The Monetary Conditions Index:

Estimates for Thailand Before and After the AFC

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Abstract: *This paper applies the monetary conditions framework(Ho, 2005) to Thai data. It is found that monetary conditions peaked in the fourth quarter of 1995 and then declined rapidly through the first half of 1997. The reversal in monetary conditions, though rapid, does not appear to be serious enough to explain the onset of the financial crisis. A dramatic decline in monetary conditions occurred after the crisis through the first quarter of 1998. The conditions then picked up dramatically effectively reviving the economy by 1999.*

JEL Classification: E44, E52, F33
Key words: compensated monetary conditions index, stabilization policies, interest rate policy, exchange rate policy

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Acknowledgements: I thank Gary Wong for research assistance and Lingnan University for an internal grant. Early versions of the analytical framework were presented to the Polish Economic Society and the Chinese University of Hong Kong in March and May 2004, respectively, as well as the Western Economic Association Conference in Vancouver July 2003 and the HK Institute for Monetary Research seminar on October 31, 2003. I thank Chris Graham, Yue Ma, Jack Hou, Z.Sadowski, Z.Polanki, as well as various participants in the above seminars for the valuable suggestions.

July 2007

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Abstract: *This paper lends support to the applicability of the monetary conditions analytical framework proposed earlier in a working paper. That framework recommends a non-Keynesian fiscal monetary policy mix and suggests that fiscal policy should be inert to the different phases of the business cycle while monetary policy adjust to take account of the changing conditions in order to maintain full employment without overheating. Application of the framework to the Thai case suggests excessive expansion ahead of the financial crisis followed by a rapid reversal. Following the crisis, monetary conditions recovered rapidly after 1998 and remains on an uptrend through 2005, when monetary conditions are roughly consistent with full employment and fiscal budget balance.*

JEL Classification: E44, E52, F33

Key words: compensated monetary conditions index, fiscal conditions index, stabilization policies, interest rate policy, exchange rate policy

I. Introduction

Mishkin(1999) discussed four monetary policy regimes, namely exchange rate targeting, monetary targeting, inflation targeting, and finally, "monetary policy with an implicit but not an explicit nominal anchor." *Exchange rate targeting* refers to a monetary system that ties the domestic currency to some anchor currency such as the US dollar. An example would be the Hong Kong dollar since October 17, 1983 and the Argentine peso before it broke away from the US dollar link early 2002. *Monetary targeting* refers to a policy of managing some monetary aggregate such as M2 in an attempt to contain its growth within a target range. Adherents of this approach include Germany before the European monetary union and Switzerland. *Inflation targeting* is a monetary regime that has gained much popularity in recent years. Pioneered by New Zealand in 1990, it has now been espoused by Canada, the United Kingdom, Sweden, Finland, Australia, and Spain, and more recently by a number of Asian countries. Ito and Hyashi(2004) found the experience with inflation targeting in Korea, Thailand, Indonesia, and the Philippines positive.

According to many authors, monetary policy in the US under the leadership of Alan Greenspan followed an eclectic approach. Without any explicit target, the Fed would look at a range of macroeconomic indicators in the conduct of monetary policy, while reminding the public that containing inflation over the long run remains always an over-riding concern.

Of these four approaches, the first three can be said to be predominantly "rule-based." In contrast, the last approach can be said to be predominantly discretionary.[1] With no explicit constraint, a central bank using this approach can respond to the latest developments readily and giving due consideration for the need for both full employment and price stability. But without explicit rules, how the central bank deals with a particular situation will be subject to considerable speculation. It will be useful to develop indicators whereby what is the appropriate response becomes transparent both to the central bank and to the public.

While maintaining price stability has traditionally been regarded as the principal, even the only valid objective of central banks, it will be assumed in this paper that in the final analysis the objective of central banks is *sustainable full employment* without overheating. Maintaining price stability is desirable only because this is thought to be consistent with sustainable full employment without overheating. In order to do this we need to achieve two conditions: (1) aggregate demand at the full employment output level, (2) sustainable fiscal budget balance at full employment. The former condition is necessary because only when aggregate demand is no more and no less than the full employment level can we achieve full employment and avoid overheating at the same time. For a growing economy the second condition would allow a steady state budget deficit such that all the necessary

[1] Some see this eclectic monetary policy as more or less described by the Taylor rule(Taylor, 1993). See Woodford(2001). Also see Carlstrom and Fuerst(2003) for a more recent assessment.

ratios are constant, such as deficit as a percentage of GDP and the debt to GDP ratio[2]. Portfolio balance for households will be maintained in the sense that holdings of government bonds as a percentage of assets is constant.

Section II will lay out the theoretical framework laying out the concepts of fiscal conditions index and monetary conditions index and the principles behind fiscal and monetary policy coordination. An examination of the determinants of the monetary conditions index suggests that it is strikingly similar to the "financial conditions index" (Goodhart and Hofmann, 2002, Lack, 2003, Gauthier, Graham, and Liu, 2004) that is discussed in the more recent literature even though it is derived from an altogether different approach. Because the proposed index compensates for the effects of changing financial conditions and the effects of tax rate changes on consumption and investment, the monetary conditions index herein proposed will be called a *compensated* monetary conditions index. The approach proposed in this paper is then compared to the approach used by Gauthier, Graham and Liu(2004) and Goodhart and Hofmann(2002). Section III will present the empirical estimates for Thailand. Finally Section IV will address some further conceptual issues, such as partial versus general equilibrium analysis, the Lucas Critique, deterministic versus stochastic analysis, etc., and summarize the main findings.

[2] Stability of the steady state equilibrium would require that the nominal interest rate on bonds be smaller than the nominal growth rate of the economy. See Michael Parkin and Robin Bade(2001).

II: Theoretical Framework

We will first explain the static version and start with the product income identity:

$$GDP \equiv Yd + T - B \qquad [1]$$

In words, GDP is identically equal to disposable incomes(Yd) plus net taxes(T) minus interest payment on government debt(B). When aggregate demand is in equilibrium, income must be equal to expenditures, so we have:

$$Yd + T - B = C + I + G + X - M \qquad [2]$$

This has been called the Keynesian cross condition for aggregate demand equilibrium. This terminology is actually quite misleading, because it is really aKeynesian—i.e., it is acceptable to Keynesians and non-Keynesians alike. [2] can be transposed to obtain:

$$T - G - B = I - S - (M - X) \qquad [3]$$

which can be depicted by the intersection of GS and PD lines in the following diagram:

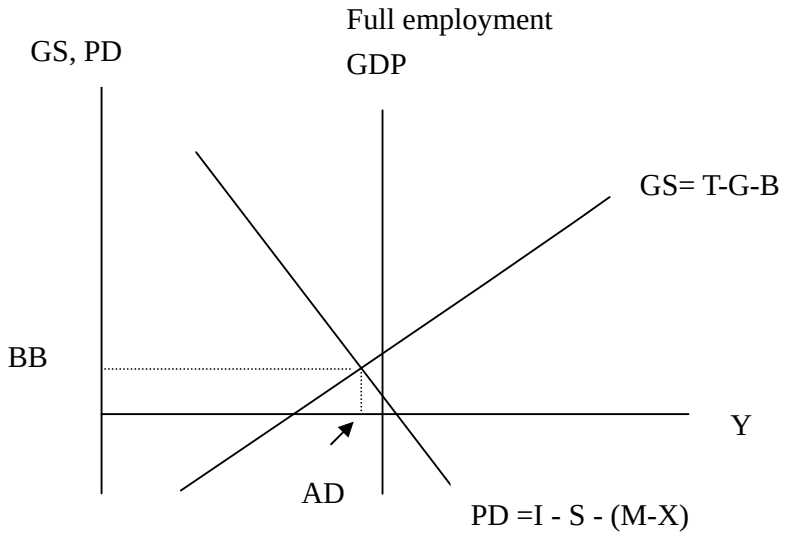


Figure 1: Determination of Equilibrium Aggregate Demand(AD) and Budget Balance(BB) Relative to Full Employment Output

Excess of fiscal revenues T over government expenditures is by definition government savings. When aggregate demand is in equilibrium Government Savings (GS) = Private Sector Savings Deficiency (PD). If private domestic savings (S) plus foreigners' savings (M-X) cannot meet investment requirements the gap is Private Sector Savings Deficiency(PD). **Figure 1** shows how the intersection of GS and PD determines the level of equilibrium aggregate demand (AD) and the fiscal budget balance(BB).

Proposition 1: *The Keynesian cross diagram can be re-arranged to show in one diagram both the determination of equilibrium aggregate demand and the incidental fiscal position.*

T-G-B, or GS by notation, can be written as a function of the effective marginal tax rate t, lumpsum tax t_0, government expenditures G, and the GDP Y. Setting GS = 0, we can write Y as a function $g(t, t_0, G)$, such that $g'_1 < 0$, $g'_2 < 0$, and $g'_3 > 0$.

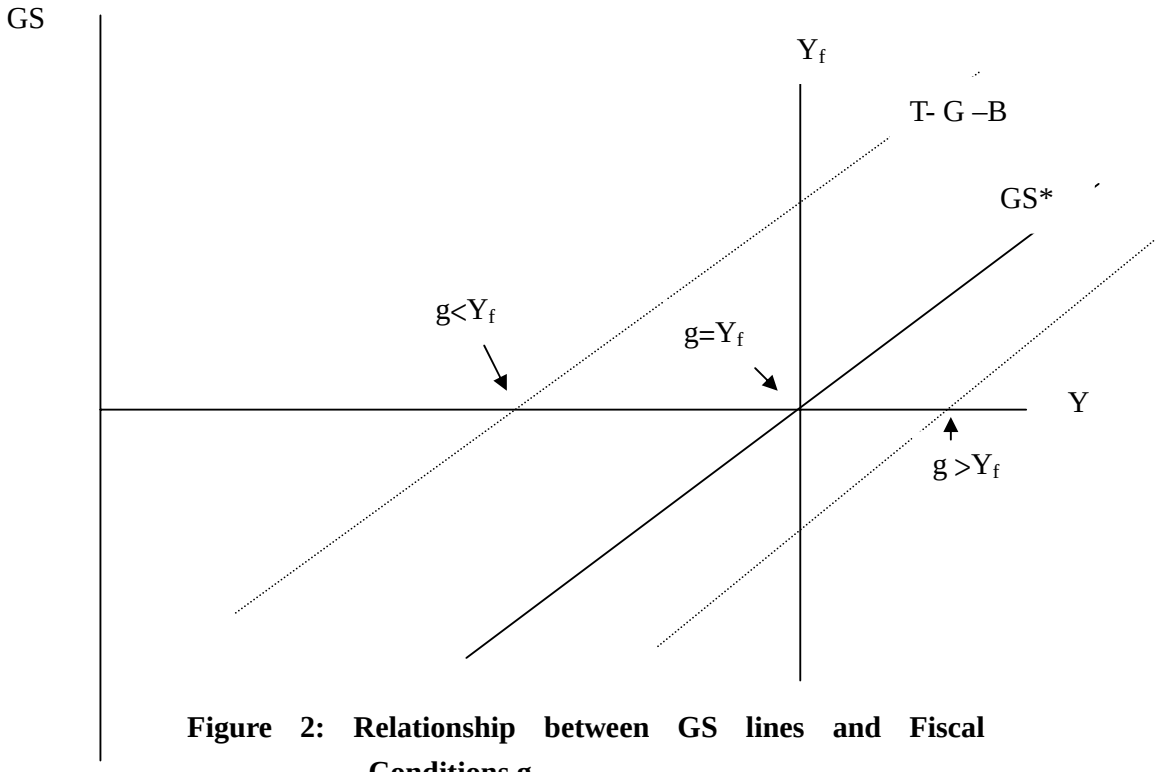


Figure 2: Relationship between GS lines and Fiscal Conditions g

Because fiscal expansion increases g, while fiscal expansion reduces it, g can be called a Fiscal Conditions Index. When g is equal to the full employment GDP, we will have GS* in **Figure 2**. GS* will be referred to as the ***"full employment budget balance fiscal conditions line."*** Given the tax structure and interest payment commitments, there is a unique level of government expenditures G that will bring about GS*, which is one in a map of "fiscal stance lines." We normalize the fiscal conditions index by expressing g as a percentage of the potential GDP. By definition, when the normalized index, γ, is equal to 100, $g = Y_{f.}$. Note that different sizes of the government sector are possible with any given fiscal stance. The reason is that government consumption expenditures and taxes may rise and fall together to maintain the same fiscal conditions.

Proposition 2: *The fiscal conditions index is obtained by setting the government savings to zero and solving for aggregate income given the tax and expenditure parameters. The aggregate income level given the tax and expenditure parameters such that government savings is equal to zero represents fiscal conditions. Normalizing by dividing with the potential GDP gives us an index such that a level of 100 implies full employment (operational) budget balance.*

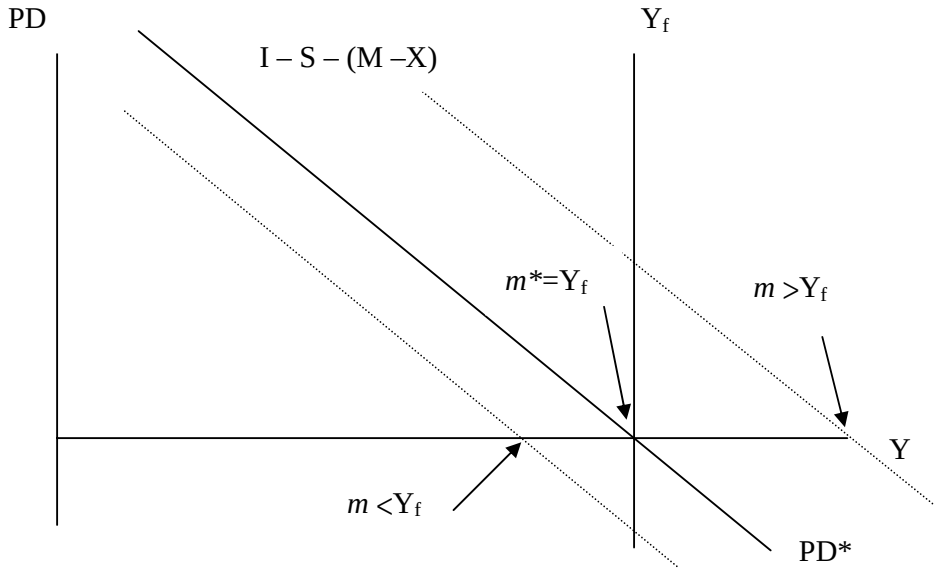


Figure 3: Relationship between PD lines and Monetary Conditions *m*

Figure 3 further shows that there is a unique position of the PD line such that PD = 0 when Y = full employment GDP. Moreover, it is revealing to express the private savings gap PD in expanded form, i.e., as a function of real interest rate r, the effective exchange rate index e, perceived risks δ, GDP Y, the tax rate t and lumpsum tax t_0, and assets W:

$$PD = I(r, \delta) - S(Y - Y.t - t_0, W)] + X(e) - M(Y - Y.t - t_0, e). \quad [4]$$

Here investment is a function of the real interest rate, real exchange rate, and perceived risks δ, while savings (and consumption) is a function of disposable income and assets W. Exogenous factors such as the GDP of trading partners are left out for simplicity. Imports are, however, clearly a function of the domestic disposable income and the effective real

exchange rate. After estimating the investment function, the consumption function, the exports function, and the imports function, we can set PD = 0, and transpose to obtain:

$$Y = m(r, e, \delta, t, t_0, W). \qquad [5]$$

Diagrammatically, setting PD=0 focuses our attention on the horizontal axis. The value of m then is the level of Y where a PD line cuts the horizontal axis. m can be shown to reflect effective monetary conditions and can be called a *monetary conditions index*[3]. When monetary conditions loosen up, m increases. When monetary conditions tighten, m decreases. However, m describes more than just monetary conditions, because it may contract (PD shifting down) when asset prices collapse (which boosts savings) and when income taxes decrease (which increases disposable income and savings[4]). For this reason we call it a *compensated monetary conditions index*. Among the various monetary conditions depicted in Figure 3, m* can be described as the "full employment–compatible monetary conditions". Again, we normalize the monetary conditions index by dividing it with the potential GDP. So when the normalized index μ is equal to 100, m is equal to Y_f.

It should be reiterated that the monetary conditions index will rise, other things being

[3] The concept of Monetary Conditions Index was originated by the Bank of Canada. According to Freedman(1995) empirically 1 percentage point change in interest rates has about the same effect on aggregate demand as 3 per cent change in the exchange rate. The MCI is therefore an index based on short-term interest rate and the multilateral exchange rate movements suitably weighted. The more recent, Gauthier et.al. paper, proposed using a "financial conditions index" that includes asset prices and risks in additional to real interest rates and real exchange rates, "with weights usually derived using an IS-curve-based model to reflect the relative impact of the variables on aggregate demand."(p.22) Although the derivation is different and it ignores fiscal variables, initial empirical results suggest that this approach is quite promising.

[4] A sales tax decrease will have an opposite effect. It will trigger more consumption and shift PD up.

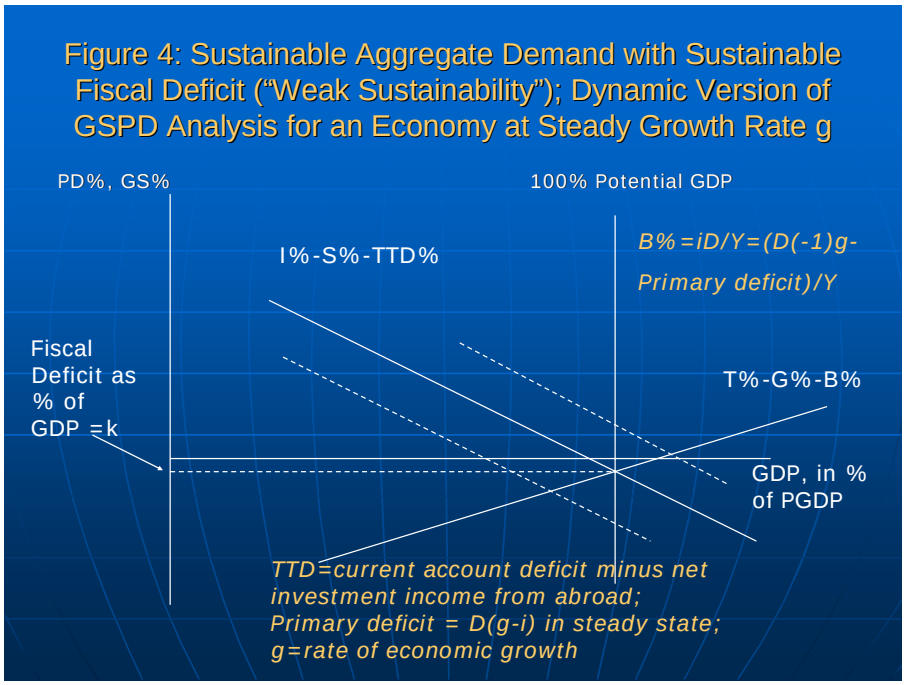
equal, when interest rate falls and when the exchange rate depreciates. But changes in business confidence or consumer confidence, as well as changes in asset prices, would also lead to a change in the index. Even fiscal variables, such as tax rates, will have an impact on the effective monetary conditions by shifting PD through its effects on savings and investment.

Proposition 3: *The compensated monetary conditions index is obtained by solving for the level of incomes such that the total savings generated, inclusive of domestic and foreign savings combined, are just adequate to cover domestic investment, inclusive of government investment. This index is normalized by dividing by the potential GDP. It is called a compensated monetary conditions index because it depends not only on interest rates and the real exchange rate index, but also on tax parameters, asset values, and confidence.*

Reference to [4] and [5] suggests that the proposed Compensated Monetary Conditions Index(CMCI) includes, in addition to those of typical "Financial Conditions Indices"(FCI) such as surveyed by Gauthier, Graham, and Liu(2004), also tax parameters. Gauthier *et.al.* used the AA corporate bond risk premium or the US high yield bond spread to proxy risks. They adapted the framework from Goodhart and Hofman(2000), which uses a reduced form model with an IS curve that relates the output gap to interest rates, exchange rates, and other asset prices, and a Phillips curve that relates inflation to the output gap. This framework, the authors acknowledged, was subject to the pitfall that it

assumed that the variables in the FCI were exogenous to output and inflation. Still, empirically they found FCIs superior to MCI in forecasting output gaps and output growth.

In contrast, the approach taken by this paper looks only at the demand side, with all parameters estimated without reference to supply side considerations such as oil prices (Goodhart and Hoffmann, 2001). The potential GDP is taken as given and independent of the CMCI variables. This assumption is reasonable in the short run for which monetary policy is relevant. The CMCI is related to the potential GDP only when it is presented in normalized terms.



Now consider a growing economy in steady state equilibrium. It is possible to depict the GS and the PD as percentage of the GDP and plot against a horizontal axis that shows GDP as a percentage of potential GDP. In this framework, private savings as a percentage of the GDP(S%) should rise with the actual GDP expressed as a percentage of potential

output. Similarly imports as a percentage of GDP(M%) should also rise with the actual GDP expressed as a percentage of potential output. Suppose the fiscal deficit is to be maintained at k% of GDP. Then we can focus our attention on the horizontal line when GS=-k%. Monetary conditions will be depicted as the percentage indicated by the intersection of the PD% line with the GS=-k% line. It should be clear that in steady state growth the primary deficit has to be constrained to D(-1)(g-i), where g is the growth rate of output. In the balanced budget case, we may simply assume k=0.

III: Empirical Results for Thailand Using the Dynamic Framework

The components of the PD% function(which expresses PD as a percentage of the GDP), which include I/Y, S/Y, IM/Y, and X/Y, are each estimated separately under the following specifications:

Investment: I/Y is a negative function of the Real Interest Rate. Dummy (97Q3 onward = 1) should depress business confidence and carry a negative coefficient.

Private Savings: S/Y is a function of Share Price Index (year on year change), the "Cycle Rate" which expresses actual GDP as a percentage of potential GDP, and Crisis (98Q2=1 for 6 quarters), a dummy variable to capture the effects of the severe recession during the Asian Financial Crisis, and the rate of change of the stock price index. An increase in the GDP tends to increase savings, implying that the Cycle Rate variable should carry a positive coefficient on savings. In a severe recession with the GDP some 5% or more

below potential the permanent income effect would reduce S/Y. A rise in stock prices tends to reduce savings. Considering that while the substitution effect of an increase in the real interest rate is to increase savings, while the income effect for an economy with net savings is to reduce savings, the overall effect of real interest rate is ambiguous. With a tiny and insignificant estimated coefficient the real interest rate variable was dropped.

Total Exports: X/Y is a negative function of the rate of change of the real exchange rate, and a positive function of economic growth of OECD countries. Because of globalization boosting X/Y a dummy variable with value = unity post-1997 was found to carry a positive coefficient.

Total Imports: (IM) is a positive function of X/Y. This captures the effects of intermediate goods imports feeding exports. A rise in the Cycle Rate implies a rise in incomes and boosts imports. A rise in the Real Exchange Rate (WCU) will also boost imports.

PD can be written by combining the above four equations.

$$PD\%_t = I\%_t - S\%_t + X\%_t - M\%_t \qquad [6]$$

In order to obtain the Monetary Conditions Index (MCI) we first go though the following estimation procedures.

1) ADF unit root test

ADF test shows that the null hypothesis of I(1) series cannot be rejected for all variables except the real interest rate RRATE. The number of augmented terms included is selected

by Akaike Information Criteria (AIC) and SIC. Computer output is available on request. RRATE appears only in the Investment Ratio equation.

2) Johansen and Jeuselius Cointegration test

Trace tests indicate 1 significant Cointegrating Equation (CE) where the null hypothesis of no CE (r=0) is rejected and Ho of 1 CE ($r \leq 1$ is not rejected at the 1% significance level.

3) Johansen cointegration relation estimate

Table 1(a,b,c,d) presents the results for Johansen cointegration relation estimate. All the coefficients (Table 2) are found to carry the expected signs and most of them are statistically significant. We have:

Gross private investment function:

$$I_t / Y = 0.3565 - 0.0019 * RRATE_t - 0.1819 * Dummy_t + \varepsilon_t$$

-------- [7]

Gross private saving function:

$$S_t / Y = -11.6923 - 0.0091 * CSPI_t + 11.9176 * CYCR_t + 0.7779 * CRISIS_t + \varepsilon_t$$

-------- (8)

Total exports function:

$$X_t / Y = 0.1718 - 0.0237 * CWCU_t + 0.0026 * OCGDP_t + 0.1656 * DUMMY_t + \varepsilon_t$$

-------- [9]

Total imports function:

$$IM_t / Y = -1.779 + 0.761 * X / Y_t + 1.826 * CYCR_t - 278.23 * WCU_t + \varepsilon_t$$

-------- [10]

Hence the PD% function is :

PD%=-0.0019*rrate - 0.1819*dummy + 0.0091*cspi2 - 0.7779*crisis-0.02373*cwcu1 + 0.0026*ocgdp1 + 0.1656*dummy - 0.7607937047*exy - 278.2273488*wcu + 13.99899 - 13.7437*cycr

--------[11]

By setting PD%=0 in equation [7] we can solve for CYCR, we obtain the equation for the MCI:

= (-0.0019*rrate - 0.0163*dummy + 0.0091*cspi2 - 0.7779*crisis - 0.0237*cwcu1 +

0.0026*ocgdp1 - 0.7608*exy - 278.2273*wcu + 13.9990)/13.7437

-------- [12]

Equation [8] shows how the key monetary variables, such as the real interest rate RRATE and the real exchange rate appreciation CWCU, as well as the absolute real exchange rate itself, relate to one another while aggregate demand is maintained at a given level, when all private investment were privately funded(which is what PD=0 means).

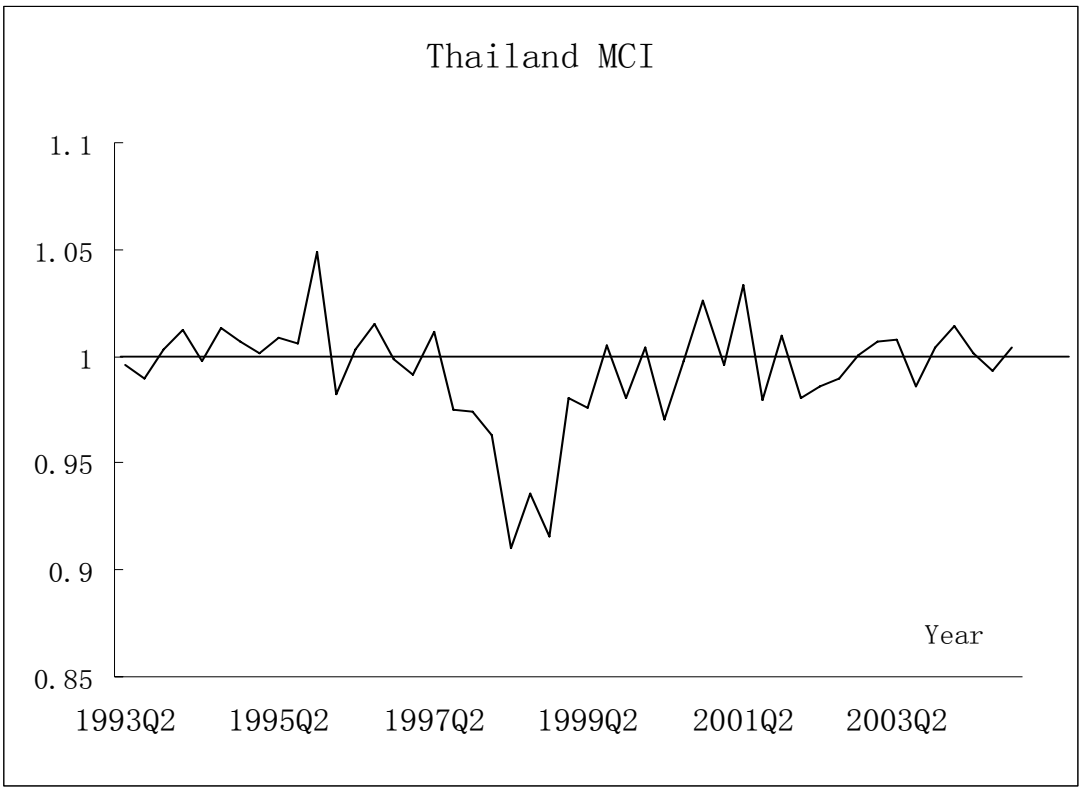


Figure 5: Thai Compensated Monetary Conditions Index 1993-2004

Figure 5 shows the estimated MCI for Thailand, Q2 1993 through the end of 2004. It can be seen that during the Asian Financial Crisis the MCI plummeted. However, except for a spike some time during late 1995 the MCI before and after the crisis was quite normal, hovering within a narrow margin around the ideal unity level. There is some evidence that during the Asian Financial Crisis fiscal tightening had occurred rather inappropriately and that seems to have aggravated the crisis. In particular during 97:2, 98:1, and 98:2, strange fiscal surpluses occurred.

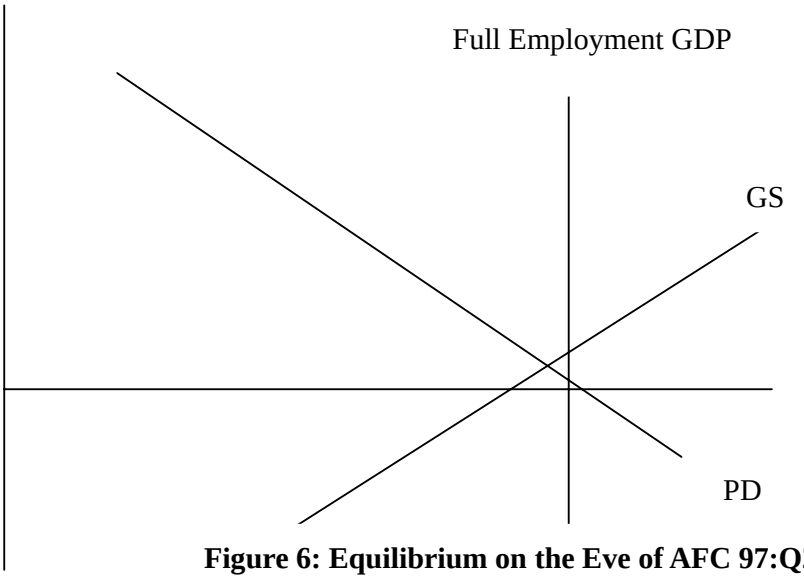


Figure 6: Equilibrium on the Eve of AFC 97:Q2

An examination of **Table 3** and **Table 4** shows that in 1997:Q2, the MCI was actually greater than 1 but the cycle rate was less than 1, suggesting unemployment. The existence of a modest fiscal surplus suggests that the GS line assumes something like what is shown in Figure 6.

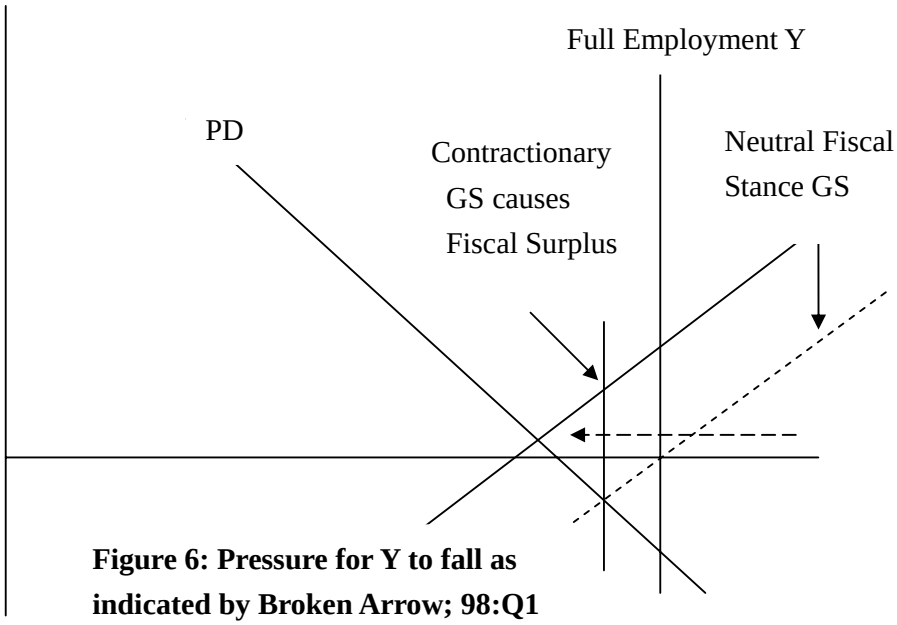


Figure 6: Pressure for Y to fall as indicated by Broken Arrow; 98:Q1

During 98:Q1 the cycle rate is higher than the MCI and when this happens one would normally expect a fiscal deficit, as indicated by the intersection of the dotted GS line and the PD line. However, in fact a budget surplus occurred in that quarter, suggesting a momentary disequilibrium situation. PD becomes in surplus while GS is also positive, suggesting a contraction. No wonder the cycle rate plummeted from 0.98 to 0.90 in Quarter 2.

IV: Conclusions

The application of the dynamic version of the GS-PD to estimate monetary conditions indices for Thailand has been encouraging. All the key variables have produced the predicted signs and are statistically significant, while the estimated monetary conditions indices provide very intuitive interpretations. The dummy variable for the exports equation was initially quite surprising, as exports were momentarily depressed after the onset of the financial crisis. It was found that the sign is very insensitive to alternative model specification and is thus very robust. As indicated by the graph below, China began to import fiercely from ASEAN starting in the late 1990s. The entry of China into WTO in 2001 in particular, gave Thai exports a big boost.

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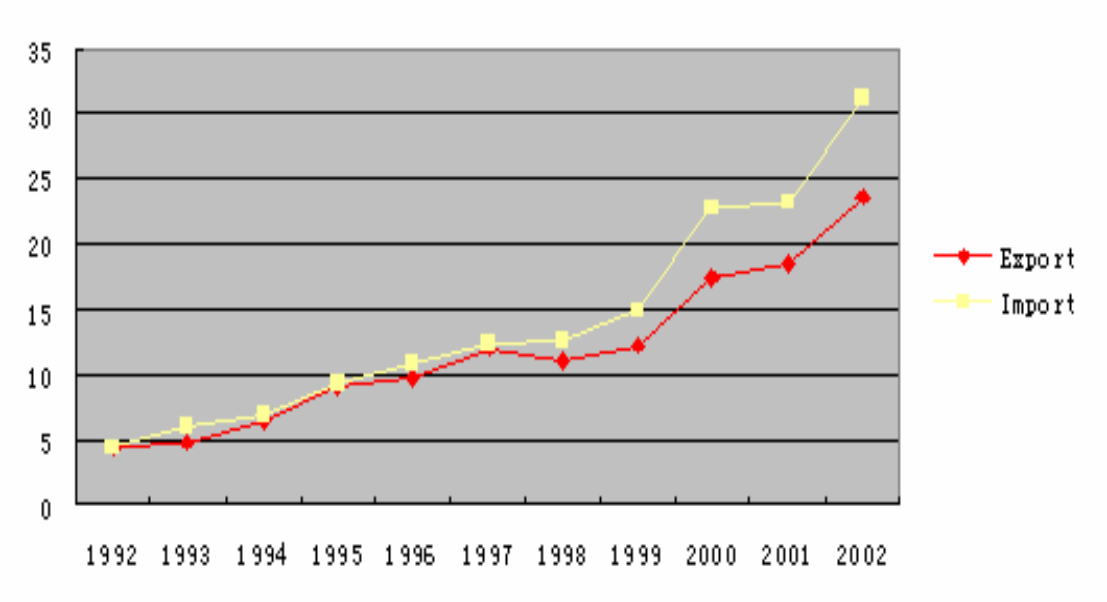

Figure 7: Exports and Imports of ASEAN vis-à-vis China

Source: ASEAN secretariat, China International Trade Statistics.

Appendix Tables

Table 1. Cointegration Results

a) The Investment Function:

Test of Cointegration on I/Y, RRATE and DUMMY

Trend assumption: Linear deterministic trend

Series: IY RRATE DUMMY

Lags interval (in first differences): No lags

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.455205	40.36160	29.68	35.65
At most 1	0.193457	11.81632	15.41	20.04
At most 2	0.035758	1.711424	3.76	6.65

Trace test indicates 1 cointegrating equation(s) at both 5% and 1% levels

*(**) denotes rejection of the hypothesis at the 5%(1%) level

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.455205	28.54529	20.97	25.52
At most 1	0.193457	10.10489	14.07	18.63
At most 2	0.035758	1.711424	3.76	6.65

Max-eigenvalue test indicates 1 cointegrating equation(s) at both 5% and 1% levels

**(***) denotes rejection of the hypothesis at the 5%(1%) level

b) The Savings Function:

Test of Cointegration on S/Y, CSPI, RRATE, CYCR and DUMMY

Trend assumption: Linear deterministic trend

Series: SY CSPI CYCR DUMMY

Lags interval (in first differences): No lags

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None**	0.547495	76.33518	53.12	60.16
At most 1*	0.362672	37.48032	34.91	41.07
At most 2	0.180206	15.40727	19.96	24.60

Trace test indicates 2 cointegration at 5% level

*(**) denotes rejection of the hypothesis at the 5%(1%) level

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None**	0.547495	38.85486	28.14	33.24
At most 1*	0.362672	22.07305	22.00	26.81
At most 2	0.180206	9.736400	15.67	20.20

Max-eigenvalue test indicates 2 cointegration at 5% level

*(**) denotes rejection of the hypothesis at the 5%(1%) level

c) The Exports Function:

Test of Cointegration on X/Y, WCU and OCGDP

Trend assumption: Linear deterministic trend

Series: EXY CWCU1 OCGDP1 DUMMY

Lags interval (in first differences): No lags

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.708881	84.55308	47.21	54.46
At most 1	0.367226	26.55393	29.68	35.65
At most 2	0.087884	5.044724	15.41	20.04
At most 3	0.015229	0.721287	3.76	6.65

Trace test indicates 1 cointegrating equation(s) at both 5% and 1% levels

*(**) denotes rejection of the hypothesis at the 5%(1%) level

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.708881	57.99916	27.07	32.24
At most 1 *	0.367226	21.50920	20.97	25.52
At most 2	0.087884	4.323437	14.07	18.63
At most 3	0.015229	0.721287	3.76	6.65

Max-eigenvalue test indicates 2 cointegrating equation(s) at the 5% level

Max-eigenvalue test indicates 1 cointegrating equation(s) at the 1% level

d) The Imports Function:

Test of Cointegration on IM/Y, EX/Y. CYCR and WCU

Trend assumption: Linear deterministic trend

Series: IMY EXY CYCR WCU

Lags interval (in first differences): No lags

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.511625	52.82256	47.21	54.46
At most 1	0.289037	19.13894	29.68	35.65
At most 2	0.057630	3.105599	15.41	20.04

Trace test indicates 1 cointegrating equation(s) at the 5% level

Trace test indicates no cointegration at the 1% level

*(**) denotes rejection of the hypothesis at the 5%(1%) level

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.511625	33.68362	27.07	32.24
At most 1	0.289037	16.03335	20.97	25.52
At most 2	0.057630	2.789796	14.07	18.63

Max-eigenvalue test indicates 1 cointegrating equation(s) at both 5% and 1% levels

*(**) denotes rejection of the hypothesis at the 5%(1%) level

Table 2. Johansen Cointegration Relation Estimates

2a) Investment Function

IY	1.000000
RRATE	0.001916
	(0.00061)
	[3.13593]
DUMMY	0.181853
	(0.01277)
	[14.2460]
C	-0.356456

[ ] t value

b) Savings Function

S/Y	1.000000
CSPI	0.009116
	（0.00299）
	[3.05235]
CYCR	-11.91757
	(1.73291)
	[-6.87721]
CRISIS	-0.777877
	(0.14102)
	[-5.51608]
C	11.69225

[ ] t value

2c) Exports Function

EXY(-1)	1.000
CWCU	0.023731
	(0.00238)
	[9.99172]
OCGDP	-0.002622
	(0.00139)
	[-1.88653]
DUMMY	-0.165621
	(0.04994)
	[-3.31656]
C	-0.171812

[ ] t value

2d) Imports Function

IMY	1.000000
EXY	-0.760794
	(0.19692)
	[-3.86347]
CYCR	-1.826111
	(0.18929)
	[-9.64725]
WCU	-278.2273
	(324.164)
	[-0.85829]
C	1.778466

[ ] t value

Table 3: MCI and Cycle Rate

	Cycle Rate	MCI		Cycle Rate	MCI		Cycle Rate	MCI
1993 Q2	*0.97*	1.00	**1997 Q1**	*0.97*	0.991367	**Q4 2000**	1.00	1.026306
1993 Q3	1.00	0.99	**1997 Q2**	*0.97*	1.011572	**Q1 2001**	0.99	0.99554
1993 Q4	0.99	1.00	**1997 Q3**	*0.96*	0.975247	**Q2 2001**	0.97	1.03319
1994 Q1	1.01	1.01	**1997 Q4**	*0.99*	0.973935	**Q3 2001**	0.98	0.97943
1994 Q2	0.98	1.00	**1998 Q1**	*0.98*	0.963111	***Q4 2001***	*1.00*	1.009976
1994 Q3	0.98	1.01	**1998 Q2**	*0.90*	0.910656	**Q1 2002**	1.01	0.980878
1994 Q4	1.01	1.01	**1998 Q3**	*0.90*	0.93546	**Q2 2002**	0.98	0.985871
1995 Q1	*1.02*	1.00	**1998 Q4**	*0.96*	0.915253	**Q3 2002**	0.98	0.989808
1995 Q2	1.00	1.01	**1999 Q1**	*0.93*	0.980682	**Q4 2002**	1.01	1.000949
1995 Q3	0.99	1.01	**1999 Q2**	*0.89*	0.975643	**Q1 2003**	1.02	1.007258
1995 Q4	1.01	1.05	**1999 Q3**	*0.93*	1.005067	**Q2 2003**	0.98	1.008006
1996 Q1	1.00	0.98	**1999 Q4**	*0.98*	0.980086	**Q3 2003**	0.98	0.985974
1996 Q2	1.01	1.00	**2000 Q1**	*0.99*	1.003856	***Q4 2003***	*1.02*	1.004099
1996 Q3	0.99	1.02	**2000 Q2**	*0.96*	0.970591	***Q1 2004***	*1.00*	1.014421
1996 Q4	1.01	1.00	**2000 Q3**	*0.97*	0.997824	**Q2 2004**	0.99	1.001541
						Q3 2004	0.98	0.99325
						Q4 2004	*1.03*	1.004119
Stable Monetary Conditions			Monetary Contraction from 1997: Q3, but Normal again by 99:Q3			Stable Normal Monetary Conditions		

Table 4: Fiscal Budget Rate and Cycle Rate

	Cycle Rate	Fiscal Budget %		Cycle Rate	Fiscal Budget %		Cycle Rate	Fiscal Budget %
1993 Q2	*0.97*	4.33	**1997 Q1**	*0.97*	-4.37	**Q4 2000**	1.00	-4.77
1993 Q3	1.00	3.12	**1997 Q2**	*0.97*	1.88	**Q1 2001**	0.99	-2.79
1993 Q4	0.99	-3.35	**1997 Q3**	*0.96*	-2.04	**Q2 2001**	0.97	0.98
1994 Q1	1.01	1.32	**1997 Q4**	*0.99*	-2.54	**Q3 2001**	0.98	-2.01
1994 Q2	0.98	6.81	**1998 Q1**	*0.98*	0.23	***Q4 2001***	*1.00*	-6.34
1994 Q3	0.98	3.27	**1998 Q2**	*0.90*	0.94	**Q1 2002**	1.01	-4.59
1994 Q4	1.01	0.19	**1998 Q3**	*0.90*	-8.12	**Q2 2002**	0.98	2.82
1995 Q1	*1.02*	1.69	**1998 Q4**	*0.96*	-4.05	**Q3 2002**	0.98	-1.35
1995 Q2	1.00	5.88	**1999 Q1**	*0.93*	-0.34	**Q4 2002**	1.01	-2.50
1995 Q3	0.99	3.65	**1999 Q2**	*0.89*	-2.05	**Q1 2003**	1.02	1.31
1995 Q4	1.01	1.69	**1999 Q3**	*0.93*	-3.20	**Q2 2003**	0.98	2.17
1996 Q1	1.00	0.33	**1999 Q4**	*0.98*	-4.64	**Q3 2003**	0.98	0.53
1996 Q2	1.01	5.32	**2000 Q1**	*0.99*	-1.14	***Q4 2003***	*1.02*	-2.65
1996 Q3	0.99	1.47	**2000 Q2**	*0.96*	-0.65	***Q1 2004***	*1.00*	-0.18
1996 Q4	1.01	-3.97	**2000 Q3**	*0.97*	-2.05	**Q2 2004**	0.99	3.39
						Q3 2004	0.98	0.66
						Q4 2004	*1.03*	-3.51
Equilibrium Situations more Common; fiscal expansion in 96:4 to be reversed by 97 Q2			Fiscal Contraction in 98:Q1-2 **Disequilibrium situations frequent as in red and fiscal expansion helps recovery in 98Q4 and 00Q3**			Monetary Conditions Favourable for Fiscal Balance but Some Fiscal Expansion Evident		

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