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Seasonal Adjustment of Monetary Aggregates

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1.0 Introduction

Money is, without doubt, a necessary tool in any financial transaction. It performs three main functions: as medium of exchange, unit of account and store of value. Money as a medium of exchange serves as a vehicle through which the process of buying and selling among individuals is made possible. It also serves as a tool in measuring the value of goods and services. Lastly, it can be used to store wealth.

Money can be defined according to its degree of *liquidity*. By liquidity here is meant the convertibility of an asset into a fixed number or amount of pesos or dollars. Monetary authorities have three different measures of liquidity. These are referred to as *M1*, *M2* and *M3*. M1 or narrow money or money supply is the sum of demand deposits and currency in circulation. It is the most liquid form of money because it consists of bills and coins and checking accounts which are ordinarily accepted as payments for any form of obligation. M2 is a more broadly defined money. It consists of M1 plus all the time and savings deposits or quasi-money. Quasi-money takes more time to be converted into cash and accepted as payment for debts. Lastly, M3, commonly known as domestic liquidity, is the broadest of the three concepts. It includes money supply (M1), quasi-money and deposit substitutes of the monetary system. Deposit substitutes are forms of obtaining funds other than deposits through the issuance, endorsement or acceptance of debt instruments such as promissory notes and repurchase agreements.

Viewed from the asset side, M3 is composed of net foreign assets (NFA) or foreign accounts and net domestic assets (NDA) or domestic transactions of the banking system. Classified under NFA are the system's international reserves, net of short, medium-, and long-term foreign loans, and non-monetary foreign liabilities. International reserves is composed of gold, foreign exchange reserves, and special drawing rights with the International Monetary Fund (IMF). Classified under NDA are the system's credits to the National Government and other official entities, private sector, non-monetary financial institutions, other domestic items net of the domestic liabilities.

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2.0 Seasonal Adjustment X11-ARIMA

To seasonally adjust the series, monthly data starting 1986 were used. Data from earlier periods (1980-1985) were found to be unstable when included in the series of X11-ARIMA analysis. Moreover, M1, M2 and M3 had to be decomposed to accurately explain money's behavior and to improve the results.

2.1 Money Supply (M1)

M1, composed of currency-in-circulation and demand deposits, showed an increasing trend over the years. The data series was highly seasonal. It reached its peak during the last quarter of the year, the highest occuring in December due to the increased spending during the Christmas season. The troughs were usually recorded in May, June and July because of slower business activities.

The components of M1 were seasonally adjusted individually. Currency in circulation was found to be highly seasonal while demand deposits, very irregular. Thus, seasonally adjusted M1 was the sum of the deseasonalized currency in circulation and the original demand deposits. A multiplicative model (0,1,1) (0,1,1) with log transformation fitted the series with a 3x5 moving average seasonal component and a 13-term moving average trend-cycle segment.

2.2 M2 (M1 plus quasi-money)

M2 is composed of M1 and quasi-money (savings and time deposits). The latter accounted for about 70 percent of total M2 during the period covered. The peaks in the series occurred during November and December on account mainly of the bonuses given during these months. After the spending season in December, the savings account level dropped in January. Summer vacations and the tax season in April, and June and July enrollment depleted the savings level causing the level of M2 to dip.

The direct method was used in deriving the seasonally adjusted M2. A multiplicative model without log transformation (0,1,1) (0,1,1) fitted the series with a 3x5 moving average seasonal component, and a 9-term moving average trend-cycle component.

2.3 Domestic Liquidity (M3)

M2 comprised approximately 90 percent of M3 and the rest consisted of deposit substitutes during the period covered. The unadjusted series of M3 posted troughs during the months of January, April, and July similar to the behavior of M2. As mentioned earlier, the drop in M3 in January was due to the depleted savings and slowdown in consumer spending after the holiday season. Lower spending in April, June and July were attributed to the tax season and enrollment period.

The indirect method was used to derive the seasonally adjusted M3 wherein estimates of the seasonally adjusted M2 was added to the original series of deposit substitutes. The multiplicative model without log transformation (0,1,1) (0,1,1) fitted the series with a 3x5 moving average seasonal component, and a 9-term moving average trend-cycle component.

Even as 1993 data for M1, M2 and M3 were added, the model and options remained the same. Also, monthly changes of the estimates of seasonally adjusted M1, M2 and M3 for the recent months (January 1992 - June 1993) registered relatively consistent magnitudes and signs. The model chosen for the three series were, therefore, robust or stable.

3.0 Analysis of Seasonally Adjusted M1, M2, M3

3.1 M3

Seasonally adjusted M3 grew by 11.6 for 1992. Viewed from the asset side of the balance sheet of the monetary system, the growth in M3 was traced mainly to the improvements in the NFA position, particularly, net international reserves and the conversion of certain foreign obligations of BSP into NG debt pursuant to the 1992 Commercial Bank Debt Financing Package. The improvement was partially offset by the contractionary impact of the build-up in NG deposits with BSP and the increased issuance of CB bills for open market operations.

By component, the rise in M3 was traced to the increases in quasi-money, which accounted for 70% of M3, and money supply.

During the first quarter of 1993, M3 grew by 1.6 percent. On the asset side, net domestic assets contracted due to the decline in the net credits to the public sector. By component; the increase in demand deposits was offset by the decline in currency in circulation and savings and time deposits.

M3 rose by 1.9 percent for the second quarter of 1993 due to mainly to the increase in net domestic assets. On the liabilities side, the expansion can be traced mainly to the rise in savings deposits which comprised approximately 60 percent of M3. The other components increased as well.

3.2 M2

Seasonally adjusted M2 rose by 11.5 percent for the year 1992 as quasi-money or savings and time deposits and money supply increased.

On the quarterly basis, M2 rose slightly for the first two quarters of 1992 at 3.5 percent and 3.3 percent, respectively, but slowed down to 1.9 percent during the third quarter, reflecting the slowdown in business activities on account of the power shortage. As the economy bounced back during the fourth quarter of 1992, M2 registered a higher growth of 2.3 percent.

For the first two quarters of 1993, M2 grew by a mere 1.8 percent and 2.0 percent, respectively, reflecting another slowdown in the economy.

3.3 M1

Seasonally adjusted money supply grew by 10.5 percent for 1992 compared to 1991 on account of the increases in both its components, currency in circulation and demand deposits.

For the quarterly movements, money supply grew by 3.4 percent and 8.8 percent for the first and second quarters of 1992, respectively, due to the increases in both its components, demand deposits and currency in circulation. During the third quarter, however, M1 declined by 4.5 percent as business activity slackened on account of the power shortage, afterwhich, for the fourth quarter, M1 grew by 2.9 percent as business activity increased despite the crippling effects of the power shortage.

For 1993, M1 rose by 4.1 and 4.5 percent for the first two quarters, respectively, as its components exhibited increases.

Table 1 Domestic Liquidity (Levels in Million Pesos)

Year	Month	Original Data	Seasonally Adjusted	Trend-Cycle	Seasonal Factors	Irregular Series
1986	JAN	129,412.0	127,280.5	127,354.9	101.67	99.9
	FEB	129,572.0	127,621.8	127,192.8	101.53	100.3
	MAR	130,676.0	126,881.5	127,106.4	102.99	99.8
	APR	126,047.0	127,350.9	127,028.1	98.98	100.3
	MAY	126,490.0	127,134.4	126,990.6	99.49	100.1
	JUN	127,815.0	127,050.4	127,308.1	100.60	99.8
	JUL	124,207.0	126,941.8	128,290.0	97.85	98.9
	AUG	125,933.0	129,607.4	130,016.1	97.16	99.7
	SEP	129,416.0	131,660.5	132,253.3	98.30	99.6
	OCT	130,684.0	135,657.6	134,662.0	96.33	100.7
	NOV	136,518.0	138,193.0	136,774.9	98.79	101.0
	DEC	144,369.0	136,946.3	138,195.1	105.42	99.1
1987	JAN	141,492.0	139,209.4	138,827.4	101.64	100.3
	FEB	141,226.0	139,137.3	138,937.8	101.50	100.1
	MAR	143,459.0	139,911.9	138,961.3	102.54	100.7
	APR	137,857.0	137,681.3	139,333.2	100.13	98.8
	MAY	138,815.0	139,812.0	140,373.9	99.29	99.6
	JUN	142,476.0	141,891.6	142,012.2	100.41	99.9
	JUL	141,063.0	144,558.7	143,985.4	97.58	100.4
	AUG	142,626.0	146,084.9	145,990.3	97.63	100.1
	SEP	145,833.0	149,209.2	147,758.5	97.74	101.0
	OCT	144,374.0	150,004.3	149,393.2	96.25	100.4
	NOV	148,181.0	149,253.8	151,170.9	99.28	98.7
	DEC	161,824.0	152,867.8	153,362.6	105.86	99.7
1988	JAN	160,635.0	158,645.0	156,082.5	101.25	101.6
	FEB	164,417.0	156,630.9	159,182.3	104.97	98.4
	MAR	166,489.0	163,175.2	162,359.6	102.03	100.5
	APR	164,453.0	165,687.7	165,392.3	99.25	100.2
	MAY	168,475.0	168,132.9	168,148.8	100.20	100.0
	JUN	172,337.0	171,297.3	170,732.1	100.61	100.3
	JUL	168,119.0	171,845.9	173,282.8	97.83	99.2
	AUG	170,889.0	175,426.9	175,861.1	97.41	99.8
	SEP	176,454.0	179,860.4	178,608.7	98.11	100.7
	OCT	175,133.0	181,408.5	181,782.5	96.54	99.8
	NOV	182,621.0	185,175.0	185,576.0	98.62	99.8
	DEC	198,409.0	188,128.8	190,006.9	105.46	99.0
1989	JAN	197,731.0	194,157.7	194,759.5	101.84	99.7
	FEB	202,529.0	200,712.9	199,441.1	100.90	100.6
	MAR	210,275.0	206,286.0	203,835.3	101.93	101.2
	APR	206,162.0	207,708.6	207,676.9	99.26	100.0
	MAY	209,726.0	210,058.7	210,823.9	99.84	99.6
	JUN	213,716.0	211,953.3	213,582.2	100.83	99.2
	JUL	215,530.0	218,144.9	216,552.8	98.80	100.7
	AUG	216,816.0	221,515.9	220,216.6	97.88	100.6
	SEP	215,398.0	221,376.2	224,725.3	97.30	98.5
	OCT	220,108.0	227,200.1	229,724.5	96.88	98.9
	NOV	235,389.0	237,240.7	234,669.6	99.22	101.1
	DEC	253,921.0	241,614.4	238,992.3	105.09	101.1

Table 1 Domestic Liquidity (Levels in Million Pesos)

Year	Month	Original Data	Seasonally Adjusted	Trend-Cycle	Seasonal Factors	Irregular Series
1990	JAN	244,534.0	242,284.4	242,441.5	100.93	99.9
	FEB	247,229.0	246,183.5	245,242.4	100.42	100.4
	MAR	247,419.0	245,426.0	247,877.7	100.81	99.0
	APR	251,070.0	250,098.0	251,086.7	100.39	99.6
	MAY	254,881.0	253,437.3	255,461.8	100.57	99.2
	JUN	263,515.0	262,694.4	261,029.5	100.31	100.6
	JUL	267,142.0	268,276.0	267,311.9	99.58	100.4
	AUG	266,161.0	272,559.1	273,771.3	97.65	99.6
	SEP	274,076.0	279,884.7	279,815.3	97.92	100.0
	OCT	283,098.0	293,776.0	284,807.7	96.37	103.1
	NOV	288,118.0	290,421.3	288,623.5	99.21	100.6
	DEC	300,541.0	285,055.7	291,551.8	105.43	97.8
1991	JAN	297,883.0	294,915.8	294,194.3	101.01	100.2
	FEB	293,981.0	294,073.1	297,240.3	99.97	98.9
	MAR	298,827.0	297,135.3	301,189.6	100.57	98.7
	APR	306,539.0	307,388.3	305,900.0	99.72	100.5
	MAY	313,854.0	312,125.4	310,667.6	100.55	100.5
	JUN	320,256.0	315,847.6	314,508.0	101.40	100.4
	JUL	317,815.0	320,188.3	316,745.0	99.26	101.1
	AUG	310,066.0	317,108.1	317,484.8	97.78	99.9
	SEP	310,981.0	316,226.4	317,503.4	98.34	99.6
	OCT	307,767.0	317,681.8	318,040.3	96.88	99.9
	NOV	311,734.0	316,745.5	319,860.0	98.42	99.0
	DEC	347,079.0	329,051.8	323,182.8	105.48	101.8
1992	JAN	329,802.0	328,333.8	327,820.5	100.45	100.2
	FEB	329,758.0	320,847.3	333,170.0	102.78	96.3
	MAR	342,482.0	339,851.9	338,440.1	100.77	100.4
	APR	342,038.0	341,654.7	343,109.1	100.11	99.6
	MAY	352,284.0	349,739.5	346,924.0	100.73	100.8
	JUN	357,019.0	350,716.2	350,004.7	101.80	100.2
	JUL	341,869.0	343,953.8	352,761.6	99.39	97.5
	AUG	347,278.0	353,738.4	355,419.0	98.17	99.5
	SEP	349,023.0	357,638.4	358,120.7	97.59	99.9
	OCT	349,188.0	361,240.3	360,878.3	96.66	100.1
	NOV	362,933.0	364,790.6	363,631.3	99.49	100.3
	DEC	385,385.0	367,082.6	366,312.6	104.99	100.2
1993	JAN	368,215.0	367,459.0	368,743.0	100.21	99.7
	FEB	368,088.0	370,784.0	370,993.8	99.27	99.9
	MAR	373,271.0	373,095.8	373,191.0	100.05	100.0
	APR	376,642.0	376,596.6	375,429.6	100.01	100.3
	MAY	383,576.0	377,816.5	377,892.8	101.52	100.0
	JUN	385,876.0	380,212.9	380,773.6	101.49	99.9

Figure 1.1 Domestic Liquidity - Original and Seasonally-Adjusted Series

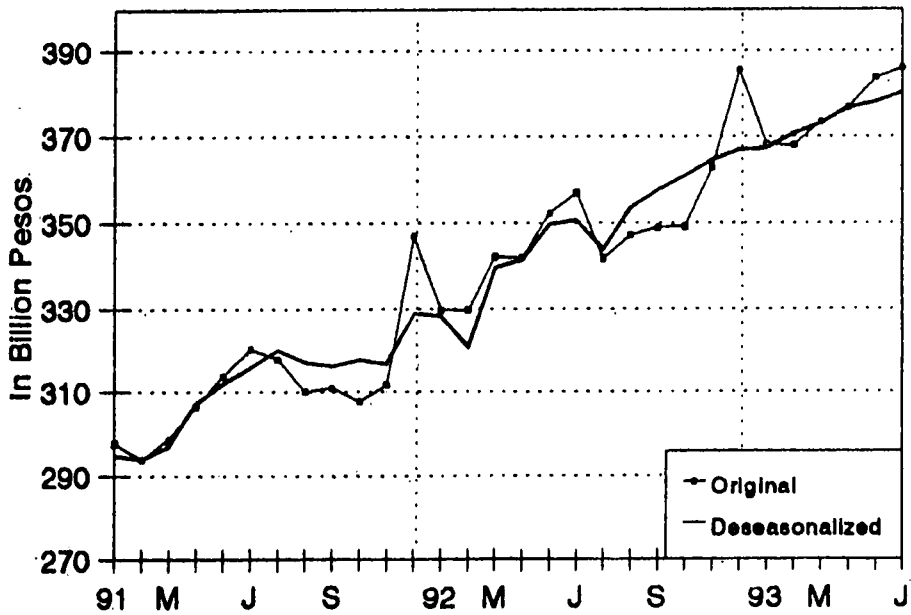

Figure 1.2 Domestic Liquidity - Trend Cycle

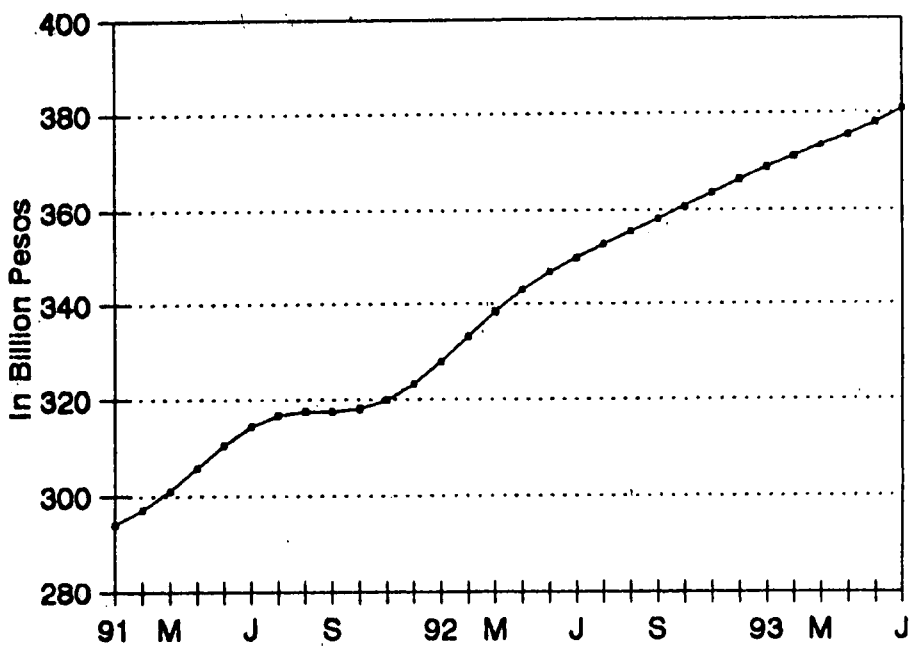

Figure 1.3 Domestic Liquidity - Seasonal Factors

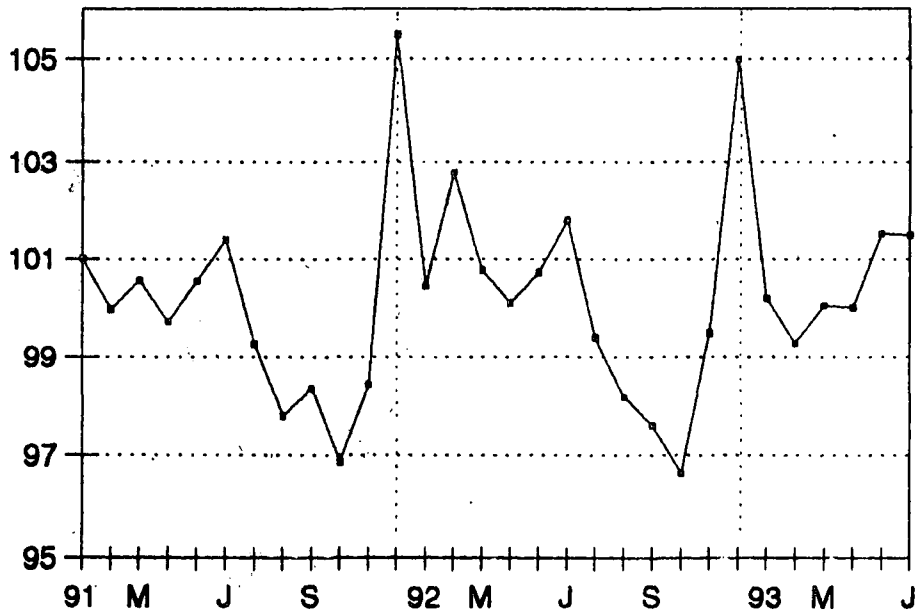

Figure 1.4 Domestic Liquidity - Irregular Series

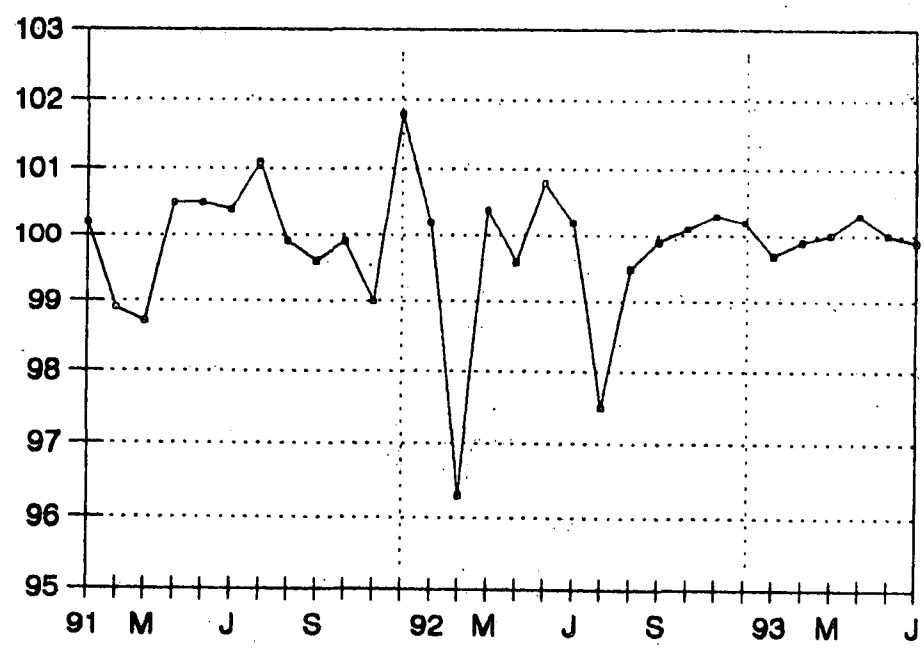

Table 2 M2 (M1 + Quasi-Money -- Levels in Million Pesos)

Year	Month	Original Data	Seasonally Adjusted	Trend-Cycle	Seasonal Factors	Irregular Series
1986	JAN	121,132.0	119,000.6	119,197.3	101.99	99.8
	FEB	121,549.0	119,598.8	119,199.1	102.54	100.3
	MAR	122,726.0	118,931.5	119,195.0	102.28	100.5
	APR	117,903.0	119,206.8	119,120.6	99.92	99.4
	MAY	118,596.0	119,240.3	119,032.5	99.62	100.2
	JUN	120,119.0	119,354.4	119,246.5	100.17	100.1
	JUL	116,750.0	119,484.8	120,166.5	97.50	99.4
	AUG	118,380.0	122,054.4	121,996.6	97.35	100.0
	SEP	121,910.0	124,154.5	124,573.5	98.02	99.7
	OCT	123,257.0	128,230.7	127,500.0	96.31	100.6
	NOV	128,410.0	130,085.0	130,240.0	98.69	99.9
	DEC	139,518.0	132,095.3	132,410.8	105.77	99.8
1987	JAN	137,555.0	135,272.4	133,786.9	101.85	101.1
	FEB	136,440.0	134,351.4	134,371.8	102.46	100.0
	MAR	138,303.0	134,755.9	134,599.6	102.15	100.1
	APR	134,537.0	134,361.3	135,078.2	99.92	99.5
	MAY	135,083.0	136,080.0	136,309.7	99.64	99.8
	JUN	139,045.0	138,460.6	138,424.9	100.25	100.0
	JUL	137,743.0	141,238.8	141,030.9	97.71	100.1
	AUG	139,563.0	143,021.9	143,373.0	97.41	99.8
	SEP	142,746.0	146,122.2	144,992.4	97.99	100.8
	OCT	140,802.0	146,432.3	146,106.4	96.31	100.2
	NOV	144,847.0	145,919.8	147,256.0	98.80	99.1
	DEC	158,271.0	149,314.8	149,111.9	105.77	100.1
1988	JAN	156,855.0	154,865.0	152,034.3	101.66	101.9
	FEB	160,726.0	152,939.9	155,706.2	102.21	98.2
	MAR	163,162.0	159,848.2	159,426.7	101.85	100.3
	APR	161,848.0	163,082.6	162,618.2	99.94	100.3
	MAY	165,406.0	165,063.9	165,214.4	99.73	99.9
	JUN	169,025.0	167,985.4	167,593.0	100.41	100.2
	JUL	165,007.0	168,733.9	170,186.9	98.15	99.1
	AUG	168,736.0	173,273.9	173,104.0	97.52	100.1
	SEP	173,868.0	177,274.5	176,075.5	97.96	100.7
	OCT	172,268.0	178,543.4	178,968.9	96.32	99.8
	NOV	179,514.0	182,067.9	182,160.8	98.90	99.9
	DEC	195,921.0	185,640.8	186,382.5	105.71	99.6
1989	JAN	194,713.0	191,139.7	191,811.8	101.39	99.6
	FEB	199,812.0	197,995.9	197,551.1	101.82	100.2
	MAR	207,879.0	203,890.1	202,201.8	101.43	101.6
	APR	203,754.0	205,300.6	205,425.4	99.94	99.2
	MAY	207,375.0	207,707.7	207,997.6	99.98	99.9
	JUN	210,652.0	208,889.3	210,715.1	100.72	99.1
	JUL	212,431.0	215,045.9	213,670.8	98.61	100.6
	AUG	213,979.0	218,678.8	217,004.5	97.64	100.8
	SEP	212,578.0	218,556.2	221,158.3	97.95	98.8
	OCT	216,956.0	224,048.0	226,280.5	96.38	99.0
	NOV	232,080.0	233,931.7	232,070.2	99.00	100.8
	DEC	251,091.0	238,784.6	237,340.2	105.54	100.6

Table 2 M2 (M1 + Quasi-Money -- Levels in Million Pesos)

Year	Month	Original Data	Seasonally Adjusted	Trend-Cycle	Seasonal Factors	Irregular Series
1990	JAN	242,276.0	240,026.4	240,906.2	101.08	99.6
	FEB	245,127.0	244,081.6	242,707.4	101.32	100.6
	MAR	244,952.0	242,959.1	244,410.3	100.99	99.4
	APR	248,721.0	247,748.9	247,577.5	99.92	100.1
	MAY	251,980.0	250,536.3	252,351.0	100.36	99.3
	JUN	260,696.0	259,875.4	258,322.9	101.02	100.6
	JUL	264,340.0	265,473.9	264,885.0	99.10	100.2
	AUG	263,601.0	269,999.1	271,349.9	97.82	99.5
	SEP	271,819.0	277,627.6	277,407.9	97.88	100.1
	OCT	280,209.0	290,886.8	282,670.4	96.47	102.9
	NOV	285,003.0	287,306.3	286,781.8	99.08	100.2
	DEC	297,307.0	281,822.0	289,093.2	105.31	97.5
1991	JAN	294,457.0	291,489.7	290,528.2	100.80	100.3
	FEB	291,501.0	291,593.0	292,857.3	100.86	99.6
	MAR	296,202.0	294,510.5	296,926.3	100.59	99.5
	APR	303,142.0	303,991.0	302,683.5	99.90	100.1
	MAY	311,252.0	309,523.7	308,746.9	100.75	100.3
	JUN	317,175.0	312,766.8	313,198.2	101.38	99.9
	JUL	314,752.0	317,125.1	315,099.2	99.39	100.6
	AUG	307,423.0	314,464.9	314,884.7	97.92	99.9
	SEP	307,988.0	313,233.2	313,983.4	97.86	99.8
	OCT	304,456.0	314,370.6	313,924.1	96.63	100.1
	NOV	308,955.0	313,966.4	315,785.7	99.10	99.4
	DEC	344,057.0	326,030.3	319,908.7	105.03	101.9
1992	JAN	327,402.0	325,933.9	325,096.1	100.64	100.3
	FEB	327,270.0	318,359.1	330,720.6	100.44	96.3
	MAR	340,067.0	337,436.9	336,307.1	100.30	100.3
	APR	339,136.0	338,752.7	341,210.4	99.91	99.3
	MAY	350,302.0	347,757.9	345,091.1	101.11	100.8
	JUN	354,771.0	348,468.3	347,803.4	101.63	100.2
	JUL	339,568.0	341,652.6	349,807.4	99.58	97.7
	AUG	344,949.0	351,409.2	352,033.1	97.99	99.8
	SEP	346,646.0	355,261.2	354,993.6	97.87	100.1
	OCT	346,261.0	358,312.9	358,402.3	96.80	100.0
	NOV	360,311.0	362,168.6	361,169.8	99.02	100.3
	DEC	381,873.0	363,571.4	363,176.9	104.80	100.1
1993	JAN	364,453.0	363,696.9	365,099.7	100.58	99.6
	FEB	364,861.0	367,556.8	367,431.7	100.15	100.0
	MAR	370,316.0	370,140.7	370,189.3	100.19	100.0
	APR	373,823.0	373,777.5	372,839.2	99.89	100.3
	MAY	381,049.0	375,289.8	375,244.0	101.36	100.0
	JUN	383,118.0	377,455.2	377,847.1	101.81	99.9

Figure 2.1 M2 (M1 + Quasi-Money) - Original and Seasonally-Adjusted

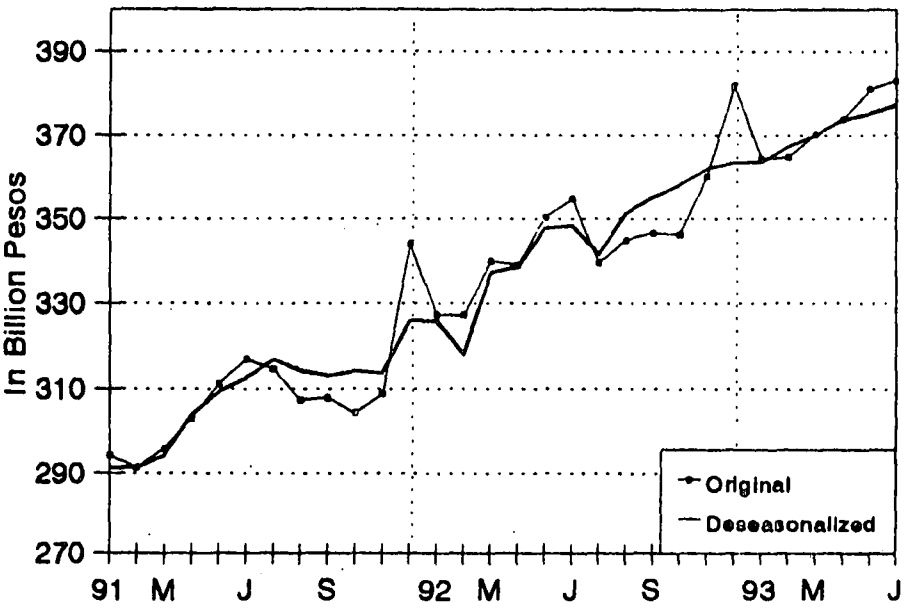

Figure 2.2 M2 (M1 + Quasi-Money) - Trend Cycle

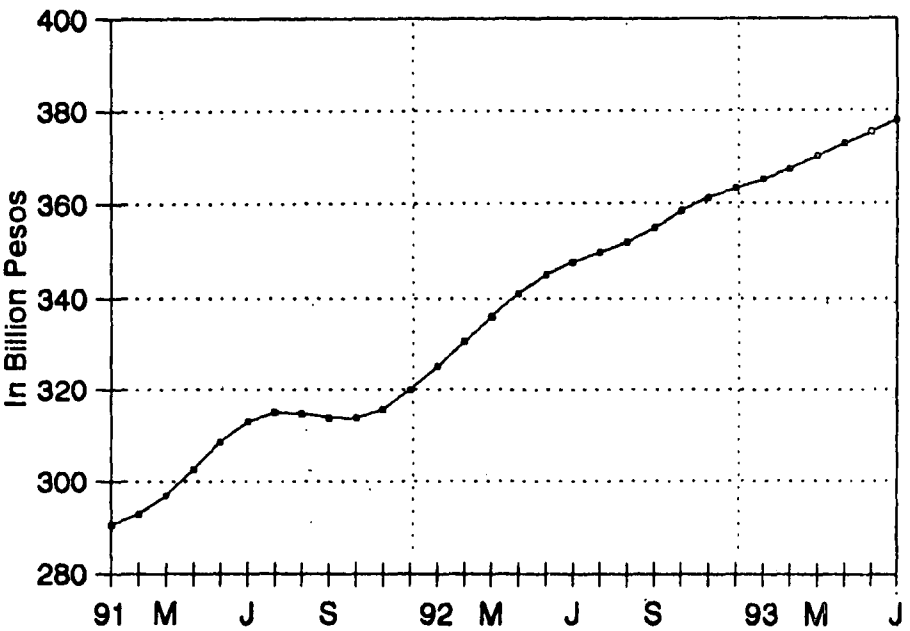

Figure 2.3 M2 (M1 + Quasi-Money) - Seasonal Factors

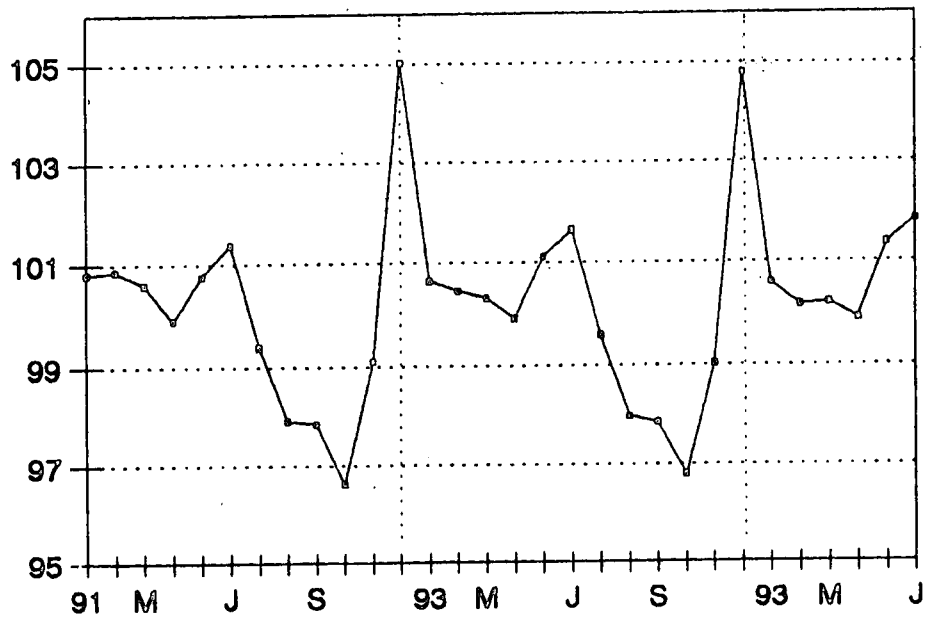

Figure 2.4 M2 (M1 + Quasi-Money) - Irregular Series

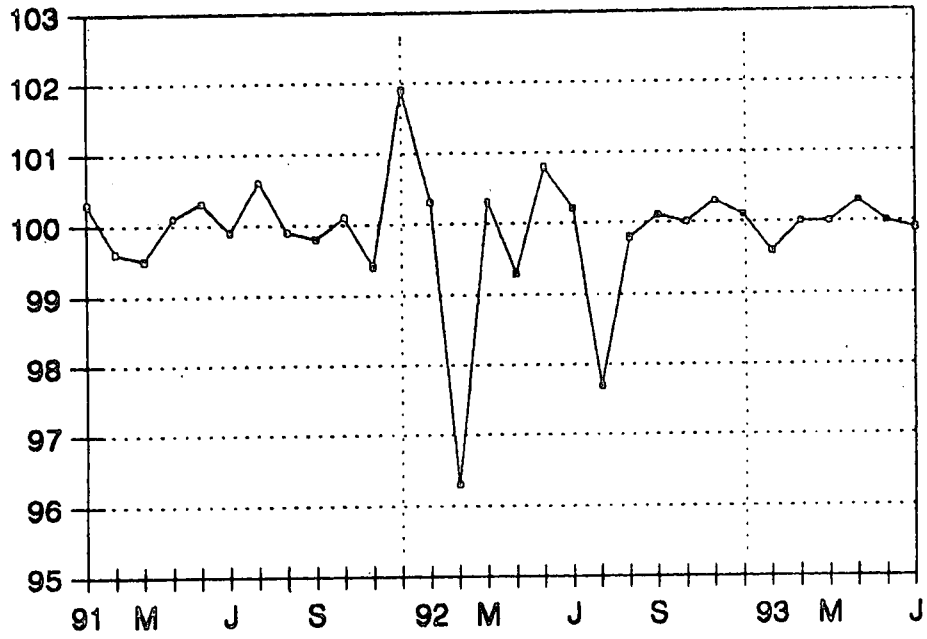

Table 3 Money Supply (Levels in Million Pesos)

Year	Month	Original Data	Seasonally Adjusted	Trend-Cycle	Seasonal Factors	Irregular Series
1986	JAN	36,086.0	34,946.1	38,035.0	103.26	91.9
	FEB	40,695.0	40,501.7	37,451.4	100.48	108.1
	MAR	38,110.0	37,525.2	36,768.1	101.56	102.1
	APR	36,423.0	35,796.8	36,040.2	101.75	99.3
	MAY	35,144.0	34,587.8	35,345.4	101.61	97.9
	JUN	33,941.0	35,037.8	34,773.8	96.87	100.8
	JUL	32,533.0	34,217.4	34,485.9	95.08	99.2
	AUG	32,326.0	33,734.6	34,625.5	95.82	97.4
	SEP	33,461.0	35,442.7	35,123.0	94.41	100.9
	OCT	34,549.0	35,218.2	35,876.0	98.10	98.2
	NOV	36,521.0	36,411.8	36,785.9	100.30	99.0
	DEC	42,694.0	38,899.8	37,747.8	109.75	103.1
1987	JAN	40,233.0	38,802.7	38,699.6	103.69	100.3
	FEB	39,174.0	39,011.1	39,597.8	100.42	98.5
	MAR	40,997.0	40,704.8	40,453.5	100.72	100.6
	APR	42,335.0	41,372.1	41,309.6	102.33	100.2
	MAY	42,272.0	41,543.2	42,186.2	101.75	98.5
	JUN	42,158.0	43,817.8	43,103.9	96.21	101.7
	JUL	42,026.0	43,783.3	44,003.1	95.99	99.5
	AUG	42,476.0	44,730.9	44,811.2	94.96	99.8
	SEP	43,708.0	46,012.1	45,562.0	94.99	101.0
	OCT	45,109.0	45,830.9	46,313.7	98.42	99.0
	NOV	46,972.0	47,272.0	47,045.3	99.37	100.5
	DEC	52,416.0	47,516.9	47,784.6	110.31	99.4
1988	JAN	50,211.0	48,459.8	48,540.5	103.61	99.8
	FEB	49,726.0	48,797.2	49,250.3	101.90	99.1
	MAR	51,818.0	51,296.5	49,948.5	101.02	102.7
	APR	51,301.0	49,763.5	50,596.9	103.09	98.4
	MAY	51,703.0	51,775.1	51,151.0	99.86	101.2
	JUN	50,140.0	51,467.0	51,587.5	97.42	99.8
	JUL	50,068.0	51,792.4	51,892.9	96.67	99.8
	AUG	50,137.0	53,050.5	52,095.9	94.51	101.8
	SEP	49,423.0	51,451.6	52,210.2	96.06	98.5
	OCT	51,051.0	52,425.3	52,315.5	97.38	100.2
	NOV	52,169.0	52,568.9	52,574.5	99.24	100.0
	DEC	59,718.0	53,365.3	53,174.0	111.90	100.4
1989	JAN	54,518.0	53,617.9	54,174.1	101.68	99.0
	FEB	54,903.0	54,791.8	55,573.2	100.20	98.6
	MAR	58,411.0	57,349.1	57,175.5	101.85	100.3
	APR	60,904.0	59,227.1	58,761.9	102.83	100.8
	MAY	60,779.0	60,938.7	60,127.5	99.74	101.3
	JUN	59,983.0	61,197.5	61,141.9	98.02	100.1
	JUL	59,542.0	62,180.7	61,890.2	95.76	100.5
	AUG	58,786.0	61,838.3	62,613.2	95.06	98.8
	SEP	58,971.0	61,333.5	63,563.9	96.15	96.5
	OCT	61,419.0	63,497.6	64,860.9	96.73	97.9
	NOV	66,584.0	66,721.1	66,412.5	99.79	100.5
	DEC	78,530.0	70,174.0	68,004.8	111.91	103.2

Table 3 Money Supply (Levels in Million Pesos)

Year	Month	Original Data	Seasonally Adjusted	Trend-Cycle	Seasonal Factors	Irregular Series
1990	JAN	70,664.0	69,831.4	69,347.0	101.19	100.7
	FEB	70,433.0	70,353.6	70,254.4	100.11	100.1
	MAR	70,774.0	69,329.1	70,766.1	102.08	98.0
	APR	72,459.0	70,995.1	71,066.0	102.06	99.9
	MAY	71,523.0	71,148.5	71,371.4	100.53	99.7
	JUN	69,771.0	70,923.3	71,957.0	98.38	98.6
	JUL	69,496.0	73,009.6	72,933.2	95.19	100.1
	AUG	71,825.0	74,939.5	74,290.4	95.84	100.9
	SEP	71,633.0	74,906.0	75,845.5	95.63	98.8
	OCT	74,525.0	77,435.0	77,396.1	96.24	100.1
	NOV	80,226.0	79,810.1	78,748.9	100.52	101.3
	DEC	89,012.0	80,075.2	79,823.9	111.16	100.3
1991	JAN	85,614.0	84,191.6	80,604.3	101.69	104.5
	FEB	80,755.0	80,710.0	81,228.5	100.06	99.4
	MAR	82,154.0	80,432.9	81,939.4	102.14	98.2
	APR	83,602.0	82,279.7	82,925.0	101.61	99.2
	MAY	84,983.0	83,541.9	84,193.1	101.73	99.2
	JUN	83,225.0	84,703.4	85,482.6	98.25	99.1
	JUL	83,753.0	88,210.3	86,597.9	94.95	101.9
	AUG	85,692.0	89,094.2	87,533.0	96.18	101.8
	SEP	83,868.0	88,430.7	88,273.7	94.84	100.2
	OCT	84,889.0	87,746.4	88,842.0	96.74	98.8
	NOV	89,654.0	88,852.6	89,421.9	100.90	99.4
	DEC	101,374.0	92,023.7	90,359.8	110.16	101.8
1992	JAN	94,166.0	92,089.1	91,863.8	102.26	100.2
	FEB	91,725.0	89,316.7	93,864.0	102.70	95.2
	MAR	95,126.0	95,121.2	95,963.8	100.01	99.1
	APR	102,220.0	99,457.5	97,749.4	102.78	101.7
	MAY	100,976.0	98,608.3	98,950.3	102.40	99.7
	JUN	100,539.0	103,533.2	99,521.8	97.11	104.0
	JUL	95,755.0	99,114.2	99,605.9	96.61	99.5
	AUG	93,059.0	97,779.2	99,467.5	95.17	98.3
	SEP	93,504.0	98,851.6	99,540.2	94.59	99.3
	OCT	98,479.0	100,445.0	100,124.5	98.04	100.3
	NOV	102,174.0	102,390.4	101,123.2	99.79	101.3
	DEC	112,092.0	101,677.8	102,254.1	110.24	99.4
1993	JAN	105,266.0	102,807.4	103,409.3	102.39	99.4
	FEB	105,317.0	105,268.3	104,609.7	100.05	100.6
	MAR	105,445.0	105,839.8	105,827.8	99.63	100.0
	APR	109,708.0	106,122.5	106,967.3	103.38	99.2
	MAY	109,423.0	108,070.9	107,948.3	101.25	100.1
	JUN	108,320.0	110,703.8	108,751.8	97.85	101.8

Figure 3.1 Money Supply - Original and Seasonally-Adjusted

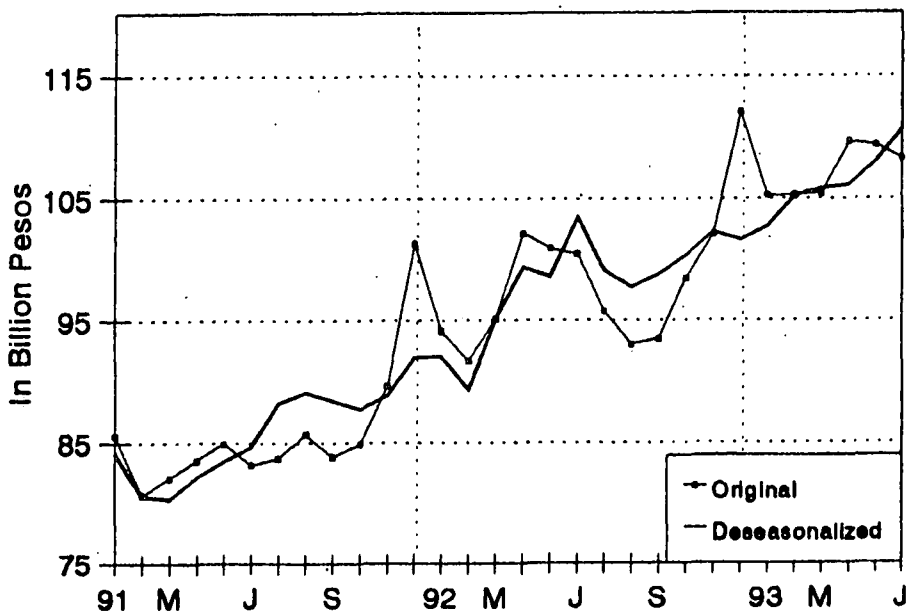

Figure 3.2 Money Supply - Trend Cycle

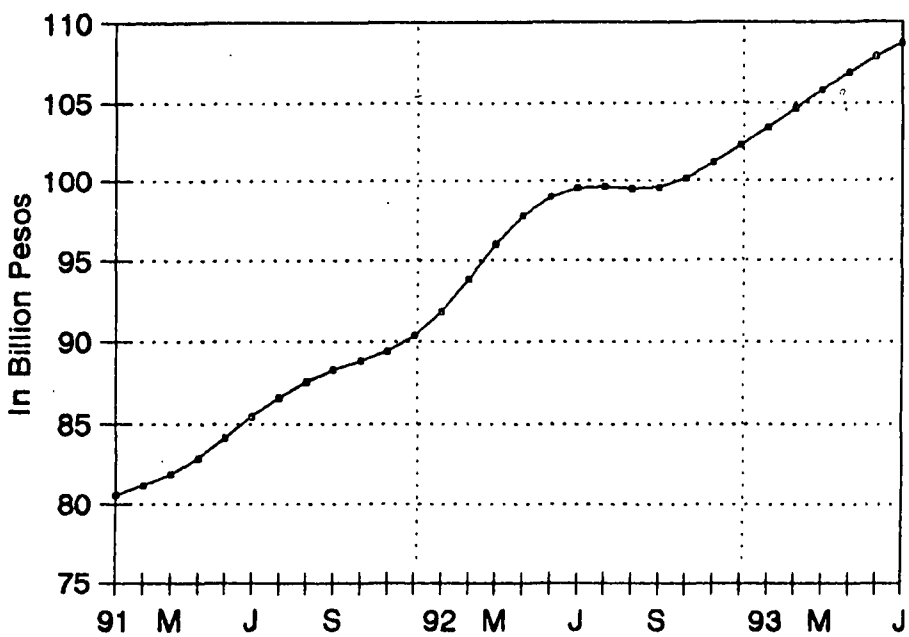

Figure 3.3 Money Supply - Seasonal Factors

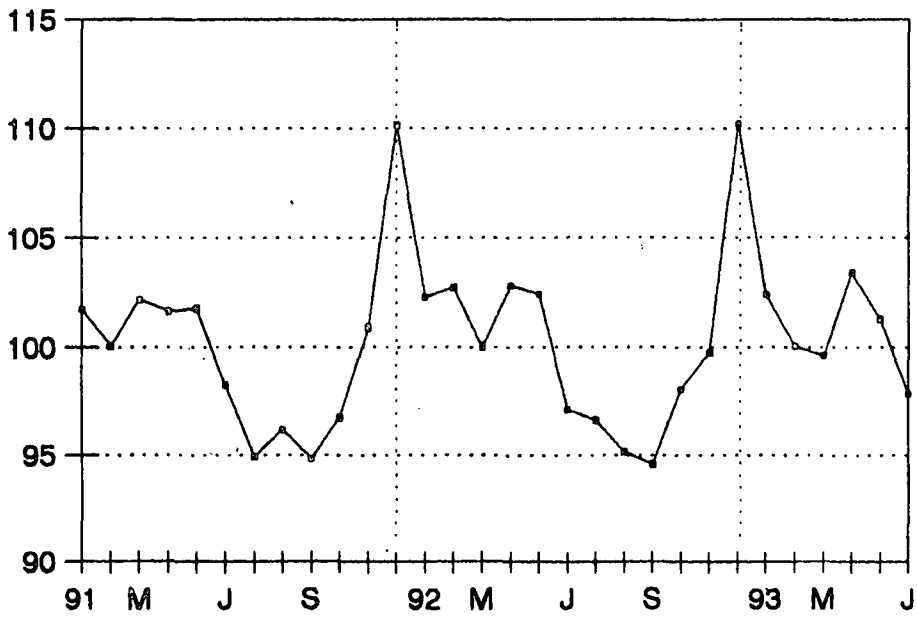

Figure 3.4 Money Supply - Irregular Series

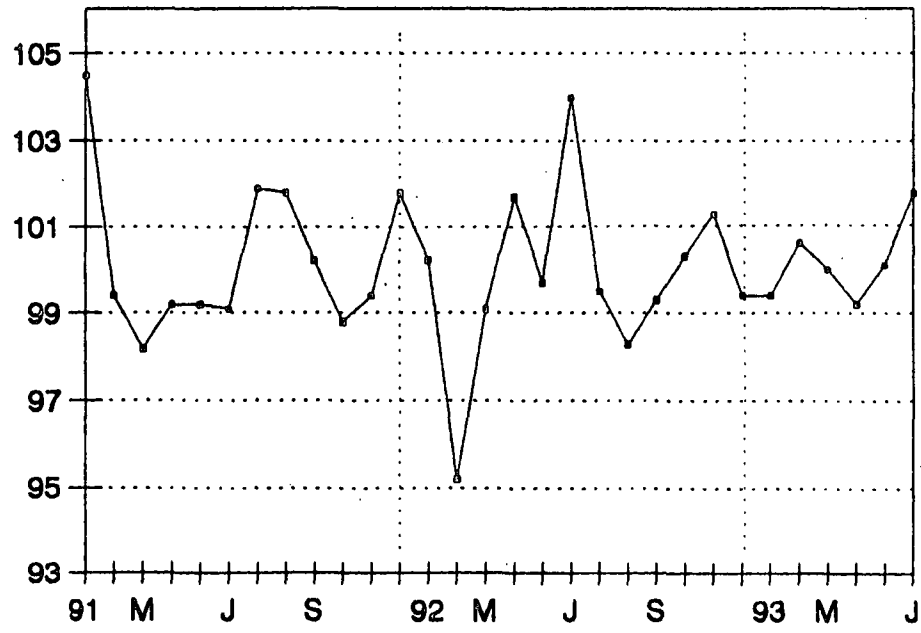

Figure 4.1 Seasonally-Adjusted Domestic Liquidity - Monthly Growth Rates

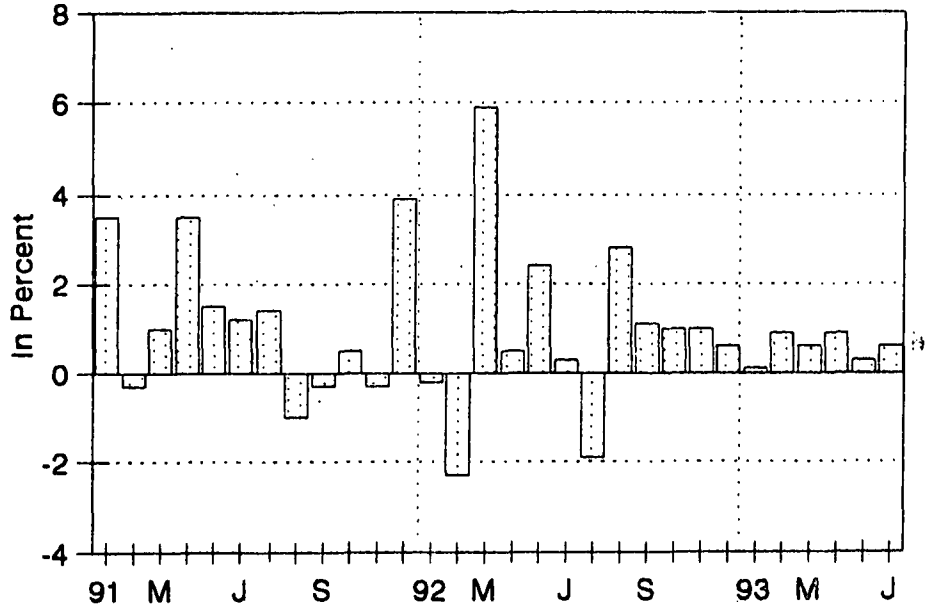

Figure 4.2 M2(M1 + Quasi-Money) - Monthly Growth Rates

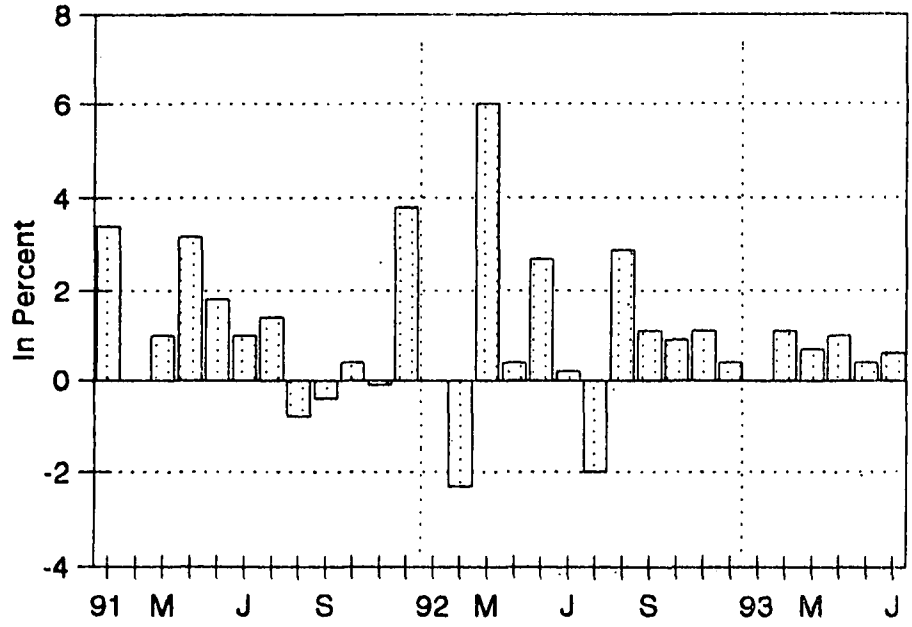

Figure 4.2 Seasonally-Adjusted Money Supply - Monthly Growth Rates

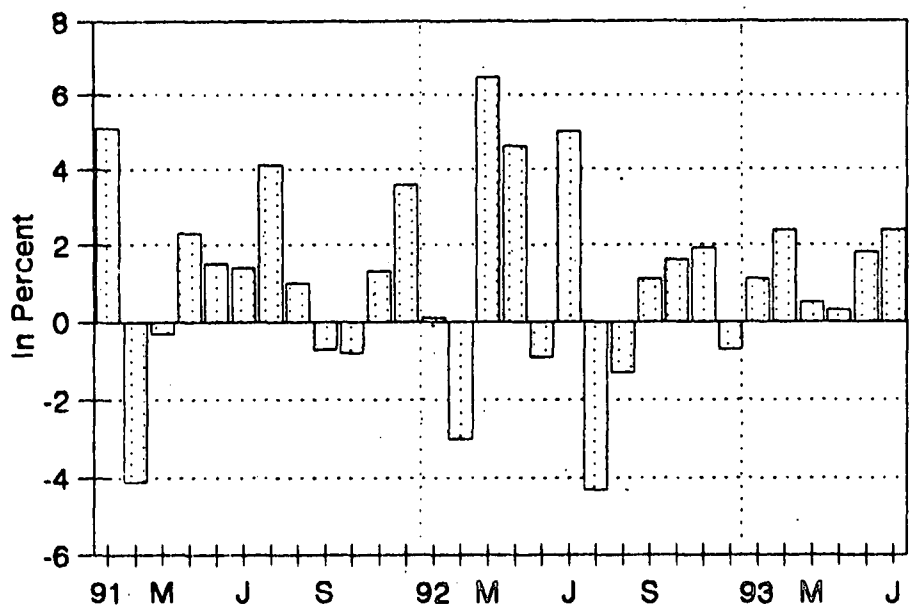

Table 4 Summary Table for Domestic Liquidity and its Components

SERIES	DESCRIPTION	PERIOD COVERED	OPTIONS	SUMMARY MEASURES	REMARKS
M1	MONEY SUPPLY = SUM OF CURRENCY IN CIRCULATION AND DEMAND DEPOSITS (FILE: M1COMP6.OUT)	MONTHLY JAN 86 - APR 93	MULTIPLICATIVE WITH LOG (011)(011) MAVS 3X5 MAVTC 9	ACCEPTED AT 0.30	CHI-SQUARED = 99.1 R-SQUARED = 0.9846 F = 50.559 DIRECT METHOD IS BETTER (MEASURES OF ROUGHNESS = NEGATIVE)
		MONTHLY JAN 86 - APR 93	MULTIPLICATIVE WITH LOG (011)(011) MAVS 3X5 MAVTC 13	ACCEPTED AT 0.61 M2=1.015 M6=1.041 M8=1.780 M10=1.625 M11=1.091	F = 43.342 INDIRECT METHOD
M1	(FILE: M1COMP7.OUT)	MONTHLY JAN 86 - MAY 93	MULTIPLICATIVE WITH LOG (011)(011) MAVS 3X5 MAVTC 9	ACCEPTED AT 0.29	CHI-SQUARED = 99.1 R-SQUARED = 0.9846 F = 50.914 DIRECT METHOD IS BETTER (MEASURES OF ROUGHNESS = NEGATIVE)
		MONTHLY JAN 86 - MAY 93	MULTIPLICATIVE WITH LOG (011)(011) MAVS 3X5 MAVTC 13	ACCEPTED AT 0.60 M2=1.004 M6=1.070 M8=1.796 M10=1.581 M11=1.150	F = 43.881 INDIRECT METHOD
M1	(FILE: M1COMP8.OUT)	MONTHLY JAN 86 - JUN 93	MULTIPLICATIVE WITH LOG (011)(011) MAVS 3X5 MAVTC 9	ACCEPTED AT 0.32	CHI-SQUARED = 99.1 R-SQUARED = 0.9846 F = 50.856 DIRECT METHOD IS BETTER (MEASURES OF ROUGHNESS = NEGATIVE)
		MONTHLY JAN 86 - JUN 93	MULTIPLICATIVE WITH LOG (011)(011) MAVS 3X5 MAVTC 13	ACCEPTED AT 0.61 M2=1.005 M6=1.021 M8=1.790 M10=1.495 M11=1.053	F = 43.189 INDIRECT METHOD

Table 4 Summary Table for Domestic Liquidity and its Components

SERIES	DESCRIPTION	PERIOD COVERED	OPTIONS	SUMMARY MEASURES	REMARKS
M2	MONEY SUPPLY PLUS QUASI-MONEY (FILE: M2COMP7.OUT)	MONTHLY JAN 86 - APR 93	MULTIPLICATIVE W/O LOG (011)(011) W/ TDR EASTER AT 10% MAVS 3X5 MAVTC 9	ACCEPTED AT 0.41	CHI-SQUARED = 0.66 R-SQUARED = 0.9951 F = 29.320 DIRECT METHOD
		MONTHLY JAN 86 - APR 93	MAVS 3X5 MAVTC 13	ACCEPTED AT 0.51 M10=1.194 M11=1.191	F = 28.873 INDIRECT METHOD IS BETTER (MEASURES OF ROUGHNESS = POSITIVE)
M2	(FILE: M2COMP8.OUT)	MONTHLY JAN 86 - MAY 93	MULTIPLICATIVE W/O LOG (011)(011) W/ TDR EASTER AT 10% MAVS 3X5 MAVTC 9	ACCEPTED AT 0.41	CHI-SQUARED = 0.91 R-SQUARED = 0.9953 F = 29.546 DIRECT METHOD
		MONTHLY JAN 86 - MAY 93	MAVS 3X5 MAVTC 13	ACCEPTED AT 0.62 M8=2.296 M10=2.225 M11=1.350	F = 28.021 INDIRECT METHOD IS BETTER (MEASURES OF ROUGHNESS = POSITIVE)
M2	(FILE: M2COMP9.OUT)	MONTHLY JAN 86 - JUN 93	MULTIPLICATIVE W/O LOG (011)(011) W/TDR EASTER AT 10% MAVS 3X5 MAVTC 9	ACCEPTED AT 0.41 M10=1.021 M11=1.021	CHI-SQUARED = 0.70 R-SQUARED = 0.9954 F = 29.456 DIRECT METHOD
		MONTHLY JAN 86 - JUN 93	MAVS 3X5 MAVTC 13	ACCEPTED AT 0.64 M8=2.350 M10=2.407 M11=1.440	F = 28.219 INDIRECT METHOD IS BETTER (MEASURES OF ROUGHNESS = POSITIVE)

Table 4 Summary Table for Domestic Liquidity and its Components

SERIES	DESCRIPTION	PERIOD COVERED	OPTIONS	SUMMARY MEASURES	REMARKS
DOMLIQ	DOMESTIC LIQUIDITY (M3)= M2 + DS (FILE: M3COMP8.OUT)	MONTHLY JAN 86 - APR 93	MULTIPLICATIVE W/O LOG (011)(011) W/ TDR MAVS 3X5 MAVTC 9	ACCEPTED AT 0.37	CHI-SQUARED = 0.23 R-SQUARED = 0.9951 F = 28.588 DIRECT METHOD IS BETTER (MEASURES OF ROUGHNESS = NEGATIVE)
		MONTHLY JAN 86 - APR 93	MAVS 3X5 MAVTC 13	ACCEPTED AT 0.64 M8 = 2.550 M10 = 2.447 M11 = 1.329	F = 26.592 INDIRECT METHOD
DOMLIQ	(FILE: M3COMP9.OUT)	MONTHLY JAN 86 - MAY 93	MULTIPLICATIVE W/O LOG (011)(011) W/ TDR MAVS 3X5 MAVTC 9	ACCEPTED AT 0.40 M10 = 1.009	CHI-SQUARED = 0.36 R-SQUARED = 0.9952 F = 28.829 DIRECT METHOD IS BETTER (MEASURES OF ROUGHNESS = NEGATIVE)
		MONTHLY JAN 86 - MAY 93	MAVS 3X5 MAVTC 13	ACCEPTED AT 0.65 M8 = 2.601 M10 = 2.398 M11 = 1.232	F = 27.483 INDIRECT METHOD
DOMLIQ	(FILE: M3COMP10.OUT)	MONTHLY JAN 86 - JUN 93	MULTIPLICATIVE W/O LOG (011)(011) W/ TDR MAVS 3X5 MAVTC 9	ACCEPTED AT 0.38 M10 = 1.051 M11 = 1.038	CHI-SQUARED = 0.23 R-SQUARED = 0.9954 F = 28.861 DIRECT METHOD IS BETTER (MEASURES OF ROUGHNESS = NEGATIVE)
		MONTHLY JAN 86 - JUN 93	MAVS 3X5 MAVTC 13	ACCEPTED AT 0.67 M8 = 2.634 M10 = 2.539 M11 = 1.347	F = 27.444 INDIRECT METHOD

Table 5.1 Monthly Percentage Changes of Seasonally-Adjusted M1 (Indirect Method)

		Dec 92	Jan 93	Feb 93	Mar 93	Apr 93	May 93	Jun 93
1992	Jan	-0.3	0.8	0.5	0.5	0.1	0.1	0.1
	Feb	-2.3	-1.7	-3.0	-3.1	-3.0	-3.0	-3.0
	Mar	5.8	5.1	5.9	6.3	6.4	6.5	6.5
	Apr	4.4	4.7	4.7	4.5	4.5	4.5	4.6
	May	-1.3	-1.1	-1.0	-1.2	-1.1	-1.0	-0.9
	Jun	5.7	5.2	5.2	5.4	5.5	5.4	5.0
	Jul	-4.3	-4.1	-4.1	-4.2	-4.3	-4.3	-4.3
	Aug	-1.7	-1.5	-1.7	-1.5	-1.4	-1.6	-1.3
	Sep	1.5	0.9	1.4	1.2	1.1	1.3	1.1
	Oct	1.7	1.8	1.7	1.6	1.6	1.5	1.6
	Nov	1.8	1.6	1.8	1.7	1.9	1.9	1.9
	Dec	-0.2	-1.0	-0.7	-0.6	-0.7	-0.8	-0.7
1993	Jan		1.5	1.4	1.3	1.1	1.2	1.1
	Feb			2.4	2.3	2.4	2.4	2.4
	Mar				0.6	0.5	0.5	0.5
	Apr					0.2	0.2	0.3
	May						1.7	1.8
	Jun							2.4

Table 5.2 Monthly Percentage Changes of Seasonally-Adjusted M2 (Direct Method)

		Dec 92	Jan 93	Feb 93	Mar 93	Apr 93	May 93	Jun 93
1992	Jan	-1.0	0.1	0.1	0.0	0.1	0.0	0.0
	Feb	-2.3	-2.1	-2.3	-2.3	-2.3	-2.3	-2.3
	Mar	5.4	5.7	5.7	6.1	6.1	6.0	6.0
	Apr	0.8	0.7	0.7	0.6	0.4	0.4	0.4
	May	1.5	2.4	2.5	2.5	2.6	2.7	2.7
	Jun	1.2	0.2	0.2	0.1	0.1	0.2	0.2
	Jul	-0.7	-1.8	-1.8	-1.9	-1.9	-2.0	-2.0
	Aug	1.9	2.8	2.9	2.8	2.9	2.9	2.9
	Sep	1.1	1.1	1.1	1.1	1.0	1.0	1.1
	Oct	1.2	0.9	1.6	0.8	0.8	0.8	0.9
	Nov	1.1	0.9	1.4	1.0	1.0	1.0	1.1
	Dec	0.9	0.2	1.8	1.4	0.3	0.3	0.4
1993	Jan		0.1	1.0	0.1	0.2	0.1	0.0
	Feb			1.4	1.1	1.1	1.1	1.1
	Mar				0.6	0.8	0.8	0.7
	Apr					1.1	1.0	1.0
	May						0.5	0.4
	Jun							0.6

Table 5.2 Monthly Percentage Changes of Seasonally-Adjusted M3 (Indirect Method)

		Dec 92	Jan 93	Feb 93	Mar 93	Apr 93	May 93	Jun 93
1992	Jan	-1.2	-0.1	-0.1	-0.4	-0.1	-0.2	-0.2
	Feb	-2.3	-2.1	-2.2	-2.7	-2.2	-2.2	-2.3
	Mar	5.8	5.7	5.7	6.3	6.0	6.0	5.9
	Apr	0.6	0.8	0.9	0.7	0.6	0.6	0.5
	May	3.0	2.1	2.2	2.5	2.3	2.4	2.4
	Jun	-0.6	0.3	0.2	-0.3	0.2	0.2	0.3
	Jul	-1.1	-1.8	-1.8	-1.1	-1.9	-1.9	-1.9
	Aug	2.2	2.8	2.9	2.1	2.8	2.9	2.8
	Sep	1.4	1.1	1.1	1.2	1.1	1.1	1.1
	Oct	1.3	1.0	1.0	1.2	1.0	1.0	1.0
	Nov	0.9	0.9	0.9	1.0	0.9	0.9	1.0
	Dec	1.3	0.4	0.5	0.7	0.5	0.6	0.6
1993	Jan		0.2	0.2	0.0	0.2	0.1	0.1
	Feb			1.0	0.7	1.0	1.0	0.9
	Mar				0.3	0.7	0.7	0.6
	Apr					1.1	1.0	0.9
	May						0.4	0.3
	Jun							0.6