Intermediary Targets of Chinese Monetary Policy: Selection and Efficiency

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Main Messages

❖ Money aggregate and the incremental RMB loan as the intermediary targets of monetary policy are becoming less effective than before.

❖ The PBC launched several initiations to enhance the efficiency

- Implement dynamic required reserve requirement
- Amend M2
- Compile M3 and "total finance aggregate".

❖ These measures are yet to be tested in the future.

Outline

❖ Related theoretical background and international experience

❖ Evolution of China's monetary policy, intermediary targets and their efficiency

❖ Recent development and future of monetary policy intermediary targets in China

Theoretical background

❖ Keynesian: the economic system is unstable, and money is endogenous that can't be controlled by the central banks to reach monetary policy targets.

  ▪ Interest rate is the intermediary target of money policy

❖ Quantitative monetary theory: inflation a money issue, in the long-run, an exogenous increase in money supply will lead to proportionate reaction of the inflation.

  ▪ Money supply became the most suitable intermediary targets

Evolution of intermediary targets

	1950-60	1970-80	1990 and after
US	Interest rates	M1, then M2	Interest rates (since 1993)
UK	Interest rates	M3, take reference of DCE (=cash in circulation + bank reserve), then changed to M0	exchange rate, and inflation since 1992; interest rate is the major intermediary targets
Germany	Banks' free reserve	Central bank money (cash in circulation + bank reserve), then M3	M3, and take consideration of interest rate and exchange rate
Japan	Loan increase of the private sector	M2+CD	Interest rates

Source: websites of various central banks

Content of money supply

	M1	M2	M3
US	Cash in bank reserve + fund in check or demand account	M1 + most savings, money market, retail money market fund account and term deposit under $100,000	M2 + all other CD, euro dollar and repo deposit
EU	Cash in circulation + overnight deposit	M1 + term deposit under 2 years + redemable deposit under 4 months	M2 + repo agreement + money market fund + bond under 2 years
Japan	Cash in circulation + deposit	M2 + CDs = M1 + quasi money + CDs	M3 + CDs = (M2 + CDs) + postal deposit + other savings and deposits of financial institutions + money trust
India	Cash in circulation + public deposit (include demand deposit of banks and other deposit of central bank)	M1 + savings deposit of postal savings bank	M1+ banks' term deposit = bank credit to gov't + bank credit to commercial entities + net foreign asset of banks + gov't cash liability to public – net liability of no-money of banking sector

Source: Statistical bulletin of various central banks

China in Transition

❖ Financial innovation not active

❖ Financial market less developed

❖ However, with the opening of the financial market and liberalization of interest rate, financial innovation will improve and new financial products thrive. This will increase the endogeneity of money, and pose new challenges to monetary policy and its intermediary targets

China's monetary policy: Objectives

(1978-2010)

❖ Prior to mid-1990s: "(the central bank, specialized bank and other financial institutions) should target economic development, currency stabilization and social and economic efficiency enhancement." (The Provisional Regulation on Bank Management , 1986)

❖ After 1995: "the objectives of monetary policy are to maintain currency stability in order to facilitate economic growth." (Law on the People's Bank of China, 1995)

❖ The objectives have been adjusting along with the economic development (Zhou, 2009)

China's monetary policy: intermediary targets (1978-2010)

- ❖ Prior to 1983: total credit and cash inputs

- ❖ 1983-1998: credit quota

- ❖ 1998-2010: incremental loans

- ❖ 2011 to ?: ??

Money supply in China

- ❖ M0 = cash in circulation
- ❖ M1 = M0 + checkable demand deposit of enterprises and other entities
- ❖ M2 = M1 + savings deposit of residence + term and other deposit of entities

- ❖ Starting January 2010, the PBC started to compile money statistics based on local and foreign currency statistics of all financial institutions in the country according to the IMF Handbook.

Efficiency of intermediary targets

Targets and actual value of monetary policy intermediaries

	M1 growth (%)		M2 growth (%)		Increment RMB loan (RMB trillion)	
	Target	Actual value	Target	Actual value	Target	Actual value
1994	21	26.2	24	34.5		0.70
1995	21-23	16.8	23-25	29.5		1.06
1996	18	18.9	25	25.3		1.06
1997	18	16.5	23	17.3		1.38
1998	17	11.9	16-18	15.3	0.9	1.16
1999	14	17.7	14-15	14.7	1.0	0.72
2000	15-17	16.0	14-15	13.99	1.0	0.56
2001	13-14	12.7	15-16	14.4	1.3	1.29
2002	13	16.8	13	16.78	1.3	1.90
2003	16	18.7	16	19.6	1.8	2.77
2004	17	13.6	17	14.6	2.6	1.84
2005	15	11.8	15	17.57	2.5	1.73
2006	14	17.5	16	16.94	2.5	3.06
2007		21.0	16	16.72	2.9	3.64
2008		9.1	16	17.82	3.6	4.17
2009		32.4	17	27.68	>5.0	9.63
2010		21.2	17	19.72	7.5	7.95

Efficiency of intermediary targets

Financing Channels (RMB100 million)

	(1) Loan	(2) Equity	(3) Treasury bond	(4) Corporate bond	(1+2+3+4)/GDP
1990	3826.78	10.87	351.91		19.3%
1991	4985.10	94.64	405.86		19.2%
1992	6620.20	300.13	527.70		20.4%
1993	7032.90	119.92	1137.55		21.1%
1994	10568.10	99.43	1448.71	1.00	17.2%
1995	10612.50	319.75	2310.13		19.9%
1996	13757.50	903.99	2457.49	9.00	18.6%
1997	11610.00	792.69	9068.60	64.60	21.8%
1998	7210.20	877.86	4056.03	135.36	25.6%
1999	3826.78	10.87	351.91	162.06	13.7%
2000	5636.77	1662.80	4419.50	105.30	11.9%
2001	12943.63	1128.95	4683.53	144.00	17.2%
2002	18979.23	766.65	6061.40	325.00	21.7%
2003	27702.30	628.55	9212.37	488.00	28.0%
2004	18367.26	644.67	7603.00	322.00	16.8%
2005	17326.90	326.94	8027.60	654.00	14.2%
2006	30594.89	2696.59	9850.00	1015.00	20.4%
2007	36405.60	8043.61	23599.48	1709.35	26.2%
2008	41703.76	3469.73	8615.00	2366.90	17.9%
2009	96290.18	5149.52	16418.10	4252.33	35.8%
2010	79510.73	10131.28	17881.90	3627.03	27.9%

Efficiency of intermediary targets

Balance Sheet of PBC:
 Foreign Assets (RMB100 million)

	Total Assets	Of which: Foreign Asset	Ratio (%)
1994	17588	4451	25.3%
1995	20624	6670	32.3%
1996	26467	9562	36.1%
1997	31413	13229	42.1%
1998	31268	13560	43.4%
1999	35350	14459	40.9%
2000	39002	15189	38.9%
2001	42227	19351	45.8%
2002	51108	23243	45.5%
2003	62004	31142	50.2%
2004	78655	46398	59.0%
2005	103676	63339	61.1%
2006	128575	85773	66.7%
2007	169140	124825	73.8%
2008	207096	162544	78.5%
2009	227530	185333	81.5%
2010	259275	215420	83.1%

Money aggregates vs. CPI and GDP

Figure 1. Growth of Money
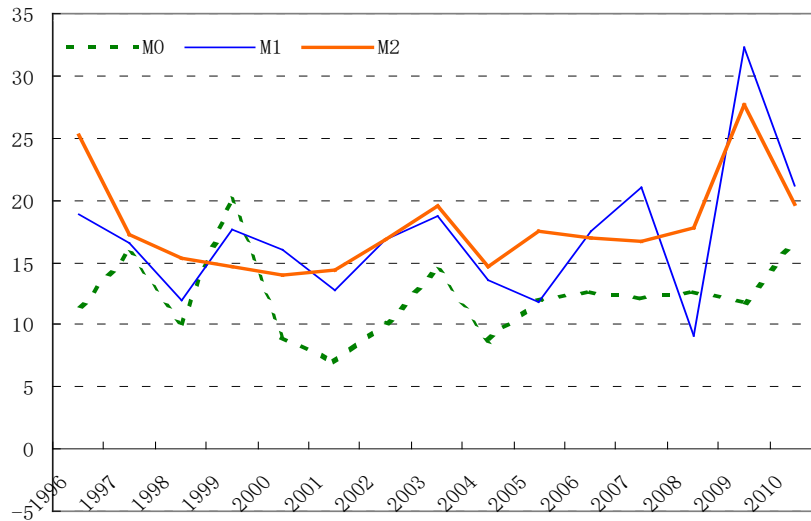
Source: Wind Data

Figure 2. Money Velocity
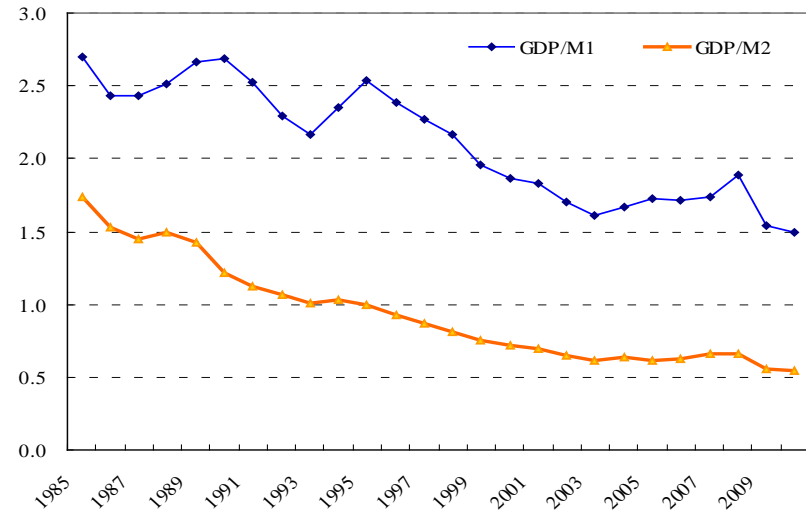
Source: Wind Data

Money aggregates vs. CPI and GDP

Figure 3. M2、GDP and CPI
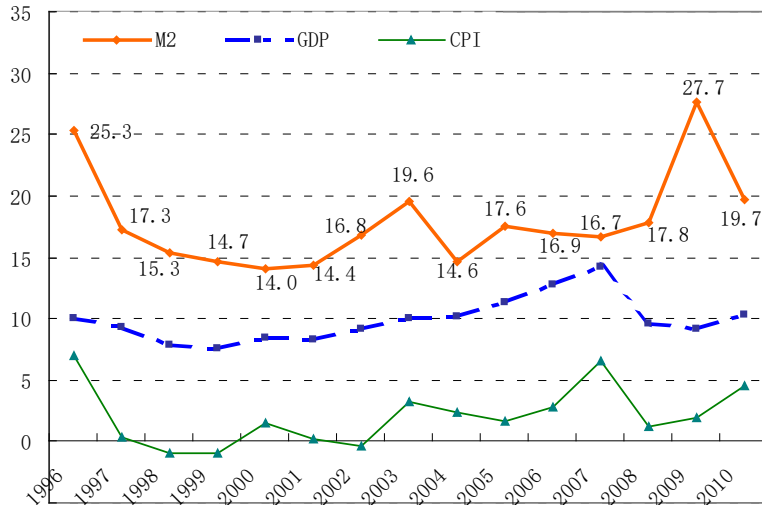
Figure 4. CPI and M1 growth
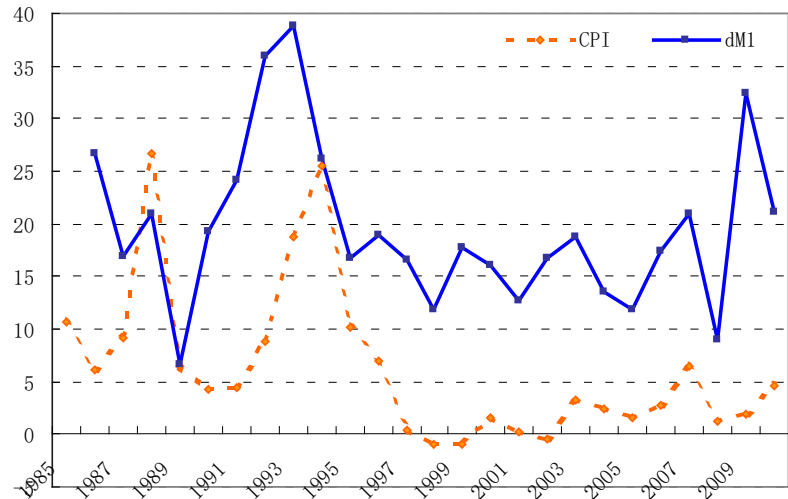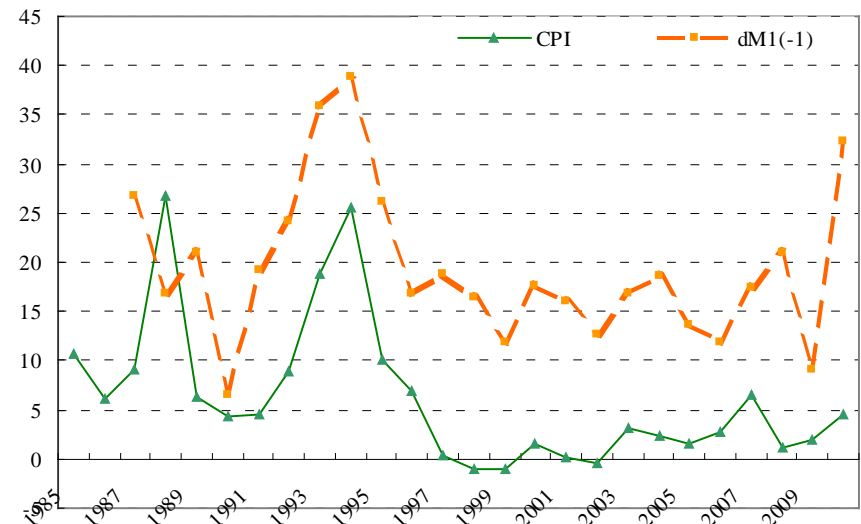

Source: Wind Data

Source: Wind Data

Money aggregates vs. CPI and GDP

Figure 5. CPI and M1 growth per GDP
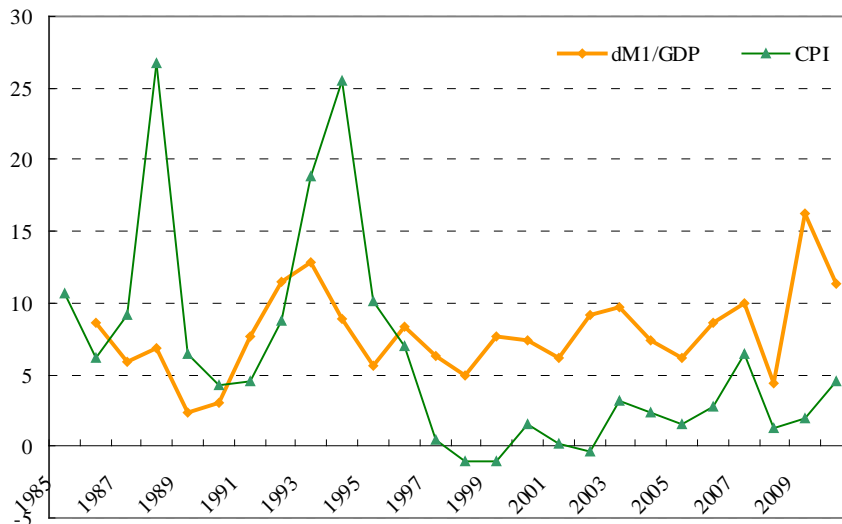
Source: Wind Data

**Figure 6. CPI and lag of M1 growth**

Source: Wind Data

Regression results of CPI and money aggregates

Money variable	Observation period	Coefficient						R^2	S.E. of regression	DW
		Lags								
		0	1	2	3	Sum	D96			
M1 growth	1985-2010	0.235	0.431	0.292	0.027	0.985	--	0.817	3.061	1.364
		(0.020)	(0.000)	(0.015)	(0.802)					
M1 growth	1985-2010	0.210	0.439	0.184	0.050	0.883	-2.468	0.865	2.876	2.019
		(0.074)	(0.003)	(0.164)	(0.640)		(0.181)			
M1 growth	1996-2010	0.160	0.171	-0.012	0.110	0.428	--	0.377	2.298	1.250
		(0.226)	(0.271)	(0.955)	(0.385)					
M2 growth	1985-2010	0.382	0.491	0.039	-0.164	0.748	--	0.744	3.616	1.481
		(0.047)	(0.047)	(0.891)	(0.444)					
M2 growth	1985-2010	0.313	0.483	0.042	-0.173	0.665	-1.499	0.749	3.691	1.563
		(0.172)	(0.057)	(0.886)	(0.432)		(0.581)			
M2 growth	1996-2010	0.109	0.284	0.300	-0.337	0.357		0.572	1.906	1.623
		(0.491)	(0.107)	(0.261)	(0.083)					

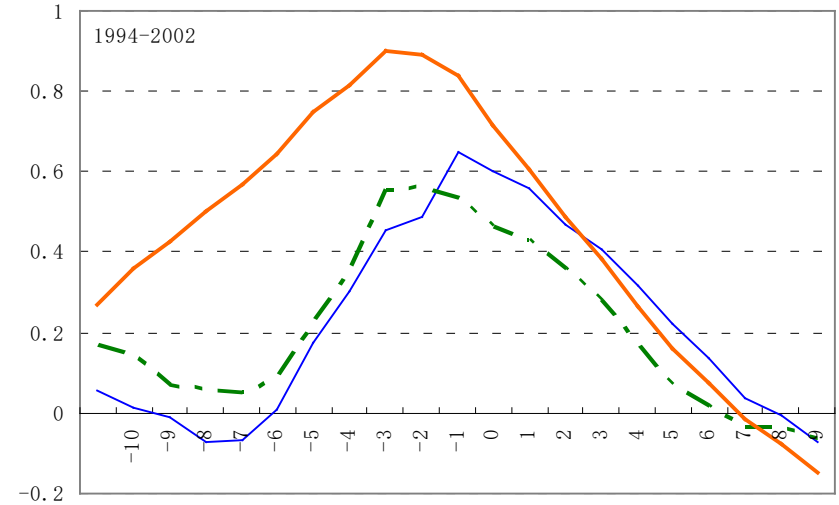Note: A constant terms was included in all equations, and numbers in the brackets are probabilities.
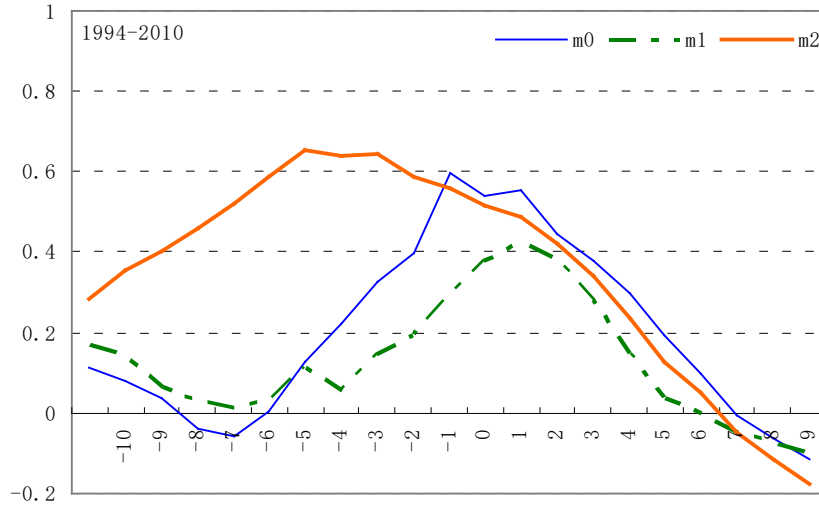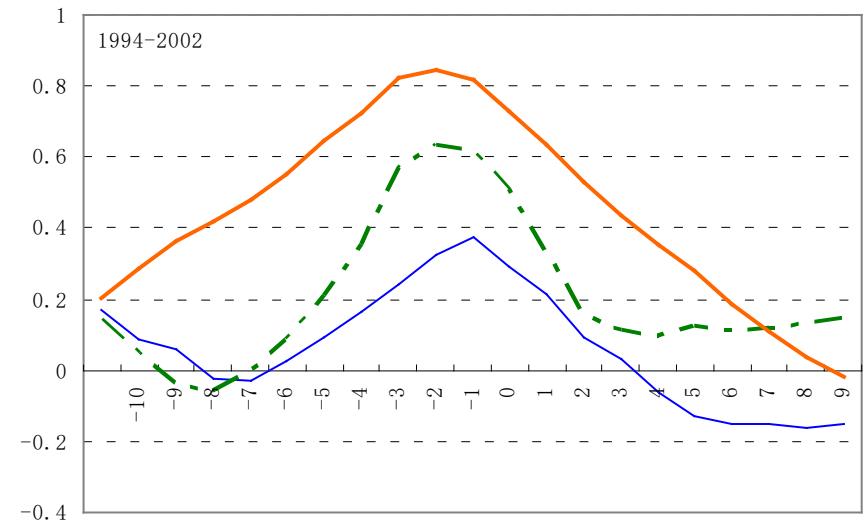
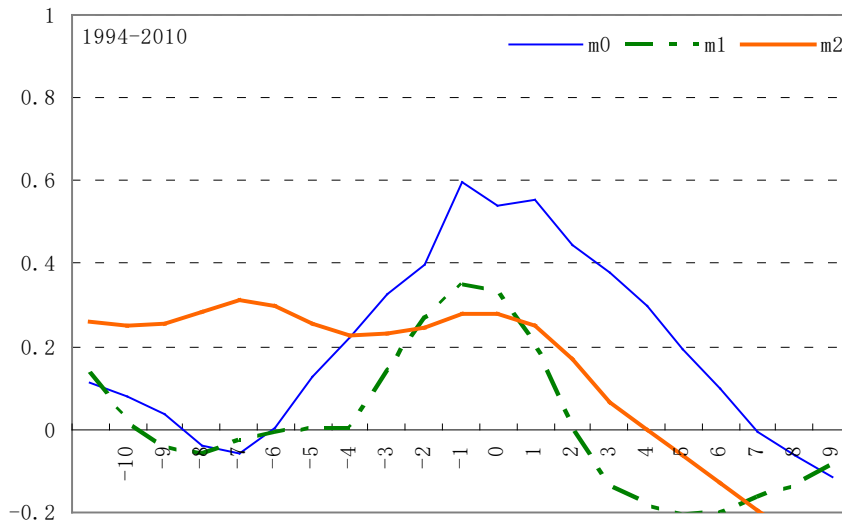# Cross correlation of CPI vs growth rates of M0-M2
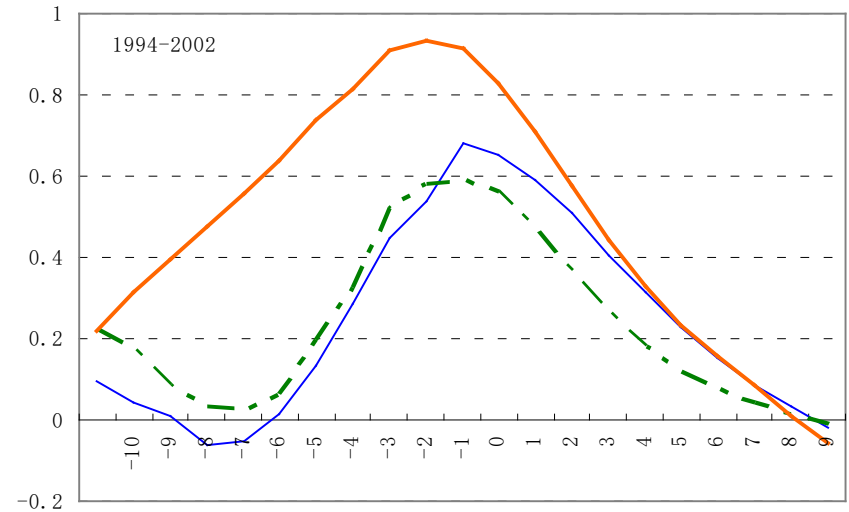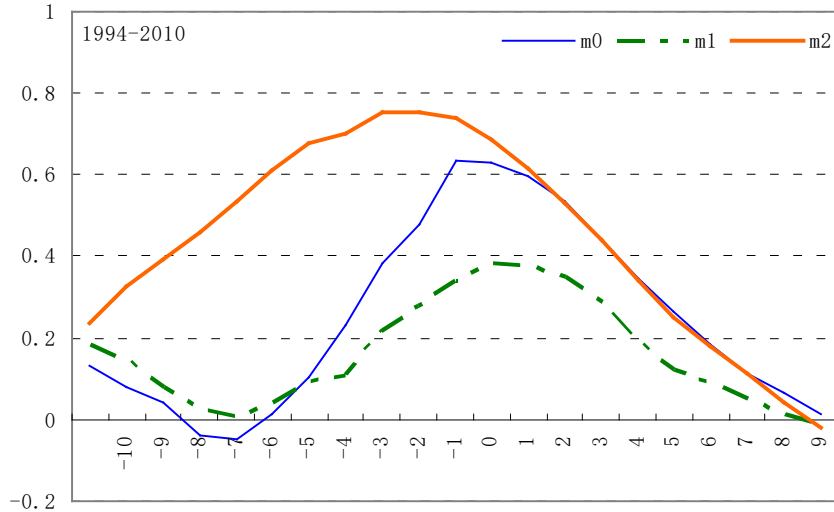
Cross correlation of GDP deflator vs growth rates of M0-M2

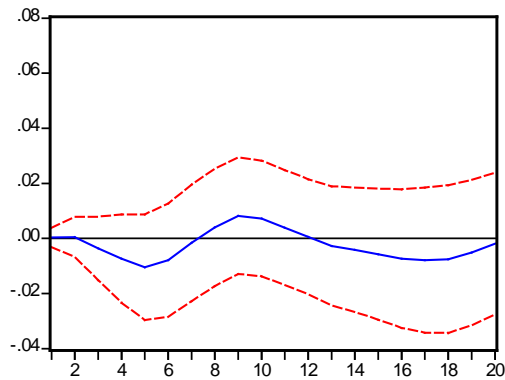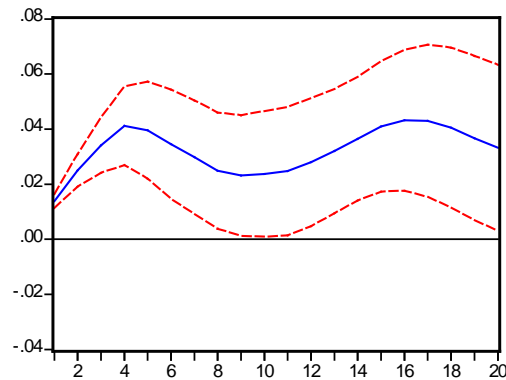# Cross correlation of GDP growth vs growth rates of M0-M2

Impacts of money shock on GDP growth and inflation

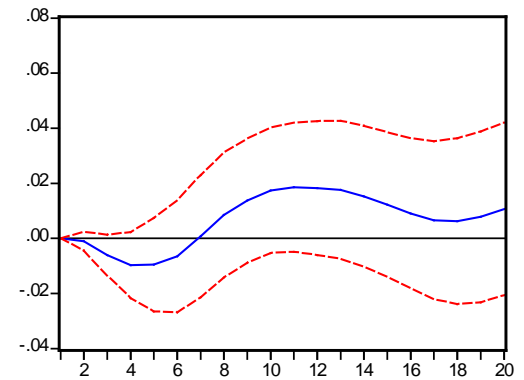Accumulated Response to Cholesky One S.D. Innovations ± 2 S.E.

Accumulated Response of CYCDM2 to CYCDREALGDP

Accumulated Response of CYCDM2 to CYCDM2

Accumulated Response of CYCDM2 to CYCCPI

Recent development

❖ The reduction in the efficiency of the intermediary targets is compounded with institutional twisting in China.

❖ Three newly-introduced measures may be the second best choice of the PBC until the liberalization of the interest rates

- Launch of dynamic RRR

- Amendment of M2

- Compilation of M3 and "total finance aggregate"