# A New Macroeconomic Policy Framework

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**Abstract:** *This paper proposes a framework built on the simple Keynesian Cross but recommends a non-Keynesian fiscal monetary policy mix. A fiscal policy conditions index and a monetary conditions index are proposed and compared to the full employment compatible fiscal and monetary conditions. Fiscal policy should be inert throughout the different phases of the business cycle while monetary policy should adjust to the changing conditions in order to maintain full employment without overheating. The slightly different policy considerations for bigger and for smaller economies are discussed.*

JEL Classification: E44, E52, F33
Key words: monetary conditions index, fiscal conditions index, stabilization policies, exchange rate regime, indexed unit of account

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## I. Introduction

Mishkin(1999) in a recent NBER working paper 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 the float announced in 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. As Mishkin pointed out, it is rare that monetary targeting would follow a rigid rule as recommended by Friedman in the sixties. Germany before the European monetary union and Switzerland were reputed to be adherents of this approach. Inflation targeting is a monetary regime that has risen greatly in popularity. Pioneered by New Zealand in 1990, it has now been espoused by Canada, the United Kingdom, Sweden, Finland, Australia, and Spain. According to Mishkin, Israel and Chile have also adopted some form of inflation targeting. Finally, monetary policy in the US under the leadership of Alan Greenspan has adopted an eclectic approach. There is no explicit target of any sort. But the Fed would look at a range of macroeconomic indicators in the conduct of monetary policy, while making it clear to the public that containing inflation over the long run remains always an overriding concern.

Of these four approaches, the first three can be said to be predominantly "rule-based." The last approach can be said to be eclectic or 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. The success of

[1] Some see this eclectic monetary policy as more or less described by the Taylor rule(Taylor, 1993). See Woodford(2001).

this policy in the US under the able chairmanship of Alan Greenspan, however, has led to worries that should he step down there might not be a chairman as skilled as he was[2].

A meaningful discussion about monetary regimes must take note of the distinction between means and ends. In this regard Mishkin's discussion of the pitfalls of monetary targeting is particularly telling. Monetary aggregate targeting would make sense if there is a "strong and reliable relationship between the goal variable (inflation or nominal income) and the targeted aggregate," and if the central bank can effectively control the monetary aggregate. Here monetary targeting is seen to be the means, and price stability is seen to be the ends. But one may sensibly ask: why price stability? Is price stability only the means to something more intrinsically desirable?

It is illuminating to note with Mishkin that "despite the rhetoric about pursuing 'price stability,' in practice all the inflation targeting countries have chosen to target the inflation rate rather than the level of prices *per se*." The inflation target ranges from 1.5% in the case of New Zealand onward to 2.5% in the case of Australia to 8.5% in the case of Israel. Apparently, the variations in the tolerated inflation rates reflect different perceived costs in terms of lost GDP or unemployment that could be suffered as a result of pursuing inflation targeting. Thus, all policy makers in practice try to avoid the recessionary impacts of an overly aggressive monetary policy aimed at price stability. Perhaps then, inflation targeting is really only a variant of the discretionary approach to monetary policy, whose objective after all must be to create a favorable macroeconomic environment for economic agents in their day-to-day activities. Stabilizing the price level cannot be an end in itself, as changes

[2] Consider the following passage from a book review about Alan Greenspan. The reviewer had just referred to the first interest rate cut decline in 2 1/2 years, which happened at the peak of the global financial crisis in the fall of 1998. He continued: "Just over a week later, he surprised the markets by cutting interest rates again, this time ording a reduction on his own instead of waiting for the next meeting of Fed's monetary policy committee. Investors cheered. Stock prices zoomed higher. And the crisis passed. It's thanks to that sort of astute monetary management that the 74 year old Greenspan has achieved the status of an economic oracle who holds the fate of the US economy in his hands…."(Businessweek, December 18,2000)

in the price level may reflect an adjustment that the economy actually needs. For example, in the face of acute shortage such as resulting from a serious drought or an earthquake that disrupted economic activities, a jump in the price level[3] may be needed to encourage economizing on the scarce resources.

From this perspective, while price stability is desirable the main objective of macroeconomic policy is not so much price stability *per se* but sustainable full employment without overheating. In order to do this we need demand management so aggregate demand is at the full employment output level, we need fiscal budget balance, and we need "monetary policy consistency" in the sense that monetary conditions should be compatible with full employment budget balance. 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. Section III will discuss the macroeconomic policy rules under this framework for a bigger economy. Section IV will discuss the macroeconomic policy rules for a smaller economy. Finally Section VI will draw the conclusions from the discussion.

**II: Theoretical Framework**

We shall start with the GDP identity:

$$GDP \equiv Yd + T - B$$

In words, GDP is identically equal to disposable incomes plus net taxes minus government interest payment on government debt). When aggregate demand is in equilibrium, we have:

$$Yd + T - B = C + I + G + X - M$$

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[3] It may be thought that in this instance only a relative increase in some prices would take place, not a rise in the price level. In practice, however, a major supply-side shock, such as the oil crises in the seventies, will raise the price level, as a co-ordinated price decline for other goods and services cannot be taken for granted.

Transposing, we obtain:

T-G-B = I-S-(M-X).

This says Government Savings (GS)= Private Sector Savings Deficiency(PD). Since both GS and PD are related to the GDP, we can depict these relationships in **Figure 1**, where the intersection of the two lines determine the level of aggregate demand.

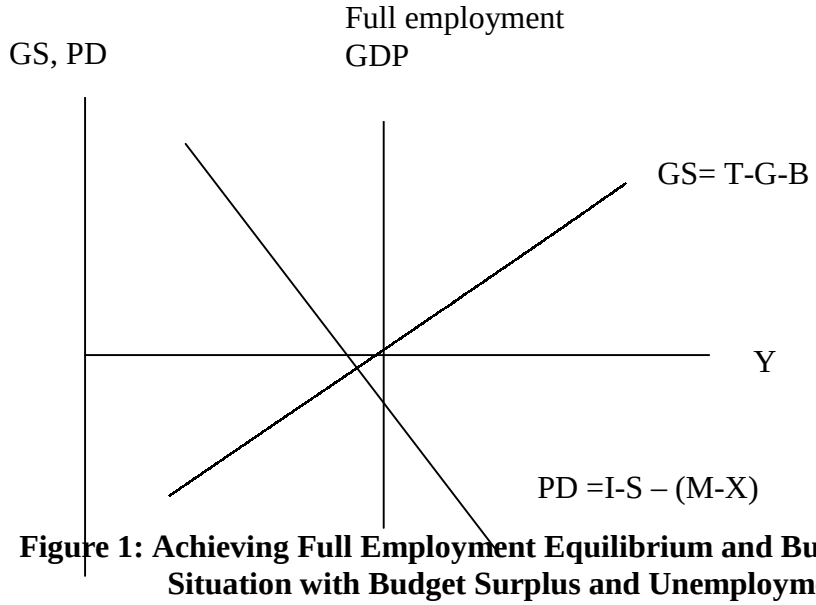


**Figure 1: Achieving Full Employment Equilibrium and Budget Balance: Situation with Budget Surplus and Unemployment**

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."

T- G – B, or GS by notation, can be written as a function of effective tax rate, lumpsum tax, government expenditures, and the GDP Y. Setting GS = 0, we can write Y as a function $g(t, t_0, G)$, with the following properties:

$g'_1 < 0$ , $g'_2 < 0$, and $g'_3 > 0$

g can be called a fiscal conditions index. When g is equal to the full employment GDP, we will have GS* in Figure 2. This will be described as the ***"full employment budget balance fiscal conditions line."***

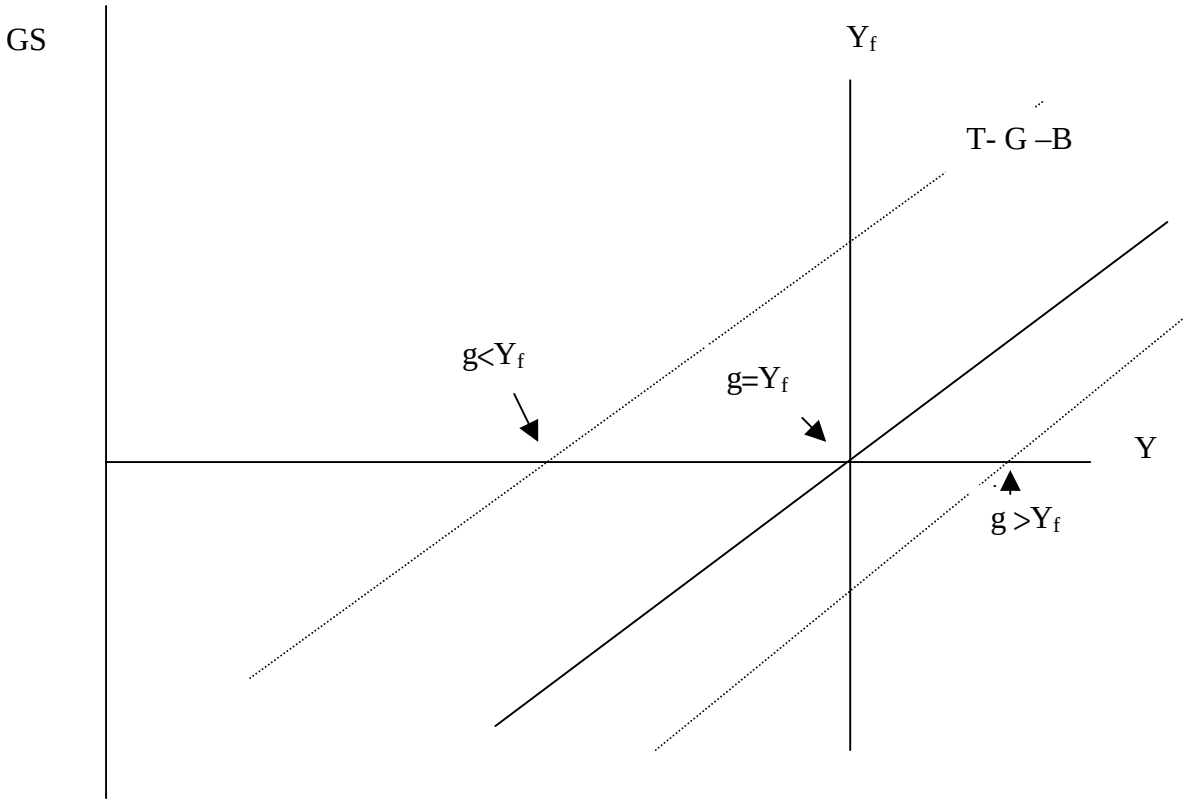


**Figure 2: A Family of Fiscal Conditions Curves**
**(fiscal conditions are indicated by g)**

We should note that GS* is not unique because one can have higher taxes and higher government expenditures, or smaller taxes and smaller government expenditures. A fiscal policy line intersecting the horizontal axis at the full employment level can be compatible with a bigger or a smaller government.

Figure 3 further shows that there is a unique position of the I-S-(M-X) line that will bring about a level of aggregate demand consistent with full employment. To see this, let us define the private savings gap PD as a function of r, e, Y, t, and $t_0$:

$I(r,e) – [Y- Y.t - t_0 – C(Y – Y.t – t_0)] + X – M(r, e)$ .

Setting this = 0, we can write Y as a function m( r, e, t, $t_0$). Diagramatically, setting PD=0 focuses our attention on the horizontal axis. The value of m is the level of Y where a PD line cuts the horizontal axis. m can be described as the monetary conditions index. When m increases monetary conditions are effectively less tight. When m decreases monetary conditions tighten. m* can be descibed as the "full employment–compatible monetary conditions". It should be noted that the monetary conditions index will rise, other things being equal, when interest rate falls or the exchange rate depreciates. But it may also rise or fall independently of monetary variables. If business confidence or consumer confidence increases the same monetary variables could become overly expansionary, since the former would boost the monetary conditions index.

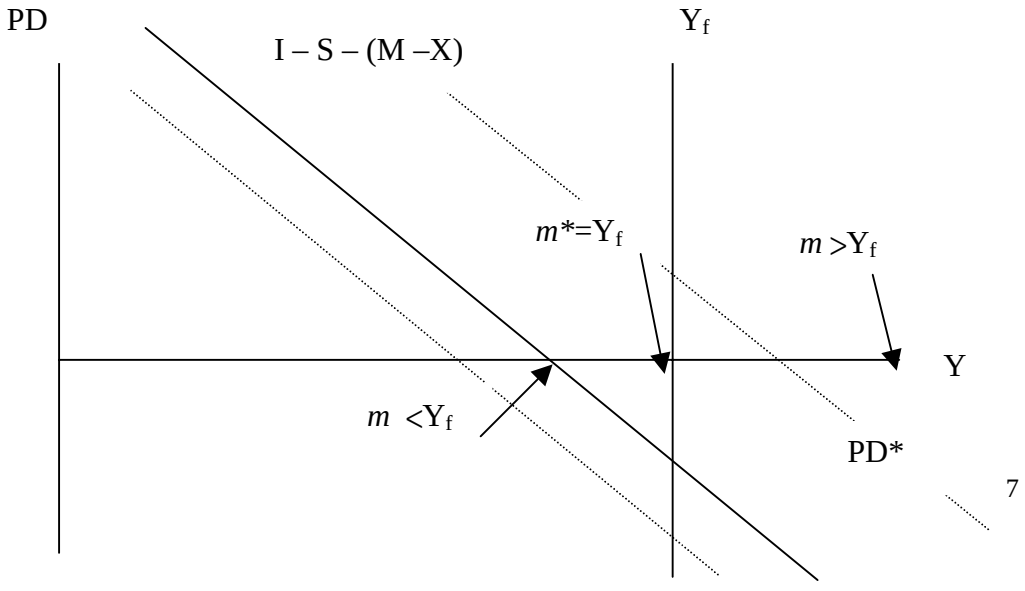

**Figure 3: Monetary Conditions Curves ( monetary conditions are indicated by *m* )**

## III: Policy Rules for a Bigger Economy

For both big and small economies, the above framework indicates that an ideal macroeconomic policy mix would be such as depicted in Figure 4. There is a need to maintain the fiscal policy conditions at g* and to maintain the monetary conditions at m*. Once the parameters for the equations g and m are estimated, we can compare g with g* and m with m* and decide if we need to expand or tighten policies.

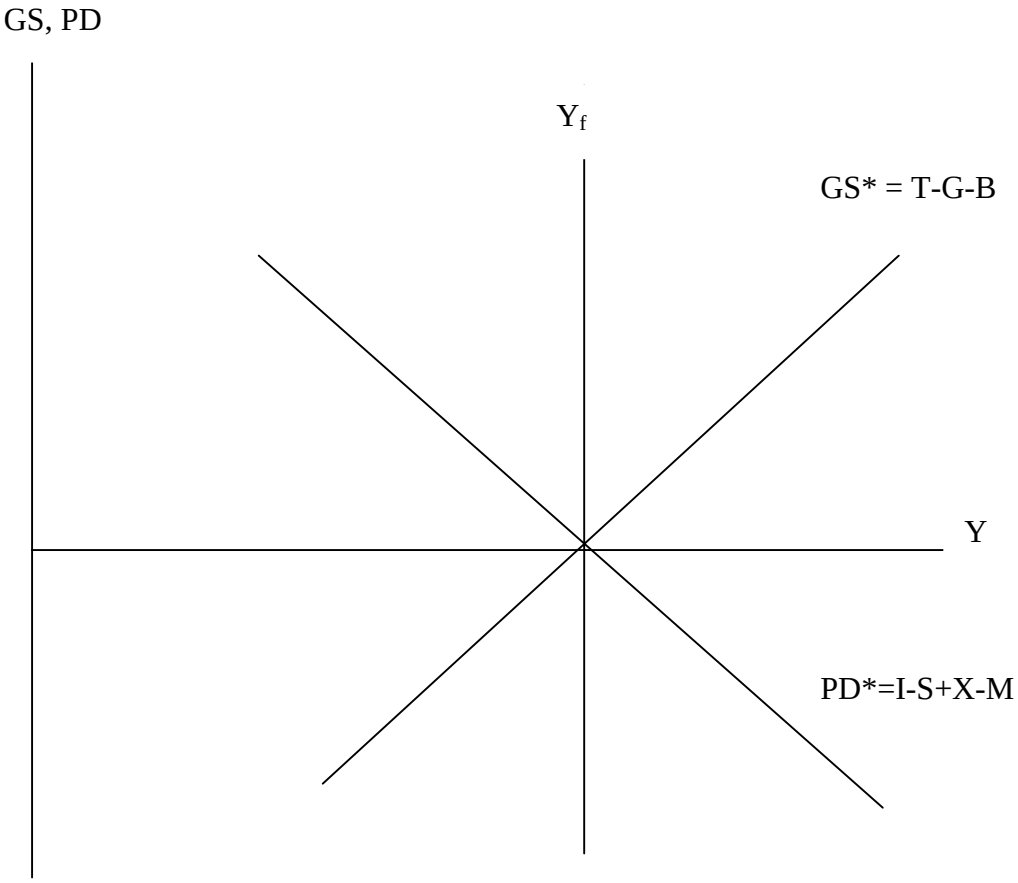

**Figure 4: Ideal Macroeconomic Policy Coordination**

The fiscal policy rule can be described as maintaining full employment budget balance. Because PD may deviate from PD* on account of changes in business and consumption sentiments, or movements in the effective real exchange rate, the monetary policy rule would be to raise or lower interest rates to offset these tendencies so as to bring PD back to PD* any time PD deviates from it.

Corresponding to $m = Y_f$ or PD = PD* we can draw an M* curve in the ( e, r ) space**(Figure 5)**. M* is one curve in a family of monetary conditions curves shaped like an indifference curve. The equilibrium exchange rate compatible with full employment is determined by inserting the equilibrium condition in the foreign exchange market D=S.

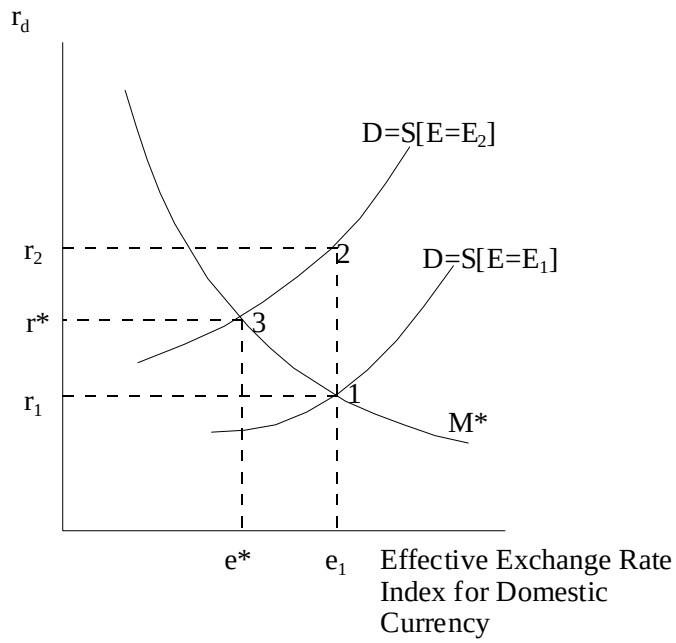


**Figure 5: Alternative (e,r) combinations compatible with full employment along M***

Given M*, suppose there is a capital flight away from the country for some reason. D=S line shifts up. There will be no need to change fiscal policy, and M* has not moved. But there will be a need to reduce the effective exchange rate to e* and to raise domestic interest rates from $r_1$ to r*. Raising interest rates excessively to $r_2$ to maintain external balance will lead to an unecessary contraction of the economy resulting in a fiscal deficit and unemployment.

Adjusting monetary policy and bringing about point "3" in Figure 5 is not a straightforward "rule." But given M*, the rule is to allow the currency to depreciate a bit and to raise interest rates a bit. There is no alternative discretionary policy.

**IV: Policy Rules for a Small Open Economy**

A small open economy has relatively little leeway on fixing its interest rates. In any case, capital is mobile. Raising interest rates to maintain attractiveness to hold a currency would cost heavily because the magnitude of interest rate hikes that would be necessary could be unacceptable.

Under such circumstances there is a case for a specially designed currency board.

The attraction of a currency board arrangement is that it imposes a stricter rule for monetary and fiscal discipline and provides greater transparency than most alternative monetary arrangements that come to mind. The drawback of a traditional currency board, however, is that it could mean too much inflexibility. If the host currency becomes very strong, life can become very difficult as the country loses competitiveness.

To bring in greater flexibility without compromising credibility, we propose substituting the host currency with the "world currency unit"—an indexed unit of account that represents stable real purchasing power, as discussed in Ho(2000).

Let $Q_{i0}$ be the GDP of country/zone i in base year 0, measured in the domestic currency. Thus

1 $WCU_0 = \lambda\{ Q_{10}, Q_{20}, Q_{30}, Q_{40}, Q_{50} \}$ [1]

This says that a $WCU_0$ is some fraction $\lambda$ of the basket of base year GDPs. The five countries/zones are the United States, the Euro zone, Japan, Canada, and Australia. Together they encompass some 80 per cent of world total output.

Valuation of this unit in the base year, $V_{0US\$0}$, is obtained by defining $\lambda$ such that:

$\lambda \sum Q_{i0} \cdot e_{i0} = US\$\ 100$ [2]

where $\lambda$ is a scaling factor that defines the size of the basket and thus the real value of the unit;

i is any of the five major economies;

$e_{i0}$ is the exchange rate converting one unit of the currency of i into US$ in year 0.

$V_{0US\$t}$ is the nominal value of one $WCU_0$ at t in US dollars. Valuation over time reflects the forces of exchange rate movements as well as domestic inflation/deflation. If $Q_{i0}$ in current domestic prices increases because of inflation, and/or if currency i appreciates against the US dollar, other things being equal, the nominal value of the WCU basket in US dollars will increase, but *still represents the same command over real goods*.

Mathematically, the valuation of the WCU basket with base year 0 at time t in US dollars, $V_{0US\$t,}$ can be written $\lambda \sum Q_{i0} \cdot P_{it}/P_{i0} \cdot e_{it.}$

Figure 6 shows the changes in the nominal value of one $WCU_{1990US\$t}$, computed using IMF and OECD statistics, from 1983 to 1999. A caveat must be added though. In revaluing the WCU basket, we use the consumer price indices of the different countries/zones, even though in principle GDP deflators would have been more appropriate. We do this because the GDP deflators are usually available only after a relatively long lag. Since the WCU is intended to be a unit of account ready to be used on

a day-to-day basis, for practical reasons CPIs have to be used instead of GDP deflators in deriving the current values of the unit.

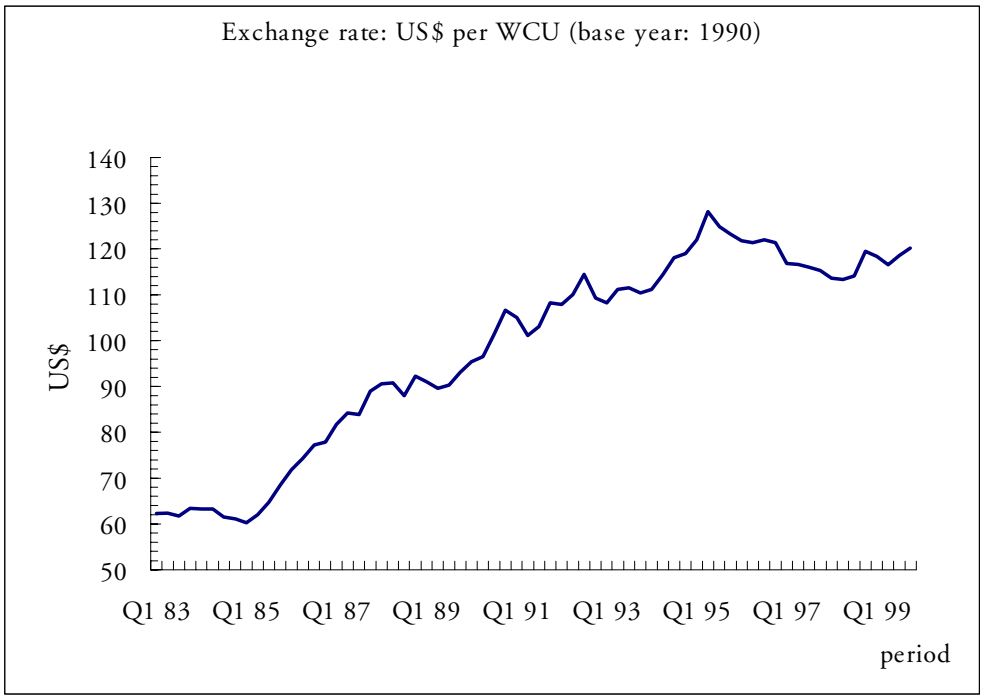


**Figure 6: Value of the WCU with base year 1990 in U.S $ 1983-1999**

Whereas under a traditional currency board, such as the Hong Kong Monetary Authority, there is an undertaking to convert these Hong Kong dollar notes back to US dollars at the same rate, under a WCU-based link, convertibility is guaranteed not at a fixed rate against the US dollar, but at a fixed rate in terms of real purchasing power("real money," not "nominal money"). This means that the US dollar amount into which a given amount of the local currency may be converted is variable. Indeed, if US dollar buys fewer goods and services, the local currency will convert for more US dollars; if US dollars buys more goods and services, the local currency will convert for less US dollars.

Specifically, the Monetary Authority may announce at time $\tau$ that $\alpha_\tau$ times $V_{0US\$\tau}$ must be deposited for banks to issue one unit of the local currency(called *peso* here for illustrative purposes), until further notice. Clearly, by adopting a suitable $\alpha_\tau$ the local

currency can exchange for US dollars at any rate, higher or lower, as appropriate.

- These pesos are then called *pesos of vintage* $\tau$. The monetary authority undertakes that these pesos issued are fully convertible into $\alpha_\tau$ times $V_{0US\$t}$ at any time t, redeemable in US dollars(or any other major currency according to prevailing exchange rates).
- At some time $t_k$ in the future, if there is a need to devalue, such as arising from a downward shift in PD(in which case M* shifts lower), or a capital flight(in which case there is a deviation from M* such as described in Figure 5), the monetary authority can announce a devaluation in the sense of a downward adjustment in $\alpha$. This devaluation will not trigger a panic as existing currency holders are protected.

So we can see that the fiscal policy rule is still to maintain GS at GS* and thus to keep fiscal conditions at g*. The monetary policy rule is also to maintain PD at PD*. The benefit of the proposed arrangement is that PD will not be shifted by a nominal appreciation or depreciation of the host currency. When there is some structural problem that needs to be redressed and a real appreciation or depreciation is called for, we can adjust $\alpha$ without causing a panic.

The proposed monetary standard can be called a Real Monetary Unit Standard(RMUS). Transition to a RMUS can be made so smooth as to be unnoticeable. A country on moving to a $WCU_0$ link will determine $\alpha$ such that $\alpha.V_t$ = 1 unit of the domestic currency. Thus some $\alpha$ can be found such that 7.8 Hong Kong dollars continue to exchange for one US dollar momentarily after the transition, when 7.8 Hong Kong dollars exchange for one US dollar before the transition.

A further word about sustainability should be added. It is that a currency regime, in

order to be sustainable, needs to be adaptable and compatible with full employment. If the currency regime produces an exchange rate that is not compatible with full employment and has no effective mechanism to adapt towards such a rate it cannot be sustainable. In contrast, the system herein proposed allows adaptation towards what is necessary to bring about full employment.

One may well ask if this system is sustainable in the face of shattered confidence. Given the Argentine experience in 2001-2002 and the Asian experience in 1997-98, it does appear that if people firmly believe that the currency will collapse, nothing can be done. If we look at the Thai and the Indonesian experience carefully, however, we can only conclude that the collapse of confidence was a result of ineffective and misguided policies in the first place. Even in the case of Argentina, the collapse of confidence was the result of a string of misguided actions, and a lack of the necessary institutions to protect the interest of people who have legitimate claims to be protected.

If we look at the Thai experience, we find first that the financial markets actually cheered the initial devaluation of the Thai baht The Thai stock market jumped noticeably at first. But when interest rates were raised sharply higher around the region (The Philippine central bank raises the overnight lending rate to 24 percent from 15 percent on July 3, 1997) and the austerity measures announced on August 5 impressed upon investors that the region is headed for a dramatic economic slowdown confidence began to crumble.

Under the proposal of a WCU link, full employment and economic stability are the explicit objectives of the central bank, and no attempt is made to defend an unrealistically high exchange rate. Interest rates will not be raised to defend the currency and will only be raised to cool the economy. Holders of the domestic currency as well as bank deposits know that while the currency may devalue, their interests will be protected as the vintage of

their assets are specified and fully recognized. The valuation of the currency will not be allowed to take on unrealistic values in the first place, unlike what may happen under a nominal tie to the US dollar. For all these reasons, and for the reason that the WCU itself represents purchasing power over a diversified portfolio of multiple currency denominated output, risks for holding the local currency and assets of the local currency are reduced considerably. Because perceived risks are smaller, a collapse of confidence is less likely.

The WCU should be a globally used unit of account in order to serve its purpose. In order that the unit be accepted as a standard, it will be necessary for an international organization, such as the IMF, to take the lead and to set the standard. Clearly there is no reason why the GDPs of other countries cannot be added to the basket of GDPs underlying the WCU. I would expect, for example, that China's GDP may be included some day. The key points are that the currencies of the countries represented in the basket must be fully convertible and that the countries are predominantly free market economies, so that the prices of these countries are true market prices. Once the basket of GDPs are chosen, the revaluation of the WCU unit can be taken over by a computer using a transparent formula. It is expected that the composition of the basket may need to be updated at some point. When this becomes necessary continuity of the series can be maintained by reconciling the valuation in the last period under the old basket and the valuation in the first period under the new basket. This procedure is routinely done with regard to the consumer price index and should be both transparent and automatic.

While the definition of the $WCU_0$ needs to be done with authority by an international organization and the revaluation automatically updated continuously as data becomes available, the monetary policy of countries opting for a $WCU_0$ link should be entirely independent. Each central bank should choose an appropriate $\alpha$ and make appropriate

adjustments as necessary.

## V: Dynamics

It may be thought that the model described above is static in nature and may not be congruent with the dynamic world as we know it. In fact, however, just as behind the apparently static Keynesian cross one can discuss the dynamic multiplier process, so one can observe dynamic relationships from the simple model described.

First is income-expenditure dynamics. This is part and parcel of the Keynesian cross relationship from which the entire analysis is drawn. The GS-PD framework is identical to the income = expenditure framework and requires exactly the same conditions for stability in the income-expenditure dynamics, i.e., the marginal propensity to spend on domestic goods has to be smaller than unity.

Second is debt accumulation dynamics. Debt at the end of the year has to be equal to debt at the beginning of the year plus the deficit generated during the year. Thus the time path of government debt is governed by the relation:

$$(G + B - T) + D_{t-0} = D_t$$

Finally, in the foreign exchange market, we have:

$$\frac{\partial e}{\partial t} = f(X - M, r_d - r_f)$$

which says that the exchange rate change is a function of the current account surplus and the difference between domestic and foreign interest rates.

## VI. Conclusions

In this paper I have proposed a simple framework that is based on the simple Keynesian cross condition for aggregate demand determination. Two measures for

macroeconomic policies have been derived: a fiscal conditions index and a monetary conditions index. We have proposed an inactive fiscal policy: keeping fiscal conditions at g* and the GS curve at the GS* position regardless of the phase of the business cycle. While the analytical framework can be said to be Keynesian this policy recommendation is certainly not Keynesian.

For monetary policy I made a case for keeping monetary conditions at the full employment compatible level. This would dictate moving *both* interest rate and exchange rates at times for the bigger economies. For the smaller economies, I propose adopting an innovative currency board based on an indexed unit of account representing constant purchasing power. Such a currency board is shown to have built-in flexibility compared to traditional currency boards. Our analytical framework indicates that even with such built-in flexibility, it is possible that an occasional devaluation or revaluation may be necessary. By designating currency issues and deposits with a vintage $\alpha$ and guaranteeing convertibility into the basket of constant purchasing power at the given rate, it is possible to avoid panic, and provide for smooth transition to the necessary monetary conditions required for full employment.

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