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A New Adjustable Peg: Managed Fixed Exchange Rate

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Ho (2012) proposed a new formula for calculating effective exchange rates by comparing the exchange value of a currency to the exchange value of a "Benchmark Currency Basket."(BCB) The BCB is a GDP-weighted basket of key global currencies. That paper provided evidence that the new effective exchange rate compilation is more easily compiled and updated, and performs better than traditional trade-weighted exchange rates in explaining a country's exports. The present paper suggests that pegging a currency to the BCB basket is technically easy and will stabilize the effective exchange rate. Ignoring differences in inflation rates at home and abroad this will stabilize competitiveness. Using a Keynesian aggregate demand model, it is possible to show that there exists an exchange rate that is compatible with internal and external balance. It is argued that it will be desirable to keep effective exchange rates fixed at this level, allowing change only when fundamentals have changed. In a world with an increasing number of countries doing this, a de facto currency bloc will form and that will promote trade and international business.

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1. Introduction:

According to the IMF, as of 2009 (Habermeier,et.al. 2009) only 23 out of 188 countries are on "hard pegs", while free or managed floats number 75.(**Table 1**) The rest are called "soft pegs" or "other managed arrangements." One may think that intermediate regimes are the most popular. However, there is still an implicit or explicit assumption that exchange rates should be determined by the market. Interference with free market determination of exchange rates should be avoided. To wit, Simon Taylor of the Cambridge Judge Business School posted in 2015 on his blog:

"For years there has been pressure on China to allow its exchange rate to be determined by market forces rather than by the central bank…."

A Financial Times report on February 1 2017 says:

"Japan fiercely denied Donald Trump's claims of yen manipulation on Wednesday as the presidential remarks triggered a slide in the dollar and raised one of Tokyo's worst fears for the new US administration. Officials from Prime Minister Shinzo Abe downwards said Japan had not intervened in the yen for years and respected its G7 and G20 commitments not to devalue the currency for competitive advantage."

It appears therefore that interventions in the forex market are supposed to be inappropriate. But why are interventions inappropriate? The Plaza Accord was a deliberate international initiative to drive the USD exchange rate down. If markets should be left to operate freely, why was there a need for the Plaza Accord?

While in the past most leading economists including Henry C. Simons (1935), Milton Friedman (1953), Anthony Lanyi (1969), Peter Kenen (2000) spoke for the clean float, economists have gradually realized that market determined exchange rates may not be the ideal equilibrium exchange rates that they were taken to be. In particular, a big literature on behavioural equilibrium exchange rates (BEER) and fundamental equilibrium exchange rates (FEER) have emerged. (Clark and MacDonnald, 1998) The implication of this literature is that market determined exchange rates may NOT be equilibrium exchange rates. Williamson (1994) defined fundamental equilibrium exchange rate as the exchange

rate that is consistent with internal and external balance, i.e., compatible with full employment, low inflation, and sustainable current account. Clark and Dias in their 2007 paper state that the BEER approach "offers a way of exploiting a theoretical exchange rate model in order to obtain a measure of the equilibrium exchange rate and therefore, by implication, exchange rate misalignment." Predating these developments, in a BIS paper in 1982 Mayer wrote: "unnecessary exchange rate instability, i.e., movements in real exchange rates that do not contribute to the adjustment process and are not in the interests of longer-term equilibrium, entails very real economic costs and should therefore be regarded as undesirable."

Table 1: Categories of de facto Exchange Rate Regimes with Number of Adherent Countries

	1998 de facto system		**2009 de facto system**	
Hard Pegs	Arrangement with no separate legal tender	10	Exchange arrangement with no separate legal tender	10
	Currency board arrangement	13	Currency board arrangement	13
Soft Pegs	Conventional fixed peg	68	Conventional pegged arrangement	45
			Stabilized arrangement	22
	Intermediate pegs(bands, crawling peg, crawling band)	13	Intermediate pegs(bands, crawling peg, crawling band)	11
Floating	Managed or pure	84	Managed or pure	75
Other Managed Arrangements		0		12
Total		188		188

Source: Habermeier,et.al. 2009.

Thus, it is widely realized that market determined exchange rates often deviate from equilibrium exchange rates. If so there will be good justifications for intervening in the forex market, *provided that the interventions are appropriate*. The italicized phrase is to highlight the fact that there is a lot of reservation among liberal economists for arbitrary interventions that may not be appropriate.

It is in the spirit of a rule-based exchange rate regime that this paper is conceived. This paper makes the case that exchange rates consistent with economic fundamentals do not

change overnight, and that *explicit* defense of such exchange rates needs to be made. I shall call this defense mechanism "Managed Fixed Exchange Rates," a term that may sound self-contradictory, but as I shall explain, it is well justified.

Section 2 will explain why pegging to a single currency like the USD may cause big fluctuations in the effective exchange rate, and makes the case that a "benchmark currency basket" (BCB) can serve as a better anchor, where BCB is defined as a GDP-weighted basket of currencies, each normalized so that in the base year all constituent currencies are worth US$1. **Section 3** shows that, for small economies at least, pegging to the BCB can be achieved by using any of the major currencies as a vehicle in open market operations, so that technically there is no more difficulty in pegging to the BCB compared to pegging to a single currency. **Section 4** offers the theoretical underpinnings for the choice of the "peg rate" against the BCB, such that it may be consistent with internal and external balance. **Section 5** will present the implications of using the BCB as a common anchor for pegging currencies. **Section 6** will offer some concluding remarks.

2. Managed Fixed Exchange Rates

In the past, when people talk about fixed exchange rates they typically mean fixed bilateral exchange rates. In general, fixed exchange rates would have a currency pegged to an anchor currency, which is usually the US dollar. Because the US dollar exchange rate fluctuates, and indeed historically goes through cycles of depreciation and appreciation (see **Figure 1**), countries with currencies pegged to the USD have been subjected to pressures, particularly when the USD is strong. Indeed, the strength of the USD from 1995 appears to be one of the causes leading to the Asian Financial Crisis of 1997 (Chinn, 1998), and is also regarded as having contributed to the 2002 Argentina Peso Crisis (Stiglitz, 2002).

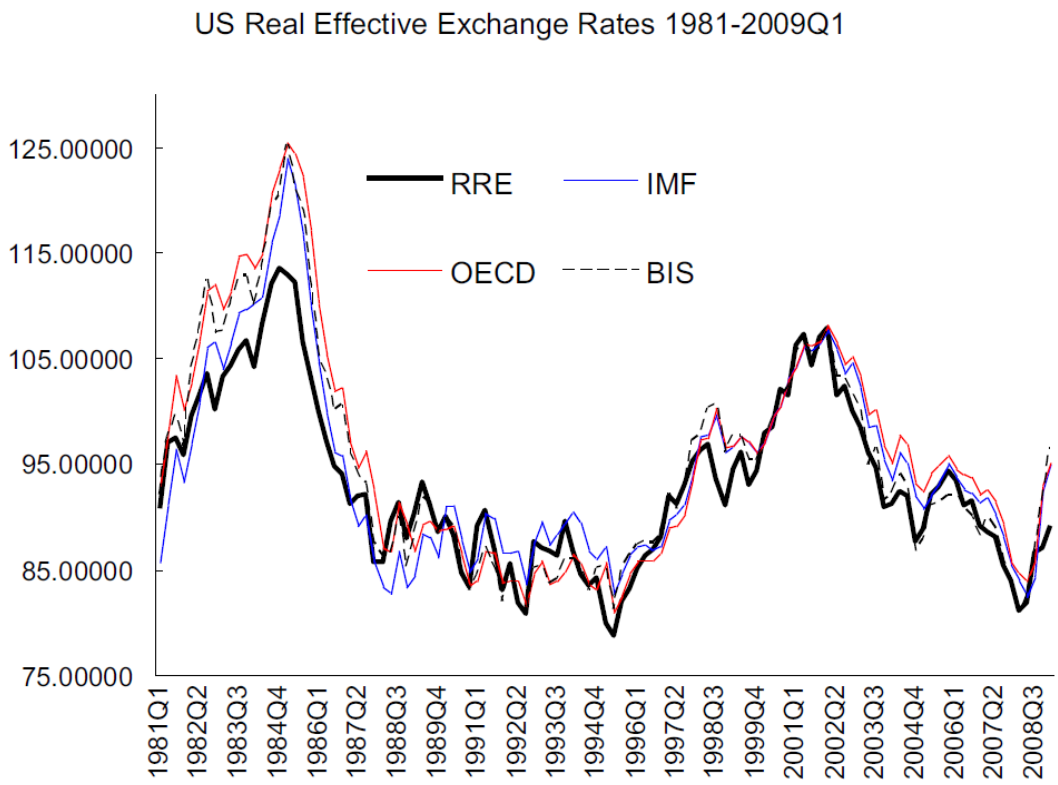


Fig. 1. US Real Effective Exchange Rates 1981–2009Q1.

Stiglitz had a rather gloomy view of fixed exchange rates. In his words, even with the blessing of the IMF and apparent initial success, the Argentine currency board system had "only one problem: It was a system doomed to failure. Fixed exchange rates have never worked. Even the United States couldn't live with a fixed exchange rate, going off the peg to gold in the midst of the Great Depression."(Stiglitz, 2002)

What Stiglitz saw as unworkable, however, is a system of pegging a currency to a single commodity or to a single anchor currency. But fixed exchange rates could also mean pegging to a basket of currencies. John Williamson of the Peterson Institute of International Economics has advocated a common basket of currencies as the anchor for 9 East Asian currencies (Williamson, 1996) including the RMB, the HK Dollar, the Indonesian Rupiah, the Korea Won, the Malaysian Ringit, the Philippine Peso, the Singapore Dollar, the Taiwan Dollar, and the Thai baht. If these countries all peg to a common basket, their mutual exchange rates will be fixed, and the countries will become a de facto currency bloc. Obviously, such a regime is very much like a regime of fixed

exchange rates. While each of the economies still maintains its separate currency, mutual exchange rates will become very stable, as long as all members peg against a common currency basket.

But what currency basket should serve as a common anchor? Where should each currency pitch its exchange rate against the common anchor? Can these peg rates be adjusted, and if so, when? These are important decisions over how to "manage" the new exchange rate regime.

Ho (2012) has demonstrated that effective exchange rates can be calculated as the ratio of a currency's normalized exchange rate against the USD to the exchange rate of a "benchmark basket" of normalized currencies against the USD. Not only does this measure of effective exchange rate track the trade-weighted effective exchange rates compiled by the IMF, the BIS, and the OECD, but it also cointegrates better with the respective economies' exports. According to Ho, currencies need to be first normalized before weighting in order to avoid an innate bias due to the different values of the basic unit of different currencies. Normalization is achieved by dividing a time series of exchange rates by the exchange rate against the USD in the base year. The procedure ensures that all normalized currencies are equal to one USD in the base year. Before October 1 2016 the benchmark basket of currencies consists of the USD, the Euro, the Yen, the pound sterling, the Canadian dollar, and the Australian dollar. After the inclusion of the RMB into the SDR in 2016, the benchmark basket has incorporated the RMB as well. The benchmark basket uses GDP weights, in particular the GDP of two years ago as weights.

The idea of "Managed Fixed Exchange Rate" is that for any currency, the appropriate exchange rate against the basket should be pitched at that level that is consistent with both internal and external balance. Once this "optimal exchange rate" has been found, the central bank should maintain the same peg rate unless there is evidence that economic fundamentals have changed. Since international capital flows can easily sway the exchange rate of a currency one way or the other, a floating exchange rate may easily deviate from the fundamental equilibrium exchange rate. Offering a "band" within which the exchange rate is allowed to move freely does not really make sense, because any drift away from the FEER tends to drive the economy away from internal/external balance.

3. The Mechanics of Pegging to the BCB

Ho has developed a website that provides the daily quotation of the benchmark basket against the USD. The quotations are updated each day, but with sufficient resources, minute to minute update of the exchange rate of the benchmark basket against the USD can be provided. This website, now available at Chu Hai College, demonstrates that pegging against the benchmark basket is no more difficult than pegging against any single currency.

Suppose a currency is pegged at α times the exchange rate of BCB against the US$ at August 1 2018. The exchange rate of BCB against the US$ means how much the BCB is worth in terms of the USD, and it was US$0.995048. On November 29 2018 the BCB had depreciated against the USD and was worth US$ 0.978495. If α is 0.5, the appropriate exchange rate against the USD on November 19 should be 0.5 times 0.978495. Open market operations vis a vis the USD should target at bringing the exchange rate to 0.5 times 0.978495.

The simplicity of the operation under the proposed arrangement contrasts sharply with what is discussed in Hanke, M., Poulsen, R. & Weissensteiner (2015).

> "A central bank would keep a peg to a basket by being willing to both buy and sell one unit of foreign currency for the number of units of domestic currency given by equation X….. The central bank has thus 'opened war on several fronts', which may force it into a large number of market operations unless some sensible bands round the (moving) target rates are chosen."(pp.2-3)

The simplicity and transparency of our BCB is a key attraction of the proposed regime. Many proponents of basket pegs base their recommendations on specific situational factors. For example, Kawai (2014), in recommending a currency basket for emerging East Asia, recommends a basket consisting of the USD, the Euro, and the Yen, saying that this is because "emerging East Asia is sufficiently integrated with Japan and Europe as well as with the United States." Moreover, referring to the Asian Financial Crisis of 1997, he suggested that "The desired weight to be assigned to the US dollar would be lower and those to the yen and the euro higher than the pre-crisis levels."(p.99) Similarly, Ma and

Cheng (2014) tried to gauge what an "optimal currency basket" would look like if output and inflation volatility is to be minimized. Instead of working out "optimal weights" based on some stipulated criteria, the BCB is based entirely on GDP weights, and the weights are revised from year to year in a timely fashion without reference to specific conditions and the need for analytical judgments. The main justification for using this simple formula is the demonstration that pegging to the BCB will effectively stabilize the effective exchange rate.

4. Managing the Peg to Achieve Internal and External Balance

I define internal balance as consisting of three conditions:

- Full employment
- Stable and low inflation
- Sustainable fiscal conditions

The first two conditions are actually mentioned in Williamson's paper. The third condition, however, is also quite important. Although budget balance is strictly speaking not required for fiscal conditions to be sustainable—since under economic growth it is possible for government debt to grow with the economy, I shall assume budget balance because it makes the exposition easier.

External balance is less complicated. It is just defined as demand for the currency being equal to supply for the currency, so that the central bank is not losing nor gaining foreign exchange reserves.

To show the determination of internal and external balance, we will proceed first with the identity: GDP ≡ Yd +T-B, which says that the GDP comprises disposable income generated domestically (inclusive of interest receipts) Yd plus all net taxes, i.e., taxes minus transfers collected domestically (T) minus interest payments on government debt (B). For simplicity we ignore government revenue from tariffs which are relatively small any way. When aggregate demand is in equilibrium, income must be equal to expenditures, so we have:

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

This is the Keynesian cross condition for aggregate demand equilibrium, which can be transposed to obtain:

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

This says Government Savings (GS) = Private Sector Savings Deficiency (PD).[2] We can now depict the determination of aggregate demand using the following graph (**Figure 2**):

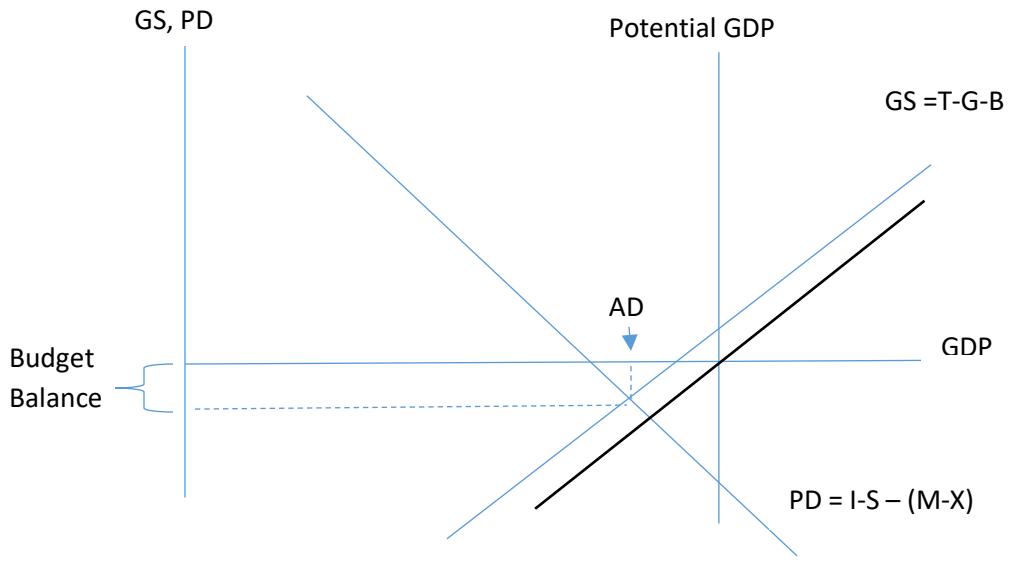


Figure 2: Determination of Internal Balance

We can see that the intersection of GS and PD determines two key variables: the Budget Balance, which in this case shows a deficit, and the equilibrium aggregate demand, which in this case show a deflationary gap, i.e., aggregate demand falling short of Potential GDP.

Internal balance will require shifting GS to the position as indicated by the black upward sloping line, and shifting PD up to intersect with the black line where the GDP is at Potential GDP. The former is in the purview of fiscal policy. The latter is mainly in the

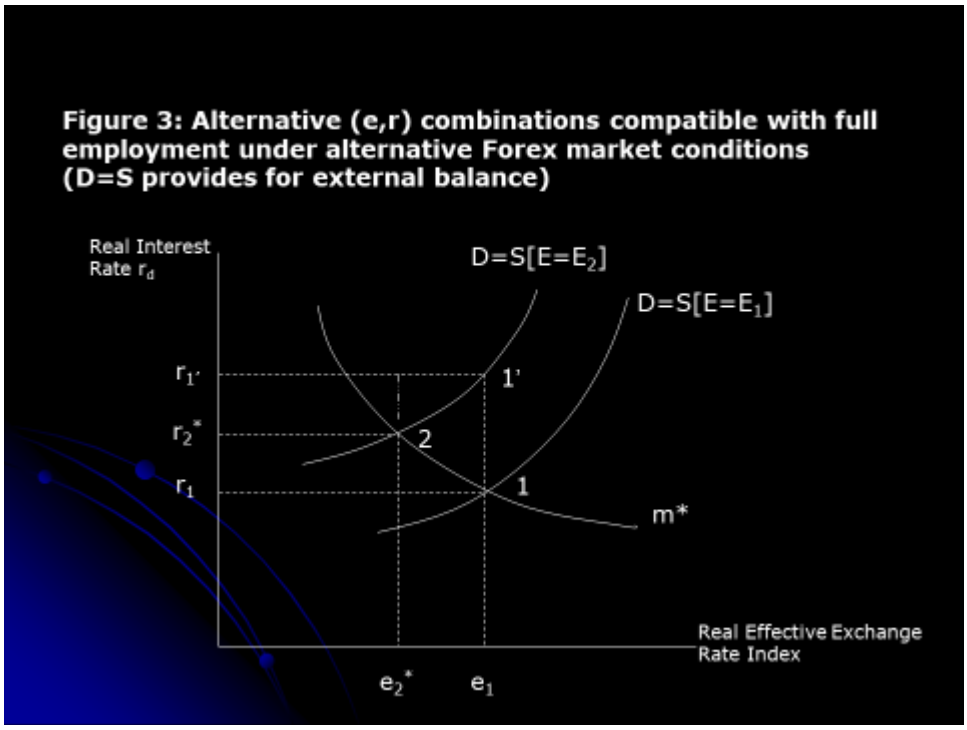
[2] S is domestic savings. M-X can be regarded as foreigners' savings. Shortfall of these against I is private sector savings deficiency.

purview of monetary policy. However, as explained in Ho (1993) it is possible to use fiscal policy to move PD to some extent.

As explained in Ho (1988), depreciation of the domestic currency and/or lower interest rates will shift the PD up, eventually landing it where aggregate demand coincides with Potential GDP. Corresponding with PD at this optimal position is the curve m* in **Figure 3**, which shows the combinations of real interest rate and real effective exchange rate consistent with internal balance. The actual real interest rate, real effective exchange rate combination is determined by the intersection of m* with the forex equilibrium line D=S. However, corresponding to different expectations held by market participants, the D=S line may be higher or lower. Suppose initial equilibrium is at point 1(Expectations at E_1). Real effective exchange rate will be at e_1. If market participants are more pessimistic, expectations goes to E_2, interest rates need to rise to r_1' if real effective exchange rates stay put. But then this would lead to excessively contractionary situation. The new internal-external balance equilibrium point will be at point 2, implying higher real interest rates and lower real effective exchange rates.

It is argued that economic fundamentals depend on such factors as economic policies, endowment, cultural factors, and the state of technology, and are generally stable. Pegging to the benchmark basket introduced earlier at a level consistent with internal equilibrium will allow full employment, stable prices, and fiscal balance.

If a change in economic fundamentals has been established, it will be necessary to re-peg, i.e., change the ratio α.



5. Implications of the Proposed Regime

By nature, the proposed exchange rate regime follows an Exchange Rate Rule (ERR) which is pegging to a well-defined basket of currencies. It also seeks to achieve full employment and price stability, in the spirit of the Singapore Monetary Authority and the Bank of Israel. The former describes its policy as:

> "The MAS manages the Singapore dollar (S$) exchange rate against a trade-weighted basket of currencies of Singapore's major trading partners and competitors. The composition of this basket is reviewed and revised periodically to take into account changes in Singapore's trade patterns. This trade-weighted exchange rate is maintained broadly within an undisclosed target band, and is allowed to appreciate or depreciate depending on factors such as the level of world inflation and domestic price pressures. MAS may also intervene in the foreign exchange market to prevent excessive fluctuations in the S$ exchange rate."

The Bank of Israel stresses that it is prepared to intervene in the foreign exchange market "in case of fluctuations in the exchange rate that it judged to be inconsistent with fundamental economic forces." (Flug and Shpitzer, 2013)

However, the proposal distinguishes itself from traditional adjustable pegs or managed floats. It involves explicit pegging with an anchor, but the choice of the anchor is such that the pegging would automatically stabilize a country's effective exchange rates.

First of all, with the introduction of the Benchmark Currency Basket, which is GDP-weighted, and which carries an exchange rate just like any currency, pegging to the BCB is no more complicated than pegging to a currency. Pegging means defining the factor to be multiplied to the BCB that represents a unit of the domestic currency. This factor can be a number bigger than or smaller than 1. Since the BCB is worth US$1 in the base year, a factor smaller than 1 means that as of the base year a unit of the currency would be worth less than US$1.

Second, pegging with the BCB will stabilize the effective exchange rate of a currency. If inflation at home is equal to inflation in the rest of the world, the real effective exchange rate will also be stabilized. If domestic inflation is higher, then the real effective exchange rate will appreciate.

Third, all countries that peg their currencies with the BCB will effectively become a currency bloc in the sense that mutual exchange rates for currencies within the bloc will be stable. This means all the benefits of a currency bloc that Andrew Rose et.al.(2000) has alluded to be associated with a currency bloc will be realized.

Fourth, the exchange rate with currencies that do not peg to the BCB will fluctuate.

Fifth, to maintain the peg with the BCB, it is possible to use the USD as the instrument or vehicle for open market operations. Maintaining the peg with the BCB will always imply that the exchange rate of the domestic currency against the USD will be worth α times the exchange rate of the BCB against the USD. Dollars can be bought or sold in the open market to keep the exchange rate against the USD at the level implied by the BCB peg.

This brings us to the controversy over the so-called bipolar view of exchange rate regimes. In the opening to his assessment of whether the bipolar view is correct in 2001, Stanley Fischer(2001) cited three notable authors as follows:

> "…. the choice of appropriate exchange rate regime, which, for economies with access to international capital markets, increasingly means a move away from the middle ground of pegged but adjustable fixed exchange rates towards the two corner regimes of either flexible exchange rates or a fixed exchange rate supported, if necessary, by a commitment to give up altogether an independent monetary policy."
>
> Lawrence H. Summers (2000), p. 8.

> "[I]ntermediate solutions are more likely to be appropriate for many countries than are corner solutions"
>
> – Jeffrey A. Frankel (1999), p. 30.

> "Despite their heterogeneity, EMs [Emerging Market countries] tend to share a common characteristic – they appear to be reluctant to let their currencies fluctuate."
>
> Guillermo A. Calvo and Carmen M. Reinhart (2000), p. 5.

Fischer remarked that these statements may have an element of exaggeration in order to produce a "dramatic effect," but essentially agreed with the bipolar view. In his words:

> "The right statement is that *for countries open to international capital flows*: (i) pegs are not sustainable unless they are very hard indeed; but (ii) that a wide variety of flexible rate arrangements are possible; and (iii) that it is to be expected that policy in most countries will not be indifferent to exchange rate movements."(italics in the original)

Today any country not practicing an effective system of capital control is open to international capital flows. The bipolar view would rule out any conventional adjustable peg system as tenable. The proposal in this paper agrees that "soft pegs" including

"conventional fixed pegs, crawling pegs, horizontal bands, and crawling bands" are untenable, but that is essentially because the anchor does not allow flexibility and because none of the conventional adjustable pegs involve an attempt to align effective exchange rates to the FEER. Our proposal on the other hand builds in flexibility through using the BCB as the anchor, and also allows adjustment of the peg ratio α if and when the economic fundamentals have changed.

6. Conclusions

In this article we propose a new version of the adjustable peg which we call "Managed Fixed Exchange Rate." It should belong to the category of fixed exchange rate, because it involves pegging to an anchor, and because among currencies pegged to the common anchor mutual exchange rates are generally fixed. It involves an element of management, because by design it is subject to less pressures from gross misalignment with FEER as compared to pegging to a single currency. Another element of management lies in the possibility and indeed the need of readjusting the peg against the BCB in the event of changes in economic fundamentals. As long as the BCB peg is maintained, effective exchange rate is kept unchanged. If the effective exchange rate is initially consistent with economic fundamentals, no deviation from this FEER will happen.

In contrast, a peg against the USD means the fortunes of the economy is at the mercy of the movement of the USD in the forex market. Since the US dollar has appreciated and depreciated against the benchmark currency basket over the years, the effective exchange rate of a currency tied to the dollar will similarly rise and fall, and will be pushed off the FEER even if its exchange rates were initially aligned with the FEER.

We have argued that allowing the exchange rate of a currency to fluctuate around an official peg rate within a band is giving short term capital flows the swaying power to knock a currency off its FEER. Managed Fixed Exchange Rate would disallow that. Provided that the peg is fundamentally consistent with internal and external balance, a peg to the BCB is defensible. Even if borrowing to defend the peg is required because foreign exchange reserve is short, that should not trigger panic, because the economy remains healthy. On

the other hand, for a currency that is clearly overvalued, even a large foreign exchange reserve will not be enough to arrest capital flight. We recall that in 1992 when the British pound was attacked by George Soros, it was clearly overvalued given its link to the European Currency Unit through the Exchange Rate Mechanism. In particular, when Britain joined the ERM, the rate was set to 2.95 Deutsche Marks per Pound Sterling with a 6 percent band upward or downward. But inflation equal to 3 times that of Germany's means that its real effective exchange rate had been rising. Moreover, in order to maintain the link with the ECU, British interest rates had to be raised to 15 percent. As a result unemployment had been rising secularly since Britain joined the ERM, which was nicknamed Eternal Recession Mechanism by pundits.

We have argued that since the exchange rate of the BCB against the USD, and for that matter, the exchange rate of the BCB against any other currency, is known given its transparency and rule-based nature, pegging against the BCB is just as easy to manage as pegging to a currency. It is possible to use any single currency as a management vehicle to achieve the peg rate through open market operations.

Finally, there is a presumption that for large economies, central banks may want to have more active monetary policy rather than being bound by the peg. In any case, whereas smaller economies can use open market operation in a single vehicle currency to maintain the basket peg, bigger economies by virtue of their size may not be able to "assume other things being equal" in their open market operations. It is in any case easier for smaller economies to peg to the BCB than to try to use interest rate tools to stabilize the economy. Indeed, Breedon, Pétursson & Rose (2011) concluded from their examination of 37 small rich economies, that a pegged exchange rate regime appears to be the preferred monetary regime.

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