will be excluded from the model.*[27]*

Krause (1973) stressed that foreign direct investment will depend on long-term profits that can be acquired through: (a) Cost reduction. This suggests the inclusion of a labor cost variable in an empirical estimation, (b) The market being large enough to allow the investing firm to capture plant economies of scale. This suggests the inclusion of a consumption or income per capita variable in an empirical estimation. (c) tax incentives or relative tax.

Political risk is always cited as a factor that deters foreign direct investment. In discussing United States policy toward foreign investment in less developing countries, Ellis (1990) mentioned the impact of political risk on United States foreign investment in less developing countries. Possibilities of expropriation, nationalization, civil unrest, and restrictions on currency transfer, are factors to be considered in making foreign direct investment. To overcome this obstacle, many actions have been taken to insure foreign investment in less developing countries.

The Overseas Private Investment Corporation (OPIC) is a U.S. government corporation whose main purpose is to provide political risk insurance for U.S. investment in over 100 less developed countries (LDCs). Another organization of this kind is the International Finance Corporation (IFC), an affiliate of the World Bank. The IFC has a

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[27]. In the Indonesia case, the Sabang special zone in the 1970's failed, but the Batam special zone, however, in the 1980's succeeded. Beside the large pool of cheap semi-skilled labor, the lure of Batam especially because foreign investors do not need an Indonesian partner. Indonesian government provides guarantees against nationalization, offers accelerated depreciation for fixed assets, and allows exemption from luxury-sales and corporate taxes for companies that have not broken even. Foreign investment to Batam in 1991 alone is US$934 million. By December 1991, foreign firms have invested a total of US$ 3.2 billion in Batam. Batam is located about 20 km to the south of Singapore.

program called the Guaranteed Recovery of Investment Principal (GRIP). Under this program, an investor deposits funds with the IFC in exchange for a long-term-IFC note. The IFC then makes an investment in the LDCs in its own name and assumes full risk of loss of principal for any reason. In return the IFC receives a negotiated front-end fee and a share of the profits.[28] The Multilateral Investment Guarantee Agency (MIGA), the latest member of the World Bank group, was launched in 1988. Its primary function is to insure foreign investors in developing countries against losses resulting from noncommercial risks such as expropriation, civil unrest, and restrictions on currency transfer. It should be noted that for the purpose of this study, a political risk variable will not be included in the foreign direct investment equation for three reasons: (1) It is difficult to find data for this variable. (2) Due to insurance provided by OPIC, IFC, and MIGA, the risk of international investment is reduced although it may still be significant. (3) In the case of Indonesia, one could venture to say that, during the decade of the 1980s, political risk has not entered into foreign investor's decision making. Stability in Indonesia has been imposed from the top for the past 25 years. Indonesian liberals hope that the passing of the Suharto era will lead to a more open political system. The promise of stability is most likely to be made by the armed forces (ABRI), since the Indonesian constitution gives ABRI a dual social and military function which will make a reassertion of military power relatively easy in the post-Suharto era.

Studies on portfolio investment are rare. One thing that will affect portfolio investment is the domestic real interest rate or the world real interest rate. Secondly the inflation rate should be another factor affecting portfolio investment. The size of the financial system of a country and the relative importance of the financial system could be other factors that will attract portfolio investment into a country.

In their study of financial indicators and growth in a cross section of countries, King

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[28]. For further details, see Ellis (1990).

and Levine (1992) proposed four variables as measures of the size of the financial system of a country. They are the ratio of money M1 definition to GDP (M1Y), the ratio of liquid liabilities of the financial system to GDP (LLY), the ratio of quasi-liquid liabilities of the financial system to GDP (QLLY), and the ratio of claims on the private sector by the central bank and deposit money banks to GDP (DCPY). King and Levine also proposed three variables as measures of institutional importance. They are the ratio of central bank domestic assets to GDP (CBY), the ratio of deposit money banks domestic assets to GDP (BY), and the ratio of deposit money banks domestic assets to deposit money bank plus central bank domestic assets (BTOT).

Saving and Investment

For national saving and investment, several studies can be cited. Based on a life-cycle model, Fry (1989b) used the saving to gross national product ratio as the dependent variable. He found that national saving in 28 less developed countries were affected by the rate of growth in gross national product, rate of growth in aggregate income attributable to terms of trade improvements, world real interest rate, net domestic credit to government, government and government guaranteed debt and the lag of national saving itself. Fry found that the rate of growth in gross national product, as well as the rate of growth in aggregate income attributable to terms of trade improvements, are positively associated with saving. He expects the sign of the world real interest rate to be ambiguous. If the substitution effect outweighs the income effect, then the saving ratio increases. He found world real interest rate and net domestic credit to the government to be negatively associated with saving. Fry also expect the sign of government and government guaranteed debt to be ambiguous. He found the empirical estimate for this variable is positively associated with saving, but the lag of the variable is negatively associated with saving. The lag of national saving is positively associated with saving.

A study to analyze national saving and domestic investment responses to terms of trade

in 14 Asian developing economies by Fry (1986) found that variables for economic growth, terms of trade, real deposit rate of interest , and the lag of saving are positively associated with saving. A population dependency variable was negatively associated with saving.

In a study about debts and deficits in 26 developing countries, Fry (1991b) postulates the national saving equation as a function of the rate of growth of gross national product (YG), permanent improvement in the terms of trade in natural logarithms (TTL), the change in domestic credit over nominal gross national product (DDCY), the world interest rate (RW), the lagged value of net foreign liabilities over gross national product (FLY_{t-1}), the lagged value of government and government guaranteed debt ($DETY_{t-1}$), and the lag of the

$DETY_{t-1}^2$. The expected sign for growth and terms of trade are positive. The expected sign of DDCY is negative, because an increase in credit availability will raise consumption and lower saving (hence worsen the current account). The sign of interest rates is ambiguous. The expected sign of FLY_{t-1} is negative. As net foreign liabilities increase and net wealth declines, an increase of cumulated net foreign liabilities might produce a wealth effect that would reduce consumption and increase national saving. The sign of $DETY_{t-1}$ can be positive or negative. Saver could perceive that a high and rising foreign debt ratio may goad the government into stimulating exports, which would involve a devaluation. The gross real return on assets held abroad could be higher than that of domestic assets. Hence, the increase in DETY could reduce national saving. On the other hand, since DETY also determines the domestic real shadow interest rate, a higher debt ratio produces a higher domestic interest rate and hence increases saving.

Several studies can be cited for national investment. Based on the flexible accelerator model, Fry (1989b) used a ratio of investment to gross national product as dependent variable. He found that national investment is affected by the rate of growth in gross national product (YG), the world real interest rate (RW), the lag value of terms of trade

(TT_{t-1}), real exchange rates (REX), government and government guaranteed debt (DETY), net domestic credit to government (DCGR), the change on real domestic credit to the private sector (DCPY), and the lag of national investment itself. Expected signs for YG and TT_{t-1} are positive, while the expected sign for RW is negative. By appreciating the real exchange rate, capital inflows may stimulate investment. Thus, the coefficient of REX is expected to be positive. The coefficient of DETY could be positive or negative. It would be negative if foreign indebtedness deters domestic investment since it raises the probability of higher taxes on domestic assets in the future. The sign could also be positive since it is possible that, in its early stages, debt buildup could actually stimulate investment. The expected sign of DCGR is negative because it deters domestic investment for the same reason that it deters saving. Finally, the expected sign for DCPY is positive. Empirical results for this equation show that YG, TT_{t-1}, REX, DETY, DCPY, and the lag of investment itself are positively associated with investment, while RW, $DETY^2$, DCGR are negatively associated with investment.

Fry (1986) shows that investment is positively related to economic growth, the lag of the terms of trade, the private sector domestic credit ratio, and the lag of investment itself, and negatively related to contemporaneous terms of trade, and world real rate of interest.

Fry (1991b) postulates investment as a function of the growth rate (YG), world interest rate (RW), terms of trade (TTL), the lag of real exchange rate (REXLG), the change in domestic credit (DDCY), the lag of debt (DETYLG), the lag of debt squared ($DETYLG^2$), and the lag of investment itself (IYLG). Expected coefficients are positive for YG, REXLG, DDCY, and IYLG. The expected coefficient is negative for RW. Expected coefficients are ambiguous for TTL, DETY, and $DETY^2$.

In a study of private investment in developing countries, Greene (1991) shows that the rate of private investment is positively related to real GDP growth, the level of per capita GDP, and the rate of public sector investment, and negatively related to real interest rates, domestic inflation, the debt-service ratio, and the ratio of debt to GDP.

Fry (1992) also shows that the coefficient of the foreign direct investment variable is significantly positive for five pacific basin developing economies. This suggests that foreign direct investment does not crowd out or substitute for domestically financed investment.

Using major industrial countries, Feldstein (1980) measures the extent to which a higher domestic saving rate in a country is associated with a higher rate of domestic investment. With perfect world capital mobility, there should be no relation between domestic saving and domestic investment. Saving in each country responds to the worldwide opportunities for investment while investment in that country is financed by the worldwide pool of capital. The specification he uses is:

$$I/Y = a + b*(SH/Y) + c*(SC/Y) + d*(SG/Y)$$

where I/Y is investment scaled to national income, SH/Y is household saving scaled to national income, SC/Y is corporate saving scaled to national income, and SG/Y is government saving scaled to national income.

In an attempt to explain the behavior of saving in eight Asian countries, Lahiri (1989) found that growth unambiguously leads to increased private saving. Inflation and movement in the terms of trade are found to be two additional determinants of private saving. Inflation, both anticipated and unanticipated, is found to have an adverse effect on saving.

Feldstein found that with perfect world capital mobility, there is little or no relation between the domestic investment in a country and the amount of saving generated in that country. In contrast, if portfolio preferences and institutional rigidities impede the flow of long-term capital among countries, an increase in domestic saving will be reflected primarily as additional domestic investment.

Papanek (1973) uses regression analysis to 34 countries for the 1950s and 51 countries for the 1960s. It should be noted that this data is old and was generated under a different climate of economic conditions and relative openness of international transactions.

Papanek drew the following conclusion when foreign aid, foreign investment, other inflows and domestic saving are treated as separate independent variables. (1) Savings and foreign inflows explain over one third of economic growth. (2) Foreign aid has a substantially greater effect than the other variables (3) The correlation between foreign aid and foreign private investment is not significant (4) Only for Asia do the four variables explain much (5) Growth is not correlated with exports, education, per capita income, or country size. Saving is highly correlated with export and per capita income, but not with country size.

In attempt to find the importance of foreign capital inflows in economic development, Gupta (1975) made a distinction between the "direct" and "total" effects of foreign capital inflows on saving. The former being the coefficient of foreign capital inflows in the structural saving equation and the latter the coefficient of foreign capital inflows in the reduced form of the saving function in a simultaneous equation framework. Gupta constructed a seven equation system, using data for 40 developing countries for 1960s. He estimated the structural system by 2SLS, computed the reduced form coefficient for foreign capital inflows in the saving equation and concluded that

" ...the negative impact of foreign capital inflows is much less pronounced than that indicated by the structural equation. The single equation models have greatly exaggerated the negative impact of such flows, and that the role of foreign capital inflows is quite small in regard to saving."

Ram (1981) studies the structural and reduced form saving equation with the same model and procedure as Gupta (1975) for the same 40 country sample, but with different data of 1971-1975. He found the same negative association. But this recent data indicates a slightly smaller adverse effect of saving. In his result, the reduced form coefficient suggests that a dollar of foreign capital inflow reduced, on the whole, domestic saving by 87 to 91 cents.

In a comparison of policy, foreign investment, and economic growth in Latin America and East Asia, Hein (1992) shows that the inflow of foreign capital is affected by many

factors, including regional effects, economic policy, and political instability. Several variables he admits affect foreign capital, but were not tested in his study are the quality of the labor force, labor costs, union organizations, the size of the domestic market, and consumer purchasing power. The most important finding in his study is that the official economic policies within Asia and Latin America were shown to be highly relevant factors in the explanation of foreign investment and economic growth.

Bowles (1987) uses time series data to investigate the causal relationship between foreign aid and the domestic saving rate. According to his study, given that the negative correlation between foreign aid and domestic saving rates in less developed countries is an accepted fact in the existing literature, the direction of causality is not universal. The evidence shows four different directions of causality (1) saving affects aid, (2) aid affects saving, (3) saving and aid affect each other, and (4) no causality at all.

Economic Growth

Balasa (1978) investigates the relationship between exports and economic growth in a group of eleven developing countries that have already established an industrial base. His study found a relationship between exports and economic growth. He tested the hypothesis that export-oriented policies lead to better growth performance than policy favoring import substitution. This is because the export-oriented policies provide similar incentives to sales in domestic and foreign markets and lead to resource allocation according to comparative advantage, allowing for greater capacity utilization. This permits the exploitation of economies of scale, generates technological improvements in response to competition abroad, and in labor surplus countries, contributes to increased employment.

Balasa (1985), using 43 developing countries in the 1973-1978 period, has shown that intercountry differences in the rate of economic growth are affected by differences in investment rates, the rate of growth of labor force, the initial trade policy stance, the

adjustment policies applied, the level of economic development and the product composition of exports. His findings show that the policies adopted have importantly influenced the rate of economic growth in developing countries. An outward oriented policy stance and reliance on export promotion appear to have favorably affected growth performance.

In analyzing the sources of growth in the period 1964-1973 for a group of semi industrialized less developed countries, Feder (1982), used cross-country regression. He found that investment scaled to gross domestic product, growth of population as proxy for labor growth, and the growth of export multiplied by export share in gross domestic product are all positively associated with growth in gross domestic product.

Sung-Shen (1990) found that a link between export promotion and economic development is neither straightforward nor universal. It operates through a variety of channels, which are generally intermixed. It also depends on the special feature of the economy and the development strategy follows by policy makers.

There are some other studies that examine foreign investment, exports, growth, and saving that are mostly partial equilibrium analysis or single equation models, and focus on a specific, narrow topic. Stoneman (1975), concentrated on foreign investment and economic growth. Dollar (1992), Chow (1987), Jung and Marshall (1985) concentrated on the causality between exports and economic growth. Atri and Jhun (1990) focused on the effect of foreign investment inflows on savings and Lomas (1982) on the relationship of exports to savings.

A study by Parikh (1990) on money supply and prices in Indonesia for the period of 1969-1980 found that the rate of inflation which is generally considered to be an important element in the money demand function does not turn out to be a significant factor in the Indonesian experience.

CHAPTER III

A MODEL OF MONETARY POLICY, FOREIGN INVESTMENT, AND CURRENT ACCOUNT:

The modeling section of this study is divided into four blocs: (1) a monetary policy reaction function (2) the capital account bloc, which incorporates foreign direct investment, portfolio investment, other capital (long- and short-term capital), (3) the current account bloc, incorporating national saving and investment equations and (4) economic growth equation, to capture the interrelated impact of the other three blocs of equations.

Monetary policy reaction function

The monetary policy reaction function is designed to capture the impact of inflation, the effect of foreign debt, the effect of the change in the net foreign asset of the central bank, and the effect of foreign investments on domestic credit policy. Specifically we would like to see how the monetary authority reacts to these key variables during the period of 1978.1-1992.1.

For our purposes, the monetary policy reaction function of Fry (1991) is used as the basis of the reaction function for Indonesia. The dependent variable in our monetary policy reaction function is the change in domestic credit scaled to gross domestic product (DDCY).

The first explanatory variable in the monetary reaction function is the inflation differential between Indonesia and United States (INFD). The monetary authorities in Indonesia might react to a widening gap between domestic inflation and foreign inflation captured by the United States inflation rate. The crucial variable for the monetary authority is domestic inflation, but in an open economy, the inflation rate differential is a more appropriate variable to react to than domestic inflation alone. If inflation is one of the concerns of the monetary authority, then a widening gap between domestic inflation

and inflation in United States may result in the monetary authority contracting domestic credit. In this case, the sign of INFD is expected to be negative.

The second variable in the reaction function is foreign debt. This variable is included to capture the monetary authority reactions to the accumulation of foreign debt. Since quarterly data of foreign debt is not available, following Fry (1991a), an alternative measure of indebtedness is used which cumulates the balance of payments definition of the current account deficit. This includes unrequited transfers from the deficit. The foreign debt variable is scaled to gross domestic product (FDY). Following Fry (1991a), only the lag of the foreign debt variable (FDYLG) is included. As foreign debt grows it is expected that monetary authority will respond by reducing domestic credit. The expected sign of this foreign indebtedness variable (FDYLG) is negative.

The third variable in the monetary policy reaction function is the change in net foreign assets of the central bank divided by gross domestic product (DNFACBY). This is included to determine how much the monetary authority will reduce domestic credit following an increase of net foreign assets of the central bank. In other words, the change in net foreign assets of the central bank is included to detect any systematic sterilization due to the effects of such an acquisition on domestic credit. The sign for this variable should be negative if the Indonesian monetary authorities pursue a systematic sterilization policy.

We also include a real exchange rate index in the equation. An increase in this index signifies an appreciation, while a decrease signifies depreciation. A depreciation in the real exchange rate raises debt service costs in relation to other domestic currency expenditures and income. We use the lag of the real exchange rate index (REXLG) to see the reaction of the monetary policy to the real exchange rate. If the monetary authority pursued a restrictive monetary stance after a devaluation or depreciation, the sign of the REXLG coefficient would be positive. On the other hand, a negative coefficient sign would suggest that the monetary authority accommodated price increases caused by devaluation

or depreciation.

An increase in capital inflows into the country would presumably increase the banking system's net foreign assets. A separate effect is estimated for foreign direct investment scaled to gross domestic product (FDIY), and other investment flow scaled to gross domestic product (OCY) variable to see whether the monetary authority reacts differently to the increase of inflow of these two different kinds of capital. A negative coefficient for these variables would suggest that the monetary authority reduces domestic credit. A positive coefficient on the FDIY would suggest that multinational companies may increase their domestic borrowing to accompany their initial capital inflow. A positive coefficient for OCY suggests the monetary authority expands credit when foreign aid and other form of inflows increase. This is especially true because many foreign aid funds should be matched by a certain level of domestic currency.

The last variable in the monetary policy reaction function is the change in domestic credit to government scaled to gross domestic product (DDCTGY). Domestic credit to government can take the form of credit to central government or credit to official entities. Total domestic credit consists of domestic credit to government and to private sector. This variable is included to see how monetary authority reacts to the increase in the demand for credit by the government sector. The monetary authority might squeeze domestic credit to private sector when the credit requirements of the government increase. A coefficient of zero for this variable would imply a complete neutralization of the public sector's credit requirements. A partial offset would result in a coefficient greater than zero but less than one. A coefficient of one would imply that monetary authority would not squeeze any credit from the private sector to meet the increase demand of the public's sector credit requirements. For example, a coefficient of 0.75 for DDCTGY means that monetary authority reduces credit to private sector by 25% of the increased public sector borrowing requirement.

So, the monetary policy reaction function to be estimated is as follows:

DDCY = f(INFD, FDYLG, DNFACBY, REXLG, FDIY, OCY, DDCTGY).....(1)

where: f1<0 , f2<0 , -1<f3<0 , f4 ?, f5 ?, f6 ?, 0<f7<1

Capital Account Bloc (Foreign Investment)

Foreign investment can be classified into three different categories:

(a). Foreign Direct Investment: defined as the foreign ownership and control of real property or commercial facilities in a country. This could be in the form of the provision of equity capital, reinvested earnings, and net lending by the parent to the affiliate.

(b). Portfolio Investment: includes the foreign ownership of financial assets (i.e., those that do not convey ownership or control of a business firm). These include federal, state, and local government securities, corporate bonds and stocks, municipal bonds, and bank deposits. These international securities transactions usually have an original term to maturity greater than one year.

(c). Other Capital Inflows: all other net flow of capital that does not fall into the category of Foreign Direct Investment or Portfolio Investment. Major items in this category are drawings on long-term loans received and foreign aid. All flows in the capital account are only in the form of Foreign Direct Investment, Portfolio Investment and Other Capital Flows.

Foreign investment (foreign direct investment, portfolio investment, and other capital flows) represents both inflows and outflows. In this study, we use foreign investment as net of inflows and outflows. In the case of Indonesian economy, inflows are significantly higher than outflows. The outflows are very small and very insignificant. The foreign investment data used in this study can be seen as representing primarily inflows into the Indonesian economy.

Most studies of foreign investment concentrate only on foreign direct investment, while portfolio investment and other capital has so far been neglected. In this model, an

attempt is made to bring together all foreign investment. Each of these three capital flows have characteristics that may or may not be the same. Therefore, an equation for the determination of each will be estimated separately. There are three equations in the Capital Account bloc, one for Foreign Direct Investment, one for Portfolio Investment, and the last one for Other Capital Outflows.

Foreign Direct Investment

The equation for foreign direct investment is built along the line of Edwards (1990), Kindleberger (1972), Cable and Persaud (1987), de Vries (1990), Krause (1973), Fry (1992) and Lucas (1993). The dependent variable is foreign direct investment scaled to gross domestic product (FDIY). The first explanatory variable is the real gross domestic product per capita (RGDPCAP). The inclusion of per capita income is made to capture investor confidence in the domestic market and the strength of demand of the domestic market. Greater investor confidence and strength of demand in the domestic market will increase foreign direct investment inflows. The coefficient sign for RGDPCAP is expected to be positive.

The second variable in the foreign direct investment equation is government expenditure scaled by gross domestic product (GOVEXY). GOVEXY is added to investigate whether the size of government has an impact on foreign direct investment. This will also serve as a proxy for infrastructure and other provisions of business facilities. Better infrastructure and facilities will encourage foreign direct investment. Hence the coefficient of GOVEXY is expected to be positive.

Foreign direct investment is affected by the export of a country, as had been shown by Edwards (1990) and Lucas (1993). The export variable (XY) in this case is scaled to gross domestic product. A higher export is an incentive for more inflows of foreign direct investment into the country. The sign of this variable is expected to be positive.

Labor cost (LC)[29] is included as suggested by Kindleberger (1972), Krause (1973), and Lucas (1993). A low cost of labor will keep production cost low. In turn it will make a multinational company or a company with foreign direct investment more competitive. So, we expect the coefficient of LC to be negative. This would suggest that an increase in the labor cost will deter foreign direct investment.

We include foreign indebtedness (FDY) in the equation to see how it may affect foreign direct investment. A higher debt will increase the investment risk for the country. Higher risk will deter foreign direct investment. As suggested by de Vries (1990), the foreign direct investment inflow cannot be expected to grow when a country has a mounting debt. Hence, the expected sign of this variable is negative.

We also investigate the effect of the real exchange rate on foreign direct investment[30]. The real rate of appreciation/depreciation (RRD) is the variable used in the equation[31]. An increase in RRD is an appreciation. A depreciation of domestic currency makes the price of the export commodity relatively cheaper in the world market and makes domestic production more competitive in the world market. This will attract more foreign direct investment into the country. The coefficient is expected to be negative.

The world interest rate (WINT) is included in the foreign direct investment equation. LIBOR is used as a proxy for the world interest rate. An increase in the world interest rate will presumably make world capital more expensive. A more expensive world capital will reduce the expected return on the foreign direct investment, and therefore will

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[29]. This LC is an index constructed from wholesale price index (including petroleum), as a proxy for labor cost. See Appendix A for more detail explanation.

[30]. In the nominal exchange rate, during 1978.1-1992.1, the value of Indonesian rupiah has been constantly decreasing against US$. There are three formal devaluations by government decrees. Even after the managed floating system was chosen, the value of rupiah currency has never been increased. It is all one way decreasing during this period.

[31]. RRD is calculated as rate of change in real exchange rate.

discourage foreign direct investment. The sign of WINT should be negative.

We also assume that the size of the financial system of a country (M1Y) will have an effect on foreign investment. We follow King and Levine (1992) definition of the size of financial system of a country as the ratio of M1 to GDP. The greater size of the financial system should encourage more foreign direct investment into the country because it would give investor greater confidence. Therefore the coefficient of M1Y is expected to be positive.

So, the equation for Foreign Direct Investment would be as follows:

FDIY = f(RGDPCAP, GOVEXY, XY, LC, FDY, RRD, WINT, M1Y) .....(2)

where $f1>0$, $f2>0$, $f3>0$, $f4<0$, $f5<0$, $f6<0$, $f7<0$, $f8>0$.

Portfolio Investment

The dependent variable in this equation is portfolio investment scaled by gross domestic product (PIY). The first explanatory variable is the world interest rate (WINT), which is the London Inter Bank Official Rate. As we saw previously, portfolio investment is mostly securities transaction. An increase in the world interest rate will make alternative for portfolio investment inflows more attractive. The domestic return will become relatively lower as world interest rate increases. Hence, an increase in the world interest rate will discourage portfolio investment inflows into the country. The coefficient sign of WINT is expected to be negative.

The second variable in the equation is M1Y to see whether the size of financial system of a country affects portfolio investment. It is assumed that an increase in the financial system size will attract portfolio investment because the larger financial system size will give investor a greater confidence. Therefore, the sign for M1Y is expected to be positive.

We include also the central bank domestic asset (CBDARAT) as a variable to see whether the relative importance central bank domestic assets has an effect on portfolio investment. The larger proportion of central bank domestic asset will give confidence for

investor. The sign of this variable is expected to be positive.

The last variable in this equation is the inflation differential (INFD). Inflation differential is defined as domestic rate of inflation minus United States rate of inflation. An increase in the gap will reduce the expected return of the portfolio investment. An increase in the domestic inflation or a decrease in the inflation overseas will produce other alternatives to portfolio investment inflows. Hence, the increase in INFD will reduce portfolio investment. The sign of INDF should be expected to be negative. The equation for portfolio investment would be as follows:

$$PIY = f(WINT, M1Y, CBDARAT, INFD) \quad \text{.....(3)}$$

where $f1<0$, $f2>0$, $f3>0$, $f4<0$.

Other Capital Flows

Equation (4) is the equation for other capital flows (other than foreign direct investment and portfolio investment). The dependent variable is other capital flows scaled by gross domestic product.(OCY). The first explanatory variable in this equation is real per capita gross domestic product (RGDPCAP). An increase of per capita income would reduce the associated risk of other capital flows into a country. Also it will capture the strength of economy in general. A stronger economy will attract capital flows. The sign for this variable is expected to be positive.

The second variable in this equation is imports scaled by gross domestic product (MY). This is to see how the openness of a country affects capital flows. Theoretically, the openness of the economy to foreign trade should be accompanied by capital flows. So, we expect that the sign of MY is positive.

The inclusion of M1Y variable in the equation is to see the effect of the size of financial system of a country on the other capital flows. As in the case of equation (3), the size of financial system should have a positive effect on the capital flows into the country.

The last variable in this equation is the central bank domestic asset scaled by total bank

domestic asset (CBDARAT). This is to see how much capital flows into Indonesian economy are affected by the relative importance of the central bank domestic assets. An increase in CBDARAT should have a positive effect on the other capital flows.

We can summarize the equation for the other capital flows as follows:

OCY = f(RGDPCAP, MY, M1Y, CBDARAT) .....(4)

where f1>0, f2>0, f3>0, f4>0.

Current Account

In a close economy, Saving (S) is equal to Investment (I). In open economies, S and I can differ. From the Gross National Product identity Y=C+I+G+X-M, (where Y is national income, C is consumption, I is investment, G is government expenditure, X is export, and M is import), we can rearrange terms into (Y-C-G)=I+(X+M), where (Y-C-G) is national saving S, (X-M) is current account (CA). Thus S=I-CA or:

CA≡S-I .....(identity equation)

In order to determine the current account, we can either estimate current account equation or estimate the two equations, national saving and national investment equation. In our study we decide to estimate national saving and national investment equations.

National Saving

The dependent variable of national saving equation is national saving scaled by gross domestic product (SY).The first explanatory variable in the national saving equation is the rate of growth of real gross domestic product (RGRGDP). An increase in growth of real gross domestic product will increase national saving. In an open economy, the rate of growth in income differs from the rate of growth in output due to terms of trade changes. In order to capture the effect of the real output, we include the effect of the terms of trade variable (RGTOT) in addition to RGRGDP. A rise in the terms of trade therefore has the same impact as growth of income, that is to increase the national saving. The expected sign for RGRGDP and RGTOT are expected to be positive.

The third variable is foreign debt. In this equation we use the lag of foreign debt (FDYLG). The effect of foreign debt on national saving could be negative or positive. The Ricardian equivalence view holds that if households expect the foreign debt will require a higher future government expenditure and hence a higher future tax, people will be ready and prepared for it by increasing their saving. Therefore, private saving would rise in the Ricardian equivalence view if the foreign debt increases. In this case the coefficient of FDYLG would be positive. The increase of foreign debt may have a different impact for households. As households notice foreign debt rising, they may well anticipate higher future tax burdens to repay and service the debt. They will therefore have an increasing incentive to transfer their assets overseas. This will decrease national saving. In this case we have a negative coefficient of FDYLG.

Finally, as Fry (1989b) suggests, we include the lag of saving variable (SYLG) to capture any partial adjustment effects. We expect the coefficient to be positive. The national saving equation specified for empirical estimation will take the following form:

$$SY = f(RGRGDP, RGTOT, FDYLG, SYLG) \quad \text{.....(5)}$$

Where $f1>0$, $f2>0$, $f3<0$, $f4>0$

National Investment

The dependent variable is the national investment scaled by gross domestic product (IY). The first explanatory variable is the growth rate of real gross domestic product (RGRGDP). The increase in this variable will have a positive effect on national investment according to the accelerator model.

As in equation (5), we include the terms of trade variable to accompany RGRGDP. A study by Persson and Svensson (1985) shows that a permanent improvement in the terms of trade increases national investment. However, a temporary improvement in the terms of trade can reduce investment because stocks of inventories are run down to benefit from

the temporary improvement in the relative price of these exports.[32] If terms of trade changes are perceived to be permanent, then the coefficient of RGTOT is expected to be positive. On the other hand, if the terms of trade changes is perceived as temporary, then the coefficient of RGTOT is expected to be negative.

The third variable in this equation is the real exchange rate. Following Fry (1991) we used the lag (REXLG) rather than contemporaneous variable. A higher value of REXLG implies a lower relative price of imports, therefore appreciation of the real exchange rate increases investment, while depreciation will discourage it. On the other hand, appreciation increases the price of domestic goods in world market and making domestic investment less attractive. Hence, the expected sign of this variable is ambiguous.

We include all three types of foreign investment (FDIY, PIY, OCY) in the equation to see the impact of each of these on national investment. Specifically, we would like to know whether each of these behaves as substitute or as complement for national investment. A positive coefficient means that the said foreign investment is a complement to the national investment. On the other hand, a negative coefficient means that the said foreign investment is a substitute for the national investment.

The inclusion of foreign debt (FDYLG) in the equation is to determine the effect of the foreign debt on national investment. An increase of foreign debt is assumed to have a negative effect on the national investment because it raises the probability of higher taxes on domestic assets in the future.

Domestic credit to the private sector variable (DDCPSY) is included in the model to explain the effect of credit expansion in the private sector on investment. An increase will reduce the interest rate, and the lower interest rate will induce investment. So, the effect of domestic credit on national investment is expected to be positive. Finally, as in equation (5), we include the lag of national investment (IYLG) in the model to capture any partial

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[32]. For further discussion of this, see Fry (1991a).

adjustment effect.

The national investment equation specified for the empirical estimation will take the following form:

IY = f(RGRGDP, RGTOT, REXLG, FDIY, PIY, OCY, FDYLG, DDCPSY, IYLG)....(6)

Where f1>0, f2 ?, f3>0, f4 ?, f5 ?, f6 ?, f7 ?, f8>0, f9>0.

Economic Growth

The economic growth equation uses the rate of growth of real gross domestic product (RGRGDP) as dependent variable. The first explanatory variable in this equation is investment (IY). The growth accounting methodology tells us that an increase in investment increases the economic growth. The second variable is the rate of growth of population (RGPOP) to proxy for the growth of labor force. An increase in the growth of population will contribute positively to economic growth.

Variable export (RGRXY) is included to see how the economic growth is affected by the international trade, especially the export part. As we discussed in the literature review part, there are many studies that reveal that export is the engine of economic growth , especially in the East and Southeast Asian developing economies. The effect of the export on the economic growth is positive. The variable of export used here is following Feder (1983).*[33]*

The economic growth equation specified for empirical estimation will take the following form:

RGRGDP = f(IY, RGPOP, RGRXY) .....(7)

where f1>0, f2>0, f3>0.

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[33]. Feder used the export variable as "the rate of growth of real export" multiplied by "the export scaled by gross domestic product."

The Complete Model

The model as a whole consists of seven equations described above. These seven equations are accompanied by several identities to close the model. The following table 9 shows the complete model.

Table 9: The Complete Model

Monetary Policy Reaction Function:

DDCY = f(INFD, FDYLG, DNFACBY, REXLG, FDIY, OCY, DDCTGY).....(1)

f1<0, ,f2<0, -1<f3<0, f4 ?, f5>0, f6>0, 0<f7<1

Foreign Investment/Capital Account Functions:

Foreign Direct Investment Function:

FDIY = f(RGDPCAP, GOVEXY, XY, LC, FDY, RRD, WINT, M1Y).....(2)

f1>0, f2>0, f3>0, f4<0, f5<0, f6<0, f7 <0, f8>0.

Portfolio Investment Function:

PIY = f(WINT, M1Y, CBDARAT, INFD).....(3)

f1<0, f2>0, f3>0, f4<0.

Other Capital Flows Function:

OCY = f(RGDPCAP, MY, M1Y, CBDARAT).....(4)

f1>0, f2>0, f3>0, f4>0.

Current Account:

National Saving Function:

SY= f(RGRGDP, RGTOT, FDYLG, SYLG).....(5)

f1>0, f2>0 f3<0, f4>0.

National Investment Function:

IY = f(RGRGDP, RGTOT, REXLG, FDIY, PIY, OCY, FDYLG, DDCPSY, IYLG)....(6)

f1>0, f2 ?, f3>0, f4 ?, f5 ?, f6 ?, f7 ?, f8>0, f9>0.

Economic Growth Function:

RGRGDP = f(IY, RGPOP, RGRXYF).....(7)

f1>0, f2>0, f3>0,

Identities:

CA = S - I.....(8)

CAY + FDIY + PIY + OCY +RSVY + EOBY=O.....(9)

DCY = MSY + NFAY.....(10)

NFAY = NFACBY + NFAPBY.....(11)

DDCY = DDCTGY + DDCPSY.....(12)

DDCY = DCY - DCYLG.....(13)

CHAPTER IV

EMPIRICAL RESULT AND DISCUSSION

Estimation Procedures

The study uses a simultaneous equation approach. The simultaneous system estimation has advantage in that it will take into account the residuals of various equations in a system that are correlated with each other. Secondly, we may want to constrain the coefficient of one equation to be the same as, or related to, the coefficient of one or more of the other equations in the system.

The model is estimated with the three stage least square (3SLS) method. To be certain the model generates unique estimates for the structural parameters, the equations are checked for proper identification. The counting rule or necessary condition for an equation within a system of X equations to be just identified is that there should be exactly X-1 variables not appearing in the equation in order to differentiate the equation from the remaining X-1 equations. The rank condition requires that the excluded variables of the *k*th equation appear in the remaining X-1 equations in such a way that no other equation or linear combination of equations can obey the restriction. Identification of equations is done before running the 3SLS regression. All series used in the model are tested for their stationarity. All equations in the model are tested for cointegration. The RESET test is also used to test the general misspecification. MTSP Version 7.0 is used for the stationarity test, cointegration test, and RESET test. The Proc Syslin procedure of SAS system is used to run the regression. The 3SLS model system is also tested for its stability, using MATLAB Version S3.5. The Proc Simlin of SAS System procedures are used for the simulation.

Empirical Results of the Model and Discussion

Monetary Policy Reaction Function

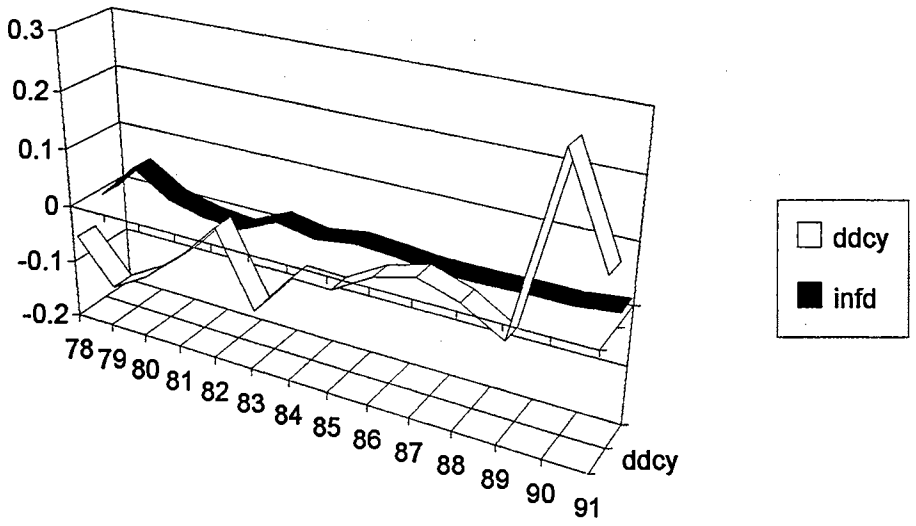
The estimation results for the Monetary Policy Reaction Function, with t-statistics in bracket, are as follows:

$$DDCY = 0.0045 - 0.0140\ INFD - 0.5338\ FDYLG - 0.7277\ DNFACBY$$
$$\qquad\qquad (0.091) \quad (-2.421) \qquad (-1.510) \qquad (-3.476)$$

$$- 0.0165\ REXLG + 5.144\ FDIY + 1.19\ OCY + 0.9799\ DDCTGY$$
$$\qquad\qquad (-0.380) \qquad (2.337) \qquad (2.175) \qquad (5.037)$$

The result shows that monetary authority reacts to the inflation differential between domestic and US inflation significantly. The difference could be the result of either an increase in domestic inflation or the disinflation in the United States economy. The monetary authority squeezes domestic credit when there is an increase in the inflation differential. This is simply a reflection of the monetary policy designed to negate the

Graph 5: Domestic Credit and Inflation Differential



Data: Recalculated from IFS.

increase of inflation. The Indonesian monetary authority has a good record of controlling domestic inflation since the New Order Regime started the economic rebuilding plan (Repelita) 20 years ago (see the following graph 5).

The coefficient for FDYLG shows a negative correlation to monetary policy reactions as expected. The monetary authority reacts to the increase in foreign debt by reducing domestic credit. As shown in table 2, there is an increasing trend in the ratio of foreign debt to GNP. In the future, as foreign debt increases, the monetary authority is expected to reduce domestic credit.

The change in net domestic assets of the central bank (DNFACBY) is negatively associated with the change in domestic credit. This result indicates that the Indonesian monetary authority systematically sterilizes the effect of foreign asset acquisition on domestic credit. The Indonesian monetary authority sterilizes about 73 percent the effect of net foreign asset acquisition to achieve its money supply target. A hyphotesis test shows that DNFACBY coefficient is not significantly different from one[34]. This means that the monetary authority tends to negate all the effects of an increase in the net foreign assets of the central bank. This finding is similar to result obtained by Fry (1989a) and Fry (1991a), that Asian developing economies systematically sterilize the effect of the acquisition of foreign assets.

The real exchange rate (REXLG) is negatively associated with the change in domestic credit. Its coefficient is not significant. An appreciation (depreciation) of rupiah currency decreases (increases) domestic credit. The insignificance of this coefficient might indicate a low priority of monetary policy to decrease (increase) domestic credit in reaction to an

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[34]. The hyphotesis test for DNFACBY coefficient shows the following:
Null hyphotesis H_0*: b=1.*
Alternative hypothesis H_1*: b is not equal to 1.*
Computed t-statistic is t = (0.73-1)/0.209 = -1.29.
Critical t-value for a two-tailed test at the 5% level is plus minus 1.96.
So, the null hypothesis H_0*: b=1 is not rejected, which means the coefficient of DNFACBY is not significantly different from one.*

appreciation (depreciation) of rupiah currency. The Indonesian currency (rupiah) has never been revalued or appreciated (in nominal terms) against major currencies such as the US dollar since the beginning of the effort to rebuild the economy by the New Order regime in 1967. The real exchange rate has been steadily showing a down trend against the US dollar (see graph 3). There have been three devaluations of the rupiah currency. Since the adoption of a managed floating currency, the rupiah has gone through a depreciation for most of the time. According to the model, the sign of REXLG could be either positive or negative. A positive coefficient for REXLG implies that a restrictive monetary policy is pursued after devaluation or depreciation. A negative coefficient for REXLG, as shown by the model estimate, suggests that the Indonesian monetary authority accommodated the price increases caused by devaluation/depreciation.

FDIY has a positive relationship to changes in domestic credit. As we discussed in Chapter I, there have been a significant increase in foreign direct investment in Indonesia. In the early period of the economic rebuilding plan (Repelita), the modus of foreign direct investment was generally in the form of foreign multinational corporation, a complete 100 percent control by foreign companies. Later, joint-venture companies became increasingly popular as a means of foreign direct investment in Indonesia. Multinational companies borrow additional needs of capital domestically after the initial capital inflows. Foreign partners of joint-venture companies bring an inflow of capital, while the domestic partners, in general, use domestic credit as initial or additional capital. The increase of domestic credit due to an increase in foreign direct investment is a reflection of additional credit to accompany the initial inflows of foreign direct investment.

The empirical estimates show the same result for other capital inflows (OCY). It is positively associated with the change in domestic credit. There has been a significant increase of OCY to the Indonesian economy from the initial year of the economic rebuilding effort in 1967. The Indonesian government relied heavily on OCY during the early Repelita. Our model suggests that the monetary authority reacts to an increase in

OCY by expanding domestic credit. The monetary authority has the same reaction to both FDIY and OCY. While the increase in foreign direct investment increases DDCY about 5.14 times, OCY increases DDCY only 1.19 times. This does not imply that DDCY cofficient is more important than OCY coefficient. All we can say is that the monetary authority accepts a relatively higher level of borrowing in domestic credit to accompany foreign direct investment (FDIY) than to accompany other capital flows (OCY).

The sign of the coefficient for DDCTGY is positive as expected. It is expected that the monetary authority squeezes domestic credit to the private sector when the credit requirements of government increase. The result is different from expectation. Although the coefficient sign is positive, the coefficient is not significantly different from one. A hypothesis test of the DDCTGY coefficient shows that it is not significantly different from one[35] . This means that the Indonesian monetary authority does not reduce domestic credit to private sector when the credit requirement of government increases. This result differs from results obtained by Fry (1991a) in which the coefficient is significantly different from one. This can be explained by information in graph 6:

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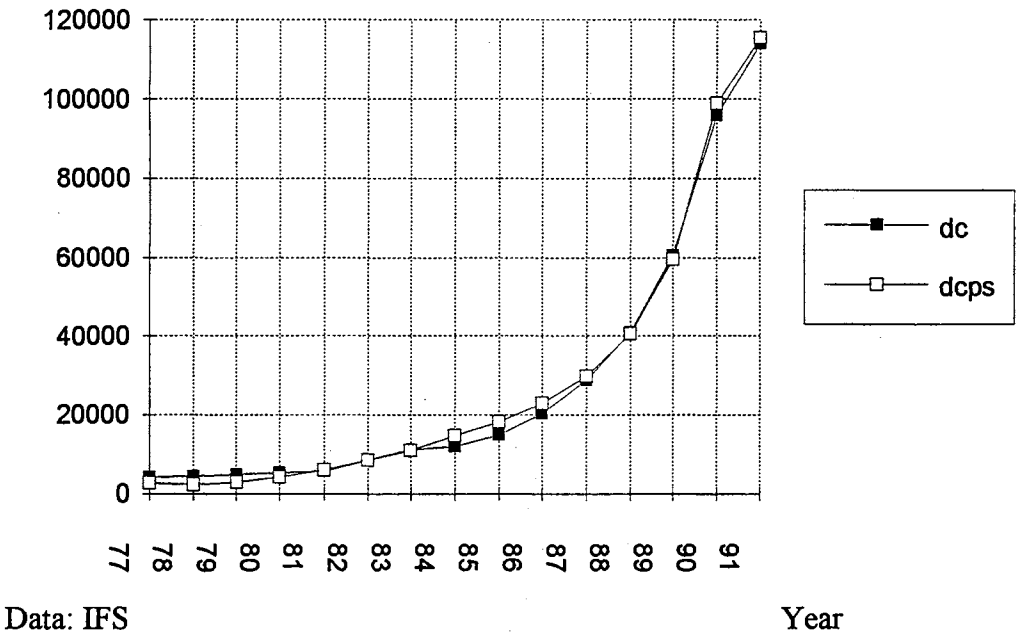
[35]. The hypothesis test for DDCTGY coefficient shows the following:
Null hyphotesis H_0*: b=1.*
Alternative hypothesis H_1*: b is not equal to 1.*
Computed t-statistic is t=(0.98-1)/0.195= -0.103.
Critical value for a two-tailed test at 5% level is plus minus 1.96.
So, the null hypothesis H_0*: b=1 is not rejected, which means the coefficient of DDCTGY is not significantly different from 1.*

Graph 6: Total Domestic Credit and Domestic Credit to Private Sector



Domestic credit to the private sector(DCPS) closely follows the pattern of total domestic credit (DC). Any increase in the government requirement for credit is just fulfilled by the Indonesian monetary authority without reducing any domestic credit to private sector. This is partially explained by the need for credit by multinational corporations and foreign joint-ventures to accompany the initial inflows of foreign direct investment, and the need of domestic currency to accompany or match projects funded by foreign aid.

Foreign Direct Investment Function

The empirical estimation results for the Foreign Direct Investment function, with t-statistics between the bracket, is as follows:

$$FDIY = -0.025 + 24x10^{-6}\ RGDPCAP + 0.01\ GOVEXY + 0.042\ XY - 0.00049\ LC$$
$$(-3.900) \qquad (2.776) \qquad (1.292) \qquad (1.981) \qquad (-3.054)$$

-0.021 FDY - 0.00022 RRD - 0.00042 WINT + 0.0224 M1Y
(-0.788) (-2.457) (-1.936) (1.786)

Real GDP per capita is positively related to foreign direct investment as expected. RGDPCAP is indicator of consumer purchasing power and the strength of the domestic market. The positive and significant coefficient for RGDPCAP shows that Indonesia's real per capita income is an important factor in attracting foreign direct investment into the country. But this coefficient is very small. This small coefficient might be an indicator that real income per capita is not on the top of the priority list for foreign investors in making their decisions about direct investment in Indonesia.

Government expenditure (GOVEXY) as proxy for improvement in infrastructure and business facilities has a positive but weak relation with foreign direct investment. An improvement of infrastructure and business facilities in Indonesia is not a significant factor in attracting foreign direct investment. A very close neighbor, Singapore, is well known for its business infrastructures and facilities. Singapore's close proximity to Indonesia, makes GOVEXY a weak factor to attract foreign direct investment.

The export variable is positively related to foreign direct investment. Since the fall of oil prices in the early 1980s, The Indonesian government has tried to push the export of non-oil commodities. Non-oil commodity exports have been targeted to take the lead in exporting. As was discussed in Chapter I, Indonesia made an effort to shift the export dependency from oil to non-oil commodities in the beginning of 1980s. This policy started to show a promising result by the late 1980s. This successful effort to shift to the non-oil export commodities has encouraged foreign direct investment. The model shows that an increase in Indonesian exports is a significant factor in attracting foreign direct investment.

The model estimate shows that labor cost (LC) has a significant negative relation to foreign direct investment. An increase in Indonesian labor cost will deter foreign direct investment inflows. Countries around Indonesia's neighborhood such as Malaysia, Thailand, the Philippines, Mainland China and Vietnam are also offering the advantage of

a low labor cost. So, any increase in Indonesian labor cost, will create an incentive for foreign direct investment to flow to other nearby countries. It is not too surprising to see labor cost as a significant factor to foreign direct investment in Indonesia, because a lot of this is direct investment in what are called "foot loose" industries. They are low-tech to medium tech industries such as textiles, shoes, electronic components and others that moved away from Japan, Korea, Taiwan, Hongkong, the United States and other countries as labor costs in these countries increase. Sooner or later, these industries will move away to find another lower labor cost country. In view of this, Indonesia created the Industries Strategy Board, a government agency, which concentrates its efforts on domestic investments in high tech industries such as petrochemical, aircraft, shipbuilding, and others.

Foreign debt (FDY) has a negative relationship with foreign direct investment, but it is not significant. Theoretically, higher foreign debt will increase country specific risk, hence discouraging foreign direct investment. The mid 1980s was characterized by many countries defaulting on their foreign debt. The 17 countries categorized by World Bank as highly indebted developing countries are Argentina, Bolivia, Brazil, Chile, Colombia, , Costa Rica, Cote d'Ivoire, Equador, Jamaica, Marocco, Nigeria, Peru, Philippines, Uruguay, Venezuela, and Yugoslavia. These 17 countries are not only highly indebted, but they are in debt crisis. Indonesia was one country that had a large foreign debt, but was not included in this category of countries. Indonesia is not in a debt crisis. Instead of default, Indonesia rescheduled all of its mega projects domestically, and honored the debt and service on the debt in an orderly and timely way. The ability to manage its debt enhanced Indonesia's credibility in the international credit market. Several official statements from the World Bank (issued annually) have favored the Indonesian economy during the 1980s despite the large foreign debt. This had a positive effect on the confidence of foreign investors. In turn, foreign debt does not seem to hamper foreign investors in their decision to put direct investment into Indonesia. Currently, the

government applies a temporary restriction on offshore loans, due to the increasing trend of Indonesian foreign debt. The monetary authority has tried to suppress domestic interest rates. A low or competitive domestic interest rate will put an end to offshore borrowing which, in the end, may reduce the pressure on foreign debt.

The rate of appreciation/depreciation (RRD) is significant and negatively related to foreign direct investment. The rupiah depreciation increases foreign direct investment. The rupiahs depreciation makes price of export commodities relatively cheaper in the world market. This encourages foreign direct investment.

The World interest rate (WINT) is negatively associated with foreign direct investment. An increase in the world interest rate would create a return alternative for the capital. Secondly, if the foreign investor has to bring initial capital and borrow it from the international market, then an increase in WINT increases the cost of the capital. In other words, the possible return from foreign direct investment decreases. So, an increase in the world interest rate has a negative effect on foreign direct investment inflows to Indonesia.

The size of financial system in Indonesia (M1Y) is shown to have a positive effect on the flow of foreign direct investment into Indonesia. The large size of the financial system of the Indonesian economy does attract foreign direct investment. As was discussed in Chapter I, although Indonesian per capita income is the lowest among developing countries in Southeast Asia (Indonesia, Malaysia, Thailand, Singapore, Philippine, and Brunei), it is the largest economy among these countries. Deregulation in the banking sector, which was started in 1983, contributed to the positive association of M1Y and foreign direct investment.

Portfolio Investment Function

The empirical results for the portfolio investment function are as follows:

$$\underset{\quad}{PIY} = \underset{(-2.284)}{-0.012} - \underset{(-0.422)}{65\times10^{-6}\ WINT} + \underset{(2.012)}{0.0197\ M1Y} + \underset{(2.240)}{0.0156\ CBDARAT} - \underset{(-0.555)}{0.00014\ INFD}$$

The world interest rate (WINT) is negatively associated to portfolio investment. The sign of the coefficient is negative as expected. That is, the domestic return of portfolio investment in Indonesia will be relatively lower as world real interest rates increase. The increase in WINT will create alternative returns for portfolio investment in the international market. Nevertheless, the coefficient of WINT is not significant. The ideal independent variables for portfolio investment would be the real return from capital in the form of a stock market index, or in the form of a bond index, adjusted to the exchange rate. But these two variables were not available for this study. The meaningful Jakarta stock index started in 1988. Bond index is not available. Hence, there are not enough observations on these variables.

The size of financial system (M1Y) of the Indonesian economy shows a significant positive association with portfolio investment. The size of financial system reflects the size of the economy. The size of the Indonesian financial system is one of the factors foreign portfolio investors considers to put their capital in Indonesia. Although the Jakarta Stock Exchange was just deregulated in 1988, it was resuscitated in 1976 as part of a national effort to promote the development of a securities market in Indonesia. The Surabaya Stock Exchanges entered the securities market in 1989. The banking sector was also deregulated in 1983. All these conditions contribute to the positive significance of the M1Y variable on portfolio investment. This result is similar to the relationship between foreign direct investment and M1Y.

The relative importance of the financial system (CBDARAT) is a significant and positively related to portfolio investment. In this case, the relative importance of the central bank domestic asset is a factor for the foreign portfolio investor's decision making. A large proportion of central bank domestic assets create confidence for portfolio investors.

The inflation differential (INFD) shows a negative and insignificant relationship with portfolio investment. Theoretically, an increase in domestic inflation or a disinflation

overseas will make domestic returns from portfolio investment in Indonesia relatively low. This discourages portfolio investment inflows. Even though the sign of the INFD coefficient shows a correct direction, it is not a significant factor in the decision making of foreign portfolio investor considering investing in the Indonesian securities market.

Other Capital Flow Function

The estimation result for the Other Capital Flows (OCY) function is as follows:

$$\underset{\quad}{OCY} = \underset{(-3.132)}{-0.278} + \underset{(2.271)}{0.00017\ RGDPCAP} + \underset{(1.948)}{0.24\ MY} + \underset{(2.483)}{0.195\ M1Y} + \underset{(3.043)}{0.232\ CBDARAT}$$

Income per capita (RGDPCAP) shows a significant positive relation to OCY. It should be noted here that its coefficient is very small as is the case in the foreign direct investment (FDIY) function. Income per capita is a significant factor, but a very small value might be an indication that it is not of primary importance to the decision of foreign capital investor.

MY, a variable which measures the openness of the country's economy, shows a positive relationship with OCY. As discussed in Chapter I, the Indonesian economy has shown a gradual and significant trend to an open economy. Indonesia has also placed no restrictions at all on currency transfers. These conditions lead to a positive relationship of MY and OCY.

The size of financial system of the Indonesian economy (M1Y) has also shown a positive significant relationship to OCY. This result is similar to the relationship between portfolio investment and financial system size. M1Y is a factor for OCY as well as for portfolio investment.

The relative importance of central bank domestic asset (CBDARAT) is shown to be a significant and positive factor for OCY. This result is similar to the relationship between this variable and portfolio investment.

National Saving Function

The empirical result of the model estimation for the national saving function is as follows:

SY= 0.167 + 0.00263 RGRGDP + 0.000144 RGTOT - 0.5139 FDYLG + 0.512 SYLG
(4.388) (2.987) (1.583) (-2.889) (4.796)

Income growth (RGRGDP) has a positive and significant effect on saving in this equation. Theoretically, saving will grow as income growth increases. This result is very much expected to be significant and positive. As was reviewed in Chapter II, all studies on the relationship between income growth and saving show a positive association.

In an open economy such as the Indonesian economy, income growth differs from the growth in output due to the changes in terms of trade. The terms of trade variable (RGTOT) captured this difference. RGTOT has a positive relation to saving. A rise in the terms of trade has the same impact as income growth.

The effect of foreign debt on national saving in the Indonesian economy is significant and negative. The Ricardian equivalence view does not hold for the Indonesian economy. There has been a significant increase in foreign debt in the 1980s. During the period of 1984-1990, foreign debt increased at an average rate of 35.5 percent per year. This increase is interpreted by households as a higher future tax burden. Therefore, the incentive increases for them to transfer their assets or saving overseas. Hence, the increase of Indonesia's foreign debt reduced national saving.

The lag of saving (SYLG) shows a significant and positive effect on saving. This result is similar to those obtained by Fry (1992), (1989b), (1986).

National Investment Function

The results of empirical estimates for the investment function (IY) are as follows:

IY = 0.181 + 0.00279 RGRGDP + 0.00008 RGTOT + 0.00178 REXLG
(3.837) (2.483) (0.708) (0.117)

+ 0.043 FDIY + 1.356 PIY + 0.615 OCY - 0.435 FDYLG + 0.038 DDCPSY
(0.070) (1.120) (4.009) (-2.067) (0.885)

+ 3.420 IYLG
(3.411)

The results show that income growth and investment is positively related and significant as expected. Most similar studies of the relationship of investment and income growth have the same positive result. The result above shows that economic growth contributes significantly to national investment.

As in the case of the saving equation, RGTOT captured the effect of the change in the terms of trade in the investment equation. The sign of RGTOT is positive, which suggests that the change in terms of trade is permanent, but unfortunately, the parameter estimate is insignificant.

The real exchange rate (REXLG) has a positive sign, nevertheless it is not a significant factor in affecting investment in the Indonesian economy. It's coefficient is not statistically significant.

We include foreign direct investment (FDIY), portfolio investment (PIY), and other capital inflow investment (OCY) in the equation to see how these three different inflows of foreign investment affect national investment. Foreign investment could be a substitute or complement for national investment of a country as was discussed in the literature review (Chapter II). The empirical results of the model for Indonesia show that these three different kinds of foreign investment inflows are complements to Indonesian investment. All three factors show a positive relation with national investment. FDIY has a very weak relationship. The strongest complementary relation is between OCY and investment.

Foreign debt does matter for investment in Indonesia. The result shows that an increase in foreign debt in Indonesia significantly reduced national investment. Foreign debt affects both national saving and national investment significantly in approximately the

same magnitude. The increasing trend in foreign debt might contribute to the significance of FDYLG variable

An increase in domestic credit to the private sector decreased the interest rate, which in turn increased investment. The change in domestic credit to the private sector (DDCPSY) shows a positive but weak relationship to investment. Theoretically, the expected sign for DDCPSY is positive. Although the sign is positive, it is not significant. Investment in Indonesia is not significantly affected by a change in domestic credit to the private sector.

Lagged investment (IYLG) positively related to national saving. This result is similar to Fry(1992), (1989b), (1986).

Economic Growth Function

The empirical estimate results for the economic growth function are as follows:

RGRGDP = -10.06 + 31.07 IY + 0.51 RGPOP + 0.0022 RGRXYF
(-1.970) (2.207) (0.767) (1.006)

Investment (IY) is significant and positively associated with economic growth. The strong relationship between investment and economic growth has been seen in many studies as discussed in the literature review. This result shows that economic growth of the Indonesian economy is due to strong investment (IY).

RGPOP has a positive relationship with RGRGDP, but it is a weak relationship.

Exports (RGRXYF) and economic growth (RGRGDP) have a positive but weak association. Several deregulation decrees discussed earlier were implemented by Indonesia in the middle of 1980s in order to shift the export composition from oil export commodities to non-oil export commodities. Previously, exports relied heavily on oil products. The implementation of the decrees and the related policies will take time. The weak association of exports to economic growth is a reflection of this policy. It will take some time before the implementation of these decrees significantly shift exports to non-oil commodities. Although non-oil commodities have started to take a lead by the end of

1980s, it is still a very small lead. A longer period of data that includes post 1991.4 might increase the significance of RGRXYF variable.

For the purpose of better clarity, the complete estimation results are summarized in the following table.

Table 10 : **The Complete Estimation of the Model**
(standard error in upper bracket)
(t-statistics in lower bracket)

MONETARY POLICY:

Monetary Policy Reaction Function:

$$\underset{}{} \quad \underset{(0.006)}{} \quad \underset{(0.354)}{} \quad \underset{(0.209)}{}$$
$$DDCY = 0.0045 - 0.0140\ INFD - 0.5338\ FDYLG - 0.7277\ DNFACBY$$
$$\underset{(0.091)}{} \quad \underset{(-2.421)}{} \quad \underset{(-1.510)}{} \quad \underset{(-3.476)}{}$$

$$\underset{(0.045)}{} \quad \underset{(2.201)}{} \quad \underset{(0.547)}{} \quad \underset{(0.195)}{}$$
$$-0.0165\ REXLG + 5.144\ FDIY + 1.19\ OCY + 0.9799\ DDCTGY$$
$$\underset{(-0.380)}{} \quad \underset{(2.337)}{} \quad \underset{(2.175)}{} \quad \underset{(5.037)}{}$$

FOREIGN INVESTMENT:

(1). Foreign Direct Investment Function:

$$\underset{}{} \quad \underset{(0.000)}{} \quad \underset{(0.007)}{} \quad \underset{(0.021)}{} \quad \underset{(0.0001)}{}$$
$$FDIY = -0.025 + 24x10^{-6}\ RGDPCAP + 0.01\ GOVEXY + 0.042\ XY - 0.00049\ LC$$
$$\underset{(-3.900)}{} \quad \underset{(2.776)}{} \quad \underset{(1.292)}{} \quad \underset{(1.981)}{} \quad \underset{(-3.054)}{}$$

$$\underset{(0.026)}{} \quad \underset{(0.000)}{} \quad \underset{(0.0002)}{} \quad \underset{(0.013)}{}$$
$$-0.021\ FDY - 0.00022\ RRD - 0.00042\ WINT + 0.0224\ M1Y$$
$$\underset{(-0.788)}{} \quad \underset{(-2.457)}{} \quad \underset{(-1.936)}{} \quad \underset{(1.786)}{}$$

(2). Portfolio Investment Function:

$$\underset{}{} \quad \underset{(0.0001)}{} \quad \underset{(0.009)}{} \quad \underset{(0.007)}{} \quad \underset{(0.0002)}{}$$
$$PIY = -0.012 - 65x10^{-6}\ WINT + 0.0197\ M1Y + 0.0156\ CBDARAT - 0.00014\ INFD$$
$$\underset{(-2.284)}{} \quad \underset{(-0.422)}{} \quad \underset{(2.012)}{} \quad \underset{(2.240)}{} \quad \underset{(-0.555)}{}$$

(3). Other Capital Flows Function:

$$\underset{}{} \quad \underset{(0.000)}{} \quad \underset{(0.123)}{} \quad \underset{(0.078)}{} \quad \underset{(0.081)}{}$$
$$OCY = -0.278 + 0.00017\ RGDPCAP + 0.24\ MY + 0.195\ M1Y + 0.232\ CBDARAT$$
$$\underset{(-3.132)}{} \quad \underset{(2.271)}{} \quad \underset{(1.948)}{} \quad \underset{(2.483)}{} \quad \underset{(3.043)}{}$$

CURRENT ACCOUNT

(1). National Saving Function:

$$\underset{}{} \quad \underset{(0.0009)}{} \quad \underset{(0.000)}{} \quad \underset{(0.178)}{} \quad \underset{(0.017)}{}$$
$$SY = 0.167 + 0.00263\ RGRGDP + 0.000144\ RGTOT - 0.5139\ FDYLG + 0.512\ SYLG$$
$$\underset{(4.388)}{} \quad \underset{(2.987)}{} \quad \underset{(1.583)}{} \quad \underset{(-2.889)}{} \quad \underset{(4.796)}{}$$

(2). Investment Function:

$$\underset{}{} \quad \underset{(0.001)}{} \quad \underset{(0.0001)}{} \quad \underset{(0.015)}{}$$
$$IY = 0.181 + 0.00279\ RGRGDP + 0.00008\ RGTOT + 0.00178\ REXLG$$
$$\underset{(3.837)}{} \quad \underset{(2.483)}{} \quad \underset{(0.708)}{} \quad \underset{(0.117)}{}$$

$$\underset{(0.616)}{} \quad \underset{(1.210)}{} \quad \underset{(0.153)}{} \quad \underset{(0.210)}{} \quad \underset{(0.043)}{}$$
$$+ 0.043\ FDIY + 1.356\ PIY + 0.615\ OCY - 0.435\ FDYLG + 0.038\ DDCPSY$$
$$\underset{(0.070)}{} \quad \underset{(1.120)}{} \quad \underset{(4.009)}{} \quad \underset{(-2.067)}{} \quad \underset{(0.885)}{}$$

$$\underset{(0.127)}{}$$
$$+ 3.420\ IYLG$$
$$\underset{(3.411)}{}$$

ECONOMIC GROWTH

Growth Function:

$$\underset{}{} \quad \underset{(14.08)}{} \quad \underset{(0.664)}{} \quad \underset{(0.002)}{}$$
$$\text{RGRGDP} = \underset{(-1.970)}{-10.06} + \underset{(2.207)}{31.07}\ \text{IY} + \underset{(0.767)}{0.51}\ \text{RGPOP} + \underset{(1.006)}{0.0022}\ \text{RGRXYF}$$

CHAPTER V

SIMULATION AND DISCUSSION

Simulation Procedures

Simulation refers to the determination of the dependent or endogenous variables as a function of the input values of the other variables, even when actual data for some of the solution variables are available in the input data set. Simulation is used to verify the fit of the model parameters to find out how well the model predicts the actual values over historical period. Secondly, model simulation can be used to investigate the sensitivity of the solution to changes in the input values or parameters. Third, model simulation can be performed to examine the dynamic characteristic of the model. Fourth, model simulation can be performed to check the stability of the simultaneous solution. Finally, it can also be used to estimate the statistical distribution of the predicted values of the nonlinear model using Monte Carlo methods. By combining different input data sets with the various solution modes, model simulation can answer many different questions about the model.

There are many solution modes in the model simulation. The most commonly used are (1) Dynamic simultaneous simulation. This is often called ex-post simulation, historical simulation, or ex-post forecasting. In model simulation, solved values or actual values from the initial data set can be used to supply lagged values of an endogenous variable. If a solution is obtained by using only solved values for the lagged values, we called it a dynamic solution. (2). Static simultaneous simulation. This refers to a solution obtained by using the actual values when available for the lagged endogenous values. Static simulation is used to simulate the behavior of the model without the complication of previous period error. (3) N-period ahead dynamic simultaneous simulation. This used to see how well the n-period-ahead forecasting would have performed over the historical period.

Consider a $kx1$ vector of endogenous variables Y_t ,an $lx1$ vector of lagged endogenous

variables LY_t, and an *mx1* vector of exogenous variables X_t, including an intercept. The *k* structural equations in the simultaneous system can be written as follows

$$AY_t = BLY_t + CX_t$$

where A is a matrix of coefficients of current-period endogenous variables, B is the matrix of coefficients of lagged endogenous variables, and C is the matrix of coefficients of exogenous variables. A is assumed to be nonsingular.

Premultiplying by A^{-1}, we have $Y_t = A^{-1}BLY_t + A^{-1}CX_t$. This can be written as follows:

$$Y_t = \Pi_1 LY_t + \Pi_2 X_t$$

where $\Pi_1 = A^{-1}B$ and $\Pi_2 = A^{-1}C$ are the reduced form coefficient matrices.

For a model with only first-order lags, the equation of the reduced form of the system can be rewritten as follows:

$$Y_t = QY_{t-1} + \Pi_2 X_t$$

where Q is a matrix formed from the columns of Π_1 plus some column of zero, arranged in the order in which variables meet the lags. Π_2 is called an impact multiplier, it shows the immediate impact of changes in each exogenous variable on the values of the endogenous variables.

The equation can be expanded into $Y_t = Q^2Y_{t-2} + Q\Pi_2 X_{t-1} + \Pi_2 X_t$, where $D\Pi_2$ is the interim multiplier, that is the effect of exogenous variables one lag back. Expansion of the series becomes $Y_t = Q^{\infty}Y_{t-\infty} + \sum_{i=0}^{\infty} Q^i \Pi_2 X_{t-i}$

and the cumulative effect will be $\{ \sum_{i=0}^{\infty} Q^i \} \Pi_2 X = (I-Q)^{-1}\Pi_2 X$

where $(I-Q)^{-1}\Pi_2$ is the total multiplier, that is the matrix that show the cumulative effect of changes in exogenous variables.

Simulation Result

Model simulation procedures discussed above are applied to the model of Chapter III. Using dynamic simulation modes, the results of interim and total multiplier , statistic of fit,

and reduced form for exogenous variables are generated. Since the purpose of this part is not to describe the technicality of the simulation, results of interim multiplier, total multiplier, and reduced form for exogenous variables are presented in appendix C for further consultation. Statistics of fit are shown in table 11. In general, all the equations perform relatively well.

Table 11: Model Simulation Statistics of Fit

Variable	N	Mean Error	Mean % Error	Mean Abs Error	Mean Abs % Error	RMS Error	RMS % Error
DCY	56	.082	9.951	.103	13.61	.136	18.52
RGRGDP	56	.322	83.38	4.74	248.89	5.89	678.6
FDIY	56	.00008	48.84	.0025	134.1	.003	462.5
PIY	56	-2.5E-6	. 36)	.0017	. 36)	.003	. 36)
OCY	57	.00079	-40.2	.015	129.7	.018	241
SY	56	.0051	-0.23	.037	10.57	.050	14.95
IY	56	.0065	-.198	.043	12.06	.059	17.04

To see the fit more clearly, the predicted values of some endogenous variables are compared to the actual historical values in a series of graphs. This shows how close the model fits the historical data. Graph 7 shows how close the predicted model simulation of Domestic Credit (DCY) is to its actual historical value. Graphs 8, 9, 10, and 11, show the same procedure for Foreign Direct Investment (FDIY), Other Capital Flow (OCY), Saving (SY) , and Investment (IY), respectively.

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36). Percent error statistics were set to missing values because an actual value was too close to zero to compute the percent error at one or more observation

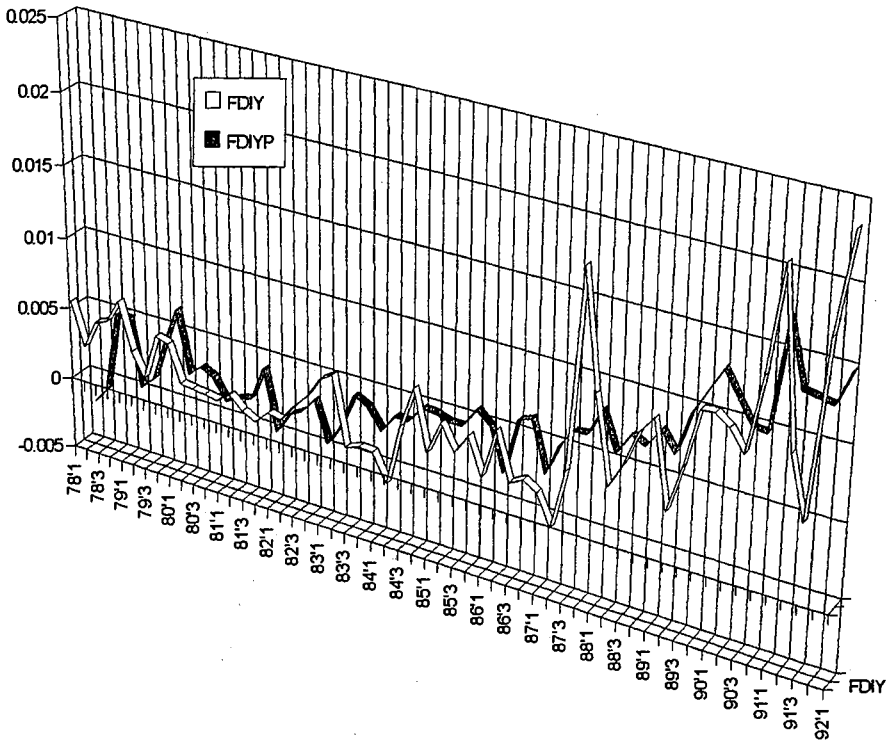
Graph 7: Model Simulation Fit for Domestic Credit (DCY)

DCY = Domestic Credit scaled by GDP

DCYP = The predicted value of DCY from model simulation

Graph 8: Model Simulation Fit for Foreign Direct Investment (FDIY)

Scale fdi/gdp



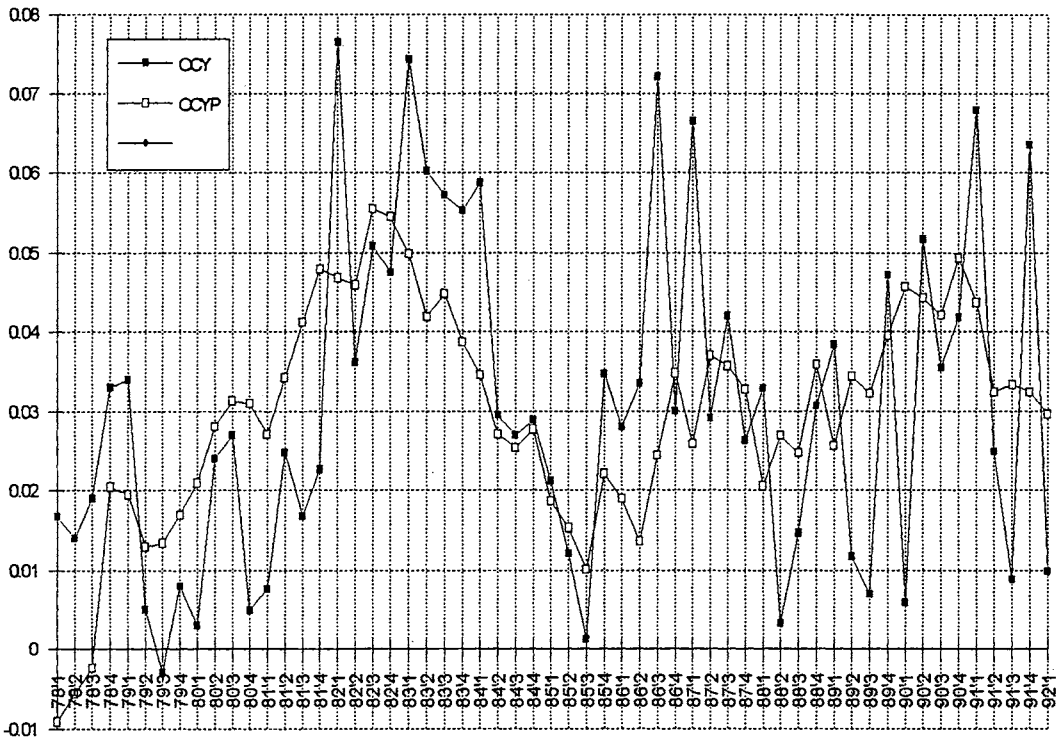
Quarterly

FDIY = Foreign Direct Investment scaled by GDP

FDIYP = The predicted value of FDIY from model simulation

Graph 9: Model Simulation Fit for Other Capital Flow (OCY)

Scale oc/gdp



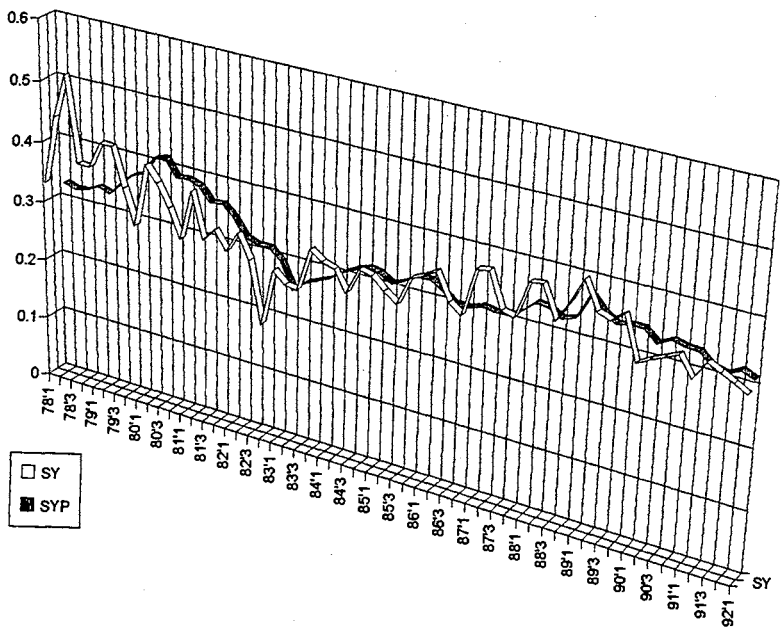
Quarterly

OCY = Other Capital Inflow scaled by GDP

OCYP = The predicted value from model simulation

Graph 10: Model Simulation Fit for Saving (SY)

Scale s/gdp



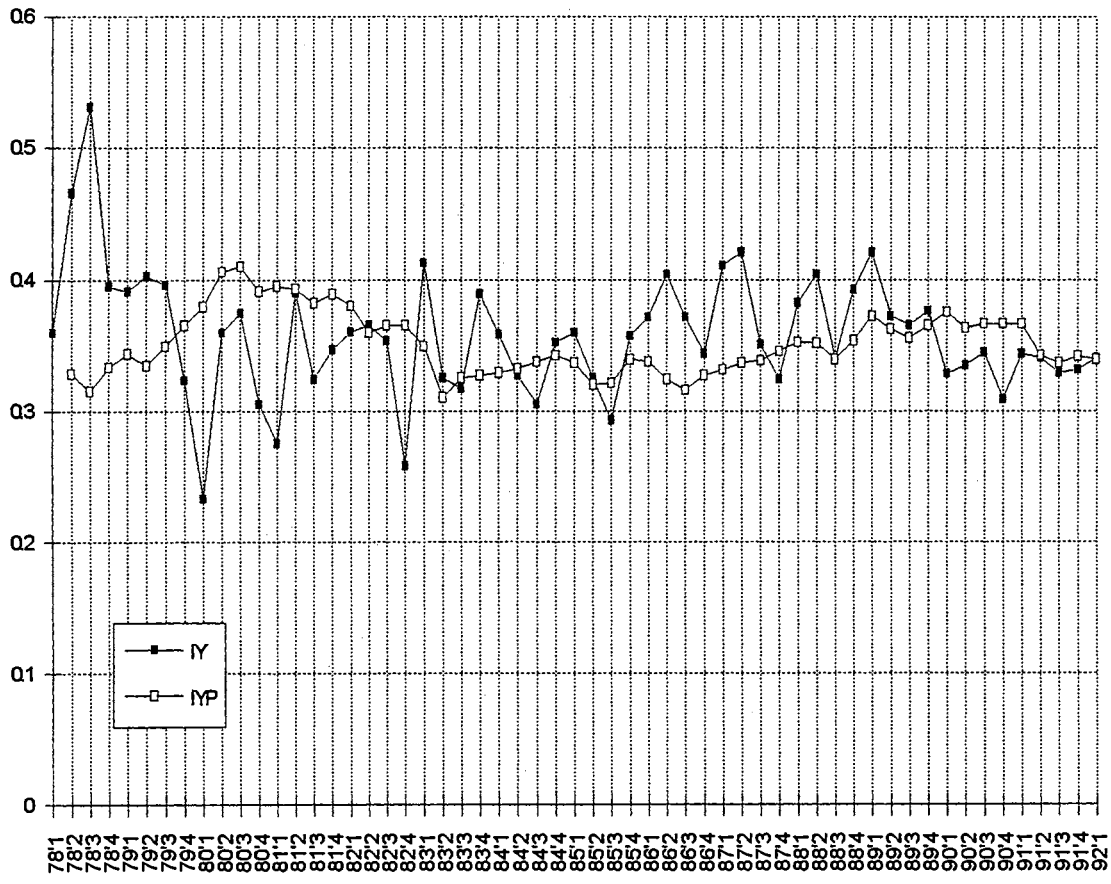
Quarterly

SY = Saving scaled by GDP

SYP = The predicted value of SY from the model simulation

Graph 11: Model Simulation Fit for Investment (IY)

Scale i/gdp



Quarterly

IY = Investment scaled by GDP

IYP = The predicted value of IY from the model simulation

Simulation Cases

Simulations on several cases are also done. First, we choose a hypothetical case where policy makers did not execute rupiah devaluation in the 4th quarter of 1986. Instead it is delayed for another 2 year till the 4th quarter of 1988. The second case is a simulation of the effect of the doubling of world interest rate. The third case is a simulation of the effect of domestic inflation control. The fourth case is a simulation of a condition where the monetary authority does not have the ability to neutralize the effect of an increase in the central bank's net foreign assets. The last case is a simulation of the effect on the monetary authority action of a doubling of the inflation rate differential.

Devaluation Delay

Indonesia went through a devaluation on Sept. 12, 1986. Rupiah currency was devalued by about 41 percent against the US dollars in nominal terms. In real terms or real exchange, the devaluation was about 21%. There was a lot of pressure at that time, for Indonesia to undergo devaluation in order to maintain a sound economic condition. If devaluation was not executed, what would be the impact for the economy? The ideal way to simulate this condition is through the nominal exchange rate. Unfortunately, the nominal exchange rate is not in our model. It must be assumed that there would be no significant changes in relative prices (domestic price over foreign price). With this assumption, the simulation is done through the real exchange rate. The real exchange rate behavior presented earlier in graph 3. The devaluation, which was done in third quarter 1986, was in the simulation, not executed until the 4th quarter of 1988. This a delay of the devaluation for two years. The impact of this hypothetical delay can be seen in the following table.

Table 12: Simulation of Devaluation Delay

(Percentage change)

Year	DCY	FDIY	IY
1986.4	-3.89	-73.4	-0.50
1987.1	-3.10	42.5	-0.36
1987.2	-2.94	4.02	-0.13
1987.3	-3.15	4.63	0.07
1987.4	-3.05	5.79	0.14
1988.1	-3.21	4.93	0.33
1988.2	-2.95	-2.58	0.28
1988.3	-3.08	-2.79	0.48
1988.4	-1.08	71.04	0.75

The table shows the percentage increases (positive) or decreases (negative) in each of the endogenous variables due to the delay in devaluation. The condition is simulated by holding the values of real exchange rates for the delay periods the same as previous periods. It ignores the decrease of 21 percent in the real exchange rate.

Domestic credit (DCY) will decrease at the rate of about 3 percent per quarter, except for 1988.4, which decreased only 1.08 percent. Apparently, the monetary authority will take a restrictive monetary policy in this simulation case. The restrictive monetary policy is needed to counter the pressure of devaluation.

Foreign direct investment (FDIY) does not seem to experience a systematic effect from the delay of the devaluation simulation. Initially, it fell quite significantly, but recovered again in the next quarter, then maintained a steady increase at about 4 to 5 percent until 1988.1. It decreases again, before rising significantly when the devaluation would be

executed at the 4th quarter of 1988. The initial delay at 1986.4 will decrease foreign direct investment by 73.4 percent, and the execution of devaluation two years later at 1988.4 increased foreign direct investment by 71.04%. The devaluation delay did not seem to affect foreign direct investor decision making systematically.

The effect of the delay of devaluation on national investment is very small. All changes are less than one percent. There are decreases in investment initially in the first 3 quarters, but then increases all the way through 1988.4. National investment did not seem to suffer from the delay of devaluation.

Increase in World Interest Rate

The second case is the simulation of the effect of doubling the world interest rate in 1990 and 1991. Since the increase of the world interest rate would provide another return alternative for foreign investment inflows, we specifically would like to see the impact of this on foreign direct investment inflows, especially for the 2 years when foreign direct investment in Indonesia reached its peak. Table 13 shows the result of the simulation.

The table shows the percentage increase (positive) or decrease (negative) in the endogenous variables due to the doubling of the world interest rate. The effect of doubling the world interest rate is quite a significant decrease in foreign direct investment inflows for the first 3 quarters of 1990, but later foreign direct investment recovers. It shows an increase from 1990.4 to 1991.4. The effect of doubling the interest rate to portfolio investment is very significant. For all periods, portfolio investment shows a significant decrease, with extremely high double digit numbers, with the exception of 1991.1. The alternative return created by increasing of the world interest rate significantly reduced portfolio investment inflows, and induce portfolio investment outflows. Compared to the effect to foreign direct investment, the effect of the simulated increase in the world interest rate on portfolio investment can be considered devastating.

Table 13: Simulation of Doubling World Interest Rate

(Percentage Change)

Year	DCY	FDIY	PIY	IY
1990.1	0.00	-6.67	-34.59	-0.51
1990.2	-0.36	-9.91	-37.37	-0.44
1990.3	-0.45	-4.21	-152.01	-0.56
1990.4	-0.40	0.29	-132.39	-0.54
1991.1	-0.45	4.14	-8.98	-0.07
1991.2	-0.50	2.22	-65.51	0.17
1991.3	-0.44	5.40	-43.71	0.31
1991.4	-0.38	5.37	-44.15	0.34

The effect of an increase in the world interest rate on domestic credit (DCY) is the steady decrease of domestic credit. It decreases at a rate of less than 0.5 percent for the rest of the period, except the first quarter of 1990, which shows no change. The doubling of the world interest rate will induce a capital outflow. The monetary authority seems to counter the effect of increasing in the world interest rate. The monetary authority was taking a restrictive monetary action to increase domestic interest rates. A higher domestic interest rate would neutralize the effect of a world interest rate increase.

Although not affected as much as portfolio investment, IY is also negatively affected by the simulated increase in the world interest rate. It fell initially, and then increase in the first year. For all quarters, the changes were very small, about 0.5 percent or less.

Inflation Control

The third simulation is performed to see whether suppressing domestic inflation has a significant impact on the Indonesian economy. Domestic inflation is simulated to grow at a rate of 1 percent per quarter during 1990-1991.

Some neighboring countries doing very well in this area. In most cases the inflation rate of neighboring countries is at about 4-6 percent per year, except for the Philippines. It would be interesting to see how much of a benefit Indonesia would have from being able to suppress inflation rate like some of its neighbors. The ideal way to do this simulation is through inflation rate. Unfortunately, the model does not have the domestic inflation rate in it. It has an inflation differential (INFD) variable. So, simulation is done using the inflation differential (INFD). Table 14 shows the increase (positive) or decrease (negative) of each endogenous variable from the simulated change in the inflation differential.

Table 14: Simulation of Controlling Domestic Inflation

(Percentage Change)

Year	DCY	IY	PIY
1990.1	-1.67	-0.34	-11.23
1990.2	-1.31	-0.15	4.33
1990.3	1.78	0.37	22.55
1990.4	3.16	0.81	20.43
1991.1	3.41	0.96	11.32
1991.2	4.86	1.16	21.01
1991.3	7.33	2.40	25.77
1991.4	9.01	3.07	7.65

The effect of inflation control is clear for domestic credit. The monetary authority can pump more credit into the economy. Initially, the monetary authority reduced domestic credit for the first and second quarter of 1990. For later quarters, domestic credit increases significantly. The ability to keep inflation low creates room for monetary authority to increase credit into the economy. This can be particularly useful to intervene in the persistence of high domestic interest rates. If the monetary authority can increase credit domestically, interest rates can be expected to decrease. This is the period in which the consumer lending rate skyrocketed up to 30% per annum. The simulation shows that controlling domestic inflation will give the monetary authority a chance to increase domestic credit, which in turn will decrease domestic interest rates.

Portfolio investment shows an increase with this inflation control. The lower inflation will increase the net return on portfolio investment. With the exception of the initial quarter of 1990, it is no surprise to see that the effect will be mostly positive for the portfolio investment. Portfolio investment increases due to inflation control.

With the exception of 1990.1, the remaining quarters show a significant increase in national investment (IY) due to the ability of monetary authority to contain domestic inflation.

Central Bank's Net Foreign Assets

In the literature, as well as in our model, it is expected that the monetary authority will neutralize to a certain degree the effect of an increase in the central bank's net foreign assets. The estimation result for our model shows that monetary authority completely neutralizes the effect of an increase in the central bank's net foreign assets.

The condition where the monetary authority does not neutralize the effect of an increase in central bank's net foreign assets is simulated.

The following table displays the result of the simulation.

Table 15: Simulation of Central Bank's Net Foreign Assets

Percentage Change

Year	DCY	FDY	IY
1980.1	44.0	-0.22	0.13
1980.2	40.2	-5.87	0.22
1980.3	36.7	-0.78	0.31
1980.4	32.5	0.03	0.26
1985.1	7.8	0.16	0.47
1985.2	8.7	-0.89	0.04
1985.3	10.9	-1.60	0.00
1985.4	15.3	-2.09	0.14
1990.1	-4.1	2.17	0.85
1990.2	-5.7	-0.20	0.86
1990.3	-4.9	1.36	0.75
1990.4	-1.5	0.99	0. 51

The effect of the simulation is that domestic credit increased between 32.5 percent to 44 percent during the 1980s, then increased between 7.8 percent to 15.3 percent in 1985, but decreased between 1.5 percent to 5.7 percent in the 1990. It shows a downward trend.

The simulation does not seem to have any systematic effect on foreign direct investment. While for national investment, the effect is to increase investment but by a relatively small percentage, between 0 percent and 0.47 percent for 1980 and 1985, and between 51 percent to 86 percent in 1990.

Increase in Inflation Differential

This simulation is done to study the impact of an increase of the inflation differential on the actions of the monetary authority. An increase in the inflation differential would be expected to affect portfolio investment as well. The simulation is done by doubling the inflation differential variable (INFD). The impact can be seen in table 16.

Table 16: Simulation of doubling inflation differential

(Percentage Change)

Year	DCY	PIY
1980.1	9.20	3.78
1980.2	8.65	-14.17
1980.3	2.59	-39.60
1980.4	-.46	-9.27
1985.1	1.89	0.00
1985.2	-1.27	-40.38
1985.3	-1.84	29.33
1985.4	-2.54	.53
1990.1	.59	1.28
1990.2	0.00	-7.98
1990.3	-1.18	-58.74
1990.4	-1.32	1.37

The increase in the inflation differential will induce monetary authority to contract domestic credit. The table shows that in 1980, the contraction took, in this case, 3 lag quarters, before contracting domestic credit. In 1985, it took only one quarter lag before contracting domestic credit. In 1990, the contraction starts at the third quarter.

The increase in the inflation differential (INFD) should decrease portfolio investment.

But it should be noted that the coefficient for INFD in portfolio investment is not significant. For 1980, it took one lag, before portfolio investment decreased. In 1985 and in 1990, portfolio investment decreased after one lag, but increased again. This is reflected by the insignificance of the estimated coefficient of INFD in the portfolio equation.

CHAPTER VI: SUMMARY AND CONCLUSION

The study is directed primarily for the Indonesian economy. Its purpose is to find the relationship between macroeconomic variables that have been cited as important variables in many studies that cover East and Southeast Asian developing economies. Indonesia is one of the developing economies in the area mentioned above. The study of these macroeconomic variables in a simultaneous system of equations for a single country, in this case Indonesia, is rare. This is the specific purpose of this study.

The economic growth of Asian developing economies encouraged a more detailed study of the Indonesian economy. During the period of 1978.1 -1992.1, there were many significant economic policies implemented in order to liberalize the Indonesian economy. It is important to study how macroeconomic variables are affected by liberalization efforts in the Indonesian economy.

The study revealed the relationships among monetary policy, foreign investment, and the current account in the Indonesian economy in more detail. Some variables pre-assumed to be significant factors turn out to be insignificant, or the other way around. A cross-country study or pooling may not reveal the condition of a single country in detail.

The wave of deregulations as means of liberalization in the Indonesian economy still continue. Some of the effect of previous deregulation efforts are still in progress. Some of these efforts are captured by the model. Some just begin to show up, and are not captured by the model because the observation data stops at 1992.1.

In the future, the model used in this study can be extended in a number of ways. First, a longer period of study will provide more data to capture the results of policy implementation still in progress. This may result in significant coefficients on variables that are theoretically expected to be significant in this study.

Second, the competition to attract foreign investment among Asian developing economies is quite fierce. One country cuts taxes or gives a longer tax holiday, while

another provides a one stop shopping permit, tax holiday facilities, and/or tax free trade zones. The inclusion of tax factors in the model is quite complicated because of the complicated nature of the tax incentives offered by different countries. It is not whether a tax holiday is offered, but how much of a tax holiday each country offers. Future research should be directed toward this effort, to see how tax incentives make a difference for foreign investors to go to Indonesia rather than Thailand, Malaysia or other new stars such as Vietnam, Mainland China, and other neighboring countries.

There is an additional question that needs to be answered. Do free trade zones make a difference in attracting foreign investors. There is a tendency to build completely unrestricted industrial free trade zones. If this factor were incorporated into the model, better estimates may be produced and some important questions about these free trade zones could be answered.

Other future research could include other equations into the system, such as an interest rate equation in the monetary policy block to produce better result for estimates of the model.

The inclusion of a political risk variable into the model is another possible way of expanding this model. Civil unrest, expropriation, and currency transfer restrictions are still viewed by many industrial countries as a specific country risk which may impede foreign investment inflows into the Indonesian economy.

The model could be expanded by adding macroeconomic variables, equations, additional data. It could be modified in such a way as to incorporate complicated but crucial factors such as tax incentives, free trade zones, political risk, and others. This will enhance our understanding of the factors underlying the dynamics of the Indonesian economy.

As all these factors are considered and included in the model, the model is enhanced, so that it can be used as a valuable tool in simulating different conditions of the economy.

Finally, the purpose of the study was achieved. The interrelationship among monetary

policy, foreign investment, national saving and investment was investigated in a model of a single country, in this case, Indonesia.

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APPENDIX A:

Data Sources, Transformation and Data Definition.

The sources of data are as follows:

Source 1: International Financial Statistics (IFS) - International Monetary Fund, various issue. Including IFS CD-ROM data.

Source 2: Balance of Payment Statistics Yearbook - International Monetary Fund, various issue.

Source 3: Government Finance Statistics Yearbook - International Monetary Fund, various issue.

Source 4: For quarterly data of Gross Domestic Product and National Saving, data are provided by Dr. Iwan Jaya Aziz from the Indonesian Computable General Equilibrium model, Cornell University and University of Indonesia.

Source 5: Indonesian Financial Statistic-monthly publication of Indonesian Central Bank, Bank Indonesia. Various issue.

Source 6: Annual Report of Indonesian Central Bank, published by Bank Indonesia. Various issue.

Source 7: Monthly Publication of Central Bureau of Statistic of Indonesia (Biro Pusat Statistic Indonesia). Various issue.

Source 8: Investment Statistic of Indonesia, published by Indonesia Investment Coordinating Board (Badan Koordinasi Penanaman Modal). Various Issue.

The unit of variables used in the study is billion rupiahs. Variables initially specified in U.S dollars or SDRs (Special Drawing Right) are converted into billion rupiah, except gross domestic product per capita which is thousand of rupiahs. The base year for any index use throughout the study is 1985=100. Rates of growth of variables are presented as percentage.

BDAY = Total all Bank Domestic Assets scaled to GDP.

CA = Current Account. Billion of Rupiah. Number is in million of US$ transformed into Billion of Rupiah. Source 1, 2.

CAY = Current Account scaled to Gross Domestic Product (GDP). CAY=CA/GDP.

CBDAY = Central Bank Domestic Asset scaled to GDP.

CBDARAT = Central Bank Domestic Asset ratio to Total Bank Domestic Asset.

CPII = Indonesian Consumer Price Index. Base year 1985=100. Source 1.

CPIILG= Lag one period of CPII. Base year 1985=100.

CPIUS = United States Consumer Price Index. Base year 1985=100. Source 1.

CPUSLG = Lag one period of CPIUS. Base year 1985=100.

DC = Domestic Credit. Billion Rupiahs. Source 1.

DCY = Domestic Credit Scaled to GDP. DCY=DC/GDP.

DCYLG = Lag one period of DCY.

DDCY = The change in DCY.

DDCCGY = The Change in Domestic Credit to Central Government scaled to GDP.

DDCOEY = The Change in Domestic Credit to Official Entities scaled to GDP.

DDCPS = The Change in Domestic Credit to Private Sector. Source 1.

DDCPSY = The Change in Domestic Credit to Private Sector scaled to GDP.

DDCTG = The Change in Total Domestic Credit to Government.

DDCTGY = DDCCGY + DDCOEY.

DGDP = The change in GDP. DGDP=GDP-GDPLG.

DM= The change in import. DM=M-MLAG.

DMBDAY = Deposit Money Bank Domestic Asset scaled to GDP.

DMBDARAT = The ratio of deposit money bank (private sector banks) domestic asset to the total bank domestic assets.

DMS = The change in Money Supply. DMS=MS-MSLG.

DNFAY = The change in NFAY. DNFAY=NFAY-NFAYLG.

DNFAYLG = Lag one period of DNFAY.

DX = The change in export. DX=X-XLAG.

EOBP = Error of Balance of Payment, Billion of Rupiahs. Number is in million of US$, transformed into Billion of Rupiah. Source 1,2.

EOBY = Error of Balance of Payment scaled to GDP. EOBY=EOBP/GDP

FD = Foreign indebtedness. This is the foreign debt variable defined as the end-of year stock of government plus government-guaranteed foreign debt. The alternative measure for this net foreign indebtedness is by cumulating the balance of payment definition of the current account deficit, which subtract unrequited transfers from the deficit. (Fry, 1991). FD = (-CA) - UT. FT is in Billion Rupiah. Source 1.

FDII = Foreign Direct Investment, in Billion of Rupiah. This is the net flows, but the outflow is very insignificant. Number is in million US$, transformed into Billion of Rupiahs. Source 1,2.
Foreign Direct Investment is the establishment or purchase by resident of one country of a substantial ownership and management share of a business enterprise or real property in another country, or an increase in the amount of an existing investment. A substantial ownership means at least 10% of the voting stock or equivalent interests. These include provision of equity capital, reinvested earnings, and lending by the parent to the affiliate.

FDIY = FDII scaled to GDP. FDIY=FDII/GDP.

FDY = Net foreign indebtedness scaled to GDP. FDY=FD/GDP.

FDYLG = Lag one period of FDY.

FL = Total Foreign Liabilities of Monetary Authorities and Deposit Money Banks. In billion rupiah. FL=FLMA+FLDMB. Source 1.

FLDMB = Foreign Liabilities Deposit Money Bank. Billion Rupiah. Source 1

FLMA = Foreign Liabilities Monetary Authorities. Billion Rupiah.

FLY = FL scaled to GDP. FLY=FL/GDP.

FLYLG = Lag one period of FLY.

GDP = Gross Domestic Product, Nominal. Billion of Rupiah. Quarterly data is provided by Dr. Iwan Jaya Aziz, the Indonesia Computable General Equilibrium Model, University of Indonesia and Cornell University. Source 4.

GDPLG = Lag one period of GDP.

GDPY = Annual rate of GDP. GDPY is GDP quarterly times 4. GDPY=GDP*4. Billion of Rupiah.

GOVDEF = Government Deficit, in Billion Rupiah. Quarterly data for 1988.3 - 1989.1 and 1989.3 - 1989.4 were constructed from the actual yearly data using Box-Jenkins (ARIMA) procedures. Then they were adjusted such that sum of the quarter number will equal the yearly actual data. Quarterly data 1990.1 - 1992.1 were not available. We construct them by Box-Jenkins (ARIMA) procedures. Source 1,3.

GOVDEY = Government deficit scaled to GDP. GOVDEY = GOVDEF/GDP.

GOVDLG = Lag one period of GOVDEF.

GOVEX = Government Expenditure, Billion of Rupiah. Quarterly data for 1988.3 - 1989.1 and 1989.3 - 1992.1 were constructed from the actual yearly data using Box-Jenkins (ARIMA) procedures. The result number then adjusted to the actual observed data, such that quarter 1+2+3+4 will equal to the actual yearly data. Source 1,3.

GOVXLG = Lag one period of GOVEX. Billion of Rupiah.

GOVEXY = GOVEX/GDP.

ICINF = Industrial country's inflation rate. In percentage. Source 1.

INFD = Inflation Rate Differential. In percentage. The difference between Indonesian inflation rate and US inflation rate. Inflation rates are constructed from CPI of each country.

INFDLG = Lag one period of INFD. In percentage.

INFI = Indonesian Inflation Rate Using CPII. INFI=((CPII-CPIILG)/CPIILG)*100. INFI is in percentage.

INFUS = US Inflation Rate, using CPIUS. INFUS=((CPIUS-CPUSLG)/CPUSLG)*100. INFUS is in percentage.

INT = Interest rate, percentage per annum. Call Money Market Rate (interbank). This is a market determined interest rate. Data from IFS-CD ROM. Source 1.

INV = National Investment, Billion Rupiah. Constructed using CA = SAV - INV

IR = International reserve. Source 1,2.

IRM = The ratio of international reserve over import. IRM = IR/M

IY = Investment scaled to GDP. IY=INV/GDP.

IYLG = Lag one period of IY.

KA = Capital Account. KA = FDII + PII + OC. Billion of Rupiah.

LC = Labor Cost. The number is constructed from wholesale price index (including petroleum). This is a proxy for labor cost. Most industries in Indonesia are still labor intensive during the 1980's. The labor intensive industry is assumed to be reflected in the wholesale price.

M = Import, Billion Rupiah. This is the Merchandise Import, including Oil Import. Number in Million US $ is transformed into Billion Rupiah. Source 1.

MLAG = Lag one period of M.

MS = Money Supply, in Billion of Rupiah. Source 1.

MSY = Real Money Supply scaled to GDP. MSY = {(100/CPII)*MS}/GDP

MSLG = Lag one period of MS.

MY = Import scaled to GDP. MY=M/GDP

M1Y = Money definition of M1 scaled to GDP.

NER = Nominal Exchange Rate of US $ to Rupiah. Source 2.

NERLG = Lag one period of NER.

NFA= Net Foreign Asset. Billion Rupiah. Source 1

NFACB = Net Foreign Asset of Central Bank, Billion rupiah. Source 1.

NFACBY = NFACB/GDP.

NFAPB = Net Foreign Asset Private Bank. Billion Rupiah. Source 1.

NFAPBY=NFAPB/GDP.

NFAY = Net foreign asset scaled to GDP. NFAY=NFA/GDP.

NFAYLG = Lag one period of NFAY.

OC = Other Capital, in Billion Rupiah. This is a net flows, but outflow is also insignificant. Number is in million of US$ is transform into Billion of Rupiah. Other Capital consists of long-term and short-term items that does not fall into the direct investment and portfolio investment categories. Source 1,2.
Other Capital long-term flow is drawings on or repayments of loans extended or any long-term transaction that does not fall into the portfolio or direct investment categories.
Other Capital short-term items are international transactions in securities with an original term to maturity of less than one year, and international shifts in the control of liquid funds, such as short-term deposits, mutual funds, money market, overnight loan, etc.

OCY = OC scaled to GDP. OCY=OC/GDP

POP = Population. Numbers are in million. Source 1.

PII = Portfolio Investment, in Billion Rupiah. Source 1, 2. This is the net flows, but the outflow is very insignificant. Number is in million of US$, transformed into Billion of Rupiah. Portfolio Investment is an international transaction in securities with an original term to maturity greater than one year. These include federal, state, and local government securities, corporate bonds and stocks, municipal bonds, and bank deposits. For the most part, assets purchased for portfolio investment are easily sold, moved, or cashed.

PIY = PII scaled to GDP. PIY=PII/GDP

RDEV = Rate of Growth of Rupiah devaluation against US$. In percentage.
RDEV = {(NER - NERLG)/NER(-1)}*100.

RDEVLG = Lag one period of RDEV.

REX = Real Exchange rate index. Following Fry (1991) it is calculated as REX= ((CPII/WPIUS)*1000)/NER. Due to unavailability of quarterly GDP deflator, CPII is used as proxy for GDP deflator.

REXLG = Lag one period of REX.

RGD = Real Government Deficit, in Billion Rupiah. It is a deflated GOVDEF, using CPII instead of GDP deflator.

RGEX = Real Government Expenditure, in Billion Rupiah. It is a deflated GOVEX using CPII, instead of GDP deflator.

RGOVEX = Rate of Growth of Government Expenditure. In percentage. RGOVEX = ((GOVEX-GOVXLG0/GOVXLG)*100.

RGOVDE = Rate of Growth of Government Deficit. In percentage. RGOVDE = ((GOVDEF-GOVDLG)/GOVDLG)*100.

RGTOT = ((TOT-TOTLG)/TOTLG)*100.

RGDPCAP = Real GDP per capita. RGDPCAP = RGDP/POP.

RGPOP = Rate of growth of Population.

RGRX = Rate of Growth of Export.

RGRXYF = Rate of Growth of Real Export multiplied by Export scaled to GDP. See Feder (1982) for further discussion in the formulation of this variable.

RGRXY = RGRX * XY.

RGTOTLG = Lag of RGTOT.

RGXY = Rate of Growth of share of export in GDP.

RINT = Real Interest Rate. In percentage. RINT = INT - INFI.

RM = Rate of growth of Import. RM={(M-MLAG)/MLAG}*100. In percentage.

RMS = Rate of growth of Money Supply. In percentage. RMS={(MS-MSLG)/MSLG}*100

RRD = Real rate of depreciation. RRD = (log REX - log REXLG)*100.

RRDLG = Lag of RRD.

RSV = Total Change in Reserve. Billion of Rupiah. Source 1.

RSVY = Total change in reserve scaled to GDP. RSVY=RSV/GDP.

RX= Rate of growth of export. RX={(X-XLAG)/XLAG}*100. In percentage.

RY = Rate of growth of real GDP. RY={(GDP-GDPLG)/GDPLG}*100. In percentage.

RWINT = World real interest rate. RWINT=WINT-INFUS.

SAV = National Saving. Billion Rupiah. Source 4.

SY = Saving scaled to GDP. ---->SY=SAV/GDP.

SYLG = Lag one period of SY.

TOT = Terms of Trade. Calculated as Unit Value of Export Price over Unit Value of Import Price. Unit value of import price is calculated from import value and import quantity data of monthly publication. Source 5,7.

TOTLG = Lag one period of TOT.

UT = Total Unrequited Transfers, in billion Rupiah. UT={(UTD*NER)/1000}. Source 1.

UTD = Total Unrequited Transfers, in million of US$. UTD=UTPD+UTOD.

UTPD = Private Unrequited Transfers, number in million of US$. Source 1.

UTOD = Official Unrequited Transfers, number in million of US$. Source 1.

X = Export, Billion Rupiah. This is the merchandise export, including Oil Export. Number in Million US$ is transformed into Billion Rupiah. Source 1, 2.

XLAG = Lag one period of X.

XY = Export scaled by GDP. XY=X/GDP.

XMY = Export plus import, scaled to GDP

YC = Real Gross Domestic Product Per Capita. Thousand Rupiah.

WINT = World interest rate. Three month yield, LIBOR. Source 1.

WPIUS = Wholesale Price Index of United States. 1985=100. Source 1.

APPENDIX B: Data, Program, and Detail Estimation of 2SLS AND 3SLS Result using SAS System.

```
1                                                The SAS System                                12:18 Sunday, November 7, 1993

NOTE: Copyright(c) 1989 by SAS Institute Inc., Cary, NC USA.
NOTE: SAS (r) Proprietary Software Release 6.08  TS404
      Licensed to OKLAHOMA STATE UNIVERSITY, Site 0001354001.

NOTE: Running on IBM Model 3090 Serial Number 274587,
                IBM Model 3090 Serial Number 274587.


WARNING: Could not open NEWS file SAS.V608.NEWS(NEWS).

NOTE: The SASUSER library was not specified. SASUSER library will now be the same as the WORK library.
NOTE: All data sets and catalogs in the SASUSER library will be deleted at the end of the session.  Use the NOWORKTERM option to
      prevent their deletion.

NOTE: SAS system options specified are:
      SORT=4

NOTE: The initialization phase used 0.17 CPU seconds and 1935K.
1          DATA TABLE1;                                                    00050000
2          INPUT YEAR DC NER CPII CPIUS M X FDII;                          00060015
3          CARDS;                                                          00061014

NOTE: The data set WORK.TABLE1 has 58 observations and 8 variables.
NOTE: The DATA statement used 0.06 CPU seconds and 2467K.

3                                                                          00061014
62         ;                                                               00193122
63         PROC PRINT;                                                     00193299

NOTE: The PROCEDURE PRINT printed pages 1-2.
NOTE: The PROCEDURE PRINT used 0.05 CPU seconds and 2615K.

64         DATA TABLE2;                                                    00194016
65         INPUT PII OC LC M1 EOBP CA RGDPCT INT;                          00195099
66         CARDS;                                                          00196016

NOTE: The data set WORK.TABLE2 has 58 observations and 8 variables.
NOTE: The DATA statement used 0.03 CPU seconds and 2615K.

66                                                                         00196016
125        ;                                                               00204617
126        PROC PRINT;                                                     00204799

NOTE: The PROCEDURE PRINT printed pages 3-4.
NOTE: The PROCEDURE PRINT used 0.03 CPU seconds and 2615K.

127        DATA TABLE3;                                                    00204817
128        INPUT GOVEX RSV SAV GOVDEF POP UTPD UTOD WINT;                  00204998
129        CARDS;                                                          00205020

NOTE: The data set WORK.TABLE3 has 58 observations and 8 variables.
NOTE: The DATA statement used 0.03 CPU seconds and 2615K.

129                                                                        00205020
188        ;                                                               00210917
189        PROC PRINT;                                                     00211099

NOTE: The PROCEDURE PRINT printed pages 5-6.
```

```
2                                    The SAS System                    12:18 Sunday, November 7, 1993
NOTE: The PROCEDURE PRINT used 0.03 CPU seconds and 2615K.

190         DATA TABLE4;                                                          00211131
191         INPUT FLMA FLDMB NFA WPIUS GDP IR ICINF WINF;                         00211299
192         CARDS;                                                                00211332

NOTE: The data set WORK.TABLE4 has 58 observations and 8 variables.
NOTE: The DATA statement used 0.03 CPU seconds and 2615K.

192                                                                               00211332
251         ;                                                                     00217633
252         PROC PRINT;                                                           00217799

NOTE: The PROCEDURE PRINT printed pages 7-8.
NOTE: The PROCEDURE PRINT used 0.03 CPU seconds and 2615K.

253         DATA TABLE5;                                                          00217899
254         INPUT FAMA FADMB QM RDM OIM UVXP UVMP;                                00217999
255         CARDS;                                                                00218099

NOTE: The data set WORK.TABLE5 has 58 observations and 7 variables.
NOTE: The DATA statement used 0.03 CPU seconds and 2615K.

255                                                                               00218099
314         ;                                                                     00223899
315         PROC PRINT;                                                           00224099

NOTE: The PROCEDURE PRINT printed pages 9-10.
NOTE: The PROCEDURE PRINT used 0.02 CPU seconds and 2615K.

316         DATA TABLE6;                                                          00224199
317         INPUT DCCG DCOE DCPS;                                                 00224299
318         CARDS;                                                                00224399

NOTE: The data set WORK.TABLE6 has 58 observations and 3 variables.
NOTE: The DATA statement used 0.02 CPU seconds and 2615K.

318                                                                               00224399
377         ;                                                                     00230299
378         PROC PRINT;                                                           00230399

NOTE: The PROCEDURE PRINT printed pages 11-12.
NOTE: The PROCEDURE PRINT used 0.02 CPU seconds and 2615K.

379         DATA TABLE7;                                                          00230499
380         INPUT MACCG MACOE MACPS MACDMB MACOFI DMBCCG DMBCOE DMBCPS DMBCOFI;   00230599
381         CARDS;                                                                00230699

NOTE: The data set WORK.TABLE7 has 58 observations and 9 variables.
NOTE: The DATA statement used 0.03 CPU seconds and 2615K.

381                                                                               00230699
440         ;                                                                     00236599
441         PROC PRINT;                                                           00236699

NOTE: The PROCEDURE PRINT printed pages 13-14.
NOTE: The PROCEDURE PRINT used 0.02 CPU seconds and 2615K.
```

```
12      DATA DISSERT;                                                    00236717
13        MERGE TABLE1 TABLE2 TABLE3 TABLE4 TABLE5 TABLE6 TABLE7;        00236899
14        CPIILG=LAG(CPII);                                              00236926
15        CPIUSLG=LAG(CPIUS);                                            00237099
16        INFI=(LOG(CPII)-LOG(CPIILG))*100;                              00237199
17        INFILG=LAG(INFI);                                              00237299
18        INFUS=(LOG(CPIUS)-LOG(CPIUSLG))*100;                           00237399
19        INFD=INFI-INFUS;                                               00237425
30        INFDA=INFI-ICINF;                                              00237599
31        INFDLG=LAG(INFD);                                              00237635
32        INTD=INT-WINT;                                                 00237799
33        INTDLG=LAG(INTD);                                              00237899
34        NERLG=LAG(NER);                                                00237999
35        CDEPR=((NER-NERLG)/NERLG)*100;                                 00238099
36        RINT=INT-INFI;                                                 00238199
37        RWINT=WINT-ICINF;                                              00238299
38        RINTD=RINT-RWINT;                                              00238399
39        REX=((CPII/WPIUS)*1000)/NER;                                   00238435
30        REXLG=LAG(REX);                                                00238535
31        GOVEXLG=LAG(GOVEX);                                            00238699
32        RGGOVEX=(LOG(GOVEX)-LOG(GOVEXLG))*100;                         00238799
33        RGOVEX=(GOVEX/CPII)*100;                                       00238899
34        GOVEXY=GOVEX/GDP;                                              00238999
35        GOVDEY=GOVDEF/GDP;                                             00239099
36        GOVDEYLG=LAG(GOVDEY);                                          00239199
37        RGGOVDEY=((GOVDEY-GOVDEYLG)/GOVDEYLG)*100;                     00239299
38        GOVDEFLG=LAG(GOVDEF);                                          00239399
39        RGGOVDEF=((GOVDEF-GOVDEFLG)/GOVDEFLG)*100;                     00239499
70        RRD=(LOG(REX)-LOG(REXLG))*100;                                 00239599
71        RRDLG=LAG(RRD);                                                00239699
72        KA=FDII+PII+DC;                                                00239725
73        DCY=DC/GDP;                                                    00239899
74        DCYLG=LAG(DCY);                                                00239999
75        DDCY=DCY-DCYLG;                                                00240099
76        DCPSRAT=DCP$/DC;                                               00240199
77        DCPSOTG=DCP$/(DCCG+DCOE);                                      00240299
78        DCPSY=DCP$/GDP;                                                00240399
79        DCPSYLG=LAG(DCPSY);                                            00240499
80        DDCPSY=DCPSY-DCPSYLG;                                          00240599
81        DCPSLG=LAG(DCPS);                                              00240699
82        DDCPS=DCPS-DCPSLG;                                             00240799
83        DCCGY=DCCG/GDP;                                                00240899
84        DCCGYLG=LAG(DCCGY);                                            00240999
85        DDCCGY=DCCGY-DCCGYLG;                                          00241099
86        DCOEY=DCOE/GDP;                                                00241199
87        DCOEYLG=LAG(DCOEY);                                            00241299
88        DDCOEY=DCOEY-DCOEYLG;                                          00241399
89        DCTG=DCCG+DCOE;                                                00241499
90        DCTGLG=LAG(DCTG);                                              00241599
91        DDCTG=DCTG-DCTGLG;                                             00241699
92        DCTGRAT=DCTG/DC;                                               00241799
93        DCTGY=DCTG/GDP;                                                00241899
94        DCTGYLG=LAG(DCTGY);                                            00241999
95        DDCTGY=DCTGY-DCTGYLG;                                          00242099
96        DDCTGYLG=LAG(DDCTGY);                                          00242199
97        FDIY=FDII/GDP;                                                 00242225
98        FDIYLG=LAG(FDIY);                                              00242399
99        PIY=PII/GDP;                                                   00242425
```

```
500          PIYLG=LAG(PIY);                                    00242599
501          OCY=OC/GDP;                                        00242625
502          OCYLG=LAG(OCY);                                    00242799
503          CFY=FDIY+PIY+OCY;                                  00242899
504          MS=M1+QM+RDM+CIM;                                  00242999
505          M1Y=M1/GDP;                                        00243099
506          LLY=(M1+QM)/GDP;                                   00243199
507          QLLY=(QM-M1)/GDP;                                  00243299
508          DCPSY=DCPS/GDP;                                    00243399
509          DCG=DCCG+DCOE;                                     00243499
510          DCGY=DCG/GDP;                                      00243599
511          MSY=MS/GDP;                                        00243699
512          MSYLG=LAG(MSY);                                    00243799
513          MSLG=LAG(MS);                                      00243899
514          RGMS=(LOG(MS)-LOG(MSLG))*100;                      00243999
515          RMS=(MS/CPII)*100;                                 00244099
516          RGDP=(100/CPII)*GDP;                               00244199
517          RGDPLG=LAG(RGDP);                                  00244299
518          RGRGDP=(LOG(RGDP)-LOG(RGDPLG))*100;                00244399
519          RGDPCAP=RGDP/(POP/4);                              00244599
520          XY=X/GDP;                                          00244625
521          XYLG=LAG(XY);                                      00244799
522          RGXY=((XY-XYLG)/XYLG)*100;                         00244899
523          RX=(X/CPII)*100;                                   00244999
524          RXLG=LAG(RX);                                      00245099
525          RGRX=((RX-RXLG)/RXLG)*100;                         00245199
526          RGRXYF=(RGRX)*(XY*100);                            00245299
527          RXY=RX/GDP;                                        00245399
528          RXYLG=LAG(RXY);                                    00245499
529         RGRXY=(LOG(RXY)-LOG(RXYLG))*100;                    00245599
530          MY=M/GDP;                                          00245799
531          INV=SAV-CA;                                        00245899
532          SY=SAV/GDP;                                        00245925
533          IY=INV/GDP;                                        00246025
534          UTD=UTPD+UTOD;                                     00246146
535          UT=(UTD*NER)/1000;                                 00246247
536          FD=(-CA)-UT;                                       00246346
537          FDY=FD/GDP;                                        00246437
538          FDYLG=LAG(FDY);                                    00246537
539          NFACB=FAMA-FLMA;                                   00246699
540          NFAPB=FADMB-FLDMB;                                 00246799
541          NFACBY=NFACB/GDP;                                  00246899
542          NFACBYLG=LAG(NFACBY);                              00246999
543          NFAPBY=NFAPB/GDP;                                  00247099
544          NFAY=NFA/GDP;                                      00247199
545          RSVY=RSV/GDP;                                      00247225
546          IRRP=(IR*NER)/1000;                                00247399
547          IRM=IRRP/M;                                        00247499
548          IRMLG=LAG(IRM);                                    00247599
549          RGIRM=(LOG(IRM)-LOG(IRMLG))*100;                   00247699
550          RGIRMLG=LAG(RGIRM);                                00247799
551          CAY=CA/GDP;                                        00247827
552          EOBY=EOBP/GDP;                                     00247925
553          SYLG=LAG(SY);                                      00248025
554          IYLG=LAG(IY);                                      00248125
555          ZERO1=CAY+FDIY+PIY+OCY+RSVY+EOBY;                  00248299
556          ZERO11=CA+FDII+PII+OC+RSV+EOBP;                    00248399
557          ZERO2=MSY-DCY-NFAY;                                00248499
```

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                                                The SAS System                                  12:18 Sunday, November 7, 1993

58          ZERO22=MS-DC-NFA;                                                                   00249099
59          ZERO3=MS-M1-QM-RDM-OIM;                                                             00250099
60          XM=X+(-M);                                                                          00251099
61          XMLG=LAG(XM);                                                                       00252099
62          RGXM=((XM-XMLG)/XMLG)*100;                                                          00253099
63          RGXMLG=LAG(RGXM);                                                                   00254099
64          XMY=(X+(-M))/GDP;                                                                   00255099
65          XMYLG=LAG(XMY);                                                                     00256099
66          RGXMY=((XMY-XMYLG)/XMYLG)*100;                                                      00257099
67          RGXMYLG=LAG(RGXMY);                                                                 00258099
68          XLM=(X+M);                                                                          00258199
69          XLMY=XLM/GDP;                                                                       00258299
70          TOT=UVXP/UVMP;                                                                      00259099
71          TOTLG=LAG(TOT);                                                                     00259199
72          RGTOT=((TOT-TOTLG)/TOTLG)*100;                                                      00260099
73          CBDA=MACCG+MACOE+MACPS+MACDMB+MACOFI;                                               00261099
74          CBDAY=CBDA/GDP;                                                                     00262099
75          DMBDA=DMBCCG+DMBCOE+DMBCPS+DMBCOFI;                                                 00263099
76          DMBDAY=DMBDA/GDP;                                                                   00264099
77          DMBDARAT=DMBDA/(DMBDA+CBDA);                                                        00265099
78          CBDARAT=CBDA/(DMBDA+CBDA);                                                          00265199
79          BDAY=CBDAY+DMBDAY;                                                                  00266099
80          POPLG=LAG(POP);                                                                     00266199
81         RGPOP=(LOG(POP)-LOG(POPLG))*100;                                                     00267099

NOTE: Missing values were generated as a result of performing an operation on missing values.
      Each place is given by: (Number of times) at (Line):(Column).
      1 at 446:18   1 at 446:19   1 at 446:31   1 at 448:20   1 at 448:21   1 at 448:34   1 at 449:12   1 at 450:13   1 at 455:14
      1 at 455:21   1 at 455:28   1 at 456:11   1 at 458:13   1 at 462:22   1 at 462:23   1 at 462:36   1 at 464:15   1 at 465:16
      2 at 467:20   2 at 467:30   2 at 467:40   2 at 469:20   2 at 469:30   2 at 469:40   1 at 470:16   1 at 470:17   1 at 470:28
      1 at 472:10   1 at 472:14   1 at 473:9    2 at 475:11   1 at 478:13   2 at 480:15   1 at 482:13   1 at 483:13   2 at 485:15
      1 at 486:13   2 at 488:15   1 at 491:13   1 at 493:13   2 at 495:15   1 at 497:12   1 at 499:10   1 at 501:9    1 at 503:11
      1 at 503:15   1 at 505:9    1 at 506:14   1 at 507:15   1 at 508:13   1 at 510:11   1 at 511:9    1 at 514:16   1 at 514:17
      1 at 514:27   1 at 516:18   1 at 518:11   2 at 518:20   1 at 518:21   2 at 518:33   1 at 519:15   1 at 519:20   1 at 520:7
      2 at 522:12   2 at 522:18   2 at 522:24   1 at 523:8    1 at 523:14   2 at 525:12   2 at 525:18   2 at 525:24   2 at 526:16
      1 at 526:20   1 at 527:9    1 at 529:9    2 at 529:17   1 at 529:18   2 at 529:29   1 at 530:7    1 at 531:10   1 at 532:9
      1 at 533:9    1 at 534:11   1 at 535:10   1 at 535:16   1 at 536:8    1 at 536:11   1 at 537:9    1 at 541:15   1 at 543:15
      1 at 544:11   1 at 545:11   1 at 547:11   1 at 549:10   2 at 549:18   1 at 549:19   2 at 549:30   1 at 551:9    1 at 552:12
      1 at 555:12   1 at 555:17   1 at 555:21   1 at 555:25   1 at 555:30   1 at 556:12   1 at 556:17   1 at 556:21   1 at 556:24
      1 at 556:28   1 at 557:12   1 at 557:16   1 at 560:7    1 at 560:10   2 at 562:12   2 at 562:18   2 at 562:24   1 at 564:9
      1 at 564:12   1 at 564:15   2 at 566:14   2 at 566:21   2 at 566:28   1 at 568:9    1 at 569:11   1 at 572:14   1 at 572:21
      1 at 572:28   1 at 574:13   1 at 576:15   1 at 579:13   1 at 581:9    2 at 581:17   1 at 581:18   2 at 581:29
NOTE: The data set WORK.DISSERT has 58 observations and 188 variables.
NOTE: The DATA statement used 0.49 CPU seconds and 3114K.

582        PROC PRINT;                                                                          00268099
583          TITLE 'MODEL WITH 3SLS';                                                           00270099

NOTE: The PROCEDURE PRINT printed pages 15-29.
NOTE: The PROCEDURE PRINT used 0.45 CPU seconds and 3162K.

584        PROC SYSLIN 3SLS DATA=DISSERT;                                                       01640099
585        ENDOGENOUS DCY RGRGDP FDIY PIY OCY SY IY;                                            01650099
586        INSTRUMENTS INFD FDYLG NFACBY NFACBYLG REXLG DCYLG DDCCGY DMBDARAT                   01660099
587         GOVEXY XY LC FDY RRD WINT RWINT M1Y CBDARAT RGDPCAP MY RRDLG                        01670099
588         RGTOT SYLG TOTLG IYLG CAY RSVY EOBY MSY NFAY NFAPBY DDCY CBDAY                      01680099
589         DMBDAY DDCOEY RGXY RGPOP INFDLG DDCTG DDCPS BDAY                                    01681099
590         DDCTGY RGRXYF RGRX REX;                                                             01682099
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6                                    The SAS System                    12:18 Sunday, November 7, 1993

591         MODEL DCY=INFD FDYLG NFACBY NFACBYLG REXLG FDIY DCY DDCTGY DCYLG;      01690099
592         RESTRICT NFACBY=-NFACBYLG;                                            01700099
593         RESTRICT DCYLG=1;                                                     01710099
594         MODEL RGRGDP = RGPOP RGRXYF IY;                                       01720099
595         MODEL  FDIY = RGDPCAP GOVEXY XY LC FDY RRD WINT M1Y;                  01730099
596         MODEL PIY=WINT M1Y CBDARAT INFD;                                      01740099
597         MODEL DCY=RGDPCAP MY M1Y CBDARAT;                                     01770099
598         MODEL  SY = RGRGDP RGTOT FDYLG SYLG;                                  01780099
599         MODEL IY = RGRGDP RGTOT REXLG FDIY PIY DCY FDYLG DDCPSY IYLG;         01810099
600         IDENTITY CAY=SY-IY;                                                   01830099
601         IDENTITY CAY+FDIY+PIY+DCY+RSVY+EQBY+O;                                01840099
602         IDENTITY DCY=MSY+NFAY;                                                01850099
603         IDENTITY NFAY=NFACBY+NFAPBY;                                          01870099
604         IDENTITY DDCY=DDCCGY+DDCOEY+DDCPSY;                                   01871099
605         IDENTITY DDCY=DCY-DCYLG;                                              01871199
606         ;                                                                     01880099
NOTE: 58 observations were read.
      3 observations have missing values.
      55 observations were used in the computations.
NOTE: The PROCEDURE SYSLIN printed pages 30-45.
NOTE: The PROCEDURE SYSLIN used 0.34 CPU seconds and 3369K.

NOTE: The SAS session used 1.92 CPU seconds and 3369K.
NOTE: SAS Institute Inc., SAS Campus Drive, Cary, NC USA 27513-2414
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The SAS System 12:18 Sunday, November 7, 1993 1

OBS	YEAR	DC	NER	CPII	CPIUS	M	X	FDII
1	19781	3919.9	415.00	42.605	58.479	849.92	1060.33	36.52
2	19782	3990.7	415.00	43.210	60.029	864.03	1096.43	18.67
3	19783	4099.3	415.00	43.664	61.490	825.44	1133.37	33.62
4	19784	4991.7	523.18	44.662	62.631	1186.05	1626.04	34.01
5	19791	5392.3	614.32	47.688	64.232	1325.09	1810.40	49.15
6	19792	5462.0	625.38	51.925	66.433	1343.94	2135.05	29.39
7	19793	5477.9	625.59	55.556	68.634	1521.44	2646.87	15.64
8	19794	5302.9	626.94	57.129	70.635	1572.37	2860.73	46.39
9	19801	5001.0	628.36	58.877	73.371	1768.83	3471.06	46.50
10	19802	4679.0	627.20	61.644	76.052	2007.67	3442.70	23.83
11	19803	4998.0	625.74	64.286	77.430	2183.21	3282.63	23.15
12	19804	5054.0	626.68	66.802	79.498	1954.62	3469.30	21.31
13	19811	5369.0	628.34	68.815	81.566	2158.98	3465.92	19.48
14	19812	5386.0	629.73	70.073	83.481	2626.60	3629.76	32.75
15	19813	6067.0	633.08	71.331	85.855	2828.60	3778.85	19.63
16	19814	6852.0	635.88	72.212	87.080	2807.41	3824.18	12.08
17	19821	7987.0	647.30	76.049	87.846	3110.28	3341.36	25.89
18	19822	8857.0	653.60	76.426	89.148	2718.98	3268.65	24.18
19	19823	10002.0	662.90	77.496	90.833	2896.21	3135.52	44.41
20	19824	10281.0	681.90	79.194	91.063	3082.19	3309.94	55.23
21	19831	11317.0	698.20	83.157	90.966	3803.10	2853.54	87.97
22	19832	11183.0	969.70	85.862	92.135	3881.71	4453.83	116.36
23	19833	11556.0	881.30	87.874	93.207	4172.49	5008.55	19.63
24	19834	12208.0	987.90	88.692	94,050	3975.31	4845.65	25.69
25	19841	11907.0	994.60	93.284	95.045	4003.27	5185.84	26.85
26	19842	11505.0	1006.50	95.045	96.118	3728.08	5513.61	-16.10
27	19843	11659.0	1038.40	96.303	97.190	3922.04	5458.87	84.11
28	19844	11878.0	1064.30	96.555	97.879	3768.69	5113.86	138.36
29	19851	12246.0	1088.60	97.436	98.492	3706.68	4747.38	95.52
30	19852	12132.0	1112.20	100.392	99.717	3532.35	5140.59	114.56
31	19853	14463.0	1118.70	100.895	100.407	3170.40	5166.16	72.72
32	19854	14799.0	1122.90	101.147	101.326	3694.34	5531.40	102.18
33	19861	16687.0	1127.00	103.100	101.600	3665.00	5010.64	46.21
34	19862	17686.0	1126.70	104.100	101.300	3181.80	3617.83	141.86
35	19863	17123.0	1232.40	105.600	102.100	3761.29	4028.72	57.92
36	19864	20329.0	1644.10	110.400	102.600	4619.92	5705.03	72.34
37	19871	21225.0	1639.20	112.200	103.800	4532.39	6142.08	57.37
38	19872	23855.0	1642.90	114.100	105.100	5369.00	6775.32	-4.93
39	19873	24918.0	1643.90	116.200	106.300	5265.41	7344.94	126.58
40	19874	26739.0	1649.40	120.100	107.200	5436.42	8027.63	555.85
41	19881	29886.0	1659.80	121.900	107.900	5286.46	8106.46	322.00
42	19882	33122.0	1671.50	124.000	109.200	5736.59	7866.08	140.41
43	19883	38348.0	1696.40	126.400	110.700	5864.46	8351.38	206.96
44	19884	40835.0	1715.10	127.500	111.800	6143.49	8350.82	301.86
45	19891	41700.0	1743.10	129.700	113.100	6388.46	9062.38	353.85
46	19892	43174.0	1764.30	132.900	114.900	6821.35	9947.12	139.38
47	19893	53453.0	1780.40	133.800	115.900	7516.85	10509.70	274.18
48	19894	60564.0	1792.50	135.500	117.000	8066.25	11174.45	440.96
49	19901	69677.0	1811.70	137.600	119.000	8567.53	10969.84	440.24
50	19902	82526.0	1832.80	140.100	120.200	8564.68	10256.35	417.88
51	19903	91099.0	1854.10	145.600	122.300	10623.99	12337.18	420.88
52	19904	95896.0	1872.70	148.200	124.300	11841.08	15921.70	739.72
53	19911	98590.0	1916.20	149.800	125.300	12075.89	14162.63	1101.82
54	19912	103020.0	1942.80	153.300	126.000	11450.86	13407.26	487.64
55	19913	104951.0	1961.40	158.800	127.000	11933.16	14669.31	294.21
56	19914	114002.0	1980.90	162.400	128.000	12570.79	15171.71	1002.34

OBS	YEAR	DC	NER	CPII	CPIUS	M	X	FDII
57	19921	99683	2006.6	164.5	128.9	12715.82	14563.9	1498.93
58	19922	119718	2024.7	167.4	129.9	.	.	.

OBS	PII	OC	LC	M1	EOBP	CA	RGDPCT	INT
1	0.000	112.47	.	2113	-42.33	-192.98	16059.87	5.96
2	0.000	107.07	-1.4019	2241	-12.04	-173.89	16088.61	6.56
3	21.165	144.42	-3.0806	2371	26.15	-114.96	16010.00	7.21
4	27.205	239.62	0.1630	2488	-34.01	-132.36	16744.47	9.42
5	0.000	258.63	-0.6509	2799	-22.73	-118.56	17005.17	12.79
6	22.514	46.28	-0.2457	3021	-111.94	158.85	17043.52	13.21
7	0.000	-30.03	0.8210	3180	-163.28	242.73	17404.55	12.97
8	15.674	83.38	-2.1173	3316	48.90	332.28	17508.14	13.96
9	0.000	-31.42	-0.6655	3721	-567.41	694.97	18503.17	14.73
10	0.000	304.19	5.4025	4173	37.63	555.07	19005.13	13.67
11	0.000	352.29	2.6131	4697	-100.74	67.58	19374.05	10.52
12	28.827	62.04	1.8609	5013	-638.59	479.41	18893.63	12.55
13	0.000	103.68	5.1923	5252	-66.60	304.12	19499.91	15.95
14	29.597	375.95	1.0055	5601	-444.59	-134.76	20491.70	16.56
15	0.000	255.76	0.9955	5992	-192.46	-270.96	20920.11	18.02
16	0.000	334.47	1.0753	6476	-473.73	-259.44	20875.17	14.49
17	0.000	1197.51	4.1667	6784	-91.92	-974.19	21237.00	17.13
18	130.720	600.00	0.6808	7178	-1345.76	-547.72	20417.91	17.99
19	26.516	821.33	1.2680	7594	-151.14	-979.10	20788.91	17.49
20	51.143	733.04	1.5860	7125	189.57	-1025.58	21178.20	16.35
21	0.000	1287.48	0.2465	7389	-83.78	-2172.80	21474.78	17.56
22	36.849	1221.82	17.8508	7517	496.49	-1127.76	21630.54	10.86
23	78.504	1170.69	2.2933	7739	156.03	-1026.40	22206.69	10.67
24	246.975	1083.73	1.6304	7584	-86.94	-1002.72	21816.00	13.57
25	0.000	1342.71	3.7433	8055	-255.61	-816.57	23409.84	18.01
26	-6.039	688.45	1.4820	8319	-317.05	-256.66	22826.24	16.00
27	-4.154	647.96	1.1429	7907	-16.61	-533.74	23237.58	28.70
28	0.000	624.74	1.4436	8581	-65.99	-557.69	22912.36	11.80
29	0.000	509.46	-0.1856	8989	519.26	-893.74	24664.25	11.66
30	0.000	304.74	1.1779	9494	249.13	-547.20	24263.96	10.69
31	-4.475	31.32	0.8578	9393	167.81	-158.86	23432.89	8.48
32	-34.810	827.58	1.1544	10124	-271.74	-525.52	24635.91	10.51
33	338.100	729.17	0.5405	10478	-476.72	-696.74	25337.76	10.33
34	-7.887	908.12	-1.9589	10355	207.91	-1301.34	24193.55	10.01
35	-30.810	2069.20	-1.9980	11192	-687.68	-1657.58	25565.75	12.49
36	0.000	853.29	10.4995	11631	-725.05	-1300.48	27598.97	13.04
37	0.000	1980.15	8.2103	11500	-988.44	-1011.39	25571.43	15.02
38	-37.787	938.10	2.2165	12167	-251.36	-1332.39	27420.84	17.41
39	-23.015	1375.94	1.6681	11972	805.51	-907.43	27191.85	13.76
40	-84.119	834.60	2.5431	12705	-801.61	-184.63	27569.89	11.87
41	-43.155	1100.45	1.8400	12628	-902.93	-99.59	26073.24	11.43
42	-43.459	117.01	1.3354	13051	230.67	-830.74	27025.73	14.66
43	-117.051	547.94	1.3954	13145	-629.36	-371.51	27296.30	14.98
44	39.447	1171.41	0.8410	14392	-267.56	-1065.08	27886.75	16.92
45	0.000	1497.32	1.9712	14409	-1450.26	-620.54	28828.05	13.82
46	-208.187	488.71	3.1870	16494	-326.40	-486.95	29972.45	12.06
47	-97.922	297.33	1.0086	17164	-370.32	-532.34	31281.32	12.29
48	0.000	1982.51	1.2126	20559	-161.33	-317.27	32431.19	12.10
49	0.000	244.58	2.8189	22155	-12.68	-1224.71	30227.41	10.37
50	-9.164	2190.20	-0.9596	23205	-1999.59	-1495.57	30221.88	12.90
51	-88.997	1768.81	4.9135	22982	1659.42	-2239.75	34211.42	16.66
52	-74.908	2267.84	11.5435	23819	1773.45	-539.34	36569.30	17.53
53	0.000	3569.88	-5.4406	23571	-479.05	-2305.19	35097.53	21.84
54	-9.714	1297.79	-1.9387	24609	907.29	-2144.85	33949.66	13.73
55	-13.730	490.35	2.5510	25804	121.61	-1645.62	34835.41	12.26
56	0.000	3714.19	2.6741	26693	-1576.80	-1850.16	36006.41	12.66

OBS	PII	DC	LC	MI	EQBP	CA	RGDPCT	INT
57	0	622.046	0.54512	27336	1948.41	-2556.41	38166.8	12.94
58	.	.	0.84337	26881	.	.	.	12.25

OBS	GOVEX	RSV	SAV	GOVDEF	POP	UTPD	UTOD	WINT
1	1228.10	86.32	2232.15	-124.80	139.80	0	2	7.28
2	715.50	60.18	3393.79	258.60	139.80	0	5	7.84
3	891.40	-110.39	3914.38	34.00	139.80	0	0	8.71
4	1021.80	-134.48	2751.20	18.80	139.80	0	6	11.08
5	1832.60	-166.48	2881.29	-432.90	143.04	0	6	10.87
6	879.70	-145.09	4036.30	309.80	143.04	0	13	10.62
7	1525.30	-65.06	4462.67	4.90	143.04	0	7	11.66
8	1643.00	-526.63	3527.87	-150.20	143.04	0	4	14.70
9	3127.30	-142.64	3166.99	-324.00	146.36	0	16	17.11
10	2021.10	-920.73	5059.13	23.70	146.36	0	21	11.15
11	2990.80	-342.28	4870.42	-332.80	146.36	0	1	12.08
12	2561.00	47.00	4324.86	260.40	146.36	0	17	17.10
13	3931.20	-360.67	3997.02	-1050.10	149.70	0	61	17.07
14	3042.70	141.06	5779.85	-161.50	149.70	0	72	17.69
15	3313.90	188.02	4642.43	320.10	149.70	0	80	18.18
16	3043.70	386.62	4847.77	-131.60	149.70	0	37	13.86
17	5561.20	-157.29	4654.76	-819.70	153.04	0	46	15.21
18	3044.80	1138.57	5498.08	-229.40	153.04	0	28	14.98
19	2847.60	237.98	4732.55	127.30	153.04	0	43	11.90
20	3405.20	-3.41	2958.87	516.50	153.04	0	17	9.22
21	5101.80	881.13	4978.65	-793.80	156.45	0	20	9.13
22	3206.10	-743.76	5462.68	4.50	156.45	0	28	9.19
23	4453.10	-396.45	5452.32	-901.70	156.45	0	30	9.72
24	3192.70	-266.73	6616.29	449.10	156.45	0	26	9.64
25	5759.30	-297.39	7379.61	-593.60	159.89	0	32	10.09
26	2953.70	-92.60	7354.81	994.80	159.89	0	10	11.07
27	4599.40	-177.57	6764.73	-652.70	159.89	0	31	11.67
28	4816.20	-139.42	7057.22	280.50	159.89	0	41	9.71
29	5878.80	-190.51	7722.48	-1119.40	164.63	15	18	8.68
30	5083.10	-121.23	7626.20	470.00	164.63	12	2	8.09
31	4256.40	-108.51	7298.07	-558.70	164.63	20	7	8.01
32	4188.60	-97.69	7988.52	538.00	164.63	14	0	8.14
33	7693.80	61.98	8953.19	-731.30	168.35	18	101	7.93
34	4038.00	51.83	9662.50	308.60	168.35	15	19	7.16
35	5220.30	248.94	8998.07	-670.60	168.35	20	26	6.34
36	5128.20	1099.90	8466.95	-58.10	168.35	18	42	6.31
37	8967.00	-37.70	11234.07	-2224.20	172.01	22	56	6.36
38	5120.10	688.38	12216.19	275.10	172.01	18	28	6.96
39	6923.10	-1377.59	10561.00	-949.80	172.01	24	32	7.04
40	5251.40	-310.09	10092.64	1142.30	172.01	22	55	7.89
41	11223.90	-376.77	12662.72	-2423.10	175.59	26	51	6.86
42	4835.90	386.12	14015.74	1345.90	175.59	21	0	7.32
43	9865.22	363.03	12345.98	-1753.00	175.59	27	37	8.18
44	7064.98	-180.09	13885.37	-1557.80	175.59	25	67	8.86
45	13659.20	219.63	15790.60	-2591.41	179.14	30	62	9.62
46	6268.00	393.44	15010.01	1675.00	179.14	41	1	9.62
47	10614.60	429.08	14967.32	-2335.82	179.14	48	39	9.02
48	7643.20	-1944.86	15463.01	-109.77	179.14	48	70	8.71
49	15368.70	552.57	12436.28	-1659.80	179.30	51	61	8.35
50	6834.58	896.23	12659.91	687.44	179.30	48	66	8.36
51	12165.07	-1520.36	14893.73	-3480.33	179.30	37	84	8.16
52	8504.65	-4166.76	16204.51	436.64	179.30	30	41	8.28
53	18669.09	-1887.46	15730.74	-1933.05	182.30	24	35	6.79
54	6904.38	-538.16	15561.40	323.94	182.30	24	36	5.95
55	14612.45	753.18	16540.27	-3154.64	182.30	41	2	5.79
56	9264.08	-1289.57	17483.85	1046.04	182.30	41	59	5.07

OBS	GOVEX	RSV	SAV	GOVDEF	POP	UTPD	UTOD	WINT
57	19366.88	-1512.98	18772.53	-2781.55	182.3	44	113	4.23
58	5911.11	.	.	.	.	.	.	4.00

OBS	FLMA	FLDMB	NFA	WPIUS	GDP	IR	ICINF	WINF
1	520	234	601	65.404	6746.56	2302	6.7	9.8
2	519	251	557	67.388	7652.83	2163	6.5	9.5
3	560	291	660	68.465	7591.66	2375	6.9	9.6
4	852	444	1061	69.995	7304.56	2626	7.1	9.8
5	823	426	1331	72.545	7670.72	2940	7.9	10.4
6	752	433	1673	75.096	9632.36	3195	8.5	11.2
7	589	463	2099	77.476	10661.93	3290	9.5	12.5
8	567	431	2943	80.197	9896.64	4062	10.6	13.9
9	543	444	3973	83.881	10597.20	4283	12.1	15.6
10	556	428	5095	85.638	12536.45	5408	12.5	16.2
11	540	418	5795	88.415	12857.35	5627	11.7	15.4
12	539	388	6031	90.285	12621.68	5392	11.4	15.4
13	522	378	6344	92.893	13436.97	6145	10.5	14.2
14	471	393	6251	95.157	15153.68	5835	9.7	13.6
15	468	415	6271	95.940	15186.45	5560	10.1	13.9
16	468	432	6370	95.853	14781.18	5014	9.6	13.3
17	459	477	6392	96.637	15640.97	5235	8.5	12.9
18	459	517	5665	96.811	16585.96	3713	7.9	12.5
19	375	500	5469	97.333	16165.55	3279	7.2	12.7
20	347	663	5266	97.333	15426.08	3144	6.3	13.0
21	542	1315	6446	97.333	17323.96	1831	5.6	12.1
22	583	858	6915	97.594	20298.97	2703	5.1	12.5
23	685	890	7346	98.552	20461.77	3506	4.8	12.6
24	773	968	8089	99.074	19589.56	3718	4.8	13.4
25	453	971	9844	100.119	22871.99	4066	5.2	13.8
26	445	925	10705	100.815	23309.87	4301	4.9	14.1
27	446	811	10842	100.554	23955.49	4750	4.6	14.2
28	444	762	11942	100.293	21610.76	4733	4.4	14.4
29	335	710	12743	100.119	23991.39	5049	4.3	14.0
30	236	612	13107	100.206	25178.22	4935	4.5	14.5
31	138	576	13331	99.510	25440.02	5094	4.1	13.9
32	52	588	14106	100.120	23833.96	4974	4.0	13.1
33	54	792	12667	98.639	26027.80	4861	3.2	11.2
34	56	418	12899	96.724	27139.49	4859	2.2	8.9
35	83	575	19741	96.288	28711.17	4640	2.0	7.9
36	84	541	15919	96.637	28441.01	4051	1.8	7.8
37	89	623	16443	97.800	29780.43	4005	2.1	7.9
38	1063	683	15750	99.400	32164.33	4147	3.0	10.2
39	1066	741	17885	100.500	32769.90	4875	3.2	11.9
40	1182	752	18332	101.600	31790.66	5592	3.3	13.5
41	1163	887	19005	101.600	33424.54	5410	3.2	12.5
42	1117	1414	18029	103.200	36745.17	5304	3.1	12.7
43	1019	1579	17196	104.700	37498.21	4956	3.3	13.6
44	1078	1159	17892	105.200	38098.45	5048	3.6	14.6
45	1051	739	18606	107.500	39008.05	4851	4.1	15.0
46	1023	1716	16601	109.400	41698.43	4377	4.7	15.9
47	1056	1933	17355	109.400	42505.36	4380	4.5	17.8
48	1093	3193	18279	109.400	42009.02	5454	4.5	19.5
49	6544	4173	12405	111.800	41592.91	5239	4.9	22.7
50	6529	6334	8726	110.800	42340.85	4693	4.5	23.1
51	6650	10087	6425	112.800	49811.82	5424	5.0	20.9
52	6327	12645	10659	116.200	54195.70	7459	5.5	19.2
53	6221	11472	14673	113.800	52611.19	8069	5.0	14.7
54	5715	11712	16677	112.700	52044.82	8673	4.6	12.4
55	5965	9899	17853	112.500	55318.63	8479	4.1	11.7
56	7013	11935	17283	112.700	58474.40	9258	3.5	11.2

OBS	FLMA	FLDMB	NFA	WPIUS	GDP	IR	ICINF	WINF
57	6171	13092	18148	112.4	62784.38	9620	3.2	11.3
58	5158	14479	21517	113.6	.	10714	3.3	12.1

OBS	FAMA	FADMB	QM	RDM	DIM	UVXP	UVMP
1	959	395	1370	218	821	63.3	36.4
2	898	429	1369	163	775	63.9	25.7
3	1010	501	1397	167	825	66.8	29.7
4	1672	685	1441	262	1862	68.3	40.7
5	1885	695	1661	232	2032	69.4	28.8
6	2041	817	1730	234	2150	85.0	47.4
7	2111	1040	1887	304	2207	95.0	45.4
8	2625	1316	2074	333	2523	121.7	39.1
9	3079	1881	2430	301	2521	124.6	76.3
10	3932	2147	2749	339	2513	135.8	55.2
11	4295	2458	3083	321	2691	140.9	37.5
12	4217	2741	3056	468	2548	141.3	37.2
13	4696	2549	3404	409	2649	141.0	58.2
14	4560	2554	3399	348	2289	134.9	72.0
15	4317	2837	3783	318	2245	133.8	96.3
16	4037	3233	3671	418	2657	133.4	49.7
17	4111	3216	4173	386	3036	132.8	67.3
18	3259	3381	4207	341	2795	131.4	53.2
19	3220	3124	4548	330	3000	131.4	81.0
20	3685	2591	5117	330	2975	134.5	46.0
21	3978	4326	5634	432	4308	130.0	49.0
22	3911	4416	6068	368	4145	114.9	79.7
23	4606	4525	6494	368	4301	110.1	76.5
24	5309	4520	7212	311	5192	115.5	90.5
25	6693	4575	7704	338	5655	118.6	88.9
26	7645	4429	8267	319	5304	115.3	66.2
27	7234	4865	8781	306	5507	113.1	83.8
28	8041	5107	9356	251	5732	117.8	69.4
29	8155	5633	10459	283	5256	106.4	82.0
30	8185	5769	10969	268	4508	99.1	126.4
31	8124	5920	12200	321	5879	99.4	103.3
32	8507	6239	13054	291	5436	95.3	88.3
33	7466	6047	13693	303	4882	84.2	72.0
34	7727	5645	13995	335	5900	78.4	101.1
35	11796	8604	16188	485	8999	43.7	108.8
36	8352	8193	15984	426	8207	58.9	98.0
37	9345	7810	16991	422	8756	61.8	74.2
38	10191	7306	17466	494	9479	67.0	142.2
39	11926	7766	19673	489	10670	66.6	127.1
40	12458	7807	21200	449	12718	66.0	96.2
41	13790	7264	23034	531	12700	66.1	73.1
42	12576	7983	24850	618	12631	67.0	129.1
43	11458	8336	26925	661	14814	64.5	207.7
44	11732	8397	27681	709	15946	50.9	159.8
45	11047	9351	33158	787	11953	64.4	51.1
46	10233	9107	31106	792	11382	70.8	90.1
47	10255	10090	38247	688	14709	65.2	154.0
48	11835	10731	37967	658	19659	63.7	121.3
49	11884	11238	42212	881	16835	71.1	142.5
50	10677	10911	55272	886	11889	61.0	244.3
51	12741	10402	53926	1073	18544	73.2	147.6
52	17950	11681	60811	1074	20852	111.5	154.8
53	21397	10967	57554	1092	31045	76.1	186.9
54	22228	11877	63147	1111	30830	65.3	182.7
55	23211	10506	67523	1049	28428	68.7	189.2
56	25155	11076	72717	990	30885	72.1	124.1

OBS	FAMA	FADMB	QM	RDM	QIM	UVXP	UVMP
57	27381	10029	73567	1624	15304	65.5	162.9
58	30752	10902	80077	1039	33239	64.1	167.7

OBS	DCCG	DCDE	DCPS
1	-247.9	171.1	3996.7
2	-431.9	219.6	4203.1
3	-531.4	261.1	4369.6
4	-525.5	245.2	5272.1
5	-366.2	203.0	5555.5
6	-638.6	203.7	5897.0
7	-1020.9	259.1	6239.6
8	-1265.3	259.2	6308.9
9	-1571.0	191.0	6381.0
10	-2318.0	327.0	6670.0
11	-2579.0	459.0	7117.0
12	-3058.0	523.0	7590.0
13	-3024.0	424.0	7969.0
14	-3618.0	524.0	8479.0
15	-3738.0	651.0	9154.0
16	-3624.0	835.0	9641.0
17	-3138.0	830.0	10294.0
18	-3393.0	1025.0	11225.0
19	-3139.0	1259.0	11881.0
20	-3280.0	1071.0	12491.0
21	-3009.0	899.0	13427.0
22	-3421.0	955.0	13649.0
23	-3643.0	1212.0	13988.0
24	-3847.0	1182.0	14873.0
25	-5123.0	4667.0	11941.0
26	-6400.0	4441.0	13002.0
27	-7305.0	4586.0	13865.0
28	-8031.0	4717.0	14737.0
29	-8308.0	4569.0	15383.0
30	-9579.0	4564.0	16491.0
31	-8266.0	4765.0	17264.0
32	-9087.0	5013.0	18104.0
33	-7699.0	4520.0	19058.0
34	-7662.0	4617.0	19827.0
35	-9187.0	4974.0	20432.0
36	-8541.0	5104.0	22864.0
37	-8212.0	5031.0	23469.0
38	-8945.0	4761.0	27001.0
39	-6731.0	2638.0	27940.0
40	-6882.0	4818.0	29710.0
41	-7589.0	4648.0	31969.0
42	-7923.0	5071.0	34792.0
43	-7269.0	5366.0	39036.0
44	-7167.0	6350.0	40532.0
45	-8153.0	5761.0	42956.0
46	-7823.0	5754.0	44125.0
47	-7762.0	8093.0	51942.0
48	-8941.0	8560.0	59711.0
49	-10955.0	8516.0	70861.0
50	-10285.0	8450.0	83189.0
51	-11160.0	8395.0	92582.0
52	-12026.0	7709.0	98877.0
53	-12133.0	6520.0	102819.0
54	-13780.0	7635.0	107798.0
55	-13174.0	9395.0	107005.0
56	-12711.0	9706.0	115406.0

OBS	DCCG	DCGE	DCPS
57	-31536	10407	119208
58	-15677	9335	124338

OBS	MACCG	MACOE	MACPS	MACDMB	MACOFI	DMBCCG	DMBCOE	DMBCPS	DMBCOFI
1	349.2	263.6	1052.1	630.5	0	0	0	2944.7	0
2	430.5	201.9	1105.6	737.2	0	0	0	3097.5	0
3	479.8	253.4	1149.8	781.1	0	0	0	3218.8	0
4	631.9	238.4	1731.4	846.4	0	0	0	3540.7	0
5	486.4	201.1	1807.7	856.0	0	0	0	3747.8	0
6	588.7	192.2	1852.1	950.0	0	0	0	4044.9	0
7	674.6	233.9	1889.0	1034.1	0	0	0	4350.5	0
8	630.5	247.9	1939.6	1129.3	0	0	0	4369.3	0
9	500.0	178.0	1857.0	1387.0	0	0	0	4524.0	0
10	589.0	274.0	1872.0	1526.0	0	0	0	4798.0	0
11	534.0	417.0	1826.0	1628.0	0	0	0	5298.0	0
12	630.0	507.0	1977.0	1722.0	0	0	0	5613.0	0
13	543.0	402.0	1948.0	1879.0	0	0	0	6021.0	0
14	709.0	485.0	1829.0	2120.0	0	0	0	6650.0	0
15	890.0	578.0	1889.0	2314.0	0	0	0	7265.0	0
16	941.0	809.0	1883.0	2548.0	0	0	0	7758.0	0
17	770.0	813.0	1913.0	3091.0	0	0	0	8382.0	0
18	786.0	853.0	2042.0	3870.0	0	0	0	9184.0	0
19	997.0	1038.0	2042.0	4373.0	0	0	0	9839.0	0
20	1080.0	994.0	2082.0	5050.0	0	0	0	10408.0	0
21	853.0	821.0	1883.0	5569.0	0	0	0	11544.0	0
22	1264.0	837.0	1672.0	5275.0	0	0	0	11877.0	0
23	1332.0	955.0	1630.0	5404.0	0	0	0	12358.0	0
24	1081.0	1110.0	1564.0	5866.0	0	0	0	13310.0	0
25	1731.0	1781.0	523.0	6318.0	398	299	2886	11418.0	24
26	2367.0	337.0	545.0	7763.0	431	341	4104	12457.0	30
27	2189.0	227.0	641.0	8894.0	468	386	4360	13224.0	45
28	1670.0	203.0	652.0	9521.0	518	440	4515	14086.0	37
29	495.0	194.0	743.0	9415.0	562	466	4375	14640.0	41
30	385.0	37.0	801.0	9809.0	607	499	4527	15690.0	49
31	540.0	36.0	800.0	10076.0	652	537	4729	16464.0	48
32	1237.0	32.0	823.0	10041.0	729	530	4981	17281.0	41
33	1164.0	20.0	872.0	10263.0	769	552	4500	18186.0	40
34	1797.0	19.0	881.0	10345.0	864	642	4598	18946.0	40
35	2136.0	19.0	957.0	10778.0	872	641	4954	19475.0	32
36	3106.0	24.0	1133.0	12552.0	877	683	5080	21731.0	25
37	2275.0	32.0	439.0	13937.0	893	706	4999	23030.0	45
38	3053.0	40.0	1240.0	14875.0	933	902	4721	25761.0	105
39	2570.0	39.0	1439.0	15165.0	958	846	2599	26502.0	114
40	3518.0	36.0	1676.0	14562.0	978	1083	4782	28034.0	115
41	1862.0	43.0	1070.0	15736.0	1008	1094	4605	30626.0	123
42	3196.0	51.0	1496.0	16764.0	1022	1106	5020	33296.0	159
43	3988.0	51.0	1578.0	17670.0	1040	1070	5315	37458.0	175
44	4427.0	58.0	1724.0	20375.0	950	1069	6292	38809.0	170
45	3396.0	58.0	1790.0	18529.0	956	1013	5704	41166.0	180
46	5891.0	54.0	956.0	16945.0	947	873	5700	43168.0	171
47	5280.0	53.0	1453.0	17480.0	1001	845	8040	50489.0	179
48	4589.0	830.0	1307.0	15240.0	988	960	7730	58404.0	246
49	3733.0	813.0	1342.0	18487.0	983	1124	7703	69518.0	273
50	4007.0	736.0	1590.0	19527.0	990	1138	7714	81599.0	182
51	4517.0	725.0	1639.0	19446.0	1010	1147	7670	90943.0	273
52	5221.0	759.0	1732.0	20890.0	992	933	6950	97145.0	345
53	5147.0	40.0	1526.0	21503.0	994	1085	6480	101293.0	389
54	5369.0	40.0	1127.0	16079.0	997	753	7596	106671.0	371
55	6225.0	36.0	1017.0	15525.0	1009	966	9359	105988.0	716
56	6258.0	35.0	953.0	14867.0	1012	1027	9671	114453.0	590

OBS	MACCG	MACOE	MACPS	MACDMB	MACOFI	DMBCCG	DMBCOE	DMBCPS	DMBCOFI
57	5584	35	974	13403	1023	1434	10372	118234	582
58	5523	34	938	13163	1027	1416	9300	123400	695

MODEL WITH 3SLS 12:18 Sunday, November 7, 1993 15

OBS	YEAR	DC	NER	CPII	CPIUS	M	X	FDII	PII	OC	LC	M1	EDBP	CA	RGDPCT
1	19781	3919.9	415.00	42.605	58.479	849.92	1060.33	36.52	0.000	112.47	.	2113	-42.33	-192.98	16059.87
2	19782	3990.7	415.00	43.210	60.029	864.03	1096.43	18.67	0.000	107.07	-1.4019	2241	-12.04	-173.89	16088.61
3	19783	4099.3	415.00	43.664	61.430	825.44	1133.37	33.62	21.165	144.42	-3.0806	2371	26.15	-114.96	16010.00
4	19784	4991.7	523.18	44.662	62.631	1186.05	1626.04	34.01	27.205	239.62	0.1630	2488	-34.01	-132.36	16744.47
5	19791	5392.3	614.32	47.688	64.232	1325.09	1810.40	49.15	0.000	258.63	-0.6509	2799	-22.73	-118.56	17005.17
6	19792	5462.0	625.38	51.925	66.433	1343.94	2135.05	29.39	22.514	46.28	-0.2457	3021	-111.94	158.85	17043.52
7	19793	5477.9	625.59	55.556	68.634	1521.44	2646.87	15.64	0.000	-30.03	0.8210	3180	-163.28	242.73	17404.55
8	19794	5302.9	626.94	57.129	70.635	1572.37	2860.73	46.39	15.674	83.38	-2.1173	3316	48.90	332.28	17508.14
9	19801	5001.0	628.38	58.877	73.371	1768.83	3471.06	46.50	0.000	-91.42	-0.6695	3721	-567.41	684.97	18503.17
10	19802	4679.0	627.20	61.644	76.052	2007.67	3442.70	23.83	0.000	304.19	5.4025	4173	37.63	555.07	19005.12
11	19803	4998.0	625.74	64.286	77.430	2183.21	3282.63	23.15	0.000	352.29	2.6131	4697	-100.74	67.58	19374.05
12	19804	5054.0	626.68	66.802	79.498	1954.62	3469.30	21.31	28.827	62.04	1.8609	5013	-638.59	479.41	18893.63
13	19811	5369.0	628.34	68.815	81.566	2158.98	3465.92	19.48	0.000	103.68	5.1923	5252	-66.60	304.12	19499.91
14	19812	5386.0	629.73	70.073	83.481	2626.60	3629.76	32.75	29.597	375.95	1.0055	5601	-444.59	-134.76	20491.70
15	19813	6067.0	633.08	71.331	85.855	2828.80	3778.85	19.63	0.000	255.76	0.9955	5992	-192.46	-270.96	20920.11
16	19814	6852.0	635.88	72.212	87.080	2807.41	3824.18	12.08	0.000	334.47	1.0753	6476	-473.73	-259.44	20875.17
17	19821	7987.0	647.30	76.049	87.846	3110.28	3341.36	25.89	0.000	1197.51	4.1667	6784	-91.92	-974.19	21237.00
18	19822	8857.0	653.60	76.426	89.148	2718.98	3268.65	24.18	130.720	600.00	0.6808	7178	-1345.76	-547.72	20417.91
19	19823	10002.0	662.90	77.496	90.833	2896.21	3135.52	44.41	26.516	821.33	1.2680	7594	-151.14	-979.10	20788.91
20	19824	10281.0	681.90	79.194	91.063	3082.19	3309.94	55.23	51.143	733.04	1.5860	7125	189.57	-1025.58	21178.20
21	19831	11317.0	698.20	83.157	90.866	3803.10	2653.54	87.87	0.000	1267.48	0.2465	7389	-83.78	-2172.80	21474.78
22	19832	11183.0	969.70	85.862	92.135	3881.71	4453.83	116.36	36.849	1221.82	17.9508	7517	496.49	-1127.78	21630.54
23	19833	11556.0	981.30	87.874	93.207	4172.49	5008.55	19.63	78.504	1170.69	2.2933	7739	156.03	-1028.40	22206.69
24	19834	12208.0	987.90	88.692	94.050	3975.31	4845.65	25.69	246.975	1083.73	1.6304	7584	-86.94	-1002.72	21816.00
25	19841	11907.0	994.60	93.284	95.045	4003.27	5185.84	26.85	0.000	1342.71	3.7433	8055	-255.61	-816.57	23409.84
26	19842	11505.0	1006.50	95.045	96.118	3728.08	5513.61	-16.10	-6.039	688.45	1.4820	8319	-317.05	-256.66	22826.24
27	19843	11659.0	1038.40	96.303	97.190	3922.04	5458.87	84.11	-4.154	647.96	1.1428	7907	-16.61	-533.74	23237.58
28	19844	11978.0	1064.30	96.555	97.879	3768.69	5113.96	138.36	0.000	624.74	1.4438	8581	-65.99	-557.69	22912.96
29	19851	12246.0	1088.60	97.436	98.492	3706.68	4747.38	55.52	0.000	509.46	-0.1856	8989	519.26	-893.74	24664.25
30	19852	12132.0	1112.20	100.392	99.717	3532.35	5140.59	114.56	0.000	304.74	1.1779	9494	249.13	-547.20	24263.96
31	19853	14463.0	1118.70	100.895	100.407	3170.40	5166.16	72.72	-4.475	31.32	0.8578	9393	167.81	-158.86	23432.89
32	19854	14799.0	1122.90	101.147	101.326	3694.34	5531.40	102.18	-34.810	827.58	1.1544	10124	-271.74	-525.52	24635.91
33	19861	16687.0	1127.00	103.100	101.600	3665.00	5010.64	46.21	338.100	729.17	0.5405	10475	-476.72	-698.74	25337.76
34	19862	17686.0	1126.70	104.100	101.300	3181.80	3617.83	141.96	-7.887	908.12	-1.9589	10355	207.31	-1301.34	24193.55
35	19863	17123.0	1232.40	105.600	102.100	3761.29	4028.72	67.82	-30.810	2069.20	-1.9980	11192	-687.66	-1657.58	25565.75
36	19864	20329.0	1644.10	110.400	102.600	4619.92	5705.03	72.34	0.000	853.29	10.4995	11631	-725.05	-1300.48	27598.97
37	19871	21225.0	1639.20	112.200	103.800	4532.39	6142.08	57.37	0.000	1980.15	8.2103	11500	-988.44	-1011.39	25571.43
38	19872	23855.0	1642.90	114.100	105.100	5369.00	6775.32	-4.93	-37.787	938.10	2.2165	12167	-251.36	-1332.39	27420.84
39	19873	24910.0	1643.90	116.200	106.300	5265.41	7344.94	126.58	-23.015	1375.94	1.8681	11872	805.51	-907.43	27191.85
40	19874	28739.0	1649.40	120.100	107.200	5436.42	8027.63	555.85	-84.119	834.60	2.5431	12705	-801.61	-194.63	27569.89
41	19881	29886.0	1659.80	121.900	107.900	5286.46	8106.46	322.00	-43.155	1100.45	1.8400	12626	-902.93	-89.59	26073.24
42	19882	33122.0	1671.50	124.000	109.200	5736.59	7866.08	140.41	-43.459	117.01	1.3354	13051	230.67	-830.74	27025.73
43	19883	38348.0	1696.40	126.400	110.700	5864.46	8351.38	206.96	-117.051	547.94	1.3954	13145	-629.36	-371.51	27296.30
44	19884	40835.0	1715.10	127.500	111.800	6143.49	8350.82	301.86	39.447	1171.41	0.8410	14392	-267.56	-1065.08	27886.75
45	19891	41700.0	1743.10	129.700	113.100	6388.46	9062.38	353.85	0.000	1497.32	1.9712	14409	-1450.26	-620.54	28828.05
46	19892	43174.0	1764.30	132.900	114.900	6921.35	9947.12	139.36	-208.187	488.71	3.1970	16494	-326.40	-486.95	29972.45
47	19893	53453.0	1780.40	133.800	115.900	7516.85	10509.70	274.18	-97.922	297.33	1.0086	17164	-370.32	-532.34	31251.32
48	19894	60564.0	1792.50	135.500	117.000	8066.25	11174.45	440.96	0.000	1982.51	1.2126	20559	-161.33	-317.27	32431.19
49	19901	69677.0	1811.70	137.600	119.000	8567.53	10969.84	440.24	0.000	244.58	2.8189	22155	-12.68	-1224.71	30227.41
50	19902	82526.0	1832.80	140.100	120.200	8564.68	10256.35	417.88	-9.164	2190.20	-0.9596	23205	-1999.59	-1495.57	30221.88
51	19903	91099.0	1854.10	145.600	122.300	10623.99	12337.18	420.88	-88.997	1768.81	4.9135	22982	1659.42	-2239.75	34211.42
52	19904	95896.0	1872.70	148.200	124.300	11841.08	15921.70	739.72	-74.908	2267.84	11.5435	23819	1773.45	-539.34	36569.30
53	19911	98590.0	1916.20	149.900	125.300	12075.89	14162.63	1101.82	0.000	3569.88	-5.4406	23571	-478.05	-2305.19	35097.53
54	19912	103020.0	1942.80	153.300	126.000	11450.86	13407.26	487.64	-9.714	1297.79	-1.9387	24609	907.29	-2144.85	33949.66
55	19913	104951.0	1961.40	158.800	127.000	11933.16	14669.31	294.21	-13.730	490.35	2.5510	25804	121.61	-1645.62	34835.41
56	19914	114002.0	1980.90	162.400	128.000	12570.79	15171.71	1002.34	0.000	3714.19	2.6741	26693	-1576.80	-1850.16	36006.41

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OBS	INT	GOVEX	RSV	SAV	GOVDEF	POP	UTPD	UTDD	WINT	FLMA	FLDMB	NFA	WPIUS	GDP	IR	ICINF	WINF	FAMA
1	5.96	1228.10	86.32	2232.15	-124.80	139.80	0	2	7.28	520	234	601	65.404	6746.56	2302	6.7	9.8	959
2	6.56	715.50	60.18	3393.79	258.60	139.80	0	5	7.84	519	251	557	67.388	7652.83	2163	6.5	9.5	898
3	7.21	891.40	-110.39	3914.38	34.00	139.80	0	0	8.71	560	291	660	68.465	7591.66	2375	6.9	9.6	1010
4	9.42	1021.80	-134.48	2751.20	18.50	139.80	0	6	11.08	852	444	1061	69.995	7304.56	2626	7.1	9.8	1672
5	12.79	1832.60	-166.46	2681.28	-432.90	143.04	0	8	10.87	823	426	1331	72.545	7670.72	2940	7.9	10.4	1865
6	13.21	879.70	-145.09	4036.30	309.80	143.04	0	13	10.62	752	433	1673	75.096	9632.36	3195	8.5	11.2	2041
7	12.97	1525.30	-65.06	4462.67	4.90	143.04	0	7	11.66	589	463	2099	77.476	10661.93	3290	9.5	12.5	2111
8	13.96	1643.00	-526.63	3527.87	-150.20	143.04	0	4	14.70	567	431	2943	80.197	9896.64	4062	10.6	13.9	2625
9	14.73	3127.30	-142.64	3166.99	-324.00	146.36	0	16	17.11	543	444	3973	83.881	10597.20	4283	12.1	15.8	3079
10	13.67	2021.10	-920.73	5069.13	23.70	146.36	0	21	11.15	556	428	5095	85.638	12536.45	5408	12.5	16.2	3932
11	10.52	2990.80	-342.28	4870.42	-332.80	146.36	0	1	12.08	540	418	5785	88.415	12857.35	5627	11.7	15.4	4295
12	12.55	2561.00	47.00	4324.86	260.40	146.36	0	17	17.10	539	388	6031	90.285	12621.68	5392	11.4	15.4	4217
13	15.95	3931.20	-360.67	3997.02	-1050.10	149.70	0	61	17.07	522	378	6344	92.893	13436.97	6145	10.5	14.2	4696
14	16.56	3042.70	141.06	5779.85	-161.50	149.70	0	72	17.69	471	393	6251	95.157	15153.68	5835	9.7	13.6	4560
15	18.02	3313.80	188.02	4642.43	320.10	149.70	0	80	18.18	468	415	6271	95.940	15188.45	5560	10.1	13.9	4317
16	14.49	3043.70	386.62	4847.77	-131.60	149.70	0	37	13.86	468	432	6370	95.853	14781.18	5014	9.6	13.3	4037
17	17.13	5561.20	-157.29	4654.76	-819.70	153.04	0	46	15.21	459	477	6392	96.637	15640.97	5235	8.5	12.9	4111
18	17.99	3044.80	1138.57	5498.08	-229.40	153.04	0	28	14.98	459	517	5665	96.811	16585.96	3713	7.9	12.5	3259
19	17.49	2847.60	237.98	4732.55	127.30	153.04	0	43	11.90	375	500	5469	97.333	16165.55	3279	7.2	12.7	3220
20	16.35	3405.20	-3.41	2958.87	516.50	153.04	0	17	9.22	347	663	5266	97.333	15426.08	3144	6.3	13.0	3685
21	17.56	5101.80	881.13	4978.65	-793.80	156.45	0	20	9.13	542	1315	6446	97.333	17323.98	1831	5.6	12.1	3978
22	10.86	3206.10	-743.76	5462.68	4.50	156.45	0	28	9.19	553	858	6915	97.594	20298.97	2703	5.1	12.5	3911
23	10.67	4453.10	-396.45	5452.32	-901.70	156.45	0	30	9.72	895	890	7346	98.552	20481.77	3506	4.8	12.6	4606
24	13.57	3192.70	-266.73	6616.29	449.10	156.45	0	26	9.64	773	968	8089	99.074	19589.56	3718	4.8	13.4	5309
25	18.01	5759.30	-297.39	7379.61	-593.60	159.89	0	32	10.09	453	971	9844	100.119	22871.99	4066	5.2	13.8	6693
26	16.00	2953.70	-92.60	7354.81	994.80	159.89	0	10	11.07	445	925	10705	100.815	23309.87	4301	4.9	14.1	7645
27	28.70	4599.40	-177.57	6764.73	-652.70	159.89	0	31	11.67	446	811	10842	100.554	23955.49	4750	4.6	14.2	7234
28	11.80	4516.20	-139.42	7057.22	280.50	159.89	0	41	9.71	444	762	11942	100.293	21610.76	4733	4.4	14.4	8041
29	11.66	5878.80	-190.51	7722.48	-1119.40	164.63	15	18	8.68	335	710	12743	100.119	23991.39	5049	4.3	14.0	8195
30	10.69	5083.10	-121.23	7626.20	470.00	164.63	12	2	8.09	236	612	13107	100.206	25178.22	4935	4.5	14.5	8185
31	8.48	4256.40	-108.51	7298.07	-558.70	164.63	20	7	8.01	138	576	13331	99.510	25440.02	5094	4.1	13.9	8124
32	10.51	4188.60	-97.69	7988.52	538.00	164.63	14	0	8.14	52	588	14106	100.120	23833.96	4974	4.0	13.1	8507
33	10.33	7693.80	61.96	8953.19	-731.30	168.35	18	101	7.93	54	792	12667	98.639	26027.80	4861	3.2	11.2	7466
34	10.01	4038.00	51.83	9662.50	309.60	168.35	15	19	7.16	56	418	12899	96.724	27139.49	4859	2.2	8.9	7727
35	12.49	5220.30	248.94	8998.07	-670.60	168.35	20	26	6.34	83	575	19741	96.288	28711.17	4640	2.0	7.9	11796
36	13.04	5128.20	1099.90	8466.95	-58.10	168.35	18	42	6.31	84	541	15919	96.637	28441.01	4051	1.8	7.8	8352
37	15.02	8967.00	-37.70	11234.07	-2224.20	172.01	22	56	6.36	89	623	16443	97.800	29780.43	4005	2.1	7.9	9345
38	17.41	5120.10	688.38	12216.19	275.10	172.01	18	28	6.96	1063	683	15750	99.400	32164.33	4147	3.0	10.2	10191
39	13.76	6923.10	-1377.59	10561.00	-949.90	172.01	24	32	7.04	1066	741	17885	100.500	32769.90	4975	3.2	11.9	11926
40	11.87	5251.40	-310.09	10092.64	1142.30	172.01	22	55	7.59	1182	752	18332	101.600	31780.66	5592	3.3	13.5	12458
41	11.43	11223.90	-376.77	12662.72	-2423.10	175.59	26	51	6.86	1163	887	19005	101.600	33424.54	5410	3.2	12.5	13790
42	14.66	4835.90	386.12	14015.74	1345.90	175.59	21	0	7.32	1117	1414	18029	103.200	36745.17	5304	3.1	12.7	12576
43	14.98	9865.22	363.03	12345.98	-1753.00	175.59	27	37	8.18	1019	1579	17196	104.700	37498.21	4956	3.3	13.6	11458
44	16.92	7064.98	-180.09	13885.37	-1557.80	175.59	25	67	8.86	1078	1159	17892	105.200	38098.45	5048	3.6	14.6	11732
45	13.82	13659.20	219.63	15790.60	-2591.41	179.14	30	62	9.62	1051	739	18608	107.500	39008.05	4851	4.1	15.0	11047
46	12.06	6268.00	393.44	15010.01	1675.00	179.14	41	1	9.62	1023	1716	16601	109.400	41698.43	4377	4.7	15.8	10233
47	12.29	10614.60	429.06	14967.32	-2335.82	179.14	48	39	9.02	1056	1933	17355	109.400	42505.36	4380	4.5	17.8	10255
48	12.10	7643.20	-1944.86	15463.01	-109.77	179.14	48	70	8.71	1093	3193	18279	109.400	42009.02	5454	4.5	19.5	11835
49	10.37	15368.70	552.57	12436.28	-1659.80	179.30	51	61	8.35	6544	4173	12405	111.800	41592.91	5239	4.9	22.7	11884
50	12.90	6834.58	896.23	12659.91	687.44	179.30	48	66	8.36	6529	6334	8726	110.800	42340.85	4693	4.5	23.1	10677
51	16.66	12165.07	-1520.36	14893.73	-3480.33	179.30	37	84	8.16	6650	10087	6425	112.800	49811.82	5424	5.0	20.9	12741
52	17.53	8504.65	-4166.76	16204.51	436.64	179.30	30	41	8.28	6327	12645	10659	116.200	54195.70	7459	5.5	19.2	17950
53	21.84	18669.09	-1887.46	15730.74	-1933.05	182.30	24	35	6.79	6221	11472	14673	113.800	52611.19	8069	5.0	14.7	21397
54	13.73	6904.38	-538.16	15561.40	323.94	182.30	24	36	5.95	5715	11712	16677	112.700	52044.82	8673	4.6	12.4	22228
55	12.26	14612.45	753.18	16540.27	-3154.64	182.30	41	2	5.79	5965	9899	17853	112.500	55318.63	8479	4.1	11.7	23211
56	12.66	9264.08	-1289.57	17483.85	1046.04	182.30	41	59	5.07	7013	11935	17283	112.700	58474.40	9258	3.5	11.2	25155

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OBS	FADMB	QM	RDM	QIM	UVXP	UVMP	DCCG	DCDE	DCPS	MACCG	MACDE	MACPS	MACDMB	MACDFI	DMBCCG	DMBCDE	DMBCPS
1	395	1370	218	821	63.3	36.4	-247.9	171.1	3996.7	349.2	263.6	1052.1	630.5	0	0	0	2944.7
2	429	1369	163	775	63.9	25.7	-431.9	219.6	4203.1	430.5	201.9	1105.6	737.2	0	0	0	3097.5
3	501	1397	167	825	68.9	29.7	-531.4	261.1	4369.6	479.8	253.4	1149.8	781.1	0	0	0	3218.8
4	685	1441	262	1862	68.3	40.7	-525.5	245.2	5272.1	631.9	238.4	1731.4	846.4	0	0	0	3540.7
5	695	1661	232	2032	69.4	28.8	-366.2	203.0	5555.5	486.4	201.1	1807.7	856.0	0	0	0	3747.8
6	817	1730	234	2150	85.0	47.4	-638.6	203.7	5897.0	588.7	192.2	1852.1	950.0	0	0	0	4044.9
7	1040	1887	304	2207	95.0	45.4	-1020.9	259.1	6239.6	674.6	233.9	1889.0	1034.1	0	0	0	4350.5
8	1316	2074	333	2523	121.7	39.1	-1265.3	259.2	6308.9	630.5	247.9	1939.6	1129.3	0	0	0	4369.3
9	1881	2430	301	2521	124.6	76.3	-1571.0	191.0	6381.0	500.0	178.0	1857.0	1387.0	0	0	0	4624.0
10	2147	2749	339	2513	135.6	55.2	-2318.0	327.0	6670.0	589.0	274.0	1872.0	1526.0	0	0	0	4798.0
11	2458	3083	321	2691	140.8	37.5	-2579.0	459.0	7117.0	534.0	417.0	1828.0	1626.0	0	0	0	5298.0
12	2741	3056	468	2548	141.3	37.2	-3058.0	523.0	7590.0	630.0	507.0	1977.0	1722.0	0	0	0	5613.0
13	2549	3404	409	2649	141.0	58.2	-3024.0	424.0	7969.0	543.0	402.0	1948.0	1879.0	0	0	0	6021.0
14	2554	3399	348	2289	134.9	72.0	-3618.0	524.0	8479.0	709.0	485.0	1829.0	2120.0	0	0	0	6650.0
15	2837	3783	318	2245	133.8	96.3	-3738.0	651.0	9154.0	890.0	578.0	1889.0	2314.0	0	0	0	7265.0
16	3233	3671	418	2657	133.4	49.7	-3624.0	835.0	9641.0	941.0	809.0	1883.0	2548.0	0	0	0	7758.0
17	3216	4173	385	3036	132.8	67.3	-3138.0	830.0	10294.0	770.0	813.0	1913.0	3091.0	0	0	0	8382.0
18	3381	4207	341	2795	131.4	53.2	-3393.0	1025.0	11225.0	786.0	853.0	2042.0	3870.0	0	0	0	9184.0
19	3124	4548	330	3000	131.4	81.0	-3139.0	1259.0	11881.0	997.0	1038.0	2042.0	4373.0	0	0	0	9839.0
20	2591	5117	330	2975	134.5	46.0	-3280.0	1071.0	12491.0	1080.0	994.0	2082.0	5050.0	0	0	0	10408.0
21	4326	5634	432	4308	130.0	48.0	-3009.0	898.0	13427.0	853.0	821.0	1883.0	5569.0	0	0	0	11544.0
22	4416	6068	368	4145	114.9	79.7	-3421.0	955.0	13649.0	1264.0	837.0	1672.0	5275.0	0	0	0	11977.0
23	4525	6494	368	4301	110.1	76.5	-3643.0	1212.0	13988.0	1332.0	955.0	1630.0	5404.0	0	0	0	12358.0
24	4520	7212	311	5192	115.5	90.5	-3847.0	1182.0	14873.0	1081.0	1110.0	1564.0	5866.0	0	0	0	13310.0
25	4575	7704	338	5655	118.6	88.9	-5123.0	4667.0	11941.0	1731.0	1781.0	523.0	6318.0	398	299	2886	11418.0
26	4429	8267	319	5304	115.3	66.2	-6400.0	4441.0	13002.0	2367.0	337.0	545.0	7763.0	431	341	4104	12457.0
27	4865	8781	306	5507	113.1	83.8	-7305.0	4586.0	13865.0	2189.0	227.0	641.0	8894.0	468	386	4360	13224.0
28	5107	9356	251	5732	117.8	69.4	-8031.0	4717.0	14737.0	1670.0	203.0	852.0	9521.0	518	440	4515	14086.0
29	5633	10459	283	5258	106.4	82.0	-8308.0	4569.0	15383.0	495.0	194.0	743.0	9415.0	562	466	4375	14640.0
30	5769	10969	268	4508	99.1	126.4	-9579.0	4564.0	16491.0	385.0	37.0	801.0	9809.0	607	499	4527	15690.0
31	5920	12200	321	5879	99.4	103.3	-8266.0	4765.0	17264.0	540.0	36.0	800.0	10076.0	652	537	4729	16464.0
32	6239	13054	291	5436	95.3	88.3	-9087.0	5013.0	18104.0	1237.0	32.0	823.0	10041.0	729	530	4981	17281.0
33	6047	13693	303	4882	84.2	72.0	-7699.0	4520.0	19058.0	1164.0	20.0	872.0	10263.0	769	552	4500	18186.0
34	5645	13995	335	5900	79.4	101.1	-7662.0	4617.0	19827.0	1797.0	19.0	881.0	10345.0	864	642	4598	18946.0
35	8604	16188	485	8999	43.7	108.8	-9187.0	4974.0	20432.0	2136.0	19.0	957.0	10778.0	872	641	4954	19475.0
36	8193	15984	426	8207	58.9	98.0	-8541.0	5104.0	22864.0	3106.0	24.0	1133.0	12552.0	877	683	5080	21731.0
37	7810	16991	422	8756	61.8	74.2	-8212.0	5031.0	23469.0	2275.0	32.0	439.0	13937.0	893	706	4999	23030.0
38	7306	17466	494	9479	67.0	142.2	-8945.0	4761.0	27001.0	3053.0	40.0	1240.0	14875.0	933	902	4721	25761.0
39	7766	19673	489	10670	66.6	127.1	-6731.0	2638.0	27940.0	2570.0	39.0	1439.0	15165.0	958	846	2598	26502.0
40	7807	21200	449	12718	66.0	98.2	-6882.0	4818.0	29710.0	3518.0	36.0	1676.0	14562.0	978	1093	4782	28034.0
41	7264	23034	531	12700	66.1	73.1	-7589.0	4648.0	31969.0	1862.0	43.0	1070.0	15736.0	1008	1094	4605	30626.0
42	7983	24850	618	12631	67.0	129.1	-7923.0	5071.0	34792.0	3196.0	51.0	1496.0	16764.0	1022	1106	5020	33296.0
43	8336	26925	661	14814	64.5	207.7	-7269.0	5366.0	39036.0	3988.0	51.0	1578.0	17670.0	1040	1070	5315	37458.0
44	8397	27681	709	15946	50.9	159.8	-7167.0	6350.0	40532.0	4427.0	58.0	1724.0	20375.0	950	1069	6292	38809.0
45	9351	33158	787	11953	64.4	61.1	-8153.0	5761.0	42956.0	3396.0	58.0	1790.0	18529.0	956	1013	5704	41166.0
46	9107	31106	792	11382	70.8	90.1	-7823.0	5754.0	44125.0	5891.0	54.0	956.0	16945.0	947	873	5700	43168.0
47	10090	38247	688	14709	65.2	154.0	-7762.0	8093.0	51942.0	5280.0	53.0	1453.0	17480.0	1001	845	8040	50489.0
48	10731	37967	658	19659	63.7	121.3	-8941.0	8560.0	59711.0	4589.0	830.0	1307.0	15240.0	988	960	7730	58404.0
49	11238	42212	881	16835	71.1	142.5	-10955.0	8516.0	70861.0	3733.0	813.0	1342.0	18487.0	983	1124	7703	69518.0
50	10911	55272	886	11889	61.0	244.3	-10285.0	8450.0	83189.0	4007.0	736.0	1590.0	19527.0	990	1138	7714	81599.0
51	10402	53925	1073	19544	73.2	147.6	-11160.0	8395.0	92582.0	4517.0	725.0	1639.0	19446.0	1010	1147	7670	90943.0
52	11681	60811	1074	20852	111.5	154.8	-12026.0	7709.0	98877.0	5221.0	759.0	1732.0	20990.0	992	933	6950	97145.0
53	10967	57554	1092	31045	76.1	186.9	-12133.0	6520.0	102819.0	5147.0	40.0	1526.0	21503.0	994	1065	6480	101293.0
54	11877	63147	1111	30830	65.3	182.7	-13780.0	7635.0	107798.0	5369.0	40.0	1127.0	16079.0	997	753	7596	106671.0
55	10506	67523	1049	28428	68.7	189.2	-13174.0	9395.0	107005.0	6225.0	36.0	1017.0	15525.0	1009	966	9359	105988.0
56	11076	72717	990	30885	72.1	124.1	-12711.0	9706.0	115406.0	6258.0	35.0	953.0	14867.0	1012	1027	9671	114453.0

OBS	DMBCOFI	CPIILG	CPIUSLG	INFI	INFILG	INFUS	INFD	INFDA	INFDLG	INTD	INTDLG	NERLG	CDEPR	RINT	RWINT
1	0	.	.	.	.	.	.	.	.	-1.32	.	.	.	.	0.58
2	0	42.605	58.479	1.41046	.	2.61729	-1.20683	-5.08954	.	-1.28	-1.32	415.00	0.0000	5.1495	1.34
3	0	43.210	60.029	1.04493	1.41046	2.30653	-1.26160	-5.85507	-1.20683	-1.50	-1.28	415.00	0.0000	6.1651	1.81
4	0	43.664	61.430	2.26115	1.04493	1.93555	0.32560	-4.83885	-1.26160	-1.66	-1.50	415.00	26.0675	7.1589	3.98
5	0	44.662	62.631	6.55544	2.26115	2.52378	4.03165	-1.34456	0.32560	1.92	-1.66	523.18	17.4204	6.2348	2.97
6	0	47.688	64.232	8.51059	6.55544	3.36938	5.14120	0.01059	4.03165	2.59	1.92	614.32	1.8004	4.6994	2.12
7	0	51.925	66.433	6.75934	8.51059	3.25955	3.49979	-2.74066	5.14120	1.31	2.59	625.38	0.0336	6.2107	2.16
8	0	55.556	68.634	2.79288	6.75934	2.87377	-0.08090	-7.80712	3.49979	-0.74	1.31	625.59	0.2158	11.1671	4.10
9	0	57.129	70.635	3.01289	2.79288	3.80093	-0.78804	-9.08711	-0.08090	-2.38	-0.74	626.84	0.2265	11.7171	5.01
10	0	58.877	73.371	4.59369	3.01289	3.58828	1.00541	-7.90631	-0.78804	2.52	-2.38	628.36	-0.1846	9.0763	-1.35
11	0	61.644	76.052	4.19643	4.59369	1.79646	2.39997	-7.50357	1.00541	-1.56	2.52	627.20	-0.2328	6.9236	0.38
12	0	64.286	77.430	3.83924	4.19643	2.63558	1.20366	-7.56076	2.39997	-4.55	-1.56	625.74	0.1502	8.7108	5.70
13	0	66.802	79.498	2.96868	3.83924	2.56790	0.40077	-7.53132	1.20366	-1.12	-4.55	626.68	0.2649	12.9813	6.57
14	0	68.815	81.566	1.81164	2.96868	2.32030	-0.50866	-7.88836	0.40077	-1.13	-1.12	628.34	0.2212	14.7484	7.99
15	0	70.073	83.481	1.77941	1.81164	2.80434	-1.02493	-8.32059	-0.50866	-0.16	-1.13	629.73	0.5320	16.2406	8.08
16	0	71.331	85.855	1.22701	1.77941	1.41720	-0.19019	-8.37299	-1.02493	0.63	-0.16	633.06	0.4423	13.2630	4.26
17	0	72.212	87.080	5.17723	1.22701	0.87566	4.30157	-3.92277	-0.19019	1.92	0.63	635.88	1.7959	11.9528	6.71
18	0	76.049	87.846	0.49505	5.17723	1.47125	-0.97620	-7.40495	4.30157	3.01	1.92	647.30	0.9733	17.4950	7.08
19	0	76.426	89.148	1.38948	0.49505	1.87240	-0.48292	-5.81052	-0.97620	5.59	3.01	653.60	1.4229	16.1005	4.70
20	0	77.496	90.833	2.16789	1.38948	0.25263	1.91526	-4.13211	-0.48292	7.13	5.59	662.90	2.8662	14.1821	2.92
21	0	79.194	91.063	4.88281	2.16789	-0.10613	4.98693	-0.71719	1.91526	8.43	7.13	681.80	2.3904	12.6772	3.53
22	0	83.157	90.966	3.20086	4.88281	1.27671	1.92415	-1.89914	4.98693	1.67	8.43	698.20	38.8857	7.6891	4.09
23	0	85.862	92.135	2.31726	3.20086	1.15704	1.16022	-2.48274	1.92415	0.95	1.67	989.70	1.1862	8.3527	4.92
24	0	87.874	93.207	0.92626	2.31726	0.89980	0.02647	-3.87374	1.16022	3.93	0.95	981.30	0.6726	12.6437	4.84
25	24	88.692	94.050	5.04773	0.92626	1.05307	3.99467	-0.15227	0.02647	7.92	3.93	987.90	0.6782	12.9623	4.89
26	30	93.284	95.045	1.87047	5.04773	1.12181	0.74866	-3.02953	3.99467	4.93	7.92	994.60	1.1965	14.1295	6.17
27	45	95.045	96.118	1.31494	1.87047	1.10936	0.20558	-3.28506	0.74866	17.03	4.93	1006.50	3.1694	27.3851	7.07
28	37	96.303	97.190	0.26093	1.31494	0.70672	-0.44579	-4.13907	0.20558	2.09	17.03	1038.40	2.4942	11.5391	5.31
29	41	96.555	97.879	0.90793	0.26093	0.62403	0.28389	-3.39207	-0.44579	2.98	2.09	1064.30	2.2832	10.7521	4.98
30	49	97.436	98.492	2.98910	0.90793	1.23649	1.75261	-1.51090	0.28389	2.60	2.98	1088.60	2.1679	7.7009	3.59
31	48	100.392	99.717	0.49998	2.98910	0.68887	-0.18888	-3.60002	1.75261	0.47	2.60	1112.20	0.5844	7.9800	3.91
32	41	100.895	100.407	0.24906	0.49998	0.91112	-0.66206	-3.75094	-0.18888	2.37	0.47	1118.70	0.3754	10.2609	4.14
33	40	101.147	101.326	1.91265	0.24906	0.27044	1.64220	-1.28735	-0.66206	2.40	2.37	1122.90	0.3651	8.4174	4.73
34	40	103.100	101.600	0.96526	1.91265	-0.29571	1.26097	-1.23474	1.64220	2.85	2.40	1127.00	-0.0266	9.0447	4.96
35	32	104.100	101.300	1.43064	0.96526	0.78863	0.64401	-0.56936	1.26097	6.15	2.85	1126.70	9.3814	11.0594	4.34
36	25	105.600	102.100	4.44518	1.43064	0.48852	3.95666	2.64518	0.64401	6.73	6.15	1232.40	33.4064	8.5948	4.51
37	45	110.400	102.600	1.61729	4.44518	1.16280	0.45448	-0.48271	3.95666	8.66	6.73	1644.10	-0.2980	13.4027	4.26
38	105	112.200	103.800	1.67923	1.61729	1.24463	0.43460	-1.32077	0.45448	10.45	8.66	1639.20	0.2257	15.7308	3.96
39	114	114.100	105.100	1.82376	1.67923	1.13530	0.68846	-1.37624	0.43460	6.72	10.45	1642.80	0.0609	11.9362	3.84
40	115	116.200	106.300	3.30119	1.82376	0.84310	2.45809	0.00119	0.68846	4.28	6.72	1643.90	0.3346	8.5688	4.29
41	123	120.100	107.200	1.48763	3.30119	0.65086	0.83677	-1.71237	2.45809	4.57	4.28	1649.40	0.6305	9.9424	3.66
42	159	121.900	107.900	1.70805	1.48763	1.19762	0.51043	-1.39195	0.83677	7.34	4.57	1659.80	0.7049	12.9519	4.22
43	175	124.000	109.200	1.91699	1.70805	1.36428	0.55271	-1.38301	0.51043	6.80	7.34	1671.50	1.4897	13.0630	4.88
44	170	126.400	110.700	0.86649	1.91699	0.98877	-0.12228	-2.73351	0.55271	8.06	6.80	1696.40	1.1023	16.0535	5.26
45	180	127.500	111.800	1.71077	0.86649	1.15608	0.55469	-2.36923	-0.12228	4.20	8.06	1715.10	1.6326	12.1092	5.52
46	171	129.700	113.100	2.43729	1.71077	1.57898	0.85831	-2.26271	0.55469	2.44	4.20	1743.10	1.2162	9.6227	4.92
47	179	132.900	114.900	0.67492	2.43729	0.86656	-0.19164	-3.82508	0.85831	3.27	2.44	1764.30	0.9125	11.6151	4.52
48	246	133.800	115.900	1.26255	0.67492	0.94462	0.31793	-3.23745	-0.19164	3.39	3.27	1780.40	0.6796	10.8375	4.21
49	273	135.500	117.000	1.53793	1.26255	1.69496	-0.15703	-3.36207	0.31793	2.02	3.39	1792.50	1.0711	8.8321	3.45
50	182	137.600	119.000	1.80055	1.53793	1.00335	0.79720	-2.69945	-0.15703	4.54	2.02	1811.70	1.1647	11.0994	3.86
51	273	140.100	120.200	3.85067	1.80055	1.73200	2.11867	-1.14933	0.79720	8.60	4.54	1832.80	1.1622	12.8093	3.16
52	345	145.600	122.300	1.76996	3.85067	1.62210	0.14786	-3.73004	2.11867	9.25	8.60	1854.10	1.0032	15.7600	2.78
53	389	148.200	124.300	1.14057	1.76996	0.80129	0.33928	-3.85943	0.14786	15.05	9.25	1872.70	2.3228	20.6994	1.79
54	371	149.900	125.300	2.24284	1.14057	0.55710	1.68573	-2.35716	0.33928	7.78	15.05	1916.20	1.3882	11.4872	1.35
55	716	153.300	126.000	3.52488	2.24284	0.79052	2.73436	-0.57512	1.68573	6.47	7.78	1942.80	0.9574	8.7351	1.69
56	590	158.800	127.000	2.24169	3.52488	0.78432	1.45737	-1.25831	2.73436	7.59	6.47	1961.40	0.9942	10.4183	1.57

MODEL WITH 3SLS 12:18 Sunday, November 7, 1993 19

OBS	RINTD	REX	REXLG	GOVEXLG	RGGOVEX	RGOVEX	GOVEXY	GOVDEY	GOVDEYLG	RGGOVDEY	GOVDEFLG	RGGOVDEF	RRD	RRDLG
1	.	1.56966	.	.	.	2882.54	0.18203	-0.018498	.	.	.	.	.	.
2	3.8095	1.54509	1.56966	1228.10	-54.0242	1655.87	0.09349	0.033791	-0.018498	-282.67	-124.80	-307.21	-1.5774	.
3	4.3551	1.53676	1.54509	715.50	21.9812	2041.51	0.11742	0.004478	0.033791	-88.75	258.60	-86.85	-0.5404	-1.5774
4	3.1789	1.21962	1.53676	891.40	13.6528	2287.83	0.13989	0.002533	0.004478	-43.45	34.00	-45.59	-23.1140	-0.5404
5	3.2646	1.07006	1.21962	1021.80	98.4170	3842.87	0.23891	-0.056435	0.002533	-2328.30	18.50	-2440.00	-13.0825	-23.1140
6	2.5794	1.10564	1.07006	1832.60	-73.3910	1694.19	0.09133	0.032162	-0.056435	-156.99	-432.90	-171.56	3.2710	-13.0825
7	4.0507	1.14623	1.10564	879.70	55.0365	2745.54	0.14306	0.000460	0.032162	-98.57	309.80	-98.42	3.6051	3.2710
8	7.0671	1.13625	1.14623	1525.30	7.4333	2875.94	0.16602	-0.015177	0.000460	-3402.34	4.90	-3165.31	-0.8738	3.6051
9	6.7071	1.11705	1.13625	1643.00	64.3646	5311.63	0.29511	-0.030574	-0.015177	101.45	-150.20	115.71	-1.7046	-0.8738
10	10.4263	1.14768	1.11705	3127.30	-43.6528	3278.65	0.16122	0.001890	-0.030574	-106.18	-324.00	-107.31	2.7055	-1.7046
11	8.8436	1.16198	1.14768	2021.10	38.1899	4652.33	0.23261	-0.025884	0.001890	-1469.17	23.70	-1504.22	1.2381	2.7055
12	3.0108	1.18067	1.16198	2990.80	-15.5143	3833.71	0.20290	0.020631	-0.025884	-179.71	-332.80	-178.25	1.5958	1.2381
13	6.4113	1.17898	1.18067	2561.00	42.8547	5712.70	0.29257	-0.078150	0.020631	-478.80	260.40	-503.26	-0.1436	1.5958
14	6.7584	1.16939	1.17898	3931.20	-25.6199	4342.18	0.20079	-0.010657	-0.078150	-86.36	-1050.10	-84.62	-0.8169	-0.1436
15	8.1606	1.17441	1.16939	3042.70	8.5380	4645.80	0.21819	0.021075	-0.010657	-297.75	-161.50	-298.20	0.4288	-0.8169
16	9.0030	1.18475	1.17441	3313.90	-8.5052	4214.96	0.20592	-0.008903	0.021075	-142.24	320.10	-141.11	0.8765	0.4288
17	5.2428	1.21575	1.18475	3043.70	60.2740	7312.67	0.35555	-0.052407	-0.008903	488.63	-131.60	522.87	2.5830	0.8765
18	10.4150	1.20783	1.21575	5561.20	-60.2379	3983.97	0.18358	-0.013831	-0.052407	-73.61	-819.70	-72.01	-0.6535	2.5830
19	11.4005	1.20107	1.20783	3044.80	-6.6959	3674.53	0.17615	0.007875	-0.013831	-156.94	-229.40	-155.49	-0.5615	-0.6535
20	11.2621	1.19319	1.20107	2847.60	17.8827	4299.82	0.22074	0.033482	0.007875	325.18	127.30	305.73	-0.6580	-0.5615
21	9.1472	1.22365	1.19319	3405.20	40.4290	6135.16	0.29449	-0.045821	0.033482	-236.85	516.50	-253.89	2.5206	-0.6580
22	3.5691	0.90727	1.22365	5101.80	-46.4538	3734.03	0.15794	0.000222	-0.045821	-100.48	-793.80	-100.57	-29.9152	2.5206
23	3.4327	0.90865	0.90727	3206.10	32.8545	5067.57	0.21763	-0.044068	0.000222	-19978.35	4.50	-20137.78	0.1516	-29.9152
24	7.8037	0.90617	0.90865	4453.10	-33.2734	3599.75	0.16298	0.022925	-0.044068	-152.02	-901.70	-149.81	-0.2727	0.1516
25	8.0723	0.93679	0.90617	3192.70	58.9949	6173.94	0.25181	-0.025953	0.022925	-213.21	449.10	-232.18	3.3229	-0.2727
26	7.9595	0.93668	0.93679	5759.30	-66.7757	3107.68	0.12671	0.042677	-0.025953	-264.44	-593.60	-267.59	-0.0121	3.3229
27	20.3151	0.92231	0.93668	2953.70	44.2867	4775.95	0.19200	-0.027246	0.042677	-163.64	894.80	-165.61	-1.5459	-0.0121
28	6.2291	0.90456	0.92231	4599.40	-1.8285	4677.34	0.20898	0.012980	-0.027246	-147.64	-652.70	-142.98	-1.9426	-1.5459
29	6.3721	0.89399	0.90456	4516.20	26.3682	6033.52	0.24504	-0.046658	0.012980	-459.47	280.50	-499.07	-1.1758	-1.9426
30	4.1109	0.90079	0.89399	5878.80	-14.5431	5063.25	0.20188	0.018667	-0.046658	-140.01	-1119.40	-141.99	0.7575	-1.1758
31	4.0700	0.90634	0.90079	5083.10	-17.7498	4218.63	0.16731	-0.021961	0.018667	-217.65	470.00	-218.87	0.6147	0.7575
32	6.1209	0.89969	0.90634	4256.40	-1.6057	4141.11	0.17574	0.022573	-0.021961	-202.78	-558.70	-196.29	-0.7370	0.6147
33	3.6874	0.92744	0.89969	4188.60	60.8048	7462.46	0.29560	-0.028097	0.022573	-224.47	536.00	-235.93	3.0383	-0.7370
34	4.0847	0.95523	0.92744	7693.80	-64.4665	3878.96	0.14879	0.011408	-0.028097	-140.60	-791.30	-142.34	2.9527	3.0383
35	6.7194	0.88989	0.95523	4038.00	25.6805	4943.47	0.18182	-0.023357	0.011408	-304.75	309.60	-316.60	-7.0853	2.9527
36	4.0848	0.69486	0.88989	5220.30	-1.7800	4645.11	0.18031	-0.002043	-0.023357	-91.25	-670.60	-91.34	-24.7388	-7.0853
37	9.1427	0.69988	0.69486	5128.20	55.8796	7991.98	0.30110	-0.074687	-0.002043	3556.05	-58.10	3728.23	0.7191	-24.7388
38	11.7708	0.69870	0.69988	8967.00	-56.0377	4487.38	0.15919	0.008553	-0.074687	-111.45	-2224.20	-112.37	-0.1690	0.7191
39	8.0962	0.70334	0.69870	5120.10	30.1690	5957.92	0.21126	-0.028987	0.008553	-438.91	275.10	-445.29	0.6623	-0.1690
40	4.2788	0.71668	0.70334	6923.10	-27.6389	4372.52	0.16519	0.035932	-0.028987	-223.98	-949.90	-220.25	1.8786	0.6623
41	6.2824	0.72286	0.71668	5251.40	75.9551	9207.47	0.33580	-0.072495	0.035932	-301.76	1142.30	-312.12	0.8591	1.8786
42	8.7319	0.71885	0.72286	11223.90	-84.1978	3899.92	0.13161	0.036628	-0.072495	-150.53	-2423.10	-155.54	-0.5569	0.8591
43	8.1830	0.71166	0.71885	4835.90	71.2948	7804.76	0.26308	-0.046749	0.036628	-227.63	1345.90	-230.25	-1.0047	-0.5569
44	10.7935	0.70665	0.71166	9865.22	-33.3864	5541.16	0.18544	-0.040889	-0.046749	-12.54	-1753.00	-11.14	-0.7062	-1.0047
45	6.5892	0.69216	0.70665	7064.98	65.9262	10531.38	0.35016	-0.066433	-0.040889	62.47	-1557.80	66.35	-2.0714	-0.7062
46	4.7027	0.68855	0.69216	13659.20	-77.8956	4716.33	0.15032	0.040169	-0.066433	-160.47	-2891.41	-164.64	-0.5236	-2.0714
47	7.0951	0.68694	0.68855	6268.00	52.6773	7933.18	0.24972	-0.054954	0.040169	-238.80	1678.00	-239.45	-0.2335	-0.5236
48	6.6275	0.69098	0.68694	10614.60	-32.8414	5640.74	0.18194	-0.002613	-0.054954	-95.25	-2335.82	-95.30	0.5852	-0.2335
49	5.3821	0.67934	0.69098	7643.20	69.8517	11169.11	0.36950	-0.039906	-0.002613	1427.20	-109.77	1412.07	-1.6976	0.5852
50	7.2394	0.68990	0.67934	15368.70	-81.0338	4878.36	0.16142	0.016236	-0.039906	-140.69	-1659.80	-141.42	1.5411	-1.6976
51	9.6493	0.69618	0.68990	6834.58	57.6574	8355.13	0.24422	-0.069870	0.016236	-530.34	687.44	-606.27	0.9063	1.5411
52	12.9800	0.68104	0.69618	12165.07	-35.7956	5738.63	0.15692	0.008057	-0.069870	-111.53	-3480.33	-112.55	-2.1979	0.9063
53	18.9094	0.68741	0.68104	8504.65	78.6256	12454.36	0.35485	-0.036742	0.008057	-556.05	436.64	-542.71	0.9313	-2.1979
54	10.1372	0.70015	0.68741	18669.09	-99.4713	4503.84	0.13266	0.006224	-0.036742	-116.94	-1933.05	-116.76	1.8355	0.9313
55	7.0451	0.71967	0.70015	6904.38	74.9718	9201.79	0.26415	-0.057027	0.006224	-1016.21	323.94	-1073.84	2.7497	1.8355
56	8.8483	0.72744	0.71967	14612.45	-45.5729	5704.48	0.15843	0.017889	-0.057027	-131.37	-3154.64	-133.16	1.0748	2.7497

OBS	KA	DCY	DCYLG	DDCY	DCPSRAT	DCPSOTQ	DCPSY	DCPSYLG	DDCPSY	DCPSLG	DDCPS	DCCGY	DCCGYLG	DDCCGY
1	148.99	0.58102	.	.	1.01959	-52.040	0.59241	.	.	.	.	-0.03674	.	.
2	125.75	0.52147	0.58102	-0.05955	1.05322	-19.798	0.54922	0.59241	-0.04318	3996.7	206.4	-0.05644	-0.03674	-0.019692
3	189.20	0.53997	0.52147	0.01851	1.06594	-16.166	0.57558	0.54922	0.02636	4203.1	186.5	-0.07000	-0.05644	-0.013561
4	300.83	0.68337	0.53997	0.14339	1.05617	-18.809	0.72175	0.57558	0.14618	4369.6	902.5	-0.07194	-0.07000	-0.001943
5	307.77	0.70297	0.68337	0.01960	1.03027	-34.041	0.72425	0.72175	0.00249	5272.1	283.4	-0.04774	-0.07194	0.024201
6	98.18	0.56705	0.70297	-0.13592	1.07964	-13.559	0.61221	0.72425	-0.11204	5555.5	341.5	-0.06630	-0.04774	-0.018557
7	-14.39	0.51378	0.56705	-0.05327	1.13905	-8.191	0.58522	0.61221	-0.02699	5897.0	342.6	-0.09575	-0.06630	-0.029455
8	145.45	0.53583	0.51378	0.02205	1.18971	-6.271	0.63748	0.58522	0.05226	6239.6	69.3	-0.12785	-0.09575	-0.032100
9	15.08	0.47192	0.53583	-0.06391	1.27594	-4.624	0.60214	0.63748	-0.03534	6308.8	72.1	-0.14825	-0.12785	-0.020395
10	328.03	0.37329	0.47192	-0.09863	1.42552	-3.350	0.53205	0.60214	-0.07009	6381.0	289.0	-0.18490	-0.14825	-0.036654
11	375.44	0.38873	0.37329	0.01550	1.42387	-3.357	0.55354	0.53205	0.02149	6670.0	447.0	-0.20059	-0.18490	-0.015685
12	112.18	0.40042	0.38873	0.01170	1.50178	-2.994	0.60135	0.55354	0.04781	7117.0	473.0	-0.24228	-0.20059	-0.041696
13	123.15	0.39957	0.40042	-0.00085	1.48426	-3.065	0.59307	0.60135	-0.00828	7590.0	379.0	-0.22505	-0.24228	0.017231
14	438.29	0.35543	0.39957	-0.04414	1.57427	-2.740	0.55953	0.59307	-0.03353	7969.0	510.0	-0.23875	-0.22505	-0.013703
15	275.39	0.39945	0.35543	0.04402	1.50982	-2.965	0.60269	0.55953	0.04316	8479.0	675.0	-0.24611	-0.23875	-0.007354
16	346.55	0.46356	0.39945	0.06411	1.40703	-3.457	0.65225	0.60269	0.04955	9154.0	487.0	-0.24518	-0.24611	0.000931
17	1223.40	0.51065	0.46356	0.04708	1.28884	-4.460	0.65814	0.65225	0.00589	9641.0	653.0	-0.20063	-0.24518	0.044550
18	754.91	0.53401	0.51065	0.02336	1.26736	-4.740	0.67678	0.65814	0.01863	10294.0	931.0	-0.20457	-0.20063	-0.003944
19	892.26	0.61872	0.53401	0.08472	1.18786	-6.320	0.73496	0.67678	0.05818	11225.0	656.0	-0.19418	-0.20457	0.010392
20	839.42	0.66647	0.61872	0.04775	1.21496	-5.655	0.80973	0.73496	0.07477	11881.0	610.0	-0.21263	-0.19418	-0.018449
21	1375.45	0.65326	0.66647	-0.01321	1.18645	-6.364	0.77505	0.80973	-0.03468	12491.0	936.0	-0.17369	-0.21263	0.038937
22	1375.03	0.55091	0.65326	-0.10234	1.22051	-5.535	0.67240	0.77505	-0.10266	13427.0	222.0	-0.16853	-0.17369	0.005159
23	1268.82	0.56476	0.55091	0.01385	1.21045	-5.754	0.68362	0.67240	0.01122	13649.0	339.0	-0.17804	-0.16853	-0.009509
24	1356.39	0.62319	0.56476	0.05843	1.21830	-5.581	0.75923	0.68362	0.07561	13988.0	885.0	-0.19638	-0.17804	-0.018341
25	1369.56	0.52059	0.62319	-0.10260	1.00286	-26.186	0.52208	0.75923	-0.23715	14873.0	-2932.0	-0.22399	-0.19638	-0.027606
26	666.30	0.49357	0.52059	-0.02703	1.13012	-6.637	0.55779	0.52208	0.03571	11941.0	1061.0	-0.27456	-0.22399	-0.050576
27	727.92	0.48669	0.49357	-0.00687	1.18921	-5.099	0.57878	0.55779	0.02099	13002.0	863.0	-0.30494	-0.27456	-0.030379
28	763.10	0.55426	0.48669	0.06757	1.23034	-4.447	0.68193	0.57878	0.10315	13865.0	872.0	-0.37162	-0.30494	-0.066680
29	564.98	0.51043	0.55426	-0.04383	1.28617	-4.114	0.64119	0.68193	-0.04074	14737.0	646.0	-0.34629	-0.37162	0.025330
30	419.30	0.48185	0.51043	-0.02859	1.35930	-3.288	0.65497	0.64119	0.01378	15383.0	1108.0	-0.38045	-0.34629	-0.034157
31	99.56	0.56851	0.48185	0.08667	1.19367	-4.931	0.67862	0.65497	0.02364	16491.0	773.0	-0.32492	-0.38045	0.055527
32	894.95	0.62092	0.56851	0.05241	1.22333	-4.444	0.75959	0.67862	0.08097	17264.0	840.0	-0.38126	-0.32492	-0.056342
33	1113.48	0.64112	0.62092	0.02020	1.14209	-5.995	0.73222	0.75959	-0.02737	18104.0	954.0	-0.29580	-0.38126	0.085464
34	1042.20	0.65167	0.64112	0.01055	1.12106	-6.511	0.73056	0.73222	-0.00166	19058.0	769.0	-0.28232	-0.29580	0.013480
35	2096.31	0.59639	0.65167	-0.05528	1.19325	-4.850	0.71164	0.73056	-0.01892	19827.0	605.0	-0.31998	-0.28232	-0.037661
36	925.63	0.71478	0.59639	0.11839	1.12470	-6.652	0.80391	0.71164	0.09227	20432.0	2432.0	-0.30031	-0.31998	0.019674
37	2037.53	0.71272	0.71478	-0.00206	1.10572	-7.378	0.78807	0.80391	-0.01584	22864.0	605.0	-0.27575	-0.30031	0.024554
38	895.38	0.74166	0.71272	0.02894	1.13188	-6.453	0.83947	0.78807	0.05140	23469.0	3532.0	-0.27810	-0.27575	-0.002352
39	1479.51	0.76042	0.74166	0.01876	1.12123	-6.826	0.85261	0.83947	0.01314	27001.0	939.0	-0.20540	-0.27810	0.072701
40	1306.32	0.90401	0.76042	0.14358	1.03379	-14.394	0.93455	0.85261	0.08194	27940.0	1770.0	-0.21648	-0.20540	-0.011077
41	1379.29	0.89413	0.90401	-0.00987	1.06970	-10.870	0.95645	0.93455	0.02190	29710.0	2259.0	-0.22705	-0.21648	-0.010570
42	213.95	0.90140	0.89413	0.00726	1.05042	-12.199	0.94685	0.95645	-0.00961	31969.0	2823.0	-0.21562	-0.22705	0.011429
43	637.85	1.02266	0.90140	0.12126	1.01794	-20.513	1.04101	0.94685	0.09416	34792.0	4244.0	-0.19385	-0.21562	0.021771
44	1512.72	1.07183	1.02266	0.04917	0.99258	-49.611	1.06388	1.04101	0.02287	39036.0	1496.0	-0.18812	-0.19385	0.005731
45	1851.17	1.06901	1.07183	-0.00282	1.03012	-17.958	1.10121	1.06388	0.03733	40532.0	2424.0	-0.20901	-0.18812	-0.020890
46	419.90	1.03539	1.06901	-0.03362	1.02203	-21.327	1.05819	1.10121	-0.04302	42956.0	1169.0	-0.18761	-0.20901	0.021399
47	473.59	1.25756	1.03539	0.22217	0.97173	156.924	1.22201	1.05819	0.16382	44125.0	7817.0	-0.18261	-0.18761	0.004997
48	2423.46	1.44169	1.25756	0.18413	0.98592	-156.722	1.42139	1.22201	0.19937	51942.0	7769.0	-0.21284	-0.18261	-0.030223
49	684.82	1.67521	1.44169	0.23352	1.01699	-29.053	1.70368	1.42139	0.28229	59711.0	11150.0	-0.26339	-0.21284	-0.050551
50	2598.91	1.94909	1.67521	0.27387	1.00803	-45.335	1.96475	1.70368	0.26107	70861.0	12328.0	-0.24291	-0.26339	0.020477
51	2100.69	1.82886	1.94909	-0.12022	1.01628	-33.484	1.85864	1.96475	-0.10611	83189.0	9393.0	-0.22404	-0.24291	0.018866
52	2932.65	1.76944	1.82886	-0.05942	1.03109	-22.904	1.82444	1.85864	-0.03419	92582.0	6295.0	-0.22190	-0.22404	0.002144
53	4671.70	1.87394	1.76944	0.10450	1.04289	-18.318	1.95432	1.82444	0.12987	98877.0	3942.0	-0.23062	-0.22190	-0.008717
54	1775.72	1.97945	1.87394	0.10551	1.04638	-17.542	2.07125	1.95432	0.11694	102819.0	4979.0	-0.26477	-0.23062	-0.034155
55	770.83	1.89721	1.97945	-0.08224	1.01957	-28.316	1.93434	2.07125	-0.13691	107798.0	-793.0	-0.23815	-0.26477	0.026624
56	4716.52	1.94961	1.89721	0.05240	1.01232	-38.405	1.97362	1.93434	0.03928	107005.0	8401.0	-0.21738	-0.23815	0.020770

MODEL WITH 3SLS 12:18 Sunday, November 7, 1993 21

OBS	DCOEY	DCOEYLG	DDCOEY	DCTG	DCTGLG	DDCTG	DCTGRAT	DCTGY	DCTGYLG	DDCTGY	DDCTGYLG	FDIY	FDIYLG	PIY
1	0.02536	.	.	-76.8	.	.	-0.01959	-0.01138	.	.	.	0.005413	.	0.000000
2	0.02870	0.02536	0.00333	-212.3	-76.8	-135.5	-0.05320	-0.02774	-0.01138	-0.01636	.	0.002440	0.005413	0.000000
3	0.03499	0.02870	0.00570	-270.3	-212.3	-58.0	-0.06594	-0.03560	-0.02774	-0.00786	-0.01636	0.004428	0.002440	0.002788
4	0.03357	0.03499	-0.00082	-280.3	-270.3	-10.0	-0.05615	-0.03837	-0.03560	-0.00277	-0.00786	0.004656	0.004428	0.003724
5	0.02646	0.03357	-0.00710	-163.2	-280.3	117.1	-0.03027	-0.02128	-0.03837	0.01710	-0.00277	0.006407	0.004656	0.000000
6	0.02115	0.02646	-0.00532	-434.9	-163.2	-271.7	-0.07962	-0.04515	-0.02128	-0.02387	0.01710	0.003051	0.006407	0.002337
7	0.02430	0.02115	0.00315	-761.8	-434.9	-326.9	-0.13907	-0.07145	-0.04515	-0.02630	-0.02387	0.001467	0.003051	0.000000
8	0.02619	0.02430	0.00189	-1006.1	-761.8	-244.3	-0.18973	-0.10166	-0.07145	-0.03021	-0.02630	0.004688	0.001467	0.001584
9	0.01802	0.02619	-0.00817	-1380.0	-1006.1	-373.9	-0.27594	-0.13022	-0.10166	-0.02856	-0.03021	0.004388	0.004688	0.000000
10	0.02608	0.01802	0.00806	-1991.0	-1380.0	-611.0	-0.42552	-0.15882	-0.13022	-0.02859	-0.02856	0.001901	0.004388	0.000000
11	0.03570	0.02608	0.00962	-2120.0	-1991.0	-129.0	-0.42417	-0.16489	-0.15882	-0.00607	-0.02859	0.001801	0.001901	0.000000
12	0.04144	0.03570	0.00574	-2535.0	-2120.0	-415.0	-0.50158	-0.20084	-0.16489	-0.03596	-0.00607	0.001688	0.001801	0.002284
13	0.03155	0.04144	-0.00988	-2600.0	-2535.0	-65.0	-0.48426	-0.19350	-0.20084	0.00735	-0.03596	0.001450	0.001688	0.000000
14	0.03458	0.03155	0.00302	-3094.0	-2600.0	-494.0	-0.57445	-0.20417	-0.19350	-0.01068	0.00735	0.002161	0.001450	0.001953
15	0.04286	0.03458	0.00828	-3087.0	-3094.0	7.0	-0.50882	-0.20325	-0.20417	0.00093	-0.01068	0.001292	0.002161	0.000000
16	0.05649	0.04286	0.01363	-2789.0	-3087.0	298.0	-0.40703	-0.18869	-0.20325	0.01456	0.00093	0.000817	0.001292	0.000000
17	0.05307	0.05649	-0.00342	-2308.0	-2789.0	481.0	-0.28897	-0.14756	-0.18869	0.04112	0.01456	0.001655	0.000817	0.000000
18	0.06180	0.05307	0.00873	-2368.0	-2308.0	-60.0	-0.26736	-0.14277	-0.14756	0.00479	0.04112	0.001458	0.001655	0.007881
19	0.07788	0.06180	0.01608	-1880.0	-2368.0	488.0	-0.18796	-0.11630	-0.14277	0.02647	0.00479	0.002747	0.001458	0.001640
20	0.06943	0.07788	-0.00845	-2209.0	-1880.0	-329.0	-0.21486	-0.14320	-0.11630	-0.02690	0.02647	0.003581	0.002747	0.003315
21	0.05189	0.06943	-0.01753	-2110.0	-2209.0	99.0	-0.18645	-0.12180	-0.14320	0.02140	-0.02690	0.005078	0.003581	0.000000
22	0.04705	0.05189	-0.00485	-2466.0	-2110.0	-356.0	-0.22051	-0.12148	-0.12180	0.00031	0.02140	0.005733	0.005078	0.001815
23	0.05923	0.04705	0.01219	-2431.0	-2466.0	35.0	-0.21037	-0.11881	-0.12148	0.00268	0.00031	0.000959	0.005733	0.003837
24	0.06034	0.05923	0.00111	-2665.0	-2431.0	-234.0	-0.21830	-0.13604	-0.11881	-0.01723	0.00268	0.001311	0.000959	0.012607
25	0.20405	0.06034	0.14371	-456.0	-2665.0	2209.0	-0.03830	-0.01994	-0.13604	0.11610	-0.01723	0.001174	0.001311	0.000000
26	0.19052	0.20405	-0.01353	-1959.0	-456.0	-1503.0	-0.17027	-0.08404	-0.01994	-0.06410	0.11610	-0.000691	0.001174	-0.000259
27	0.19144	0.19052	0.00092	-2719.0	-1959.0	-760.0	-0.23321	-0.11350	-0.08404	-0.02946	-0.06410	0.003511	-0.000691	-0.000173
28	0.21827	0.19144	0.02683	-3314.0	-2719.0	-595.0	-0.27667	-0.15335	-0.11350	-0.03985	-0.02946	0.006402	0.003511	0.000000
29	0.19044	0.21827	-0.02783	-3739.0	-3314.0	-425.0	-0.30532	-0.15585	-0.15335	-0.00250	-0.03985	0.002314	0.006402	0.000000
30	0.18127	0.19044	-0.00918	-5015.0	-3739.0	-1276.0	-0.41337	-0.19918	-0.15585	-0.04333	-0.00250	0.004550	0.002314	0.000000
31	0.18730	0.18127	0.00604	-3501.0	-5015.0	1514.0	-0.24207	-0.13762	-0.19918	0.06156	-0.04333	0.002858	0.004550	-0.000176
32	0.21033	0.18730	0.02303	-4074.0	-3501.0	-573.0	-0.27529	-0.17093	-0.13762	-0.03331	0.06156	0.004287	0.002858	-0.001461
33	0.17366	0.21033	-0.03667	-3179.0	-4074.0	895.0	-0.19051	-0.12214	-0.17093	0.04879	-0.03331	0.001775	0.004287	0.012990
34	0.17012	0.17366	-0.00354	-3045.0	-3179.0	134.0	-0.17217	-0.11220	-0.12214	0.00994	0.04879	0.005231	0.001775	-0.000291
35	0.17324	0.17012	0.00312	-4213.0	-3045.0	-1168.0	-0.24604	-0.14674	-0.11220	-0.03454	0.00994	0.002017	0.005231	-0.001073
36	0.17946	0.17324	0.00622	-3437.0	-4213.0	776.0	-0.16907	-0.12085	-0.14674	0.02589	-0.03454	0.002544	0.002017	0.000000
37	0.16894	0.17946	-0.01052	-3181.0	-3437.0	256.0	-0.14987	-0.10682	-0.12085	0.01403	0.02589	0.001927	0.002544	0.000000
38	0.14802	0.16894	-0.02092	-4184.0	-3181.0	-1003.0	-0.17539	-0.13008	-0.10682	-0.02327	0.01403	-0.000153	0.001927	-0.001175
39	0.08080	0.14802	-0.06752	-4093.0	-4184.0	91.0	-0.16425	-0.12490	-0.13008	0.00518	-0.02327	0.003863	-0.000153	-0.000702
40	0.15155	0.08050	0.07105	-2064.0	-4093.0	2029.0	-0.07182	-0.06492	-0.12490	0.05998	0.00518	0.017485	0.003863	-0.002646
41	0.13906	0.15155	-0.01249	-2941.0	-2064.0	-877.0	-0.09841	-0.08799	-0.06492	-0.02306	0.05998	0.009634	0.017485	-0.001291
42	0.13800	0.13906	-0.00105	-2852.0	-2941.0	89.0	-0.08611	-0.07762	-0.08799	0.01037	-0.02306	0.003821	0.009634	-0.001183
43	0.14310	0.13800	0.00510	-1903.0	-2852.0	949.0	-0.04962	-0.05075	-0.07762	0.02687	0.01037	0.005519	0.003821	-0.003122
44	0.16667	0.14310	0.02357	-817.0	-1903.0	1086.0	-0.02001	-0.02144	-0.05075	0.02930	0.02687	0.007923	0.005519	0.001035
45	0.14769	0.16667	-0.01898	-2392.0	-817.0	-1575.0	-0.05736	-0.06132	-0.02144	-0.03988	0.02930	0.009071	0.007923	0.000000
46	0.13799	0.14769	-0.00970	-2069.0	-2392.0	323.0	-0.04792	-0.04962	-0.06132	0.01170	-0.03988	0.003343	0.009071	-0.004993
47	0.19040	0.13799	0.05241	331.0	-2069.0	2400.0	0.00619	0.00779	-0.04962	0.05741	0.01170	0.006451	0.003343	-0.002304
48	0.20377	0.19040	0.01337	-381.0	331.0	-712.0	-0.00629	-0.00907	0.00779	-0.01686	0.05741	0.010497	0.006451	0.000000
49	0.20475	0.20377	0.00098	-2439.0	-381.0	-2058.0	-0.03500	-0.05864	-0.00907	-0.04957	-0.01686	0.010585	0.010497	0.000000
50	0.19957	0.20475	-0.00518	-1835.0	-2439.0	604.0	-0.02224	-0.04334	-0.05864	0.01530	-0.04957	0.009869	0.010585	-0.000216
51	0.16853	0.19957	-0.03104	-2765.0	-1835.0	-930.0	-0.03035	-0.05551	-0.04334	-0.01217	0.01530	0.008449	0.009869	-0.001787
52	0.14224	0.16853	-0.02629	-4317.0	-2765.0	-1552.0	-0.04502	-0.07966	-0.05551	-0.02415	-0.01217	0.013649	0.008449	-0.001382
53	0.12393	0.14224	-0.01832	-5613.0	-4317.0	-1296.0	-0.05693	-0.10669	-0.07966	-0.02703	-0.02415	0.020943	0.013649	0.000000
54	0.14670	0.12393	0.02277	-6145.0	-5613.0	-532.0	-0.05965	-0.11807	-0.10669	-0.01138	-0.02703	0.009370	0.020943	-0.000187
55	0.16983	0.14670	0.02313	-3779.0	-6145.0	2366.0	-0.03601	-0.06831	-0.11807	0.04976	-0.01138	0.005318	0.009370	-0.000248
56	0.16599	0.16983	-0.00385	-3005.0	-3779.0	774.0	-0.02636	-0.05139	-0.06831	0.01692	0.04976	0.017141	0.005318	0.000000

MODEL WITH 36LS 12:18 Sunday, November 7, 1993 22

OBS	PIYLG	OCY	OCYLG	CFY	MS	MIY	LLY	QLLY	DCG	DCGY	MSY	MSYLG	MSLG	RGMS
1	.	0.016670	.	0.022083	4522	0.31320	0.51626	-0.11013	-76.8	-0.01138	0.67027	.	.	.
2	0.000000	0.013991	0.016670	0.016431	4548	0.29283	0.47172	-0.11394	-212.3	-0.02774	0.59429	0.67027	4522	0.5733
3	0.000000	0.018024	0.013991	0.026239	4760	0.31232	0.49633	-0.12830	-270.3	-0.03560	0.62700	0.59429	4548	4.5560
4	0.002788	0.032804	0.018024	0.041184	6053	0.34061	0.53788	-0.14334	-280.3	-0.03837	0.82866	0.62700	4760	24.0306
5	0.003724	0.033716	0.032804	0.040123	6724	0.36489	0.58143	-0.14836	-163.2	-0.02128	0.87658	0.82866	6053	10.5129
6	0.000000	0.004804	0.033716	0.010193	7135	0.31363	0.49323	-0.13403	-434.9	-0.04515	0.74073	0.87658	6724	5.9329
7	0.002337	-0.002816	0.004804	-0.001350	7578	0.29826	0.47524	-0.12127	-761.8	-0.07145	0.71075	0.74073	7135	6.0237
8	0.000000	0.008425	-0.002816	0.014697	8246	0.33506	0.54463	-0.12550	-1006.1	-0.10166	0.83321	0.71075	7578	8.4479
9	0.001584	-0.002965	0.008425	0.001423	8973	0.35113	0.58044	-0.12182	-1380.0	-0.13022	0.84673	0.83321	8246	8.4492
10	0.000000	0.024265	-0.002965	0.026166	9774	0.33287	0.55215	-0.11359	-1891.0	-0.15882	0.77965	0.84673	8973	8.5506
11	0.000000	0.027400	0.024265	0.028201	10792	0.36532	0.60510	-0.12553	-2120.0	-0.16489	0.83936	0.77965	9774	9.9079
12	0.000000	0.004915	0.027400	0.008888	11085	0.39717	0.63930	-0.15505	-2535.0	-0.20084	0.87825	0.83936	10792	2.6788
13	0.002284	0.007716	0.004915	0.009165	11714	0.39086	0.64419	-0.13753	-2600.0	-0.19350	0.87177	0.87825	11085	5.5192
14	0.000000	0.024809	0.007716	0.028923	11637	0.36961	0.59392	-0.14531	-3094.0	-0.20417	0.76793	0.87177	11714	-0.6595
15	0.001953	0.016839	0.024809	0.018132	12338	0.39451	0.64356	-0.14544	-3087.0	-0.20325	0.81233	0.76793	11637	5.8494
16	0.000000	0.022628	0.016839	0.023446	13222	0.43812	0.68648	-0.18977	-2789.0	-0.18869	0.89452	0.81233	12338	6.9198
17	0.000000	0.076562	0.022628	0.078217	14378	0.43373	0.70053	-0.16693	-2308.0	-0.14756	0.91925	0.89452	13222	8.3817
18	0.000000	0.036175	0.076562	0.045515	14521	0.43278	0.68642	-0.17913	-2368.0	-0.14277	0.87550	0.91925	14378	0.9897
19	0.007881	0.050808	0.036175	0.055195	15472	0.46976	0.75110	-0.18843	-1880.0	-0.11630	0.95710	0.87550	14521	6.3436
20	0.001640	0.047520	0.050808	0.054416	15547	0.46188	0.79359	-0.13017	-2209.0	-0.14320	1.00784	0.95710	15472	0.4836
21	0.003315	0.074318	0.047520	0.079396	17763	0.42652	0.75173	-0.10130	-2110.0	-0.12180	1.02534	1.00784	15547	13.3250
22	0.000000	0.060191	0.074318	0.067739	18098	0.37031	0.66925	-0.07138	-2466.0	-0.12148	0.89157	1.02534	17763	1.8684
23	0.001815	0.057214	0.060191	0.062009	18902	0.37822	0.69559	-0.06085	-2431.0	-0.11881	0.92377	0.89157	18098	4.3466
24	0.003837	0.055322	0.057214	0.069240	20299	0.38714	0.75530	-0.01899	-2665.0	-0.13604	1.03622	0.92377	18902	7.1304
25	0.012607	0.058705	0.055322	0.059880	21752	0.35218	0.68901	-0.01535	-456.0	-0.01994	0.95103	1.03622	20299	6.9134
26	0.000000	0.029535	0.058705	0.028585	22209	0.35689	0.71154	-0.00223	-1959.0	-0.08404	0.95277	0.95103	21752	2.0792
27	-0.000259	0.027049	0.029535	0.030386	22501	0.33007	0.69663	0.03648	-2719.0	-0.11350	0.93928	0.95277	22209	1.3062
28	-0.000173	0.028909	0.027049	0.035311	23920	0.39707	0.83000	0.03586	-3314.0	-0.15335	1.10686	0.93928	22501	6.1155
29	0.000000	0.021235	0.028909	0.023549	24989	0.37468	0.81062	0.06127	-3739.0	-0.15585	1.04158	1.10686	23920	4.3721
30	0.000000	0.012103	0.021235	0.016653	25239	0.37707	0.81273	0.05858	-5015.0	-0.19918	1.00241	1.04158	24989	0.9955
31	0.000000	0.001231	0.012103	0.003914	27793	0.36922	0.84878	0.11034	-3501.0	-0.13762	1.09249	1.00241	25239	9.6394
32	-0.000176	0.034723	0.001231	0.037549	28905	0.42477	0.97248	0.12293	-4074.0	-0.17093	1.21277	1.09249	27793	3.9230
33	-0.001461	0.028015	0.034723	0.042780	29353	0.40245	0.92855	0.12364	-3179.0	-0.12214	1.12776	1.21277	28905	1.5380
34	0.012990	0.033461	0.028015	0.038402	30585	0.38155	0.89722	0.13412	-3045.0	-0.11220	1.12696	1.12776	29353	4.1115
35	-0.000291	0.072070	0.033461	0.073014	36864	0.38981	0.95364	0.17401	-4213.0	-0.14674	1.28396	1.12696	30585	18.6726
36	-0.001073	0.030002	0.072070	0.032546	36248	0.40895	0.97096	0.15305	-3437.0	-0.12085	1.27450	1.28396	36864	-1.6851
37	0.000000	0.066492	0.030002	0.068418	37669	0.38616	0.95670	0.18438	-3181.0	-0.10682	1.26489	1.27450	36248	3.8453
38	0.000000	0.029166	0.066492	0.027838	39606	0.37828	0.92130	0.16475	-4184.0	-0.13008	1.23136	1.26489	37669	5.0143
39	-0.001175	0.041988	0.029166	0.045148	42804	0.36534	0.96567	0.23500	-4093.0	-0.12490	1.30620	1.23136	39606	7.7651
40	-0.000702	0.026253	0.041988	0.041091	47072	0.39965	1.06651	0.26722	-2064.0	-0.06492	1.48069	1.30620	42804	9.5047
41	-0.002646	0.032923	0.026253	0.041266	48891	0.37775	1.06688	0.31139	-2941.0	-0.08709	1.46273	1.48069	47072	3.7915
42	-0.001291	0.003184	0.032923	0.005823	51150	0.35518	1.03146	0.32110	-2852.0	-0.07762	1.39202	1.46273	48891	4.5169
43	-0.001183	0.014612	0.003184	0.017010	55545	0.35055	1.06858	0.36748	-1903.0	-0.05075	1.48127	1.39202	51150	8.2431
44	-0.003122	0.030747	0.014612	0.039705	58728	0.37776	1.10432	0.34881	-817.0	-0.02144	1.54148	1.48127	55545	5.5723
45	0.001035	0.038385	0.030747	0.047456	60307	0.36939	1.21941	0.48064	-2392.0	-0.06132	1.54601	1.54148	58728	2.6532
46	0.000000	0.011720	0.038385	0.010070	59774	0.39555	1.14153	0.35042	-2069.0	-0.04962	1.43348	1.54601	60307	-0.8877
47	-0.004993	0.006995	0.011720	0.011142	70808	0.40381	1.30362	0.49601	331.0	0.00779	1.66586	1.43348	59774	16.9401
48	-0.002304	0.047192	0.006995	0.057689	78843	0.48939	1.39318	0.41439	-381.0	-0.00907	1.87681	1.66586	70808	10.7487
49	0.000000	0.005880	0.047192	0.016465	82083	0.53266	1.54755	0.48222	-2439.0	-0.05864	1.97349	1.87681	78843	4.0272
50	0.000000	0.051728	0.005880	0.061381	91252	0.54805	1.85346	0.75735	-1835.0	-0.04334	2.15518	1.97349	82083	10.5894
51	-0.000216	0.035510	0.051728	0.042173	97524	0.46138	1.54395	0.62120	-2765.0	-0.05551	1.95785	2.15518	91252	6.6474
52	-0.001787	0.041845	0.035510	0.054112	106556	0.43950	1.56156	0.68256	-4317.0	-0.07966	1.96613	1.95785	97524	8.6572
53	-0.001382	0.067854	0.041845	0.088797	113262	0.44802	1.54197	0.64593	-5613.0	-0.10669	2.15281	1.96613	106556	6.1033
54	0.000000	0.024936	0.067854	0.034119	119697	0.47284	1.68616	0.74048	-6145.0	-0.11807	2.29988	2.15281	113262	5.5260
55	-0.000187	0.008864	0.024936	0.013934	122804	0.46646	1.68708	0.75416	-3779.0	-0.06831	2.21994	2.29988	119697	2.5626
56	-0.000248	0.063518	0.008864	0.080660	131285	0.45649	1.70006	0.78708	-3005.0	-0.05139	2.24517	2.21994	122804	6.6781

MODEL WITH 3SLS 12:18 Sunday, November 7, 1993 23

OBS	RMS	RGDP	RGDPLG	RGRGDP	RGDPCAP	XY	XYLG	RGXY	RX	RXLG	RGRX	RGRXYF	RXY	RXYLG
1	10613.84	15835.24	.	.	453.083	0.15717	.	.	2488.75	.	.	.	0.36889	.
2	10525.36	17710.82	15835.24	11.1938	506.747	0.14327	0.15717	-8.8404	2537.45	2488.75	1.9568	28.04	0.33157	0.36889
3	10901.48	17386.61	17710.82	-1.8475	497.471	0.14929	0.14327	4.2016	2595.66	2537.45	2.2942	34.25	0.34191	0.33157
4	13552.80	16355.07	17386.61	-6.1163	467.956	0.22261	0.14929	49.1093	3640.75	2595.66	40.2627	896.27	0.49842	0.34191
5	14099.91	16085.14	16355.07	-1.6642	449.808	0.23601	0.22261	6.0231	3796.32	3640.75	4.2732	100.85	0.49491	0.49842
6	13741.10	18550.69	16085.14	14.2611	518.755	0.22165	0.23601	-6.0847	4111.83	3796.32	8.3108	184.21	0.42688	0.49491
7	13640.39	19191.46	18550.69	3.3958	536.674	0.24825	0.22165	12.0011	4764.36	4111.83	15.8698	393.97	0.44686	0.42688
8	14433.98	17323.30	19191.46	-10.2413	484.432	0.28906	0.24825	16.4371	5007.48	4764.36	5.1028	147.50	0.50598	0.44686
9	15240.37	17989.03	17323.30	3.8265	491.911	0.32785	0.28906	13.3137	5895.49	5007.48	17.7336	580.86	0.55633	0.50598
10	15855.51	20336.79	17989.03	12.2114	555.802	0.27462	0.32785	-16.1595	5584.79	5895.49	-5.2701	-144.73	0.44548	0.55633
11	16787.45	20000.20	20336.79	-1.6689	546.603	0.25531	0.27462	-7.0293	5106.29	5584.79	-8.5680	-218.75	0.39715	0.44548
12	16593.77	18894.11	20000.20	-5.6892	516.374	0.27487	0.25531	7.6599	5193.39	5106.29	1.7059	46.89	0.41147	0.39715
13	17022.44	19526.21	18894.11	3.2907	521.742	0.25794	0.27487	-6.1589	5036.58	5193.39	-3.0195	-77.89	0.37483	0.41147
14	16606.94	21625.53	19526.21	10.2117	577.837	0.23953	0.25794	-7.1371	5179.97	5036.58	2.8469	68.19	0.34183	0.37483
15	17296.78	21292.87	21625.53	-1.5502	568.948	0.24880	0.23953	3.8691	5297.62	5179.97	2.2713	56.51	0.34879	0.34183
16	18310.03	20469.21	21292.87	-3.9451	546.939	0.25872	0.24880	3.9879	5295.79	5297.62	-0.0346	-0.90	0.35828	0.34879
17	18906.28	20567.01	20469.21	0.4767	537.559	0.21363	0.25872	-17.4284	4393.71	5295.79	-17.0339	-363.89	0.28091	0.35828
18	19000.02	21701.92	20567.01	5.3712	567.222	0.19707	0.21363	-7.7496	4276.87	4393.71	-2.6591	-52.40	0.25786	0.28091
19	19965.01	20859.97	21701.92	-3.9569	545.216	0.19396	0.19707	-1.5784	4046.06	4276.87	-5.3968	-104.68	0.25029	0.25786
20	19631.56	19478.87	20859.97	-6.8502	509.118	0.21457	0.19396	10.6232	4179.54	4046.06	3.2991	70.79	0.27094	0.25029
21	21360.86	20832.89	19478.87	6.7203	532.640	0.16472	0.21457	-23.2334	3431.52	4179.54	-17.8972	-294.60	0.19808	0.27094
22	21078.11	23641.51	20832.89	12.6471	604.449	0.21941	0.16472	33.2056	5187.22	3431.52	51.1640	1122.60	0.25554	0.19808
23	21510.24	23285.24	23641.51	-1.5185	595.340	0.24478	0.21941	11.5602	5699.67	5187.22	9.8790	241.82	0.27855	0.25554
24	22887.03	22087.14	23285.24	-5.2824	564.708	0.24736	0.24478	1.0551	5463.45	5699.67	-4.1446	-102.52	0.27890	0.27855
25	23318.03	24518.66	22087.14	10.4439	613.388	0.22673	0.24736	-8.3382	5559.20	5463.45	1.7526	39.74	0.24306	0.27890
26	23366.75	24525.01	24518.66	0.0259	613.547	0.23654	0.22673	4.3231	5801.03	5559.20	4.3501	102.90	0.24887	0.24306
27	23364.71	24875.04	24525.01	1.4171	622.304	0.22788	0.23654	-3.6611	5668.41	5801.03	-2.2861	-52.10	0.23662	0.24887
28	24773.46	22381.83	24875.04	-10.5615	559.931	0.23664	0.22788	3.8460	5296.43	5668.41	-6.5624	-185.29	0.24508	0.23662
29	25646.69	24622.82	22381.83	9.5424	598.258	0.19788	0.23664	-16.3797	4872.33	5296.43	-8.0072	-158.45	0.20309	0.24508
30	25140.45	25079.91	24622.82	1.8393	609.364	0.20417	0.19788	3.1784	5120.52	4872.33	5.0938	104.00	0.20337	0.20309
31	27546.40	25214.30	25079.91	0.5344	612.630	0.20307	0.20417	-0.5368	5120.32	5120.52	-0.0038	-0.08	0.20127	0.20337
32	28577.28	23563.73	25214.30	-6.7703	572.526	0.23208	0.20307	14.2850	5468.69	5120.32	6.8037	157.90	0.22945	0.20127
33	28470.42	25245.20	23563.73	6.8927	599.827	0.19251	0.23208	-17.0499	4859.98	5468.69	-11.1308	-214.28	0.18672	0.22945
34	29380.40	26070.80	25245.20	3.2172	619.438	0.13331	0.19251	-30.7546	3475.34	4859.98	-28.4906	-379.79	0.12805	0.18672
35	34909.09	27188.61	26070.80	4.1990	646.002	0.14032	0.13331	5.2613	3815.07	3475.34	9.7764	137.17	0.13288	0.12805
36	32833.33	25761.78	27188.61	-5.3906	612.101	0.20059	0.14032	42.9542	5167.60	3815.07	35.4521	711.14	0.18170	0.13288
37	33573.08	26542.27	25761.78	2.9846	617.226	0.20625	0.20059	2.8187	5474.23	5167.60	5.9337	122.38	0.18382	0.18170
38	34711.66	28189.60	26542.27	6.0214	655.534	0.21065	0.20625	2.1341	5938.05	5474.23	8.4729	178.48	0.18462	0.18382
39	36836.49	28201.29	28189.60	0.0415	655.806	0.22414	0.21065	6.4041	6320.95	5938.05	6.4482	144.53	0.19289	0.18462
40	39194.00	26470.16	28201.29	-6.3350	615.548	0.25252	0.22414	12.6612	6684.12	6320.95	5.7455	145.08	0.21025	0.19289
41	40107.47	27419.64	26470.16	3.5242	624.629	0.24283	0.25252	-3.9542	6650.09	6684.12	-0.5091	-12.35	0.19896	0.21025
42	41250.00	29633.20	27419.64	7.7636	675.054	0.21407	0.24253	-11.7343	6343.61	6650.09	-4.6087	-98.66	0.17264	0.19896
43	43943.83	29666.31	29633.20	0.1116	675.809	0.22271	0.21407	4.0374	6607.10	6343.61	4.1536	92.51	0.17620	0.17264
44	46061.18	29881.14	29666.31	0.7216	680.702	0.21919	0.22271	-1.5820	6549.66	6607.10	-0.8693	-19.06	0.17191	0.17620
45	46497.30	30075.60	29881.14	0.6487	671.865	0.23232	0.21919	5.9903	6987.18	6549.66	6.6800	155.19	0.17912	0.17191
46	44976.67	31375.79	30075.60	4.2323	700.587	0.23855	0.23232	2.6810	7484.67	6987.18	7.1200	169.85	0.17850	0.17912
47	52920.78	31767.83	31375.79	1.2418	709.341	0.24726	0.23855	3.6499	7854.78	7484.67	4.9450	122.27	0.18480	0.17950
48	58186.72	31002.97	31767.83	-2.4371	692.262	0.26600	0.24726	7.5813	8246.83	7854.78	4.9911	132.76	0.19631	0.18480
49	59653.34	30227.41	31002.97	-2.5334	674.343	0.26374	0.26600	-0.8489	7972.27	8246.83	-3.3293	-87.81	0.19167	0.19631
50	65133.48	30221.88	30227.41	-0.0183	674.219	0.24223	0.26374	-8.1557	7320.74	7972.27	-8.1725	-197.96	0.17290	0.19167
51	66980.77	34211.41	30221.88	12.3993	763.222	0.24768	0.24223	2.2469	8473.34	7320.74	15.7444	389.95	0.17011	0.17290
52	71900.13	36569.30	34211.41	6.6650	815.824	0.29378	0.24768	18.6154	10743.39	8473.34	26.7905	787.06	0.19823	0.17011
53	75558.37	35097.53	36569.30	-4.1078	770.105	0.26919	0.29378	-8.3693	9448.05	10743.39	-12.0570	-324.57	0.17958	0.19823
54	78080.23	33949.65	35097.53	-3.3252	744.918	0.25761	0.26919	-4.3033	8745.77	9448.05	-7.4331	-191.48	0.16804	0.17958
55	77332.49	34835.41	33949.65	2.5756	764.353	0.26518	0.25761	2.9380	9237.60	8745.77	5.6237	149.13	0.16699	0.16804
56	80840.52	36006.40	34835.41	3.3062	790.047	0.25946	0.26518	-2.1568	9342.19	9237.60	1.1322	29.38	0.15977	0.16699

OBS	RGRXY	MY	INV	SY	IY	UTD	UT	FD	FDY	FDYLG	NFACB	NFAPB	NFACBY	NFACBYLG	NFAPBY
1	.	0.12598	2425.13	0.33086	0.35946	2	0.830	192.15	0.02848	.	439	161	0.06507	.	0.02386
2	-10.6663	0.11290	3567.67	0.44347	0.46619	5	2.075	171.81	0.02245	0.02848	379	178	0.04952	0.06507	0.02326
3	3.0708	0.10873	4029.33	0.51562	0.53076	0	0.000	114.98	0.01514	0.02245	450	210	0.05928	0.04952	0.02766
4	37.6898	0.16237	2883.56	0.37664	0.39476	6	3.139	129.23	0.01769	0.01514	820	241	0.11226	0.05928	0.03299
5	-0.7068	0.17275	2899.85	0.37562	0.39108	6	3.686	114.88	0.01498	0.01769	1062	269	0.13845	0.11226	0.03507
6	-14.7883	0.13952	3877.45	0.41904	0.40254	13	8.130	-166.98	-0.01733	0.01498	1289	384	0.13382	0.13845	0.03987
7	4.5745	0.14270	4219.94	0.41856	0.39579	7	4.379	-247.11	-0.02318	-0.01733	1522	577	0.14275	0.13382	0.05412
8	12.4253	0.15888	3195.59	0.35647	0.32290	4	2.508	-334.79	-0.03383	-0.02318	2058	885	0.20795	0.14275	0.08942
9	9.4861	0.16692	2472.02	0.29885	0.23927	16	10.054	-705.02	-0.06653	-0.03383	2536	1497	0.23931	0.20795	0.13560
10	-22.2192	0.16015	4804.06	0.40355	0.35928	21	13.171	-568.24	-0.04533	-0.06653	3376	1719	0.26929	0.23931	0.13712
11	-11.4850	0.16980	4802.84	0.37880	0.37355	1	0.626	-68.21	-0.00530	-0.04533	3755	2040	0.29205	0.26929	0.15866
12	3.5415	0.15486	3845.45	0.34265	0.30467	17	10.654	-490.06	-0.03883	-0.00530	3678	2353	0.29140	0.29205	0.18643
13	-9.3255	0.16067	3692.90	0.29746	0.27483	61	38.329	-342.45	-0.02549	-0.03883	4174	2171	0.31064	0.29140	0.16157
14	-9.2162	0.17333	5914.61	0.38142	0.39031	72	45.341	89.42	0.00590	-0.02549	4089	2161	0.26984	0.31064	0.14261
15	2.0167	0.18623	4913.39	0.30566	0.32349	80	50.646	220.31	0.01451	0.00590	3849	2422	0.25342	0.26984	0.15946
16	2.6834	0.18893	5107.21	0.32797	0.34552	37	23.528	235.91	0.01596	0.01451	3569	2801	0.24146	0.25342	0.18950
17	-24.3277	0.19865	5628.95	0.29760	0.35988	46	29.776	944.41	0.06036	0.01596	3652	2739	0.23348	0.24146	0.17512
18	-8.5614	0.16393	6045.79	0.33149	0.36451	28	18.301	529.42	0.03192	0.06038	2800	2864	0.16882	0.23349	0.17268
19	-2.9805	0.17916	5711.65	0.29276	0.35332	43	28.505	950.60	0.05880	0.03192	2845	2624	0.17599	0.16882	0.16232
20	7.9281	0.19980	3984.44	0.19181	0.25829	17	11.592	1013.99	0.06573	0.05880	3338	1928	0.21639	0.17599	0.12498
21	-31.3229	0.21953	7151.45	0.28739	0.41281	20	13.964	2158.84	0.12462	0.06573	3438	3011	0.19834	0.21639	0.17381
22	25.4715	0.19123	6590.45	0.26911	0.32467	28	27.152	1100.61	0.05422	0.12462	3358	3558	0.16543	0.19834	0.17528
23	8.6222	0.20392	6480.72	0.26646	0.31672	30	29.439	996.96	0.04882	0.05422	3711	3695	0.18136	0.16543	0.17765
24	0.1233	0.20293	7619.01	0.33775	0.38893	26	25.685	977.03	0.04988	0.04882	4536	3552	0.23155	0.18136	0.18132
25	-13.7542	0.17503	8196.18	0.32265	0.35835	32	31.827	784.74	0.03431	0.04988	6240	3604	0.27282	0.23155	0.15757
26	2.3618	0.15994	7611.46	0.31552	0.32653	10	10.065	246.59	0.01058	0.03431	7200	3504	0.30888	0.27282	0.15032
27	-5.0447	0.16372	7298.46	0.28239	0.30467	31	32.190	501.55	0.02094	0.01058	6788	4054	0.28336	0.30888	0.16923
28	3.5130	0.17439	7614.91	0.32656	0.35237	41	43.636	514.06	0.02379	0.02094	7597	4345	0.35154	0.28336	0.20106
29	-18.7963	0.15450	8616.22	0.32189	0.35914	33	35.924	857.82	0.03576	0.02379	7820	4923	0.32595	0.35154	0.20520
30	0.1398	0.14029	8173.40	0.30289	0.32462	14	15.571	531.63	0.02111	0.03576	7949	5157	0.31571	0.32595	0.20482
31	-1.0382	0.12462	7456.93	0.28687	0.29312	27	30.205	128.65	0.00506	0.02111	7986	5344	0.31391	0.31571	0.21006
32	13.1034	0.15500	8514.04	0.33517	0.35722	14	15.721	509.80	0.02139	0.00506	8455	5651	0.35475	0.31391	0.23710
33	-20.6058	0.14081	9651.93	0.34399	0.37083	119	134.113	564.63	0.02169	0.02139	7412	5255	0.28477	0.35475	0.20190
34	-37.7166	0.11724	10963.84	0.35603	0.40398	34	38.308	1263.03	0.04654	0.02169	7671	5227	0.28265	0.28477	0.19260
35	3.6970	0.13100	10655.65	0.31340	0.37113	46	56.690	1600.89	0.05576	0.04654	11713	8029	0.40796	0.28265	0.27965
36	31.2902	0.16244	9767.44	0.29770	0.34343	60	98.646	1201.84	0.04226	0.05576	8268	7652	0.29071	0.40796	0.26905
37	1.1624	0.15219	12245.46	0.37723	0.41119	78	127.858	883.53	0.02967	0.04226	9256	7187	0.31081	0.29071	0.24133
38	0.4324	0.16692	13548.58	0.37981	0.42123	46	75.573	1256.82	0.03907	0.02967	9128	6623	0.28379	0.31081	0.20591
39	4.3836	0.16068	11468.43	0.32228	0.34997	56	82.058	815.37	0.02488	0.03907	10860	7025	0.33140	0.28379	0.21437
40	8.6203	0.17101	10287.27	0.31747	0.32359	77	127.004	67.63	0.00213	0.02488	11276	7055	0.35470	0.33140	0.22192
41	-5.5222	0.15816	12762.31	0.37885	0.38182	77	127.805	-26.22	-0.00084	0.00213	12627	6377	0.37778	0.35470	0.19079
42	-14.1899	0.15612	14846.48	0.38143	0.40404	21	35.102	795.63	0.02165	-0.00084	11459	6569	0.31185	0.37778	0.17877
43	2.0411	0.15639	12717.49	0.32924	0.33915	64	108.570	262.94	0.00701	0.02165	10439	6757	0.27839	0.31185	0.18020
44	-2.4612	0.16125	14950.45	0.36446	0.39242	92	157.789	907.29	0.02381	0.00701	10654	7238	0.27964	0.27839	0.18998
45	4.1069	0.16377	16411.14	0.40480	0.42071	92	160.365	460.18	0.01180	0.02381	9998	8612	0.25625	0.27964	0.22077
46	0.2084	0.16599	15496.96	0.35997	0.37164	42	74.101	412.85	0.00990	0.01180	9210	7391	0.22087	0.25625	0.17725
47	2.9099	0.17684	15499.66	0.35213	0.36465	87	154.895	377.44	0.00888	0.00990	9199	8157	0.21642	0.22087	0.19191
48	6.0452	0.19201	15780.28	0.36809	0.37564	118	211.515	105.76	0.00252	0.00888	10742	7538	0.25571	0.21642	0.17944
49	-2.3905	0.20599	13660.99	0.29900	0.32845	112	202.910	1021.80	0.02457	0.00252	5340	7065	0.12839	0.25571	0.16986
50	-10.3081	0.20228	14155.48	0.29900	0.33432	114	208.939	1286.63	0.03039	0.02457	4148	4577	0.09797	0.12839	0.10810
51	-1.6286	0.21328	17133.48	0.29900	0.34396	121	224.346	2015.41	0.04046	0.03039	6091	315	0.12228	0.09797	0.00632
52	15.3017	0.21849	16743.85	0.29900	0.30895	71	132.962	406.38	0.00750	0.04046	11623	-964	0.21446	0.12228	-0.01779
53	-9.8809	0.22953	18035.93	0.29900	0.34282	59	113.056	2192.13	0.04167	0.00750	15178	-805	0.28846	0.21446	-0.00960
54	-6.6415	0.22002	17706.25	0.29900	0.34021	60	116.568	2028.28	0.03897	0.04167	16513	165	0.31728	0.28846	0.00317
55	-0.6292	0.21572	18185.89	0.29900	0.32875	43	84.340	1561.27	0.02822	0.03897	17246	607	0.31176	0.31728	0.01097
56	-4.4221	0.21498	19334.01	0.29900	0.33064	100	198.090	1652.07	0.02825	0.02822	18142	-859	0.31026	0.31176	-0.01469

MODEL WITH 3SLS 12:18 Sunday, November 7, 1993 25

OBS	NFAY	RSVY	IRRP	IRM	IRMLG	RGIRM	RGIRMLG	CAY	EOBY	SYLG	IYLG	ZERO1	ZERO11
1	0.08908	0.012795	955.33	1.12402	.	.	.	-0.02860	-0.006274	.	.	0.0000000015	0.000010
2	0.07278	0.007863	897.65	1.03890	1.12402	-7.8747	.	-0.02272	-0.001573	0.33086	0.35946	-.0000000000	-0.000000
3	0.08694	-0.014541	985.63	1.19407	1.03890	13.8198	-7.8747	-0.01514	0.003444	0.44347	0.46619	-.0000000000	0.000000
4	0.14525	-0.018410	1373.87	1.15836	1.19407	-3.0361	13.9198	-0.01812	-0.004656	0.51562	0.53076	-.0000027435	-0.020040
5	0.17352	-0.021703	1806.10	1.36300	1.15836	16.2687	-3.0361	-0.01546	-0.002983	0.37664	0.39476	-.0000000052	-0.000040
6	0.17369	-0.015063	1998.09	1.48674	1.36300	8.6893	16.2687	0.01649	-0.011622	0.37562	0.39108	-.0000000042	-0.000040
7	0.19687	-0.006102	2058.19	1.35280	1.48674	-9.4411	8.6893	0.02277	-0.015314	0.41904	0.40254	-.0000000019	-0.000020
8	0.29737	-0.053213	2546.63	1.61962	1.35280	18.0017	-9.4411	0.03357	0.004941	0.41856	0.39579	0.0000000010	0.000010
9	0.37491	-0.013460	2691.27	1.82149	1.61962	-6.2499	18.0017	0.06958	-0.053549	0.35647	0.32290	-.0000000057	-0.000060
10	0.40641	-0.073444	3391.90	1.68947	1.52149	10.4725	-6.2499	0.04428	0.003002	0.29885	0.23327	-.0000000000	-0.000000
11	0.45071	-0.026621	3521.04	1.61278	1.68947	-4.6455	10.4725	0.00526	-0.007836	0.40355	0.35926	0.0000000008	0.000010
12	0.47783	0.003724	3379.06	1.72876	1.61278	6.9443	-4.6455	0.03798	-0.050594	0.37880	0.37355	0.0000000024	0.000030
13	0.47213	-0.026841	3861.15	1.78842	1.72876	3.3927	6.9443	0.02263	-0.004957	0.34265	0.30467	-.0000000000	-0.000000
14	0.41251	0.009309	3674.47	1.39895	1.78842	-24.5612	3.3927	-0.00889	-0.029339	0.29746	0.27483	-.0000000020	-0.000030
15	0.41288	0.012379	3519.92	1.24440	1.39895	-11.7061	-24.5612	-0.01784	-0.012671	0.38142	0.39031	-.0000000013	-0.000020
16	0.43095	0.026186	3188.30	1.13567	1.24440	-8.1431	-11.7061	-0.01785	-0.032050	0.30566	0.32349	0.0000000014	0.000020
17	0.40867	-0.010057	3388.62	1.08949	1.13567	-4.1517	-8.1431	-0.06228	-0.005877	0.32797	0.34552	-.0000000000	0.000000
18	0.34155	0.068647	2426.82	0.89255	1.08949	-19.9385	-4.1517	-0.03302	-0.081139	0.29760	0.35988	0.0000000181	0.000300
19	0.33831	0.014721	2173.65	0.75052	0.89255	-17.3321	-19.9385	-0.06057	-0.009350	0.33149	0.36451	-.0000000000	0.000000
20	0.34137	-0.000221	2143.89	0.69558	0.75052	-7.6021	-17.3321	-0.06648	0.012289	0.29276	0.35332	-.0000000229	-0.000354
21	0.37209	0.050862	1278.40	0.33615	0.69558	-72.7187	-7.6021	-0.12542	-0.004836	0.19181	0.25829	-.0000000167	-0.000290
22	0.34066	-0.036640	2621.10	0.67524	0.33615	69.7521	-72.7187	-0.05556	0.024459	0.28739	0.41281	-.0000000000	0.000000
23	0.35901	-0.019375	3440.44	0.82455	0.67524	19.9768	69.7521	-0.05026	0.007625	0.26911	0.32467	0.0000000195	0.000400
24	0.41292	-0.013616	3673.01	0.92396	0.82455	11.3823	19.9768	-0.05119	-0.004438	0.26646	0.31672	-.0000000408	-0.000800
25	0.43040	-0.013002	4044.04	1.01019	0.92396	8.9225	11.3823	-0.03570	-0.011176	0.33775	0.38893	0.0000000000	0.000000
26	0.45925	-0.003972	4328.96	1.16118	1.01019	13.9299	8.9225	-0.01101	-0.013601	0.32265	0.35835	0.0000000004	0.000010
27	0.45259	-0.007412	4932.40	1.25761	1.16118	7.9780	13.9299	-0.02228	-0.000694	0.31552	0.32653	0.0000000000	0.000000
28	0.55260	-0.006452	5037.33	1.33663	1.25761	6.0935	7.9780	-0.02581	-0.003053	0.28239	0.30467	-.0000000000	-0.000000
29	0.53115	-0.007941	5496.34	1.48282	1.33663	10.3795	6.0935	-0.03725	0.021644	0.32656	0.35237	-.0000000000	0.000000
30	0.52057	-0.004815	5488.71	1.55384	1.48282	4.6785	10.3795	-0.02173	0.009895	0.32189	0.35914	0.0000000000	0.000000
31	0.52402	-0.004265	5698.66	1.79746	1.55384	14.5644	4.6785	-0.00624	0.006596	0.30289	0.32462	0.0000000000	0.000000
32	0.59184	-0.004099	5585.30	1.51185	1.79746	-17.3037	14.5644	-0.02205	-0.011401	0.28687	0.29312	-.0000000008	-0.000020
33	0.48667	0.002381	5478.35	1.49477	1.51185	-1.1363	-17.3037	-0.02685	-0.018316	0.33517	0.35722	-.0000000031	-0.000080
34	0.47529	0.001910	5474.64	1.72061	1.49477	14.0704	-1.1363	-0.04795	0.007639	0.34399	0.37083	-.0000000181	-0.000490
35	0.68787	0.008671	5718.34	1.82031	1.72061	-12.3761	14.0704	-0.05773	-0.023952	0.35603	0.40398	0.0000000104	0.000300
36	0.55972	0.038673	6660.25	1.44164	1.52031	-5.3138	-12.3761	-0.04573	-0.025493	0.31340	0.37113	0.0000000105	0.000300
37	0.55214	-0.001266	6565.00	1.44846	1.44164	0.4724	-5.3138	-0.03396	-0.033191	0.29770	0.34343	-.0000000027	-0.000080
38	0.48967	0.021402	6813.11	1.26897	1.44846	-13.2296	0.4724	-0.04142	-0.007815	0.37723	0.41119	-.0000000062	-0.000200
39	0.54578	-0.042038	8178.40	1.55323	1.26897	20.2131	-13.2296	-0.02769	0.024581	0.37981	0.42123	-.0000000031	-0.000100
40	0.57665	-0.009754	9223.44	1.69660	1.55323	8.8290	20.2131	-0.00612	-0.025215	0.32228	0.34997	-.0000000031	-0.000100
41	0.56859	-0.011272	8979.52	1.69859	1.69660	0.1169	8.8290	-0.00298	-0.027014	0.31747	0.32359	-.0000000120	-0.000400
42	0.49065	0.010508	8865.64	1.54545	1.69859	-9.4479	0.1169	-0.02261	0.006277	0.37885	0.38182	0.0000000000	0.000000
43	0.45858	0.009681	8407.36	1.43361	1.54545	-7.5121	-9.4479	-0.00991	-0.016784	0.38143	0.40404	0.0000000187	0.000700
44	0.46963	-0.004727	8657.82	1.40927	1.43361	-1.7126	-7.5121	-0.02796	-0.007023	0.32924	0.33915	-.0000000026	-0.000100
45	0.47703	0.005630	8455.78	1.32360	1.40927	-6.2714	-1.7126	-0.01591	-0.037178	0.36446	0.39242	0.0000000077	0.000300
46	0.39812	0.009435	7722.34	1.11573	1.32360	-17.0850	-6.2714	-0.01168	-0.007828	0.40480	0.42071	0.0000000096	0.000400
47	0.40830	0.010095	7796.15	1.03742	1.11573	-7.2767	-17.0850	-0.01252	-0.008712	0.35997	0.37164	-.0000000000	0.000000
48	0.43512	-0.046296	9776.30	1.21200	1.03742	15.5532	-7.2767	-0.00755	-0.003840	0.35213	0.36465	0.0000000119	0.000500
49	0.29825	0.013285	9491.50	1.10785	1.21200	-8.9855	15.5532	-0.02945	-0.000305	0.36809	0.37564	0.0000000024	0.000100
50	0.20609	0.021167	8601.33	1.00428	1.10785	-9.8146	-8.9855	-0.03532	-0.047226	0.29900	0.32845	-.0000002433	-0.010300
51	0.12899	-0.030522	10056.64	0.94660	1.00428	-5.9152	-9.8146	-0.04496	0.033314	0.29900	0.33432	-.0000000020	-0.000100
52	0.19668	-0.076884	13968.47	1.17966	0.94660	22.0109	-5.9152	-0.00995	0.032723	0.29900	0.34396	-.0000000018	-0.000100
53	0.27890	-0.035676	15461.82	1.28039	1.17966	8.1935	22.0109	-0.04382	-0.009105	0.29900	0.30895	0.0000000190	0.001000
54	0.32044	-0.010340	16849.90	1.47150	1.28039	13.9117	8.1935	-0.04121	0.017433	0.29900	0.34282	-.0000000019	-0.000100
55	0.32273	0.013615	16630.71	1.39366	1.47150	-5.4350	13.9117	-0.02975	0.002198	0.29900	0.34021	-.0000000072	-0.000400
56	0.29557	-0.022054	18339.17	1.45887	1.39366	4.5734	-5.4350	-0.03164	-0.026966	0.29900	0.32875	-.0000000000	0.000000

OBS	ZERO2	ZERO22	ZERO3	XM	XMLG	RGXM	RGXMLG	XMY	XMYLG	RGXMY	RGXMYLG	XLM	XLMY	TDT
1	0.00016305	1.1	0	210.41	.	.	.	0.03119	.	.	.	1910.25	0.28314	1.73901
2	0.00003920	0.3	0	232.40	210.41	10.454	.	0.03037	0.03119	-2.627	.	1960.46	0.25617	2.48638
3	0.00009221	0.7	0	307.93	232.40	32.500	10.454	0.04056	0.03037	33.568	-2.627	1958.80	0.25802	2.31987
4	0.00004107	0.3	0	439.89	307.93	42.868	32.500	0.06024	0.04056	48.504	33.568	2812.09	0.36498	1.67813
5	0.00009126	0.7	0	485.31	439.99	10.300	42.888	0.06327	0.06024	5.035	48.504	3135.49	0.40876	2.40972
6	0.00000000	0.0	0	791.11	485.31	63.009	10.300	0.08213	0.06327	29.812	5.035	3478.99	0.36118	1.79325
7	0.00010317	1.1	0	1125.44	791.11	42.261	63.009	0.10556	0.08213	28.524	29.812	4168.31	0.39095	2.09251
8	0.00001010	0.1	0	1288.36	1125.44	14.477	42.261	0.13018	0.10556	23.329	28.524	4433.09	0.44794	3.11253
9	-.00009436	-1.0	0	1702.23	1288.36	32.123	14.477	0.16063	0.13018	23.389	23.329	5239.89	0.49446	1.63303
10	0.00000000	0.0	0	1435.03	1702.23	-15.697	32.123	0.11447	0.16063	-28.738	23.389	5450.37	0.43476	2.45652
11	-.00007778	-1.0	0	1099.43	1435.03	-23.387	-15.697	0.08851	0.11447	-25.299	-28.738	5465.84	0.42511	3.75793
12	0.00000000	0.0	0	1514.69	1099.43	37.771	-23.387	0.12001	0.08551	40.343	-25.299	5423.92	0.42973	3.79839
13	0.00007442	1.0	0	1306.95	1514.69	-13.715	37.771	0.09727	0.12001	-18.950	40.343	5624.90	0.41861	2.42268
14	0.00000000	0.0	0	1003.16	1306.95	-23.244	-13.715	0.06620	0.09727	-31.940	-18.950	6256.37	0.41286	1.87361
15	0.00000000	0.0	0	950.25	1003.16	-5.274	-23.244	0.06256	0.06620	-5.491	-31.940	6607.46	0.43503	1.38941
16	0.00000000	0.0	0	1016.77	950.25	7.000	-5.274	0.06879	0.06256	9.948	-5.491	6631.59	0.44865	2.68410
17	-.00006393	-1.0	0	231.09	1016.77	-77.273	7.000	0.01477	0.06879	-78.522	9.948	6451.64	0.41248	1.97474
18	-.00006029	-1.0	0	549.68	231.09	137.867	-77.273	0.03314	0.01477	124.315	-78.522	5987.63	0.36101	2.46992
19	0.00006186	1.0	0	239.31	549.68	-56.464	137.867	0.01480	0.03314	-55.332	124.315	6031.73	0.37312	1.62222
20	-.00000000	0.0	0	227.76	239.31	-4.827	-56.464	0.01476	0.01480	-0.265	-55.332	6392.13	0.41437	2.92391
21	-.00000000	0.0	0	-949.55	227.76	-516.918	-4.827	-0.05481	0.01476	-471.244	-0.265	6656.64	0.38424	2.65306
22	0.00000000	0.0	0	572.12	-949.55	-160.252	-516.918	0.02818	-0.05481	-151.421	-471.244	8335.54	0.41064	1.44186
23	0.00000000	0.0	0	836.07	572.12	46.134	-160.252	0.04086	0.02818	44.872	-151.421	9181.04	0.44869	1.43922
24	0.00010210	2.0	0	870.34	836.07	4.099	46.134	0.04443	0.04086	8.734	44.972	8820.96	0.45029	1.27624
25	0.00004372	1.0	0	1182.58	870.34	35.876	4.099	0.05170	0.04443	16.376	8.734	9189.11	0.40176	1.33408
26	-.00004290	-1.0	0	1785.53	1182.58	50.986	35.876	0.07660	0.05170	48.150	16.376	9241.68	0.39647	1.74169
27	0.00000000	0.0	0	1536.83	1785.53	-13.929	50.986	0.06415	0.07660	-16.248	48.150	9380.91	0.39160	1.34964
28	-.00000000	0.0	0	1345.27	1536.83	-12.464	-13.929	0.06225	0.06415	-2.967	-16.248	8882.65	0.41103	1.69741
29	-.00000000	0.0	0	1040.70	1345.27	-22.640	-12.464	0.04338	0.06225	-30.317	-2.967	8454.07	0.35238	1.29756
30	-.00000000	0.0	0	1608.24	1040.70	54.534	-22.640	0.06387	0.04338	47.250	-30.317	8672.94	0.34446	0.78402
31	-.00003931	-1.0	0	1995.76	1608.24	24.096	54.534	0.07845	0.06387	22.819	47.250	8336.55	0.32769	0.96225
32	-.00000000	0.0	0	1837.06	1995.76	-7.952	24.096	0.07708	0.07845	-1.749	22.819	9225.75	0.38708	1.07928
33	-.00003842	-1.0	0	1345.64	1837.06	-26.751	-7.952	0.05170	0.07708	-32.825	-1.749	8675.65	0.33332	1.16944
34	-.00000000	0.0	0	436.03	1345.64	-67.597	-26.751	0.01607	0.05170	-68.924	-32.925	6799.63	0.25054	0.78536
35	-.00000000	0.0	0	267.43	436.03	-38.667	-67.597	0.00931	0.01607	-42.025	-68.924	7780.00	0.27132	0.40165
36	-.00000000	0.0	0	1085.11	267.43	305.752	-38.667	0.03815	0.00931	309.606	-42.025	10324.95	0.36303	0.60102
37	0.00003358	1.0	0	1609.69	1085.11	48.344	305.752	0.05405	0.03815	41.672	309.606	10674.47	0.35844	0.83288
38	0.00003109	1.0	0	1406.32	1609.69	-12.634	48.344	0.04372	0.05405	-19.109	41.672	12144.32	0.37757	0.47117
39	-.00000000	0.0	0	2079.53	1406.32	47.870	-12.634	0.06346	0.04372	45.138	-19.109	12610.36	0.38482	0.52400
40	0.00003146	1.0	0	2591.21	2079.53	24.605	47.870	0.08151	0.06346	28.443	45.138	13464.05	0.42352	0.68607
41	-.00000000	0.0	0	2820.00	2591.21	8.830	24.605	0.08437	0.08151	3.510	28.443	13392.93	0.40069	0.90424
42	-.00002721	-1.0	0	2129.49	2820.00	-24.486	8.830	0.05795	0.08437	-31.310	3.510	13602.67	0.37019	0.51898
43	0.00002667	1.0	0	2486.92	2129.49	16.785	-24.486	0.06632	0.05795	14.439	-31.310	14215.84	0.37911	0.31054
44	0.00002625	1.0	0	2207.33	2486.92	-11.242	16.785	0.05794	0.06632	-12.641	14.439	14494.31	0.38044	0.31852
45	-.00002564	-1.0	0	2673.92	2207.33	21.138	-11.242	0.06855	0.05794	18.313	-12.641	15450.84	0.39609	1.26027
46	-.00002398	-1.0	0	3025.78	2673.92	13.159	21.138	0.07256	0.06855	5.858	18.313	16868.47	0.40453	0.78579
47	0.00000000	0.0	0	2992.85	3025.78	-1.088	13.159	0.07041	0.07256	-2.966	5.858	18026.95	0.42410	0.42338
48	-.00000000	0.0	0	3108.20	2992.85	3.854	-1.088	0.07399	0.07041	5.081	-2.966	19240.70	0.45801	0.52514
49	0.00002404	1.0	0	2402.31	3108.20	-22.711	3.854	0.05776	0.07399	-21.937	5.081	19537.37	0.46973	0.49895
50	0.00000000	0.0	0	1691.68	2402.31	-29.581	-22.711	0.03995	0.05776	-30.825	-21.937	18821.03	0.44451	0.24969
51	-.00000000	0.0	0	1713.19	1691.68	1.272	-29.581	0.03439	0.03995	-13.917	-30.825	22961.17	0.46096	0.49593
52	0.00001845	1.0	0	4080.62	1713.19	138.188	1.272	0.07529	0.03439	118.921	-13.917	27762.78	0.51227	0.72028
53	-.00001901	-1.0	0	2086.74	4080.62	-48.862	138.188	0.03966	0.07529	-47.322	118.921	26238.52	0.49873	0.40717
54	0.00000000	0.0	0	1956.40	2086.74	-6.246	-48.862	0.03759	0.03966	-5.226	-47.322	24858.12	0.47763	0.35742
55	-.00000000	0.0	0	2736.15	1956.40	39.856	-6.246	0.04946	0.03759	31.580	-5.226	26602.47	0.48090	0.36311
56	0.00000000	0.0	0	2600.92	2736.15	-4.942	39.856	0.04448	0.04946	-10.072	31.580	27742.50	0.47444	0.58098

MODEL WITH 3SLS 12:18 Sunday, November 7, 1993 27

OBS	TOTLG	RGTOT	CBDA	CBDAY	DMBDA	DMBDAY	DMBDARAT	CBDARAT	BDAY	POPLG	RGPOP
1	.	.	2295.4	0.34023	2944.7	0.43647	0.56195	0.43805	0.77671	.	.
2	1.73901	42.977	2475.2	0.32344	3097.5	0.40475	0.55583	0.44417	0.72819	139.80	0.00000
3	2.48638	-6.697	2664.1	0.35092	3219.8	0.42412	0.54722	0.45278	0.77505	139.80	0.00000
4	2.31987	-27.662	3448.1	0.47205	3540.7	0.48472	0.50662	0.49338	0.95677	139.80	0.00000
5	1.67813	43.595	3351.2	0.43688	3747.8	0.48858	0.52793	0.47207	0.92547	139.80	2.29115
6	2.40972	-25.583	3583.0	0.37198	4044.9	0.41993	0.53028	0.46972	0.79190	143.04	0.00000
7	1.79325	16.688	3831.6	0.35937	4350.5	0.40804	0.53171	0.46829	0.76741	143.04	0.00000
8	2.09251	48.746	3947.3	0.39885	4369.3	0.44149	0.52537	0.47463	0.84035	143.04	0.00000
9	3.11253	-47.534	3922.0	0.37010	4824.0	0.42691	0.53564	0.46436	0.79700	143.04	2.28450
10	1.63303	50.427	4261.0	0.33989	4798.0	0.38272	0.52964	0.47036	0.72261	146.36	0.00000
11	2.45652	52.953	4405.0	0.34261	5298.0	0.41206	0.54602	0.45398	0.75467	146.36	0.00000
12	3.75733	1.093	4836.0	0.38315	5613.0	0.44471	0.53718	0.46282	0.82786	146.36	0.00000
13	3.79839	-36.218	4772.0	0.35514	6021.0	0.44809	0.55786	0.44214	0.80323	146.36	2.25640
14	2.42268	-22.664	5143.0	0.33939	6650.0	0.43884	0.56389	0.43611	0.77823	149.70	0.00000
15	1.87361	-25.843	5671.0	0.37338	7265.0	0.47832	0.56161	0.43839	0.85170	149.70	0.00000
16	1.38941	93.183	6181.0	0.41817	7758.0	0.52486	0.55657	0.44343	0.94302	149.70	0.00000
17	2.68410	-26.426	6587.0	0.42114	8382.0	0.53590	0.55996	0.44004	0.95704	149.70	2.20660
18	1.97474	25.076	7551.0	0.45526	9184.0	0.55372	0.54879	0.45121	1.00899	153.04	0.00000
19	2.46992	-34.321	8450.0	0.52272	9839.0	0.60864	0.53797	0.46203	1.13136	153.04	0.00000
20	1.62222	80.241	9206.0	0.59678	10408.0	0.67470	0.53064	0.46936	1.27148	153.04	0.00000
21	2.92391	-9.263	9126.0	0.52678	11544.0	0.66636	0.55849	0.44151	1.19315	153.04	2.20371
22	2.65306	-45.661	9048.0	0.44574	11977.0	0.59003	0.56966	0.43034	1.03577	156.45	0.00000
23	1.44166	-0.169	9321.0	0.45553	12358.0	0.60396	0.57004	0.42996	1.05949	156.45	0.00000
24	1.43922	-11.324	9621.0	0.49113	13310.0	0.67944	0.58044	0.41956	1.17057	156.45	0.00000
25	1.27624	4.532	10751.0	0.47005	14627.0	0.63952	0.57637	0.42363	1.10957	156.45	2.17496
26	1.33408	30.553	11443.0	0.49091	16932.0	0.72639	0.59672	0.40328	1.21730	159.89	0.00000
27	1.74169	-22.510	12419.0	0.51842	18015.0	0.75202	0.59194	0.40806	1.27044	159.89	0.00000
28	1.34964	25.767	12564.0	0.58138	19078.0	0.88280	0.60293	0.39707	1.46418	159.89	0.00000
29	1.69741	-23.556	11409.0	0.47555	19522.0	0.81371	0.63115	0.36885	1.28925	159.89	2.92145
30	1.29756	-39.577	11639.0	0.46226	20765.0	0.82472	0.64082	0.35918	1.28699	164.63	0.00000
31	0.78402	22.732	12104.0	0.47579	21778.0	0.85605	0.64276	0.35724	1.33184	164.63	0.00000
32	0.96225	12.162	12862.0	0.53965	22833.0	0.95800	0.63967	0.36033	1.49765	164.63	0.00000
33	1.07928	8.355	13088.0	0.50285	23278.0	0.89435	0.64010	0.35990	1.39720	164.63	2.23446
34	1.16944	-32.643	13906.0	0.51239	24226.0	0.89265	0.63532	0.36468	1.40804	168.35	0.00000
35	0.78536	-48.857	14762.0	0.51416	25102.0	0.87429	0.62969	0.37031	1.38845	168.35	0.00000
36	0.40165	49.636	17692.0	0.62206	27519.0	0.96758	0.60868	0.39132	1.58964	168.35	0.00000
37	0.60102	38.578	17576.0	0.59019	28780.0	0.96641	0.62085	0.37915	1.55659	168.35	2.15075
38	0.83288	-43.429	20141.0	0.62619	31489.0	0.97900	0.60990	0.39010	1.60519	172.01	0.00000
39	0.47117	11.212	20171.0	0.61553	30061.0	0.91734	0.59844	0.40156	1.53287	172.01	0.00000
40	0.52400	30.930	20770.0	0.65334	34024.0	1.07025	0.62094	0.37906	1.72359	172.01	0.00000
41	0.68607	31.800	19719.0	0.58996	36448.0	1.09046	0.64892	0.35108	1.68041	172.01	2.05991
42	0.90424	-42.606	22529.0	0.61311	39581.0	1.07718	0.63727	0.36273	1.69029	175.59	0.00000
43	0.51898	-40.162	24327.0	0.64875	44018.0	1.17387	0.64406	0.35594	1.82262	175.59	0.00000
44	0.31054	2.569	27534.0	0.72271	46340.0	1.21632	0.62728	0.37272	1.93903	175.59	0.00000
45	0.31852	295.662	24729.0	0.63305	48083.0	1.23213	0.66028	0.33972	1.86608	175.59	2.00159
46	1.26027	-37.649	24793.0	0.59456	49912.0	1.19698	0.66812	0.33188	1.79155	179.14	0.00000
47	0.78579	-46.121	25267.0	0.59444	59563.0	1.40107	0.70211	0.29789	1.99551	179.14	0.00000
48	0.42338	24.037	22954.0	0.54641	67340.0	1.60299	0.74579	0.25421	2.14940	179.14	0.00000
49	0.52514	-4.989	25358.0	0.60967	78618.0	1.89018	0.75612	0.24388	2.49985	179.14	0.08928
50	0.49895	-49.956	26850.0	0.63414	90633.0	2.14056	0.77146	0.22854	2.77470	179.30	0.00000
51	0.24969	98.618	27337.0	0.54881	100033.0	2.00822	0.78537	0.21463	2.55702	179.30	0.00000
52	0.49593	45.238	29694.0	0.54790	105373.0	1.94431	0.78015	0.21985	2.49221	179.30	0.00000
53	0.72028	-43.471	29210.0	0.55521	109227.0	2.07612	0.78900	0.21100	2.63132	179.30	1.65933
54	0.40717	-12.219	23612.0	0.45369	115391.0	2.21715	0.83013	0.16987	2.67083	182.30	0.00000
55	0.35742	1.592	23812.0	0.43045	117029.0	2.11554	0.83093	0.16907	2.54600	182.30	0.00000
56	0.36311	60.003	23125.0	0.39547	125741.0	2.15036	0.84466	0.15534	2.54583	182.30	0.00000

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OBS	YEAR	DC	NER	CPII	CPIUS	M	X	FDII	PII	OC	LC	M1	EQBP	CA	RGDPCT	INT	GOVEX
57	19921	99683	2006.6	164.5	128.9	12715.82	14563.9	1498.93	0	622.046	0.54512	27336	1948.41	-2556.41	38166.8	12.94	19366.88
58	19922	119718	2024.7	167.4	129.9	.	.	.	.	.	0.84337	26881	.	.	.	12.25	5911.11

OBS	RSV	SAV	GOVDEF	POP	UTPD	UTOD	WINT	FLMA	FLDMB	NFA	WPIUS	GDP	IR	ICINF	WINF	FAMA	FADMB	QM	RDM	DIM
57	-1512.98	18772.53	-2781.55	182.3	44	113	4.23	6171	13092	18148	112.4	62784.38	9620	3.2	11.3	27381	10029	73567	1624	15304
58	.	.	.	.	.	.	4.00	5158	14479	21517	113.6	.	10714	3.3	12.1	30752	10902	80077	1039	33239

OBS	UVXP	UVMP	DCCG	DCOE	DCPS	MACCG	MACOE	MACPS	MACDMB	MACOFI	DMBCCG	DMBCOE	DMBCPS	DMBCOFI	CPIILG	CPIUSLG	INFI	INFILG
57	65.5	162.9	-31536	10407	119208	5884	35	974	13403	1023	1434	10372	118234	582	162.4	128.0	1.28481	2.24169
58	64.1	167.7	-15677	9335	124338	5523	34	938	13163	1027	1416	9300	123400	695	164.5	128.9	1.74756	1.28481

OBS	INFUS	INFD	INFDA	INFDLG	INTD	INTDLG	NERLG	CDEPR	RINT	RWINT	RINTD	REX	REXLG	GOVEXLG	RGGOVEX	RGOVEX
57	0.70066	0.58415	-1.91519	1.45737	8.71	7.59	1980.9	1.29739	11.6552	1.03	10.6252	0.72935	0.72744	9264.08	73.742	11779.18
58	0.77280	0.97476	-1.55244	0.58415	8.26	8.71	2006.6	0.90202	10.5024	0.70	9.8024	0.72781	0.72935	10366.88	-118.673	3531.13

OBS	GOVEXY	GOVDEY	GOVDEYLG	RGGOVDEY	GOVDEFLG	RGGOVDEF	RRD	RRDLG	KA	DCY	DCYLG	DDCY	DCPSRAT	DCPSOTG
57	0.30847	-0.044303	0.017889	-347.657	1046.04	-365.911	0.26232	1.07479	2120.98	1.58770	1.94961	-0.36190	1.19587	-5.6419
58	.	.	-0.044303	.	.	-2781.55	.	-0.21238	0.26232	.	.	1.58770	.	1.03859	-19.6055

OBS	DCPSY	DCPSYLG	DDCPSY	DCPSLG	DDCPS	DCCGY	DCCGYLG	DDCCGY	DCOEY	DCOEYLG	DDCOEY	DCTG	DCTGLG	DDCTG	DCTGRAT
57	1.89869	1.97362	-0.074927	115406	3802	-0.50229	-0.21738	-0.28491	0.16576	0.16599	-.00022938	-21129	-3005	-18124	-0.21196
58	.	1.89869	.	119208	5130	.	-0.50229	.	.	0.16576	.	.	-6342	-21129	14787	-0.05297

OBS	DCTGY	DCTGYLG	DDCTGY	DDCTGYLG	FDIY	FDIYLG	PIY	PIYLG	DCY	DCYLG	CFY	MS	M1Y	LLY	QLLY
57	-0.33653	-0.05139	-0.28514	0.01692	0.023874	0.017141	0	0	.0099077	0.063518	0.033782	117831	0.43539	1.60714	0.73635
58	.	-0.33653	.	-0.28514	.	0.023874	.	0	.	0.009908	.	141236	.	.	.

OBS	DCG	DCGY	MSY	MSYLG	MSLG	RGMS	RMS	RGDP	RGDPLG	RGRGDP	RGDPCAP	XY	XYLG	RGXY	RX
57	-21129	-0.33653	1.87676	2.24517	131285	-10.8119	71629.79	38166.80	36006.40	5.82691	837.450	0.23197	0.25946	-10.5959	8853.43
58	-6342	.	.	1.87676	117831	18.1181	84370.37	.	38166.80	.	.	.	0.23197	.	.

OBS	RXLG	RGRX	RGRXYF	RXY	RXYLG	RGRXY	MY	INV	SY	IY	UTD	UT	FD	FDY	FDYLG
57	9342.19	-5.23166	-121.357	0.14101	0.15977	-12.4852	0.20253	21328.94	0.29900	0.33972	157	315.036	2241.37	0.035700	0.028253
58	8853.43	.	.	.	0.14101	.	.	.	.	.	.	.	.	.	0.035700

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OBS	NFACB	NFAPB	NFACBY	NFACBYLG	NFAPBY	NFAY	RSVY	IRRP	IRM	IRMLG	RGIRM	RGIRMLG	CAY	EOBY	SYLG
57	21210	-3063	0.33782	0.31026	-0.048786	0.28905	-0.024098	19303.49	1.51807	1.45887	3.97757	4.57335	-0.040717	0.031033	0.29900
58	25594	-3577	.	0.33782	.	.	.	21692.64	.	1.51807	.	3.97757	.	.	0.29900

OBS	IYLG	ZERO1	ZERO11	ZERO2	ZERO22	ZERO3	XM	XMLG	RGXM	RGXMLG	XMY	XMYLG	RGXMY	RGXMYLG	XLM
57	0.33064	.000000015928	.001	0	0	0	1848.08	2600.92	-28.9451	-4.9423	0.029435	0.044480	-33.8229	-10.0725	27279.72
58	0.33972	.	.	.	1	0	.	1848.08	.	-28.9451	.	0.029435	.	-33.8229	.

OBS	XLMY	TOT	TOTLG	RGTOT	CBDA	CBDAY	DMBDA	DMBDAY	DMBDARAT	CBDARAT	BDAY	POPLG	RGPOP
57	0.43480	0.40209	0.58098	-30.7919	21019	0.33478	130622	2.08049	0.86139	0.13861	2.41527	182.3	0
58	.	0.38223	0.40209	-4.9385	20685	.	134811	.	0.86697	0.13303	.	182.3	.

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SYSLIN Procedure
Two-Stage Least Squares Estimation

Model: DCY
Dependent variable: DCY

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	7	12.86387	1.83770	272.171	0.0001
Error	47	0.31734	0.00675		
C Total	54	13.17874			

Root MSE	0.08217	R-Square	0.9759
Dep Mean	0.84875	Adj R-SQ	0.9723
C.V.	9.68140		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	0.005589	0.064849	0.086	0.8317
INFD	1	-0.024078	0.007669	-3.140	0.0029
FDYLG	1	-0.470055	0.450192	-1.044	0.3018
NFACBY	1	-0.522204	0.276725	-1.887	0.0653
NFACBYLG	1	0.522204	0.276725	1.887	0.0653
REXLG	1	0.003137	0.057280	0.055	0.9566
FDIY	1	5.328614	2.941523	1.812	0.0765
OCY	1	0.830452	0.703358	1.181	0.2437
DDCTGY	1	1.178232	0.261655	4.503	0.0001
DCYLG	1	1.000000	0	.	.
RESTRICT	-1	-0.052372	0.039069	-1.340	0.1865
RESTRICT	-1	-0.128811	0.155002	-0.831	0.4102

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SYSLIN Procedure
Two-Stage Least Squares Estimation

Model: RGRGDP
Dependent variable: RGRGDP

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	3	192.33538	64.11179	1.964	0.1310
Error	51	1664.44963	32.63627		
C Total	54	1851.28734			

Root MSE	5.71282	R-Square	0.1036
Dep Mean	1.38598	Adj R-SQ	0.0509
C.V.	409.23280		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-8.491635	6.691080	-1.277	0.2075
RGPOP	1	1.596703	0.857333	1.862	0.0683
RGRXYF	1	0.003685	0.002744	1.343	0.1853
IY	1	24.822760	18.445193	1.346	0.1843

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SYSLIN Procedure
Two-Stage Least Squares Estimation

Model: FDIY
Dependent variable: FDIY

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	8	0.00085	0.00011	8.401	0.0001
Error	46	0.00058	0.00001		
C Total	54	0.00144			

Root MSE	0.00356	R-Square	0.5937
Dep Mean	0.00540	Adj R-SQ	0.5230
C.V.	65.94879		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-0.021279	0.006488	-3.280	0.0020
RGDPCAP	1	0.000023502	0.000008764	2.682	0.0101
GOVEXY	1	0.011850	0.007625	1.554	0.1270
XY	1	0.040604	0.021980	1.847	0.0711
LC	1	-0.000445	0.000164	-2.718	0.0092
FDY	1	-0.012971	0.027002	-0.480	0.6332
RRD	1	-0.000205	0.000093403	-2.197	0.0331
WINT	1	-0.000473	0.000224	-2.114	0.0400
M1Y	1	0.014590	0.012913	1.130	0.2644

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SYSLIN Procedure
Two-Stage Least Squares Estimation

Model: PIY
Dependent variable: PIY

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	0.00006	0.00001	1.656	0.1750
Error	50	0.00044	0.00001		
C Total	54	0.00050			

Root MSE	0.00297	R-Square	0.1170
Dep Mean	0.00064	Adj R-SQ	0.0463
C.V.	465.04847		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-0.009749	0.005616	-1.736	0.0887
WINT	1	-0.000095380	0.000167	-0.572	0.5700
M1Y	1	0.013937	0.010307	1.352	0.1824
CBDARAT	1	0.016140	0.007332	2.201	0.0324
INFD	1	-0.000220	0.000273	-0.805	0.4249

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SYSLIN Procedure
Two-Stage Least Squares Estimation

odel: OCY
ependent variable: OCY

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	0.00583	0.00146	3.975	0.0071
Error	50	0.01833	0.00037		
C Total	54	0.02416			

Root MSE	0.01915	R-Square	0.2413
Dep Mean	0.03121	Adj R-SQ	0.1806
C.V.	61.35121		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for HO: Parameter=0	Prob > |T|
INTERCEP	1	-0.225822	0.094416	-2.392	0.0206
RGDPCAP	1	0.000136	0.000079875	1.709	0.0937
MY	1	0.241513	0.130529	1.850	0.0702
M1Y	1	0.147632	0.082563	1.788	0.0798
CBDARAT	1	0.194915	0.085928	2.268	0.0277

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SYSLIN Procedure
Two-Stage Least Squares Estimation

Model: SY
Dependent variable: SY

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	0.05937	0.01484	9.898	0.0001
Error	50	0.07498	0.00150		
C Total	54	0.13478			

Root MSE	0.03872	R-Square	0.4419
Dep Mean	0.33281	Adj R-SQ	0.3973
C.V.	11.63576		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	0.168730	0.039852	4.234	0.0001
RGRGDP	1	0.002141	0.000924	2.317	0.0246
RGTOT	1	0.000172	0.000096558	1.776	0.0818
FDYLG	1	-0.375693	0.187385	-2.005	0.0504
SYLG	1	0.499321	0.112090	4.455	0.0001

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SYSLIN Procedure
Two-Stage Least Squares Estimation

lodel: IY
ependent variable: IY

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	9	0.02882	0.00320	1.657	0.1281
Error	45	0.08696	0.00193		
C Total	54	0.11642			

Root MSE	0.04396	R-Square	0.2489
Dep Mean	0.35529	Adj R-SQ	0.0987
C.V.	12.37284		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	0.182976	0.057341	3.191	0.0026
RGRGDP	1	0.002524	0.001497	1.687	0.0986
RGTOT	1	0.000106	0.000113	0.937	0.3540
REXLG	1	-0.003893	0.035064	-0.111	0.9121
FDIY	1	-0.245335	1.416899	-0.173	0.8633
PIY	1	2.322997	2.837684	0.819	0.4173
DCY	1	0.679240	0.357749	1.899	0.0640
FDYLG	1	-0.391012	0.264691	-1.477	0.1466
DDCPSY	1	0.054657	0.099699	0.548	0.5863
IYLG	1	0.438759	0.141338	3.104	0.0033

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SYSLIN Procedure
Three-Stage Least Squares Estimation

Cross Model Covariance

Sigma	DCY	RGRGDP	FDIY	PIY	OCY	SY	IY
DCY	0.0067519875	-0.299554647	-0.000044121	-0.000021347	-0.000084442	-0.000016426	-0.00006052
RGRGDP	-0.299554647	32.63626717	-0.000711141	0.0007222784	-0.010259715	-0.02619569	-0.025774614
FDIY	-0.000044121	-0.000711141	0.0000127053	-3.700031E-7	9.7186487E-6	0.0000176688	0.0000180137
PIY	-0.000021347	0.0007222784	-3.700031E-7	8.8205025E-8	8.1984591E-6	0.0000199004	-2.841895E-6
OCY	-0.000084442	-0.010259715	9.7186487E-6	8.1984591E-6	0.0003668764	0.0002036317	0.0001485458
SY	-0.000016426	-0.02619569	0.0000176688	0.0000199004	0.0002036317	0.0014996128	0.0015069565
IY	-0.00006052	-0.025774614	0.0000180137	-2.841895E-6	0.0001485458	0.0015069565	0.0019324787

Cross Model Correlation

Corr	DCY	RGRGDP	FDIY	PIY	OCY	SY	IY
DCY	1	-0.638131239	-0.150638303	-0.08747492	-0.053673801	-0.005161948	-0.016754154
RGRGDP	-0.638131239	1	-0.034923199	0.0425703981	-0.093799986	-0.118410453	-0.102632423
FDIY	-0.150638303	-0.034923199	1	-0.034951598	0.1424071895	0.1280045211	0.1149617364
PIY	-0.08747492	0.0425703981	-0.034951598	1	0.1441794281	0.1730315758	-0.021767272
OCY	-0.053673801	-0.093799986	0.1424071895	0.1441794281	1	0.274646225	0.1764902182
SY	-0.005161948	-0.118410453	0.1280045211	0.1730315758	0.274646225	1	0.8852252616
IY	-0.016754154	-0.102632423	0.1149617364	-0.021767272	0.1764902182	0.8852252616	1

Cross Model Inverse Correlation

Inv Corr	DCY	RGRGDP	FDIY	PIY	OCY	SY	IY
DCY	1.8257961543	1.1891636264	0.2929651664	0.1313310739	0.1516964228	-0.165397161	0.2414561596
RGRGDP	1.1891636264	1.7988022214	0.198840601	0.0022428767	0.17045235	0.0565696442	0.101568708
FDIY	0.2929651664	0.198840601	1.0819729301	0.0966258418	-0.102059752	-0.148988006	0.0529341649
PIY	0.1313310739	0.0022428767	0.0966258418	1.2316099135	-0.061516513	-1.078206076	0.9834433644
OCY	0.1516964228	0.17045235	-0.102059752	-0.061516513	1.1420352393	-0.543005419	0.3095534683
SY	-0.165397161	0.0565696442	-0.148988006	-1.078206076	-0.543005419	5.9096394637	-5.13883389
IY	0.2414561596	0.101568708	0.0529341649	0.9834433644	0.3095534683	-5.13883389	5.5241835131

Cross Model Inverse Covariance

Inv Sigma	DCY	RGRGDP	FDIY	PIY	OCY	SY	IY
DCY	270.408697	2.5332354716	1000.2497956	538.15207036	96.422248116	-51.97837174	66.844413312
RGRGDP	2.5332354716	0.0551166655	9.7647949723	0.132193014	1.5583696545	0.2557076043	0.4044378052
FDIY	1000.2497956	9.7647949723	85159.479595	9127.5648792	-1495.479757	-1079.369262	337.82128606
PIY	538.15207036	0.132193014	9127.5648792	139630.35696	-1081.839357	-9374.876324	7532.6074221
OCY	96.422248116	1.5583696545	-1495.479757	-1081.839357	3115.4082387	-732.3730078	367.78672291
SY	-51.97837174	0.2557076043	-1079.369262	-9374.876324	-732.3730078	3940.7769875	-3018.684043
IY	66.844413312	0.4044378052	337.82128606	7532.6074221	367.78672291	-3018.684043	2858.5999649

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SYSLIN Procedure
Three-Stage Least Squares Estimation

System Weighted MSE: 0.86647 with 339 degrees of freedom.
System Weighted R-Square: 0.9262

Model: DCY
Dependent variable: DCY

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SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	0.004535	0.049720	0.091	0.9277
INFD	1	-0.013972	0.005772	-2.421	0.0196
FDYLG	1	-0.533815	0.353520	-1.510	0.1380
NFACBY	1	-0.727700	0.209354	-3.476	0.0011
NFACBYLG	1	0.727700	0.209354	3.476	0.0011
REXLG	1	-0.016531	0.043545	-0.380	0.7060
FDIY	1	5.143664	2.201217	2.337	0.0240
OCY	1	1.190553	0.547432	2.175	0.0349
DOCTGY	1	0.879974	0.194546	5.037	0.0001
DCYLG	1	1.000000	0	.	.
RESTRICT	-1	-14.212885	7.571798	-1.877	0.0670
RESTRICT	-1	-4.203477	30.598745	-0.137	0.8913

lodel: RGRGDP
ependant variable: RGRGDP

SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-10.064105	5.109683	-1.970	0.0543
RGPOP	1	0.509562	0.664191	0.767	0.4465
RGRXYF	1	0.002170	0.002156	1.006	0.3190
IY	1	31.069790	14.075754	2.207	0.0318

lodel: FDIY
ependent variable: FDIY

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SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-0.024665	0.006324	-3.900	0.0003
RGDPCAP	1	0.000023627	0.000008511	2.776	0.0079
GDVEXY	1	0.009541	0.007387	1.292	0.2030
XY	1	0.042232	0.021321	1.981	0.0536
LC	1	-0.000486	0.000159	-3.054	0.0037
FDY	1	-0.020694	0.026267	-0.788	0.4349
RRD	1	-0.000222	0.000090549	-2.457	0.0178
WINT	1	-0.000420	0.000217	-1.936	0.0591
M1Y	1	0.022412	0.012545	1.786	0.0806

Model: PIY
Dependent variable: PIY

SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-0.012188	0.005337	-2.284	0.0267
WINT	1	-0.000065222	0.000155	-0.422	0.6752
M1Y	1	0.019668	0.009776	2.012	0.0496
CBDARAT	1	0.015558	0.006944	2.240	0.0295
INFD	1	-0.000139	0.000251	-0.555	0.5814

Model: OCY
Dependent variable: OCY

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SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-0.279725	0.089310	-3.132	0.0029
RGDPCAP	1	0.000172	0.000075605	2.271	0.0275
MY	1	0.240253	0.123335	1.948	0.0570
M1Y	1	0.194492	0.078340	2.483	0.0164
CBDARAT	1	0.232124	0.081152	2.860	0.0062

Model: SY
Dependent variable: SY

SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	0.166676	0.037988	4.388	0.0001
RGRGDP	1	0.002630	0.000880	2.987	0.0044
RGTOT	1	0.000144	0.000090993	1.583	0.1196
FDYLG	1	-0.513898	0.177906	-2.889	0.0057
SYLG	1	0.512232	0.106809	4.796	0.0001

lodel: IY
)ependent variable: IY

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SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	0.181037	0.047186	3.837	0.0004
RGRGDP	1	0.002794	0.001125	2.483	0.0168
RGTOT	1	0.000076062	0.000107	0.708	0.4827
REXLG	1	0.001787	0.015223	0.117	0.9071
FDIY	1	0.043135	0.615977	0.070	0.9445
PIY	1	1.355559	1.210682	1.120	0.2688
OCY	1	0.614988	0.153393	4.009	0.0002
FDYLG	1	-0.434974	0.210438	-2.067	0.0445
DDCPSY	1	0.038270	0.043219	0.885	0.3806
IYLG	1	0.435349	0.127280	3.420	0.0013

APPENDIX C: Detail of Model Simulation using SAS Simlin Procedure

```
1                                                The SAS System                                 12:20 Sunday, November 7, 1993

NOTE: Copyright(c) 1989 by SAS Institute Inc., Cary, NC USA.
NOTE: SAS (r) Proprietary Software Release 6.08  TS404
      Licensed to OKLAHOMA STATE UNIVERSITY, Site 0001354001.

NOTE: Running on IBM Model 3090 Serial Number 274587,
                IBM Model 3090 Serial Number 274587.

WARNING: Could not open NEWS file SAS.V608.NEWS(NEWS).

NOTE: The SASUSER library was not specified. SASUSER library will now be the same as the WORK library.
NOTE: All data sets and catalogs in the SASUSER library will be deleted at the end of the session. Use the NOWORKTERM option to
      prevent their deletion.

NOTE: SAS system options specified are:
      SORT=4

NOTE: The initialization phase used 0.18 CPU seconds and 1935K.
1          DATA TABLE1;                                                          00050000
2          INPUT YEAR DC NER CPII CPIUS M X FDII;                                00060015
3          CARDS;                                                                00061014

NOTE: The data set WORK.TABLE1 has 58 observations and 8 variables.
NOTE: The DATA statement used 0.06 CPU seconds and 2467K.

3                                                                                00061014
62         ;                                                                     00193122
63         DATA TABLE2;                                                          00194016
64         INPUT PII DC LC MI EOBP CA RGDPCT INT;                                00195099
65         CARDS;                                                                00196016

NOTE: The data set WORK.TABLE2 has 58 observations and 8 variables.
NOTE: The DATA statement used 0.03 CPU seconds and 2467K.

65                                                                               00196016
124        ;                                                                     00204617
125        DATA TABLE3;                                                          00204817
126        INPUT GOVEX RSV SAV GOVDEF POP UTPD UTOD WINT;                        00204999
127        CARDS;                                                                00205020

NOTE: The data set WORK.TABLE3 has 58 observations and 8 variables.
NOTE: The DATA statement used 0.03 CPU seconds and 2467K.

127                                                                              00205020
186        ;                                                                     00210917
187        DATA TABLE4;                                                          00211131
188        INPUT FLMA FLDMB NFA WPIUS GDP IR ICINF WINF;                         00211299
189        CARDS;                                                                00211332

NOTE: The data set WORK.TABLE4 has 58 observations and 8 variables.
NOTE: The DATA statement used 0.03 CPU seconds and 2467K.

189                                                                              00211332
248        ;                                                                     00217633
249        DATA TABLE5;                                                          00217899
250        INPUT FAMA FADMB QM RDM OIM UVXP UVMP;                                00217999
251        CARDS;                                                                00218099
```

```
2                                                The SAS System                                 12:20 Sunday, November 7, 1993
NOTE: The data set WORK.TABLE5 has 58 observations and 7 variables.
NOTE: The DATA statement used 0.03 CPU seconds and 2467K.

251                                                                                             00218099
310       ;                                                                                     00223999
311       DATA TABLE6;                                                                          00224098
312       INPUT DCCG DCOE DCPS;                                                                 00224199
313       CARDS;                                                                                00224299

NOTE: The data set WORK.TABLE6 has 58 observations and 3 variables.
NOTE: The DATA statement used 0.02 CPU seconds and 2467K.

313                                                                                             00224299
372       ;                                                                                     00230199
373       DATA TABLE7;                                                                          00230299
374       INPUT MACCG MACOE MACPS MACDMB MACOFI DMBCCG DMBCOE DMBCPS DMBCOFI;                   00230399
375       CARDS;                                                                                00230499

NOTE: The data set WORK.TABLE7 has 58 observations and 9 variables.
NOTE: The DATA statement used 0.03 CPU seconds and 2467K.

375                                                                                             00230499
434       ;                                                                                     00236399
435       DATA DISSERT;                                                                         00236517
436         MERGE TABLE1 TABLE2 TABLE3 TABLE4 TABLE5 TABLE6 TABLE7;                             00236699
437         CPIILG=LAG(CPII);                                                                   00236726
438         CPIUSLG=LAG(CPIUS);                                                                 00236899
439        INFI=(LOG(CPII)-LOG(CPIILG))*100;                                                    00236999
440         INFILG=LAG(INFI);                                                                   00237099
441        INFUS=(LOG(CPIUS)-LOG(CPIUSLG))*100;                                                 00237198
442         INFD=INFI-INFUS;                                                                    00237225
443         INFDA=INFI-ICINF;                                                                   00237399
444         INFDLG=LAG(INFD);                                                                   00237435
445         INTD=INT-WINT;                                                                      00237599
446         INTDLG=LAG(INTD);                                                                   00237699
447         NERLG=LAG(NER);                                                                     00237799
448         CDEPR=((NER-NERLG)/NERLG)*100;                                                      00237899
449         RINT=INT-INFI;                                                                      00237999
450         RWINT=WINT-ICINF;                                                                   00238099
451         RINTD=RINT-RWINT;                                                                   00238199
452         REX=((CPII/WPIUS)*1000)/NER;                                                        00238235
453         REXLG=LAG(REX);                                                                     00238335
454         GOVEXLG=LAG(GOVEX);                                                                 00238499
455        RGGOVEX=(LOG(GOVEX)-LOG(GOVEXLG))*100;                                               00238599
456         RGOVEX=(GOVEX/CPII)*100;                                                            00238699
457         GOVEXY=GOVEX/GDP;                                                                   00238799
458         GOVDEY=GOVDEF/GDP;                                                                  00238899
459         GOVDEYLG=LAG(GOVDEY);                                                               00238998
460         RGGOVDEY=((GOVDEY-GOVDEYLG)/GOVDEYLG)*100;                                          00239099
461         GOVDEFLG=LAG(GOVDEF);                                                               00239199
462         RGGOVDEF=((GOVDEF-GOVDEFLG)/GOVDEFLG)*100;                                          00239299
463        RRD=(LOG(REX)-LOG(REXLG))*100;                                                       00239399
464         RRDLG=LAG(RRD);                                                                     00239499
465         KA=FDII+PII+OC;                                                                     00239525
466         DCY=DC/GDP;                                                                         00239699
467         DCYLG=LAG(DCY);                                                                     00239799
468         DDCY=DCY-DCYLG;                                                                     00239898
469         DCPSRAT=DCPS/DC;                                                                    00239999
```

```
170          DCPSDTG=DCPS/(DCCG+DCOE);                                  00240099
171          DCPSY=DCPS/GDP;                                            00240199
172          DCPSYLG=LAG(DCPSY);                                        00240299
173          DDCPSY=DCPSY-DCPSYLG;                                      00240399
174          DCPSLG=LAG(DCPS);                                          00240499
175          DDCPS=DCPS-DCPSLG;                                         00240599
176          DCCGY=DCCG/GDP;                                            00240699
177          DCCGYLG=LAG(DCCGY);                                        00240799
178          DDCCGY=DCCGY-DCCGYLG;                                      00240899
179          DCOEY=DCOE/GDP;                                            00240999
180          DCOEYLG=LAG(DCOEY);                                        00241099
181          DDCOEY=DCOEY-DCOEYLG;                                      00241199
182          DCTG=DCCG+DCOE;                                            00241299
183          DCTGLG=LAG(DCTG);                                          00241399
184          DDCTG=DCTG-DCTGLG;                                         00241499
185          DCTGRAT=DCTG/DC;                                           00241599
186          DCTGY=DCTG/GDP;                                            00241699
187          DCTGYLG=LAG(DCTGY);                                        00241799
188          DDCTGY=DCTGY-DCTGYLG;                                      00241899
189          DDCTGYLG=LAG(DDCTGY);                                      00241999
190          FDIY=FDII/GDP;                                             00242025
191          FDIYLG=LAG(FDIY);                                          00242199
192          PIY=PII/GDP;                                               00242325
193          PIYLG=LAG(PIY);                                            00242499
194          OCY=OC/GDP;                                                00242525
195          OCYLG=LAG(OCY);                                            00242699
196          CFY=FDIY+PIY+OCY;                                          00242799
197          MS=M1+QM+RDM+OIM;                                          00242899
198          M1Y=M1/GDP;                                                00242999
199          LLY=(M1+QM)/GDP;                                           00243099
200          QLLY=(QM+M1)/GDP;                                          00243199
201          DCPSY=DCPS/GDP;                                            00243299
202          DCG=DCCG+DCOE;                                             00243399
203          DCGY=DCG/GDP;                                              00243499
204          MSY=MS/GDP;                                                00243599
205          MSYLG=LAG(MSY);                                            00243699
206          MSLG=LAG(MS);                                              00243799
207        RGMS=(LOG(MS)-LOG(MSLG))*100;                                00243899
208         RMS=(MS/CPII)*100;                                          00243999
209         RGDP=(100/CPII)*GDP;                                        00244099
210         RGDPLG=LAG(RGDP);                                           00244199
211        RGRGDP=(LOG(RGDP)-LOG(RGDPLG))*100;                          00244299
212         RGDPCAP=RGDP/(POP/4);                                       00244499
213         XY=X/GDP;                                                   00244525
214         XYLG=LAG(XY);                                               00244699
215         RGXY=((XY-XYLG)/XYLG)*100;                                  00244799
216         RX=(X/CPII)*100;                                            00244899
217         RXLG=LAG(RX);                                               00244999
218         RGRX=((RX-RXLG)/RXLG)*100;                                  00245099
219         RGRXYF=(RGRX)*(XY*100);                                     00245199
220         RXY=RX/GDP;                                                 00245299
221         RXYLG=LAG(RXY);                                             00245399
222        RGRXY=(LOG(RXY)-LOG(RXYLG))*100;                             00245499
223         MY=M/GDP;                                                   00245699
224         INV=SAV-CA;                                                 00245799
225         SY=SAV/GDP;                                                 00245825
226         IY=INV/GDP;                                                 00245925
227         UTD=UTPD+UTOD;                                              00246046
```

```
528          UT=(UTD*NER)/1000;                                                00246147
529          FD=(-CA)-UT;                                                      00246246
530          FDY=FD/GDP;                                                       00246337
531          FDYLG=LAG(FDY);                                                   00246437
532          NFACB=FAMA-FLMA;                                                  00246599
533          NFAPB=FADMB-FLDMB;                                                00246699
534          NFACBY=NFACB/GDP;                                                 00246799
535          NFACBYLG=LAG(NFACBY);                                             00246899
536          NFAPBY=NFAPB/GDP;                                                 00246999
537          NFAY=NFA/GDP;                                                     00247099
538          RSVY=RSV/GDP;                                                     00247125
539          IRRP=(IR*NER)/1000;                                               00247299
540          IRM=IRRP/M;                                                       00247399
541          IRMLG=LAG(IRM);                                                   00247499
542        RGIRM=(LOG(IRM)-LOG(IRMLG))*100;                                    00247599
543          RGIRMLG=LAG(RGIRM);                                               00247699
544          CAY=CA/GDP;                                                       00247727
545          EOBY=EOBP/GDP;                                                    00247825
546          SYLG=LAG(SY);                                                     00247925
547          IYLG=LAG(IY);                                                     00248025
548          ZERO1=CAY+FDIY+PIY+OCY+RSVY+EOBY;                                 00248199
549          ZERO11=CA+FDII+PII+OC+RSV+EOBP;                                   00248299
550          ZERO2=MSY-DCY-NFAY;                                               00248399
551          ZERO22=MS-DC-NFA;                                                 00249099
552          ZERO3=MS-M1-QM-RDM-DIM;                                           00250099
553          XM=X+(-M);                                                        00251099
554          XMLG=LAG(XM);                                                     00252099
555          RGXM=((XM-XMLG)/XMLG)*100;                                        00253099
556          RGXMLG=LAG(RGXM);                                                 00254099
557          XMY=(X+(-M))/GDP;                                                 00255099
558          XMYLG=LAG(XMY);                                                   00256099
559          RGXMY=((XMY-XMYLG)/XMYLG)*100;                                    00257099
560          RGXMYLG=LAG(RGXMY);                                               00258099
561          XLM=(X+M);                                                        00258199
562          XLMY=XLM/GDP;                                                     00258299
563          TOT=UVXP/UVMP;                                                    00259099
564          TOTLG=LAG(TOT);                                                   00259199
565          RGTOT=((TOT-TOTLG)/TOTLG)*100;                                    00260099
566          CBDA=MACCG+MACOE+MACPS+MACDMB+MACOFI;                             00261099
567          CBDAY=CBDA/GDP;                                                   00262099
568          DMBDA=DMBCCG+DMBCOE+DMBCPS+DMBCOFI;                               00263099
569          DMBDAY=DMBDA/GDP;                                                 00264099
570          DMBDARAT=DMBDA/(DMBDA+CBDA);                                      00265099
571          CBDARAT=CBDA/(DMBDA+CBDA);                                        00265199
572          BDAY=CBDAY+DMBDAY;                                                00266099
573          POPLG=LAG(POP);                                                   00266199
574        RGPOP=(LOG(POP)-LOG(POPLG))*100;                                    00267099
575          TITLE 'SIMULATE DISSERT USING SIMLIN';                            00270099
```

```
NOTE: Missing values were generated as a result of performing an operation on missing values.
      Each place is given by: (Number of times) at (Line):(Column).
      1 at 439:17   1 at 439:18   1 at 439:30   1 at 441:19   1 at 441:20   1 at 441:33   1 at 442:12   1 at 443:13   1 at 448:14
      1 at 448:21   1 at 448:28   1 at 449:11   1 at 451:13   1 at 455:21   1 at 455:22   1 at 455:35   1 at 457:15   1 at 458:16
      2 at 460:20   2 at 460:30   2 at 460:40   2 at 462:20   2 at 462:30   2 at 462:40   1 at 463:15   1 at 463:16   1 at 463:27
      1 at 465:10   1 at 465:14   1 at 466:9    2 at 466:11   1 at 471:13   2 at 473:15   1 at 475:13   1 at 476:13   2 at 478:15
      1 at 479:13   2 at 481:15   1 at 484:13   1 at 486:13   2 at 488:15   1 at 490:12   1 at 492:10   1 at 494:9    1 at 496:11
      1 at 496:15   1 at 498:9    1 at 499:14   1 at 500:15   1 at 501:13   1 at 503:11   1 at 504:9    1 at 507:15   1 at 507:16
      1 at 507:26   1 at 509:18   1 at 511:10   2 at 511:19   1 at 511:20   2 at 511:32   1 at 512:15   1 at 512:20   1 at 513:7
```

```
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      2 at 515:12   2 at 515:18   2 at 515:24   1 at 516:8    1 at 516:14   2 at 518:12   2 at 518:18   2 at 518:24   2 at 519:16
      1 at 519:20   1 at 520:9    1 at 522:9    2 at 522:17   1 at 522:18   2 at 522:29   1 at 523:7    1 at 524:10   1 at 525:9
      1 at 526:9    1 at 527:11   1 at 528:10   1 at 528:15   1 at 529:8    1 at 529:11   1 at 530:9    1 at 534:15   1 at 536:15
      1 at 537:11   1 at 538:11   1 at 540:11   1 at 542:9    2 at 542:17   1 at 542:18   2 at 542:29   1 at 544:9    1 at 545:12
      1 at 548:12   1 at 548:17   1 at 548:21   1 at 548:25   1 at 548:30   1 at 549:12   1 at 549:17   1 at 549:21   1 at 549:24
      1 at 549:28   1 at 550:12   1 at 550:16   1 at 553:7    1 at 553:10   2 at 555:12   2 at 555:18   2 at 555:24   1 at 557:9
      1 at 557:12   1 at 557:15   2 at 559:14   2 at 559:21   2 at 559:28   1 at 561:9    1 at 562:11   1 at 565:14   1 at 565:21
      1 at 565:28   1 at 567:13   1 at 569:15   1 at 572:13   1 at 574:9    2 at 574:17   1 at 574:18   2 at 574:29
NOTE: The data set WORK.DISSERT has 58 observations and 188 variables.
NOTE: The DATA statement used 0.50 CPU seconds and 3030K.

576         PROC SYSLIN 3SLS DATA=DISSERT OUTEST=A;                                    01640099
577         INSTRUMENTS INFD FDYLG NFACBY NFACBYLG REXLG DCYLG DDCCGY DMBDARAT         01660099
578          GOVEXY XY LC FDY RRD WINT RWINT M1Y CBDARAT RGDPCAP MY RRDLG              01670099
579          RGTOT SYLG TOTLG IYLG CAY RSVY EOBY MSY NFAY NFAPBY DDCY CBDAY            01680099
580          DMBDAY DDCOEY RGXY RGPOP INFDLG DDCTG DDCPS BDAY                          01681099
581          DDCTGY RGRXYF RGRX REX;                                                   01682099
582         ENDOGENOUS DCY RGRGDP FDIY PIY OCY SY IY;                                  01683099
583         MODEL DCY=INFD FDYLG NFACBY NFACBYLG REXLG FDIY OCY DDCTGY DCYLG;          01690099
584         RESTRICT NFACBY=-NFACBYLG;                                                 01700099
585         RESTRICT DCYLG=1;                                                          01710099
586         MODEL RGRGDP = RGPOP RGRXYF IY;                                            01720099
587         MODEL  FDIY = RGDPCAP GOVEXY XY LC FDY RRD WINT M1Y;                       01730099
588         MODEL PIY=WINT M1Y CBDARAT INFD;                                           01740099
589         MODEL OCY=RGDPCAP MY M1Y CBDARAT;                                          01770099
590         MODEL  SY = RGRGDP RGTOT FDYLG SYLG;                                       01780099
591         MODEL IY = RGRGDP RGTOT REXLG FDIY PIY OCY FDYLG DDCPSY IYLG;              01810099

NOTE: 58 observations were read.
      3 observations have missing values.
      55 observations were used in the computations.
NOTE: The data set WORK.A has 21 observations and 57 variables.
NOTE: The PROCEDURE SYSLIN printed pages 1-16.
NOTE: The PROCEDURE SYSLIN used 0.35 CPU seconds and 3315K.

592         PROC SIMLIN EST=A DATA=DISSERT TYPE=3SLS ESTPRINT TOTAL INTERIM=2          01871398
593         OUTEST=B;                                                                  01871499
594         ENDOGENOUS DCY RGRGDP FDIY PIY OCY SY IY;                                  01871599
595         EXOGENOUS INFD FDYLG NFACBY NFACBYLG REXLG DDCCGY DMBDARAT                 01872099
596          GOVEXY XY LC FDY RRD WINT RWINT M1Y CBDARAT RGDPCAP MY RRDLG              01872199
597          RGTOT TOTLG CAY RSVY EOBY MSY NFAY NFAPBY DDCY CBDAY                      01872299
598          DMBDAY DDCOEY RGXY RGPOP INFDLG DDCTG DDCPS BDAY                          01872398
599          DDCTGY RGRXYF RGRX REX;                                                   01872499
600         LAGGED DCYLG DCY 1 SYLG SY 1 IYLG IY 1;                                    01872599
601         ID YEAR;                                                                   01872699
602         OUTPUT OUT=C  P=DCYP RGRGDPP FDIYP PIYP OCYP SYP IYP                       01872799
603                       R=DCYR RGRGDPR FDIYR PIYR OCYR SYR IYR;                      01873099

WARNING: Missing data for the lagged endogenous variable DCYLG. Endogenous actual value will be used.
NOTE: Percent error statistics for 1 variables were set to missing values because an actual value was too close to zero to compute
      the percent error at one or more observations.
NOTE: The data set WORK.B has 35 observations and 56 variables.
NOTE: The data set WORK.C has 58 observations and 66 variables.
NOTE: The PROCEDURE SIMLIN printed pages 17-24.
NOTE: The PROCEDURE SIMLIN used 0.13 CPU seconds and 3451K.

604         PROC PRINT;                                                                01873199
605         RUN;                                                                       01873299
```

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NOTE: The PROCEDURE PRINT printed pages 25-32.
NOTE: The PROCEDURE PRINT used 0.24 CPU seconds and 3505K.

605                                                                    01873299
606         PROC PLOT;                                                 01874099
607         PLOT DCY*YEAR DCYP*YEAR='*' /OVERLAY HPOS=60 VPOS=22;      01875099
608         PLOT RGRGDP*YEAR RGRGDPP*YEAR='*' /OVERLAY HPOS=60 VPOS=22;01876099
609         PLOT FDIY*YEAR FDIYP*YEAR='*' /OVERLAY HPOS=60 VPOS=22;    01877099
610         PLOT PIY*YEAR PIYP*YEAR='*' /OVERLAY HPOS=60 VPOS=22;      01878099
611         PLOT DCY*YEAR DCYP*YEAR='*' /OVERLAY HPOS=60 VPOS=22;      01879099
612         PLOT SY*YEAR SYP*YEAR='*' /OVERLAY HPOS=60 VPOS=22;        01879199
613         PLOT IY*YEAR IYP*YEAR='*' /OVERLAY HPOS=60 VPOS=22;        01879299
614         RUN;                                                       01879399

614                                                                    01879399
NOTE: The PROCEDURE PLOT printed pages 33-39.
NOTE: The PROCEDURE PLOT used 0.08 CPU seconds and 3638K.

NOTE: The SAS session used 1.76 CPU seconds and 3638K.
NOTE: SAS Institute Inc., SAS Campus Drive, Cary, NC USA 27513-2414
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SYSLIN Procedure
Three-Stage Least Squares Estimation

Cross Model Covariance

Sigma	DCY	RGRGDP	FDIY	PIY	OCY	SY	IY
DCY	0.0067519875	-0.299554647	-0.000044121	-0.000021347	-0.000084442	-0.000016426	-0.00006052
RGRGDP	-0.299554647	32.63626717	-0.000711141	0.0007222784	-0.010259715	-0.02619569	-0.025774614
FDIY	-0.000044121	-0.000711141	0.0000127053	-3.700031E-7	9.7186487E-6	0.0000176688	0.0000180137
PIY	-0.000021347	0.0007222784	-3.700031E-7	8.8205025E-6	8.1984591E-6	0.0000199004	-2.841895E-6
OCY	-0.000084442	-0.010259715	9.7186487E-6	8.1984591E-6	0.0003665764	0.0002036317	0.0001485458
SY	-0.000016426	-0.02619569	0.0000176688	0.0000199004	0.0002036317	0.0014996128	0.0015069565
IY	-0.00006052	-0.025774614	0.0000180137	-2.841895E-6	0.0001485458	0.0015069565	0.0019324787

Cross Model Correlation

Corr	DCY	RGRGDP	FDIY	PIY	OCY	SY	IY
DCY	1	-0.638131239	-0.150638303	-0.08747492	-0.053673801	-0.005161948	-0.016754154
RGRGDP	-0.638131239	1	-0.034923199	0.0425703981	-0.093799986	-0.118410453	-0.102632423
FDIY	-0.150638303	-0.034923199	1	-0.034951598	0.1424071895	0.1280045211	0.1149617364
PIY	-0.08747492	0.0425703981	-0.034951598	1	0.1441794281	0.1730315758	-0.021767272
OCY	-0.053673801	-0.093799986	0.1424071895	0.1441794281	1	0.274646225	0.1764902182
SY	-0.005161948	-0.118410453	0.1280045211	0.1730315758	0.274646225	1	0.8852252616
IY	-0.016754154	-0.102632423	0.1149617364	-0.021767272	0.1764902182	0.8852252616	1

Cross Model Inverse Correlation

Inv Corr	DCY	RGRGDP	FDIY	PIY	OCY	SY	IY
DCY	1.8257961543	1.1891636264	0.2929651664	0.1313310739	0.1516964228	-0.165397161	0.2414561596
RGRGDP	1.1891636264	1.7988022214	0.198840601	0.0022428767	0.17045235	0.0565696442	0.1015685708
FDIY	0.2929651664	0.198840601	1.0819729301	0.0966258418	-0.102059752	-0.148988006	0.0529341649
PIY	0.1313310739	0.0022428767	0.0966258418	1.2316099135	-0.061516513	-1.078206076	0.9834433644
OCY	0.1516964228	0.17045235	-0.102059752	-0.061516513	1.1420352393	-0.543005419	0.3095534683
SY	-0.165397161	0.0565696442	-0.148988006	-1.078206076	-0.543005419	5.9096394637	-5.13883389
IY	0.2414561596	0.1015685708	0.0529341649	0.9834433644	0.3095534683	-5.13883389	5.5241835131

Cross Model Inverse Covariance

Inv Sigma	DCY	RGRGDP	FDIY	PIY	OCY	SY	IY
DCY	270.408697	2.5332354716	1000.2497956	538.15207036	96.422248116	-51.97837174	66.844413312
RGRGDP	2.5332354716	0.0551166655	9.7647949723	0.132193014	1.5583696545	0.2557076043	0.4044378052
FDIY	1000.2497956	9.7647949723	85159.479595	9127.5648792	-1495.479757	-1079.369262	337.82128606
PIY	538.15207036	0.132193014	9127.5648792	139630.35696	-1081.839357	-9374.876324	7532.6074221
OCY	96.422248116	1.5583696545	-1495.479757	-1081.839357	3115.4082387	-732.3730078	367.78672291
SY	-51.97837174	0.2557076043	-1079.369262	-9374.876324	-732.3730078	3940.7769875	-3018.684043
IY	66.844413312	0.4044378052	337.82128606	7532.6074221	367.78672291	-3018.684043	2858.5999649

SYSLIN Procedure
Three-Stage Least Squares Estimation

System Weighted MSE: 0.96647 with 339 degrees of freedom.
System Weighted R-Square: 0.9262

Model: DCY
Dependent variable: DCY

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SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	0.004535	0.049720	0.091	0.9277
INFD	1	-0.013972	0.005772	-2.421	0.0196
FDYLG	1	-0.533815	0.353520	-1.510	0.1380
NFACBY	1	-0.727700	0.209354	-3.476	0.0011
NFACBYLG	1	0.727700	0.209354	3.476	0.0011
REXLG	1	-0.016531	0.043545	-0.380	0.7060
FDIY	1	5.143664	2.201217	2.337	0.0240
OCY	1	1.190553	0.547432	2.175	0.0349
DDCTGY	1	0.979974	0.194646	5.037	0.0001
OCYLG	1	1.000000	0	.	.
RESTRICT	-1	-14.212885	7.571798	-1.877	0.0670
RESTRICT	-1	-4.203477	30.598745	-0.137	0.8913

Model: RGRGDP
Dependent variable: RGRGDP

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SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-10.064105	5.109683	-1.970	0.0543
RGPOP	1	0.509562	0.664191	0.767	0.4465
RGRXYF	1	0.002170	0.002156	1.006	0.3190
IY	1	31.069790	14.075754	2.207	0.0318

odel: FDIY
ependent variable: FDIY

SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-0.024665	0.006324	-3.900	0.0003
RGDPCAP	1	0.000023627	0.000008511	2.776	0.0079
GDVEXY	1	0.009541	0.007387	1.292	0.2030
XY	1	0.042232	0.021321	1.981	0.0536
LC	1	-0.000485	0.000159	-3.054	0.0037
FDY	1	-0.020694	0.026267	-0.788	0.4349
RRD	1	-0.000222	0.000090549	-2.457	0.0178
WINT	1	-0.000420	0.000217	-1.936	0.0591
M1Y	1	0.022412	0.012545	1.786	0.0806

Model: PIY
Dependent variable: PIY

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SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-0.012188	0.005337	-2.284	0.0267
WINT	1	-0.000065222	0.000155	-0.422	0.6752
M1Y	1	0.019668	0.009776	2.012	0.0496
CBDARAT	1	0.015558	0.006944	2.240	0.0295
INFD	1	-0.000139	0.000251	-0.555	0.5814

Model: DCY
Dependent variable: DCY

SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-0.279725	0.089310	-3.132	0.0029
RGDPCAP	1	0.000172	0.000075605	2.271	0.0275
MY	1	0.240253	0.123335	1.948	0.0570
M1Y	1	0.194492	0.078340	2.483	0.0164
CBDARAT	1	0.232124	0.081152	2.860	0.0062

Model: SY
Dependent variable: SY

SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	0.166676	0.037988	4.388	0.0001
RGRGDP	1	0.002630	0.000880	2.987	0.0044
RGTOT	1	0.000144	0.000090993	1.583	0.1196
FDYLG	1	-0.513898	0.177906	-2.889	0.0057
SYLG	1	0.512232	0.106809	4.796	0.0001

Model: IY
Dependent variable: IY

SYSLIN Procedure
Three-Stage Least Squares Estimation

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	0.181037	0.047186	3.837	0.0004
RGRGDP	1	0.002794	0.001125	2.483	0.0168
RGTOT	1	0.000076062	0.000107	0.708	0.4827
REXLG	1	0.001787	0.015223	0.117	0.9071
FDIY	1	0.043136	0.615977	0.070	0.9445
PIY	1	1.355559	1.210682	1.120	0.2688
OCY	1	0.614988	0.153393	4.009	0.0002
FDYLG	1	-0.434974	0.210438	-2.067	0.0445
DDCPSY	1	0.038270	0.043219	0.885	0.3806
IYLG	1	0.435349	0.127280	3.420	0.0013

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SIMLIN Procedure

Structural Coefficients for Endogenous Variables

	DCY	RGRGDP	FDIY	PIY	OCY	SY	IY
DCY	1.0000	.	-5.1437	.	-1.1906	.	.
RGRGDP	.	1.0000	.	.	.	.	-31.0698
FDIY	.	.	1.0000	.	.	.	.
PIY	.	.	.	1.0000	.	.	.
OCY	.	.	.	.	1.0000	.	.
SY	.	-0.002630	.	.	.	1.0000	.
IY	.	-0.002794	-0.0431	-1.3556	-0.6150	.	1.0000

Structural Coefficients for Lagged Endogenous Variables

	DCYLG	SYLG	IYLG
DCY	1.0000	.	.
RGRGDP	.	.	.
FDIY	.	.	.
PIY	.	.	.
OCY	.	.	.
SY	.	0.5122	.
IY	.	.	0.4353

Structural Coefficients for Exogenous Variables

	INFD	FDYLG	NFACBY	NFACBYLG	REXLG	DDCCGY	DMBDARAT	GOVEXY	XY	LC	FDY
DCY	-0.0140	-0.5338	-0.7277	0.7277	-0.0165	.	.	.	.	.	.
RGRGDP	.	.	.	.	.	.	.	.	.	.	.
FDIY	.	.	.	.	.	.	.	0.009541	0.0422	-0.000489	-0.0207
PIY	-0.000139	.	.	.	.	.	.	.	.	.	.
OCY	.	.	.	.	.	.	.	.	.	.	.
SY	.	-0.5139	.	.	.	.	.	.	.	.	.
IY	.	-0.4350	.	.	0.001787	.	.	.	.	.	.

	RRD	WINT	RWINT	MIY	CBDARAT	RGDPCAP	MY	RRDLG	RGTDT	TOTLG	CAY
DCY	.	.	.	.	.	.	.	.	.	.	.
RGRGDP	.	.	.	.	.	.	.	.	.	.	.
FDIY	-0.000222	-0.000420	.	0.0224	.	0.0000236	.	.	.	.	.
PIY	.	-0.000065	.	0.0197	0.0156	.	.	.	.	.	.
OCY	.	.	.	0.1945	0.2321	0.000172	0.2403	.	.	.	.
SY	.	.	.	.	.	.	.	.	0.000144	.	.
IY	.	.	.	.	.	.	.	.	0.0000761	.	.

SIMLIN Procedure

Structural Coefficients for Exogenous Variables

	RSVY	EOBY	MSY	NFAY	NFAPBY	DDCY	CBDAY	DMBDAY	DDCOEY	RQXY	RGPOP
DCY	.	.	.	.	.	.	.	.	.	.	.
RGRGDP	.	.	.	.	.	.	.	.	.	.	0.5096
FDIY	.	.	.	.	.	.	.	.	.	.	.
PIY	.	.	.	.	.	.	.	.	.	.	.
OCY	.	.	.	.	.	.	.	.	.	.	.
SY	.	.	.	.	.	.	.	.	.	.	.
IY	.	.	.	.	.	.	.	.	.	.	.

	INFDLG	DDCTG	DDCPS	BDAY	DDCTGY	RGRXYF	RQRX	REX	INTERCEP
DCY	.	.	.	.	0.9800	.	.	.	0.004535
RGRGDP	.	.	.	.	.	0.002170	.	.	-10.0641
FDIY	.	.	.	.	.	.	.	.	-0.0247
PIY	.	.	.	.	.	.	.	.	-0.0122
OCY	.	.	.	.	.	.	.	.	-0.2797
SY	.	.	.	.	.	.	.	.	0.1667
IY	.	.	.	.	.	.	.	.	0.1810

SIMLIN Procedure

Inverse Coefficient Matrix for Endogenous Variables

	DCY	RGRGDP	FDIY	PIY	OCY	SY	IY
DCY	1.0000	0	5.1437	0	1.1906	0	0
RGRGDP	0	1.0951	1.4676	46.1211	20.9242	0	34.0237
FDIY	0	0	1.0000	0	0	0	0
PIY	0	0	0	1.0000	0	0	0
OCY	0	0	0	0	1.0000	0	0
SY	0	0.002880	0.003860	0.1219	0.0550	1.0000	0.0895
IY	0	0.003060	0.0472	1.4844	0.6735	0	1.0951

Reduced Form for Lagged Endogenous Variables

	DCYLG	SYLG	IYLG
DCY	1.0000	0	0
RGRGDP	0	0	14.8122
FDIY	0	0	0
PIY	0	0	0
OCY	0	0	0
SY	0	0.5122	0.0390
IY	0	0	0.4767

Reduced Form for Exogenous Variables

	INFD	FDYLG	NFACBY	NFACBYLG	REXLG	DDCCGY	DMBDARAT	GOVEXY	XY	LC	FDY
DCY	-0.0140	-0.5338	-0.7277	0.7277	-0.0165	0	0	0.0491	0.2172	-0.002493	-0.1064
RGRGDP	-0.006423	-14.7994	0	0	0.0608	0	0	0.0140	0.0620	-0.000711	-0.0304
FDIY	0	0	0	0	0	0	0	0.009541	0.0422	-0.000485	-0.0207
PIY	-0.000139	0	0	0	0	0	0	0	0	0	0
OCY	0	0	0	0	0	0	0	0	0	0	0
SY	-0.000017	-0.5528	0	0	0.000160	0	0	0.0000368	0.000163	-1.871E-6	-0.00008
IY	-0.000207	-0.4763	0	0	0.001957	0	0	0.000451	0.001995	-0.000023	-0.000977

	RRD	WINT	RWINT	M1Y	CBDARAT	RGDPCAP	MY	RRDLG	RGTDT	TOTLG	CAY
DCY	-0.001144	-0.002160	0	0.3468	0.2764	0.000326	0.2860	0	0	0	0
RGRGDP	-0.000327	-0.003625	0	5.0096	5.5746	0.003627	5.0271	0	0.002588	0	0
FDIY	-0.000222	-0.000420	0	0.0224	0	0.0000236	0	0	0	0	0
PIY	0	-0.000065	0	0.0197	0.0156	0	0	0	0	0	0
OCY	0	0	0	0.1945	0.2321	0.000172	0.2403	0	0	0	0
SY	-8.588E-7	-9.533E-6	0	0.0132	0.0147	9.5386E-6	0.0132	0	0.000151	0	0
IY	-0.000011	-0.000117	0	0.1612	0.1794	0.000117	0.1618	0	0.0000833	0	0

SIMLIN Procedure

Reduced Form for Exogenous Variables

	RSVY	EDBY	MSY	NFAY	NFAPBY	DDCY	CBDAY	DMBDAY	DDCOEY	RGXY	RGPDP
DCY	0	0	0	0	0	0	0	0	0	0	0
RGRGDP	0	0	0	0	0	0	0	0	0	0	0.5580
FDIY	0	0	0	0	0	0	0	0	0	0	0
PIY	0	0	0	0	0	0	0	0	0	0	0
OCY	0	0	0	0	0	0	0	0	0	0	0
SY	0	0	0	0	0	0	0	0	0	0	0.001468
IY	0	0	0	0	0	0	0	0	0	0	0.001559

	INFDLG	DDCTG	DDCPS	BDAY	DDCTGY	RGRXYF	RGRX	REX	INTERCEP
DCY	0	0	0	0	0.9800	0	0	0	-0.4554
RGRGDP	0	0	0	0	0	0.002376	0	0	-11.3127
FDIY	0	0	0	0	0	0	0	0	-0.0247
PIY	0	0	0	0	0	0	0	0	-0.0122
OCY	0	0	0	0	0	0	0	0	-0.2787
SY	0	0	0	0	0	6.2494E-6	0	0	0.1369
IY	0	0	0	0	0	6.6395E-6	0	0	-0.0402

Interim Multipliers for Interim 1

	INFD	FDYLG	NFACBY	NFACBYLG	REXLG	DDCCGY	DMBDARAT	GDVEXY	XY	LC	FDY
DCY	-.0139717	-0.533815	-.7277001	0.7277001	-.0165314	0	0	0.0490759	0.2172295	-.0024927	-.1064411
RGRGDP	-.0030623	-7.055467	0.0000000	0.0000000	0.0289807	0	0	0.0066756	0.0295490	-.0003391	-.0144788
FDIY	0.0000000	0.000000	0.0000000	0.0000000	0.0000000	0	0	0.0000000	0.0000000	0.0000000	0.0000000
PIY	0.0000000	0.000000	0.0000000	0.0000000	0.0000000	0	0	0.0000000	0.0000000	0.0000000	0.0000000
OCY	0.0000000	0.000000	0.0000000	0.0000000	0.0000000	0	0	0.0000000	0.0000000	0.0000000	0.0000000
SY	-.0000167	-0.301730	0.0000000	0.0000000	0.0001581	0	0	0.0000364	0.0001612	-.0000019	-.0000790
IY	-.0000986	-0.227084	0.0000000	0.0000000	0.0009328	0	0	0.0002149	0.0009511	-.0000109	-.0004660

	RRO	WINT	RWINT	M1Y	CBDARAT	RGDPCAP	MY	RRDLG	RGTDT	TOTLG	CAY
DCY	-.0011443	-.0021605	0	0.346833	0.276356	0.0003259	0.286034	0	0.0000000	0	0
RGRGDP	-.0001557	-.0017280	0	2.388252	2.657613	0.0017290	2.396614	0	0.0012338	0	0
FDIY	0.0000000	0.0000000	0	0.000000	0.000000	0.0000000	0.000000	0	0.0000000	0	0
PIY	0.0000000	0.0000000	0	0.000000	0.000000	0.0000000	0.000000	0	0.0000000	0	0
OCY	0.0000000	0.0000000	0	0.000000	0.000000	0.0000000	0.000000	0	0.0000000	0	0
SY	-.0000008	-.0000094	0	0.013031	0.014500	0.0000094	0.013078	0	0.0000805	0	0
IY	-.0000050	-.0000556	0	0.076867	0.085537	0.0000556	0.077136	0	0.0000397	0	0

Interim Multipliers for Interim 1

	RSVY	EOBY	MSY	NFAY	NFAPBY	DDCY	CBDAY	DMBDAY	DDCOEY	RGXY	RGPOP
DCY	0	0	0	0	0	0	0	0	0	0	0.0000000
RGRGDP	0	0	0	0	0	0	0	0	0	0	0.0230960
FDIY	0	0	0	0	0	0	0	0	0	0	0.0000000
PIY	0	0	0	0	0	0	0	0	0	0	0.0000000
DCY	0	0	0	0	0	0	0	0	0	0	0.0000000
$Y	0	0	0	0	0	0	0	0	0	0	0.0008125
IY	0	0	0	0	0	0	0	0	0	0	0.0007434

	INFDLG	DDCTG	DDCPS	BDAY	DDCTGY	RGRXYF	RGRX	REX	INTERCEP
DCY	0	0	0	0	0.9799736	0.0000000	0	0	-.4553627
RGRGDP	0	0	0	0	0.0000000	0.0000983	0	0	-.5952624
FDIY	0	0	0	0	0.0000000	0.0000000	0	0	0.0000000
PIY	0	0	0	0	0.0000000	0.0000000	0	0	0.0000000
DCY	0	0	0	0	0.0000000	0.0000000	0	0	0.0000000
$Y	0	0	0	0	0.0000000	0.0000035	0	0	0.0685701
IY	0	0	0	0	0.0000000	0.0000032	0	0	-.0191589

Interim Multipliers for Interim 2

	INFD	FDYLG	NFACBY	NFACBYLG	REXLG	DDCCGY	DMBDARAT	GOVEXY	XY	LC	FDY
DCY	-.0139717	-0.533815	-.7277001	0.7277001	-.0165314	0	0	0.0490759	0.2172295	-.0024927	-.1064411
RGRGDP	-.0014599	-3.363616	0.0000000	0.0000000	0.0138162	0	0	0.0031825	0.0140872	-.0001617	-.0069026
FDIY	0.0000000	0.000000	0.0000000	0.0000000	0.0000000	0	0	0.0000000	0.0000000	0.0000000	0.0000000
PIY	0.0000000	0.000000	0.0000000	0.0000000	0.0000000	0	0	0.0000000	0.0000000	0.0000000	0.0000000
DCY	0.0000000	0.000000	0.0000000	0.0000000	0.0000000	0	0	0.0000000	0.0000000	0.0000000	0.0000000
$Y	-.0000124	-0.163403	0.0000000	0.0000000	0.0001173	0	0	0.0000270	0.0001196	-.0000014	-.0000586
IY	-.0000470	-0.108260	0.0000000	0.0000000	0.0004447	0	0	0.0001024	0.0004534	-.0000052	-.0002222

	RRD	WINT	RWINT	M1Y	CBDARAT	RGDPCAP	MY	RRDLG	RGTDY	TOTLG	CAY
DCY	-.0011443	-.0021605	0	0.346833	0.276356	0.0003259	0.286034	0	0.0000000	0	0
RGRGDP	-.0000742	-.0008238	0	1.138573	1.266988	0.0008243	1.142559	0	0.0005882	0	0
FDIY	0.0000000	0.0000000	0	0.000000	0.000000	0.0000000	0.000000	0	0.0000000	0	0
PIY	0.0000000	0.0000000	0	0.000000	0.000000	0.0000000	0.000000	0	0.0000000	0	0
DCY	0.0000000	0.0000000	0	0.000000	0.000000	0.0000000	0.000000	0	0.0000000	0	0
$Y	-.0000006	-.0000070	0	0.009669	0.010760	0.0000070	0.009703	0	0.0000428	0	0
IY	-.0000024	-.0000265	0	0.036646	0.040778	0.0000265	0.036774	0	0.0000189	0	0

Interim Multipliers for Interim 2

	RSVY	EDBY	MSY	NFAY	NFAPBY	DDCY	CBDAY	DMBDAY	DDCOEY	RGXY	RGPDP
DCY	0	0	0	0	0	0	0	0	0	0	0.0000000
RGRGDP	0	0	0	0	0	0	0	0	0	0	0.0110108
FDIY	0	0	0	0	0	0	0	0	0	0	0.0000000
PIY	0	0	0	0	0	0	0	0	0	0	0.0000000
OCY	0	0	0	0	0	0	0	0	0	0	0.0000000
SY	0	0	0	0	0	0	0	0	0	0	0.0004452
IY	0	0	0	0	0	0	0	0	0	0	0.0003544

	INFDLG	DDCTG	DDCPS	BDAY	DDCTGY	RGRXYF	RGRX	REX	INTERCEP
DCY	0	0	0	0	0.9789736	0.0000000	0	0	-.4553627
RGRGDP	0	0	0	0	0.0000000	0.0000469	0	0	-.2837849
FDIY	0	0	0	0	0.0000000	0.0000000	0	0	0.0000000
PIY	0	0	0	0	0.0000000	0.0000000	0	0	0.0000000
OCY	0	0	0	0	0.0000000	0.0000000	0	0	0.0000000
SY	0	0	0	0	0.0000000	0.0000019	0	0	0.0343774
IY	0	0	0	0	0.0000000	0.0000015	0	0	-.0091338

Total Multipliers

	INFD	FDYLG	NFACBY	NFACBYLG	REXLG	DDCCGY	DMBDARAT	GDVEXY	XY	LC	FDY
DCY	-1.379E13	-5.269E14	-7.183E14	7.1831E14	-1.632E13	0	0	4.8442E13	2.1443E14	-2.461E12	-1.051E14
RGRGDP	-0.012276	-28.28308	0	0	0.1161741	0	0	0.0267604	0.1184524	-0.001359	-0.058041
FDIY	0	0	0	0	0	0	0	0.009541	0.0422324	-0.000485	-0.020694
PIY	-0.000139	0	0	0	0	0	0	0	0	0	0
OCY	0	0	0	0	0	0	0	0	0	0	0
SY	-0.000066	-1.206078	0	0	0.0006264	0	0	0.0001443	0.0006387	-7.329E-6	-0.000313
IY	-0.000395	-0.910308	0	0	0.0037391	0	0	0.0008613	0.0038125	-0.000044	-0.001868

	RRD	WINT	RWINT	M1Y	CBDARAT	RGDPCAP	MY	RRDLG	RGTOT	TOTLG	CAY
DCY	-1.13E12	-2.133E12	0	3.4236E14	2.7279E14	3.217E11	2.8234E14	0	0.0000000	0	0
RGRGDP	-0.000624	-0.006927	0	9.5737299	10.653508	0.0069308	9.6072489	0	0.0049457	0	0
FDIY	-0.000222	-0.00042	0	0.0224121	0	0.0000236	0	0	0.0000000	0	0
PIY	0	-0.000065	0	0.0196676	0.0155584	0	0	0	0.0000000	0	0
OCY	0	0	0	0.1944915	0.2321237	0.0001717	0.2402532	0	0.0000000	0	0
SY	-3.365E-6	-0.000037	0	0.0516237	0.0574461	0.0000374	0.0518044	0	0.0003221	0	0
IY	-0.00002	-0.000223	0	0.3061363	0.3428896	0.0002231	0.3092151	0	0.0001592	0	0

SIMLIN Procedure

Total Multipliers

	RSVY	EDBY	MSY	NFAY	NFAPBY	DDCY	CBDAY	DMBDAY	DDCOEY	RGXY	RGPOP
DCY	0	0	0	0	0	0	0	0	0	0	0.0000000
RGRGDP	0	0	0	0	0	0	0	0	0	0	0.6021468
FDIY	0	0	0	0	0	0	0	0	0	0	0.0000000
PIY	0	0	0	0	0	0	0	0	0	0	0.0000000
DCY	0	0	0	0	0	0	0	0	0	0	0.0000000
$Y	0	0	0	0	0	0	0	0	0	0	0.0032469
IY	0	0	0	0	0	0	0	0	0	0	0.0029799

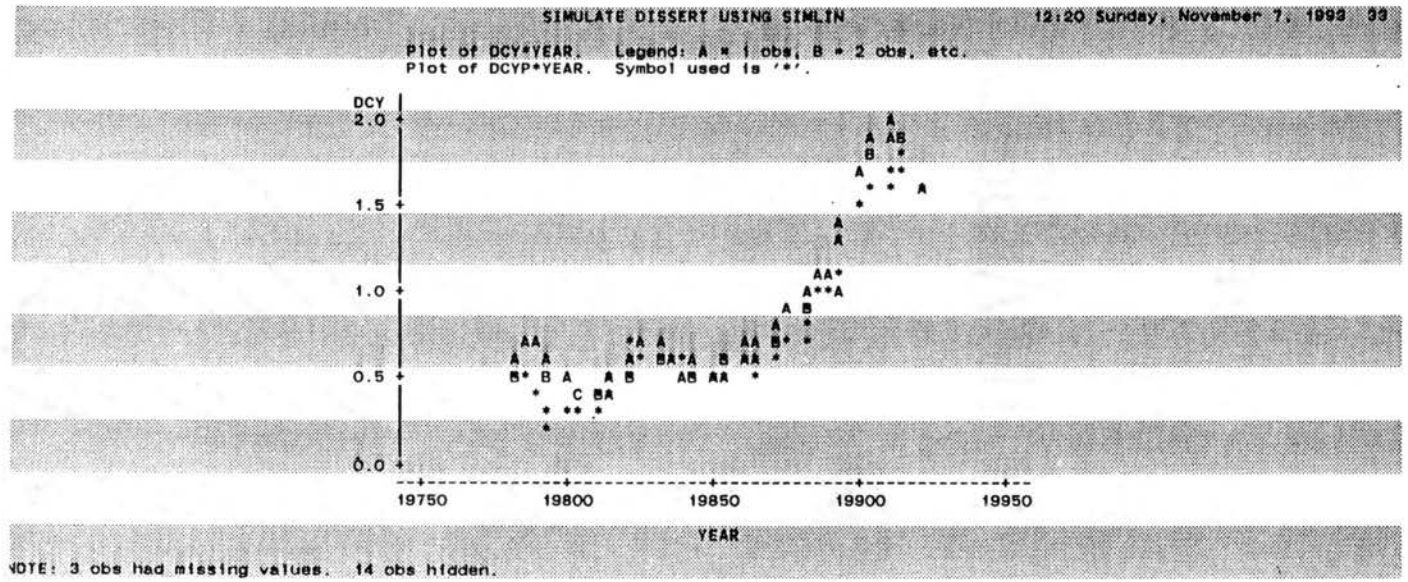
	INFDLG	DDCTG	DDCP$	BDAY	DDCTGY	RGRXYF	RGRX	REX	INTERCEP
DCY	0	0	0	0	8.6732E14	0.0000000	0	0	-4.495E14
RGRGDP	0	0	0	0	0	0.0025640	0	0	-12.45032
FDIY	0	0	0	0	0	0.0000000	0	0	-0.024665
PIY	0	0	0	0	0	0.0000000	0	0	-0.012188
DCY	0	0	0	0	0	0.0000000	0	0	-0.279725
$Y	0	0	0	0	0	0.0000138	0	0	0.2745789
IY	0	0	0	0	0	0.0000127	0	0	-0.076802

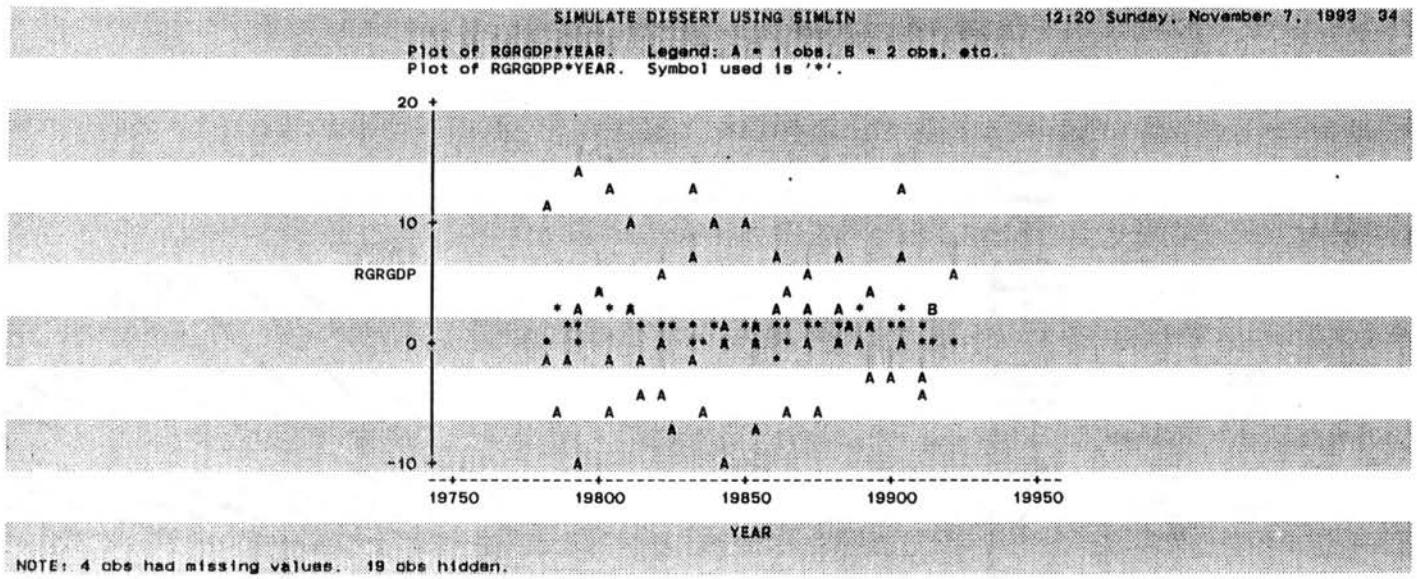
SIMULATE DISSERT USING SIMLIN

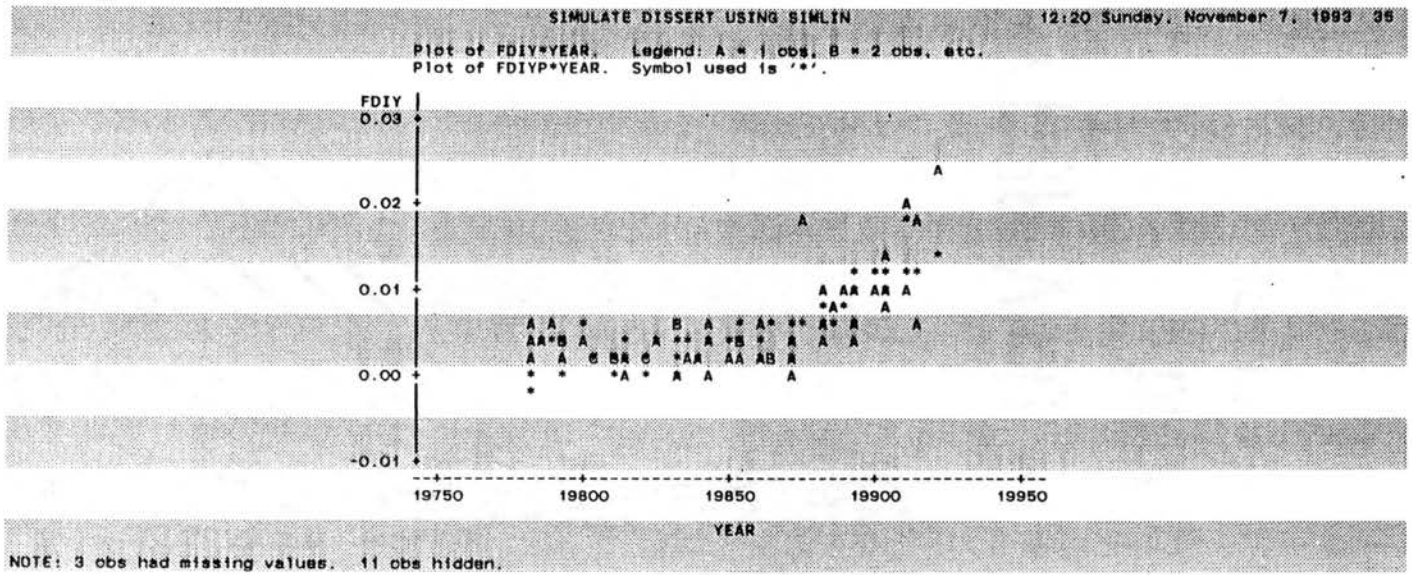
SIMLIN Procedure

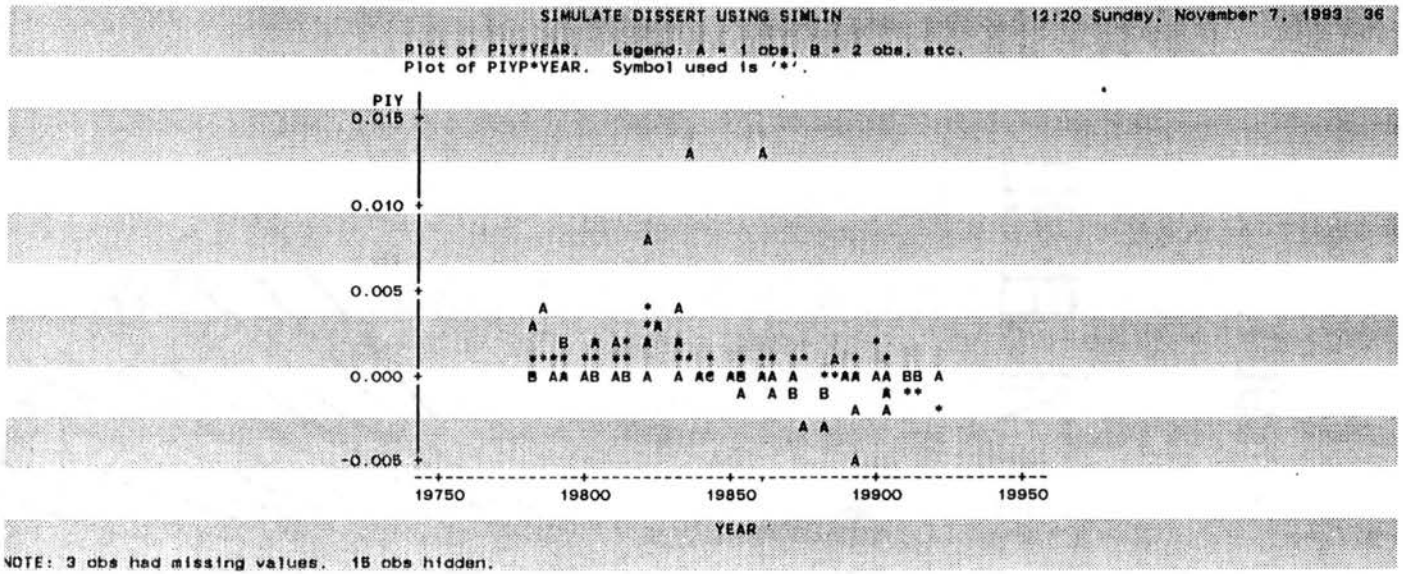
Statistics of Fit

Variable	N	Mean Error	Mean % Error	Mean Abs Error	Mean Abs % Error	RMS Error	RMS % Error
DCY	56	0.0820	9.9506	0.1032	13.60874	0.1360	18.5233
RGRGDP	56	0.3222	83.3817	4.7405	248.89172	5.8865	678.5985
FDIY	56	0.0000778	48.8451	0.002491	134.06215	0.003313	462.5602
PIY	56	-2.475E-6	.	0.001744	.	0.002825	.
DCY	57	0.000795	-40.1847	0.0153	129.68321	0.0185	240.9755
SY	56	0.005143	-0.2284	0.0356	10.56864	0.0500	14.9476
IY	56	0.006514	-0.1982	0.0427	12.05807	0.0592	17.0391

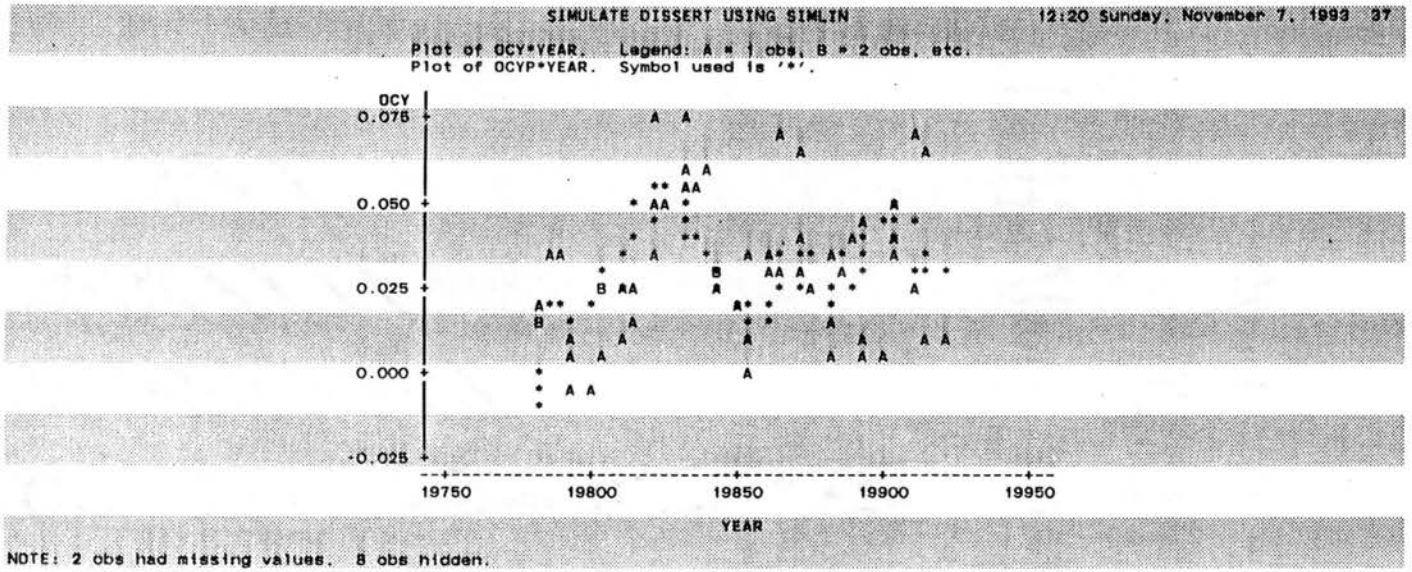

SIMULATE DISSERT USING SIMLIN 12:20 Sunday, November 7, 1993 33
Plot of DCY*YEAR. Legend: A = 1 obs, B = 2 obs, etc.
Plot of DCYP*YEAR. Symbol used is '*'.
DCY
2.0
1.5
1.0
0.5
0.0
19750
19800
19850
19900
19950
YEAR
NOTE: 3 obs had missing values. 14 obs hidden.


SIMULATE DISSERT USING SIMLIN 12:20 Sunday, November 7, 1993 34
Plot of RGRGDP*YEAR. Legend: A = 1 obs, B = 2 obs, etc.
Plot of RGRGDPP*YEAR. Symbol used is '*'.
20
10
0
-10
RGRGDP
19750
19800
19850
19900
19950
YEAR
NOTE: 4 obs had missing values. 19 obs hidden.

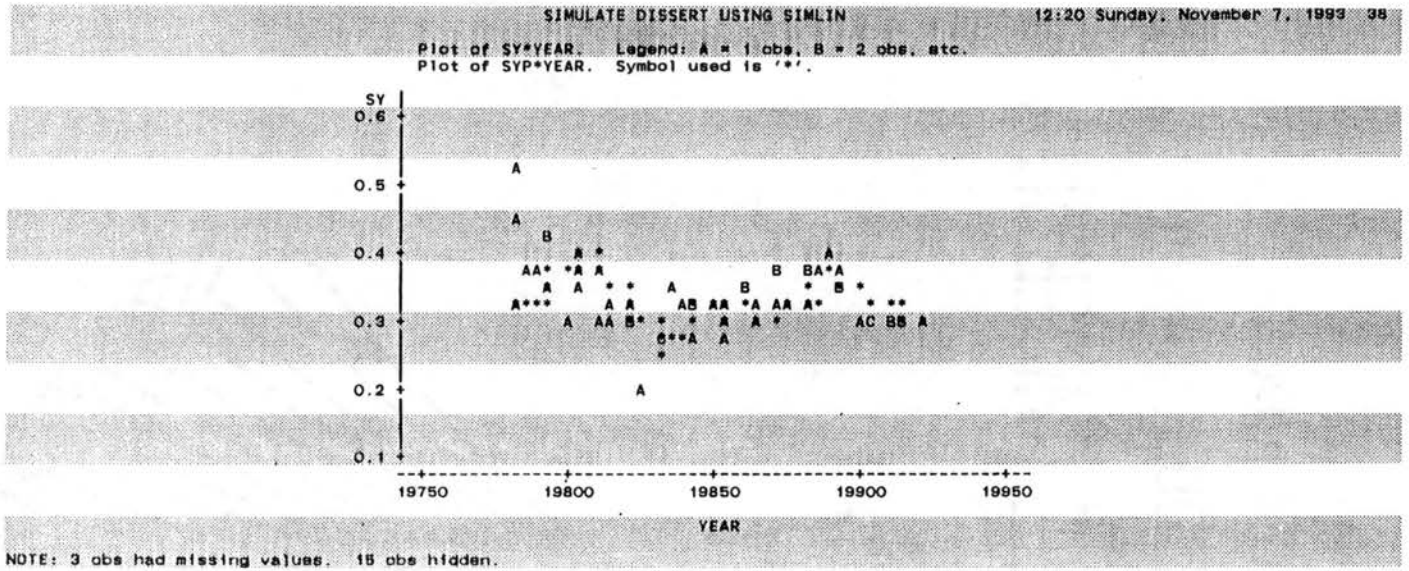

SIMULATE DISSERT USING SIMLIN 12:20 Sunday, November 7, 1993 35
Plot of FDIY*YEAR. Legend: A = 1 obs, B = 2 obs, etc.
Plot of FDIYP*YEAR. Symbol used is '*'.
FDIY
0.03
0.02
0.01
0.00
-0.01
19750
19800
19850
19900
19950
YEAR
NOTE: 3 obs had missing values. 11 obs hidden.



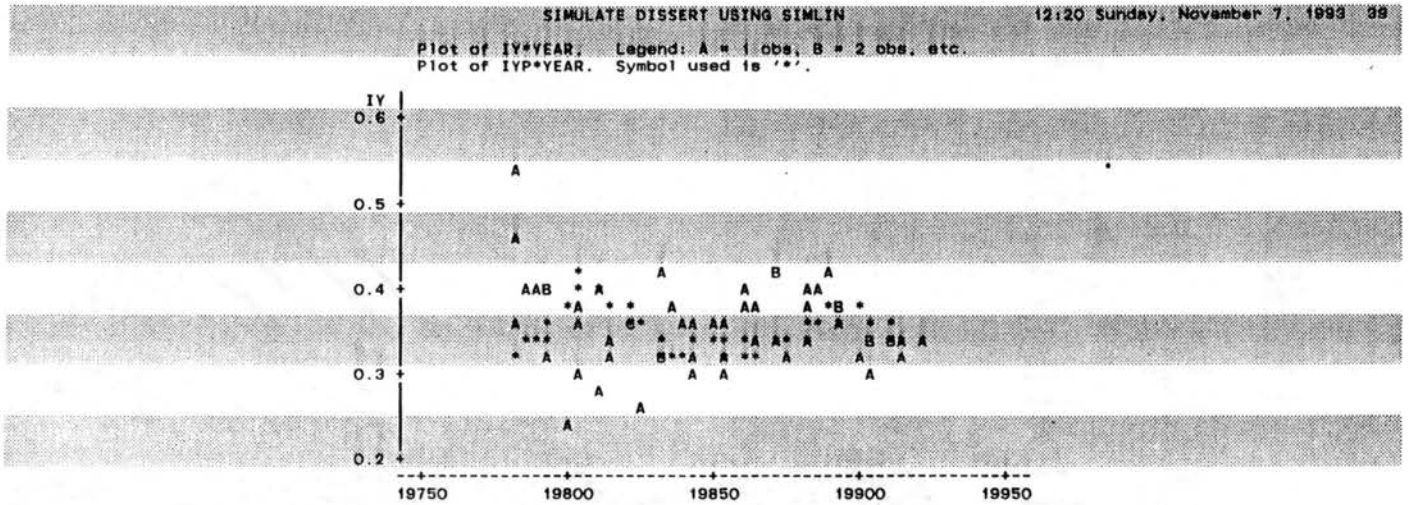
NOTE: 3 obs had missing values. 15 obs hidden.



NOTE: 2 obs had missing values. 8 obs hidden.



NOTE: 3 obs had missing values. 15 obs hidden.



NOTE: 3 obs had missing values. 19 obs hidden.

APPENDIX D: Nonstationarity (Unit Root) Test of the Series
(Using Software MTSP Version 7.0)

The series in the model are tested for nonstationarity by using the Augmented Dickey-Fuller (ADF) unit root test. . The ADF test consist of running a regression of the first difference of the series against the series lagged once, lagged differenced terms, and optionally, a constant and a time trend. The number of lagged difference terms used in the test is either one or two, although more than 2 sometimes was also used. To illustrate the ADF test consider an AR(1) process:

$$Y = a + pY_{-1} + e$$

where a and p are parameters and e's are assumed to be independently and identically distributed with zero mean and constant variance. If $-1<p<1$, then AR(1) process is stationary. If p=1 the equation defines a random walk with drift and Y is then nonstationary. If p>1, the series is explosive. Hence, the crucial null hypothesis for testing nonstationarity is that the absolute value of p should equal one. The appropriate null hypothesis is :

Ho: p=1 , the series is nonstationary or a unit root exists.

To test the null hyphotesis, let us respecify the AR(1) equation as:

$$D(Y) = a + qY_{-1} + e$$

where q = p-1, and D(Y) is the first difference of Y series, so the unit root hyphothesis is now:

Ho: q=0 , the series is nonstationary or a unit root exist.

Dickey-Fuller table is the appropriate critical values for the test. MacKinnon table is an expansion version of Dickey-Fuller Table. In our work, the critical values were taken from MacKinnon table.

The following table presented the result of the nonstationary test for each series used in the model. The null hypothesis Ho is unit root exist or the series is nonstationary. Rejection of the Null Hypothesis means that the series is not nonstationair or the series is stationair, it has a white noise residual.

Series Name	Number of lagged difference terms	With C=Constant or T=Constant and Trend	Reject/Accept Ho: Unit Root	% level
1. DDCY	2	T	Reject	1%
2. INFD	2	T	Reject	1%
3. FDYLG	4	T	Reject	10%
4. DNFACBY	2	T	Reject	1%
5. REXLG	2	T	Reject	1%
6. FDIY	1	T	Reject	1%
7. PIY	2	T	Reject	1%
8. OCY	1	C	Reject	5%
9. DDCTGY	2	T	Reject	1%
10. IY	2	T	Reject	1%

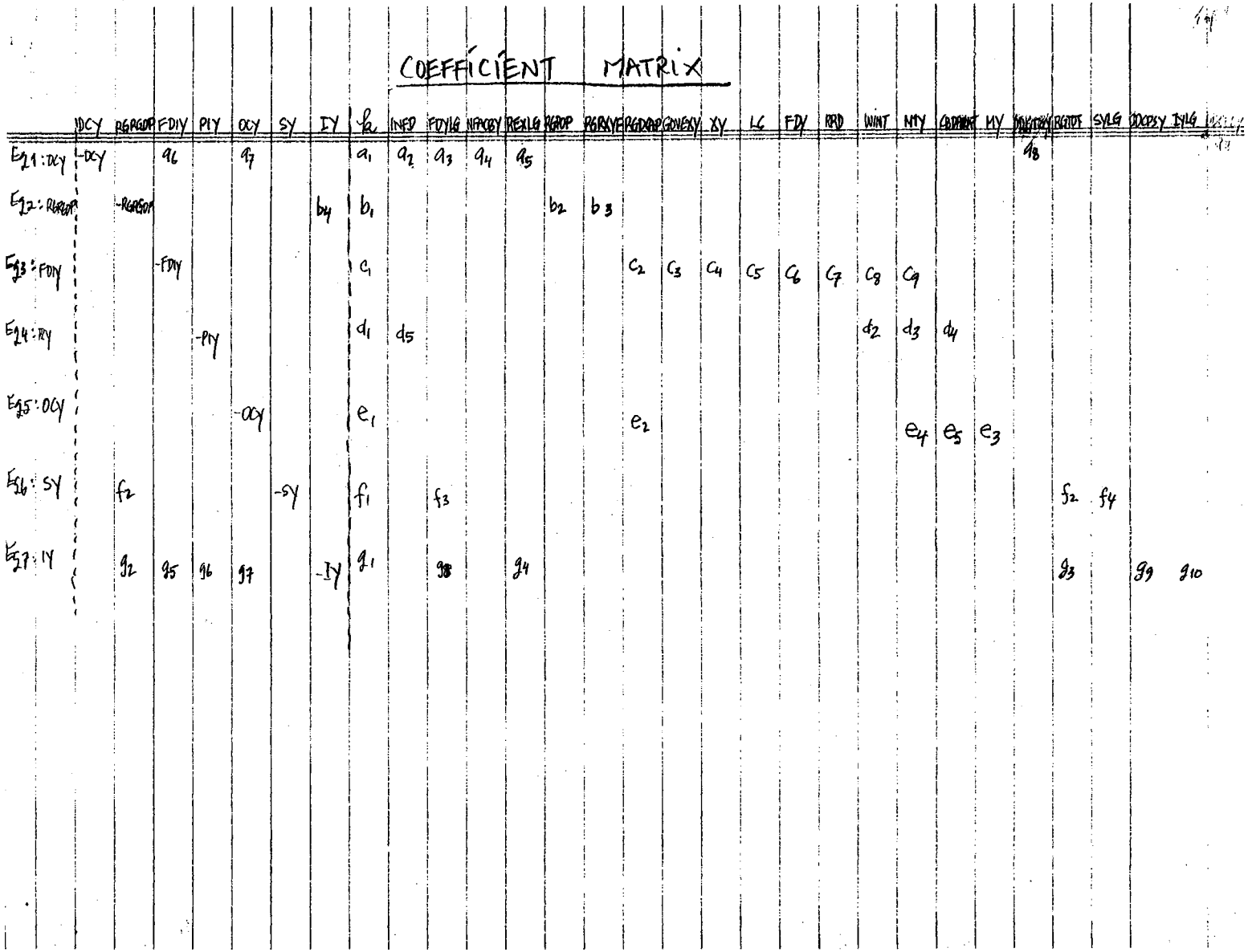
11. RGRGDP	2	T	Reject	1%
12. RGPOP	2	T	Reject	1%
13. RGRXYF	2	T	Reject	1%
14. RGDPCAP	2	T	Reject	1%
15. GOVEXY	2	T	Reject	1%
16. LC	2	T	Reject	1%
17. RRD	2	T	Reject	1%
18. XY	1	T	Reject	5%
19. M1Y	4	T	Reject	10%
20. WINT	1	T	Reject	10%
21. CBDARAT	1	No C or T	Reject	10%
22. RGTOT	2	T	Reject	1%
23. DDCPSY	2	T	Reject	5%
24. SY	2	T	Reject	10%
25. SYLG	2	T	Reject	10%
26. IYLG	2	T	Reject	1%

Cointegration test is also performed for all the 7 equation in the model. They all passed the test. Since all series are stationair or there are no unit root exist, there is no need to report the result of the cointegration test here.

APPENDEX E: Identification Procedures

Parameters in each structural equation are checked for identification procedures before they are estimated. The identification procedures used follow chapter 14, section 14.6, and 14.7, "Introduction to the Theory and Practice of Econometrics, second edition, by: George G. Jugde at al. (1988).

Each of the 7 equations in the model are overidentified, as shown in the following 6 pages work.


COEFFICIENT MATRIX

[B] matrix

Equation

	1	2	3	4	5	6	7
DCY	Γ_{11}	0	0	0	0	0	0
RGRGDP	0	Γ_{22}	0	0	0	Γ_{62}	Γ_{72}
FDIY	Γ_{13}	0	Γ_{33}	0	0	0	Γ_{73}
PIY	0	0	0	Γ_{44}	0	0	Γ_{74}
OCY	Γ_{14}	0	0	0	Γ_{55}	0	Γ_{75}
SY	0	0	0	0	0	Γ_{66}	0
IY	0	Γ_{27}	0	0	0	0	Γ_{77}
fc	B_{11}	B_{21}	B_{31}	B_{41}	B_{51}	B_{61}	B_{71}
INFD	B_{12}	0	0	B_{42}	0	0	0
FDYLG	B_{13}	0	0	0	0	B_{63}	B_{73}
NFACBY	B_{14}	0	0	0	0	0	0
REXLG	B_{15}	0	0	0	0	0	B_{75}
RGPOP	0	B_{26}	0	0	0	0	0
PGRXYF	0	B_{27}	0	0	0	0	0
RGDCAP	0	0	B_{38}	0	B_{58}	0	0
GOVERY	0	0	B_{39}	0	0	0	0
XY	0	0	B_{310}	0	0	0	0
LC	0	0	B_{311}	0	0	0	0
FDY	0	0	B_{312}	0	0	0	0
RRD	0	0	B_{313}	0	0	0	0
INT	0	0	B_{314}	B_{414}	0	0	0
MPY	0	0	B_{315}	B_{415}	B_{515}	0	0
[illegible]	0	0	0	B_{416}	B_{516}	0	0
[illegible]	0	0	0	0	B_{517}	0	0
[illegible]	B_{418}	0	0	0	0	0	0
[illegible]	0	0	0	0	0	B_{619}	B_{719}
[illegible]	0	0	0	0	0	B_{620}	0
DDCBY	0	0	0	0	0	0	B_{721}
TYLG	0	0	0	0	0	0	B_{722}

EQUATION 1: DCY.

$R_1 =$

DCY	RGRGDP	FDIY	PIY	OCY	SY	IY	R	INFD	FDYLG	NFACBY	RESLG	RGDP	PGRAYE	RGDCAF	GOVEXY	XY	LC	FDY	RRD	WINT	MIY	[illegible]	MY	DDCTGY	RGTOT	SYLG	DDPSY	IYLG
0	1	0	0	0	0	0	0	0	0	0	0	0	0															
0	0	0	1	0	0	0	0	0	0	0	0	0	0															
0	0	0	0	0	1	0	0	0	0	0	0	0	0															
0	0	0	0	0	0	1	0	0	0	0	0	0	0															
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0													
											0	0	1	0	0													
											0	0	0	1	0	0												
														0	1	0	0											
														0	0	1	0	0										
																0	1	0	0									
																	0	1	0	0								
																		0	1	0	0							
																			0	1	0	0						
																				0	1	0	0					
																					0	1	0	0				
																						0	1	0	0	0	0	0
																								0	1	0	0	0
																									0	1	0	0
																										0	1	0
																										0	0	1

Rank of $R_1 = 20$

$M-1 = 7-1 = 6$

M = # of Equations

Equation 1 : DCY is overidentified.

$R_1\Delta =$

$$\begin{bmatrix}
0 & \Gamma_{22} & 0 & 0 & 0 & \Gamma_{62} & B_{72} \\
0 & 0 & 0 & \Gamma_{44} & 0 & 0 & \Gamma_{74} \\
0 & 0 & 0 & 0 & 0 & \Gamma_{66} & 0 \\
0 & \Gamma_{27} & 0 & 0 & 0 & 0 & \Gamma_{77} \\
0 & B_{26} & 0 & 0 & 0 & 0 & 0 \\
0 & B_{27} & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & B_{38} & 0 & B_{58} & 0 & 0 \\
0 & 0 & B_{39} & 0 & 0 & 0 & 0 \\
0 & 0 & B_{310} & 0 & 0 & 0 & 0 \\
0 & 0 & B_{311} & 0 & 0 & 0 & 0 \\
0 & 0 & B_{312} & 0 & 0 & 0 & 0 \\
0 & 0 & B_{313} & 0 & 0 & 0 & 0 \\
0 & 0 & B_{314} & B_{414} & 0 & 0 & 0 \\
0 & 0 & B_{315} & B_{415} & B_{515} & 0 & 0 \\
0 & 0 & 0 & B_{416} & B_{516} & 0 & 0 \\
0 & 0 & 0 & 0 & B_{517} & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & B_{619} & B_{719} \\
0 & 0 & 0 & 0 & 0 & B_{620} & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & B_{721} \\
0 & 0 & 0 & 0 & 0 & 0 & B_{722}
\end{bmatrix}$$

$R_1\Delta$ rank is $= 6$.
$M - 1 = 6$
} necessary condition fulfilled.

Rank of $R_1 = 20 \rightarrow$ Rank of $R_1 > M-1$ or $20 > 6$

∴ Equation 1 : DCY is overidentified.

Equation 2: RGRGDP is overidentified.

Rank of R_2 = 24

$R_2\Delta$ is as follows: → 6.

Rank of $R_1 > M-1 \Rightarrow$

Eq. 2 is ~~overidentified~~

$R_2\Delta$ =

Γ_{11}	0	0	0	0	0	0
Γ_{13}	0	Γ_{33}	0	0	0	Γ_{73}
0	0	0	Γ_{44}	0	0	Γ_{74}
Γ_{14}	0	0	0	Γ_{55}	0	Γ_{75}
0	0	0	0	0	Γ_{66}	0
B_{12}	B_{21}	0	B_{42}	0	0	0
B_{13}	0	0	0	0	B_{63}	B_{73}
B_{14}	0	0	0	0	0	0
B_{15}	0	0	0	0	0	B_{75}
0	0	B_{38}	0	B_{58}	0	0
	0	B_{39}		0		
	0	B_{310}				
	0	B_{311}				
	0	B_{312}				
	0	B_{313}				
	0	B_{314}				
	0	B_{315}	0	0		
	0	0	B_{416}	B_{516}		
0	0		0	B_{517}		
B_{118}	0			0	0	0
0	0				B_{619}	B_{719}
	0				B_{620}	0
	0				0	B_{721}
0	0	0	0	0	0	B_{722}

Rank of $R_2\Delta = 6$. $M-1 = 6$ Necessary Cond. is fulfilled.

Following the same procedure for eq(1) DCY and eq(2) RGRGDP, we can identify the other 5 equation as follows: (Use TB matrix)

Eq(3): FDIY : → OVERIDENTIFIED
R_3 rank is : 19
M-1 = 6. } Rank of $R_3\Delta$ = M-1 = 6
$R_3\Delta$ rank = 6. } → necessary cond. is fulfilled.
Rank of R_3 > Rank of $R_3\Delta$ ⇒ or 19 > 6
∴ So Equation (3) FDIY is overidentified.

Eq(4): PIY : → OVERIDENTIFIED
R_4 rank is : 23
M-1 = 6 } Rank of $R_4\Delta$ = M-1 → Necessary Condition is fulfilled.
$R_4\Delta$ Rank = 6 }
Rank of R_4 > Rank of $R_4\Delta$ → 23 > 6
∴ So Equation (4) PIY is overidentified.

Eq(5): OCY : → OVERIDENTIFIED
R_5 rank is : 23 ; M-1 = 6 ; $R_5\Delta$ = 6
Rank of R_5 > Rank of $R_5\Delta$ → 23 > 6
∴ So, Equation (5) OCY is overidentified

Eq(6) : SY : → OVERIDENTIFIED.
R_6 rank is : 23 ; M-1 = 6 ; $R_6\Delta$ = 6
Rank of R_6 > Rank of $R_6\Delta$ → 23 > 6 → overidentified
Eq(7) : IY : → OVERIDENTIFIED.
R_7 rank is : 18 ; M_1-6 = 6 ; $R_7\Delta$ = 6
Rank of R_7 > Rank of $R_7\Delta$ → 18 > 6 → overidentified

APPENDIX F: Stability Test

The model as a simultaneous system is checked to see whether it is a stable simultaneous equation system. Consider the following structural form of the dynamic simultaneous equation model:

$$y_tP + x_tA1 + y_{t-1}A2 + e_t = 0$$

where,

yt : 1 x G vector of observations on the joint dependent variables at time t,

xt : 1 x k vector of observations on the k purely exogenous variables at time t,

P : G x G matrix of structural coefficients associated with the joint dependent variables

A1 : k x G matrix of structural coefficient associated with the purely exogenous variables

y_{t-1}: 1 x G vector of observation on one period lagged dependent variables

A2 : G x G matrix of structural coeficients associated with the lagged dependent variables. Some rows of A2 may contain all zeros denoting that specific lagged dependent variables are absent from the model.

e_t : 1 x G vector of structural disturbances with the classical error properties.

The necessary and sufficient condition for the dynamic simultaneous equations model to be stable is that the characteristic rooots of the reduced form coefficient matrix $Q = -A2P^{-1}$ be less than one in absolute value.

The Eigenvalues for matrix Q is as follows:

0.0000
0.5122
0.4767
0.0000
0.0000
0.0000
0.0000

Hence, the model of our study is **stable**.

The following pages are the details of the stability test using the characteristic roots test on matrix Q.

Matlab (software) version S3.5 is used to have the eigenvalues of matrix
Q=-A2*inv(P)

P = Matrix P

-1.0000	0	5.1437	0	1.1906	0	0
0	-1.0000	0	0	0	0	31.0698
0	0	-1.0000	0	0	0	0
0	0	0	-1.0000	0	0	0
0	0	0	0	-1.0000	0	0
0	0.0026	0	0	0	-1.0000	0
0	0.0028	0.0431	1.3556	0.6150	0	-1.0000

£ P1

P1 = Matrix of inverse P

-1.0000	0	-5.1437	0	-1.1906	0	0
0	-1.0951	-1.4664	-46.1220	-20.9243	0	-34.0233
0	0	-1.0000	0	0	0	0
0	0	0	-1.0000	0	0	0
0	0	0	0	-1.0000	0	0

A2 = Matrix A2

0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0.5122	0
0	0	0	0	0	0	0.4353

£ Q=-A2*inv(P)

Q = Matrix Q

0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0.0015	0.0020	0.0621	0.0282	0.5122	0.0458
0	0.0013	0.0205	0.6462	0.2932	0	0.4767

£ eig(Q) ← (eigen value of matrix Q)

ans =

eig(Q) =

0
0.5122
0.4767
0
0
0
0

APPENDIX G: Specification Test - RESET Test
(Using Software MTSP 7.0)

Ramsey RESET test is used to check the specification of each equation. The Ramsey RESET test is a general test of specification error. The postulated model is $y=Xb+u$ with disturbance vector is presumed to have multivariate normal distribution $N(0,a^2I)$. Here, we are concerned with specification errors which include some or all of the following:

a. Ommitted Variables
b. Incorrect functional form (some or all of the variables in y and X should be transformed to logs, powers, reciprocal, etc.)
c. Correlation between X and *u*, which may be caused by such things as measurement error in X, combination of lagged Y values and serially correlated disturbances.

Ramsey (1969),"Test for Specification Errors in Classical Linear Least Squares Regression Analysis", Journal of the Royal Statitical Society, Series B,31,350-371, showed that these specification errors produce a non zero mean vector for *u*. Hence, the null and alternative hypotheses are:

Ho: $u - N(0,a^2I)$
H1: $u - N(0,a^2I)$ u is not 0

The test of the null hyphotheses is based on an augmented regression, with the following augmented model:

$$y = Xb + Zn + u$$

The test of specification error is then $n = 0$. The crucial question is what variables should enter the Z matrix.

Ramsey's suggestion is that the Z matrix should be:

$$Z = [\,y\hat{}^2 \;\; y\hat{}^3] \quad \text{or} \quad Z = [y\hat{}^2 \;\; y\hat{}^3 \;\; y\hat{}^4]$$

where

$$y\hat{} = Xb$$

is the vector of predicted Y values from the least square refression of y on X. The superscripts indicate the powers to which these predictions are raised. The first power is not included since it is perfectly collinear with the X matrix.

The F-test or Likelihood ratio test can be used to test the specification error. In our case, the test to be used is following the F statistic test. Let say we have the following equation:

$$y = pX1 + qX2 + rX3 + e.$$

This is the default equation or the unrestricted equation.
The test regression will be:

$$y = pX1 + qX2 + rX3 + n1y\hat{}^2 + n2y\hat{}^3$$

This is the restricted equation. Output from these unrestricted and restricted equation is used to calculate the computed F statistic. The computed F statistic is then checked to F table which is the ratio of two chi-square variables, each divided by its respective degrees of freedom.

So, the Hyphoteses will be as follows:

Ho: n1 = n2 =0
H1: either n1 is not 0 or n2 is not 0

The computed F statistic would be as follows:

$$\text{Computed F} = \frac{(RSSur - RSSr)/(K-L)}{ESSur / [g - (K + 1)]}$$

where:
RSSur = Sum of Squares due to the regression in the Unrestricted Equation
RSSr = Sum of Squares due to the regression in the Restricted Equation
K = The number of total independent variables included in the equation
L = The number of independent variables before restriction included in the equation
g = The number of observation.
ESS = The Error Sum of Squares of the unrestricted equation

The computed F statistic is compared to the tabled F statistic with K-L degrees of freedom in the numerator and g - (K+1) degrees of freedom in the denominator. If the computed F is less than the critical F, do not reject Ho. If the computed F is larger than the critical F, reject Ho. Besides the F test, the the associated probability numbers (P value) normally come up with it. This P value indicates the probability of obtaining a test statistic whose absolute value is greater than or equal to that of the sample statistic if the null hypotesis is true. Hence, the low P values lead to the rejection of the null hypothesis.

In the study, there are seven equations. They all are tested for the specification test using this Ramsey RESET test. The Z matrix we used is $Z = [y^2 \; y^3]$. The tabled F statistic has K-L degrees of freedom in the numerator and has g-(K+1) degrees of freedom in the denumerator.

The result of the RESET test is as follows:

Equation (1): DDCY = f(INFD, FDYLG, DNFACBY, REXLG, FDIY, OCY, DDCTGY)
Computed F Stat. = 2.19571
Tabled F Stat. at the upper 5% points = 3.23
Tabled F Stat. at the upper 1% points = 5.18
Hence, the decision is not to reject the null hypothesis Ho: n1=n2=0.
So equation (1) passes the RESET test at both 1% and 5% level.

Equation (2): RGRGDP = f(RGPOP, RGRXYF, IY)
Computed F Stat. = 0.80993
Tabled F Stat. at the upper 5% points = 3.23
Tabled F Stat. at the upper 1% points = 5.18
Decision: Do Not Reject Ho: n1n2=0
So, Equation (2) passes the RESET test at both 1% and 5% level.

Equation (3): FDIY = f(RGDPCAP, GOVEXY, XY, LC, FDY, RRD, WINT, M1Y)
Computed F Stat. = 3.56074
Tabled F Stat. at the upper 5% points = 3.23
Tabled F Stat. at the upper 1% points = 5.18
Decision: Do Not Reject Ho at 1% level.
So, Equation (3) passes the RESET test at 1% level, but not at 5% level.

Equation (4): PIY = f(WINT, M1Y, CBDARAT, INFD)
Computed F Stat. = 1.1194
Tabled F Stat. at the upper 5% points = 3.23
Tabled F Stat. at the upper 1 % points = 5.18
Decision: Do Not Reject Ho at both 1% and 5% level.
So, Equation (4) passes the RESET test at botn 1% and 5% level.

Equation (5): OCY = f(RGDPCAP, MY, M1Y, CBDARAT)
Computed F Stat. = 3.18453
Tabled F Stat. at the upper 5% points = 3.23
Tabled F Stat. at the upper 1% points = 5.18
Decision: Do Not Reject Ho at both 1% and 5% level.
Equation (5) passes the RESET Test.

Equation (6): SY = f(RGRGDP, RGTOT, FDYLG, SYLG)
Computed F Stat. = 0.98929
Tabled F Stat. at the upper 5% points = 3.23
Tabled F Stat. at the upper 1% points = 5.18
Decision: Do Not Reject Ho at both 1% and 5% level.
Equation (6) passes the RESET Test.

Equation (7): IY = f(RGRGDP, RGTOT, REXLG, FDIY, PIY, OCY, FDYLG,
DDCPSY, IYLG)
Computed F Stat. = 0.11313
Tabled F Stat. at the upper 5% points = 3.23
Tabled F Stat. at the upper 1% points = 5.18
Decision: Do Not Reject Ho at both 1% and 5% level.
Equation (7) passes the RESET Test.

Appendix H:

List of Endogenous and Exogenous Variables:

Endogenous Variables:

DCY, RGRGDP, FDIY, PIY, OCY, SY, IY

Exogenous Variables:

INFD, FDYLG, NFACBY, REXLG, DDCTGY, RGPOP, RGRXYF, RGDPCAP, GOVEXY, XY, LC, FDY, RRD, WINT, M1Y, CBDARAT, MY, RGTOT, SYLG, DDCPSY, IYLG

APPENDIX I: Alternative Models

The model has been built based on a theretical development background. Without these theoretical backgrounds, the model would be meaningless. Based on the theoretical background, different model can be built.

First alternative model would be the initial model minus equation 7 (see table 9 for the complete model). This model clearly has an adequate theoretical backgroud as discussed in chapter 2 and chapter3. The second alternative would a model where only equations 1, 2, 5 and 6 are included. This later model probably has the strongest theoretical background. Several studies along this line has been done for different developing countries by different author. Equation 3 and 4 are just recently recognized in the literature. There is not much work done in these area. Our work here on portfolio investment and other capital flow can be categorized as pioner work.

Other models beyond these two alternatives will not be having strong theoretical backgrounds, therefore will not be suitable with original purpose of the study.

VITA 2

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