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THE GLOBAL INDEXED BOND

by

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**Towards a New International Monetary Order:
The World Currency Unit and the Global Indexed Bond**

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Abstract

This paper argues that introducing a standardized international debt instrument by denominating it in a “World Currency Unit” consisting of a basket of five currencies, namely the US dollar, the Euro, the Yen, the Canadian dollar, and the Australian dollar and indexing against inflation will improve efficiency in the world capital market and enhance stability in foreign exchange markets, thus rendering financial market turmoil less likely.

Keywords: monetary anchor, world currency unit, capital market efficiency, financial market turmoil, exchange risk

JEL Classification no.: F02, F3, F4

I. Introduction

Instability in currency markets has caused large interest rate swings¹ and is capable of causing astronomical damage to regional economies as well as the global economy. It is against this background that the controversial “Tobin tax” on foreign exchange transactions was proposed. It is also against this background that when Malaysia introduced foreign exchange control he found sympathy in a mainstream economist, namely Paul Krugman(1998).

There is little doubt that the high interest rates maintained by central banks to slow down the depreciation of currencies were instrumental to the melt-down of some of the economies, in particular Indonesia². High interest rates are thought to be able to prevent a currency from sliding, but whereas the British pound—a currency without the blessing of defensive, and sharply higher interest rates--managed in 1992 to suffer only a relatively moderate degree of devaluation, the Thai Baht, the Indonesian Rupiah and the Korean Won, all experienced substantial depreciation notwithstanding sharply higher interest rates. Meanwhile high interest rates also increased the cost of doing business, decreased demand, and reduced the value of bonds held by financial institutions dramatically. High interest rates also kept investors at bay, reducing economic growth and creating large fiscal deficits. It appears that as the economies weakened, pressure on the regional currencies mounted despite the high interest rates.

¹ Following the devaluation of the Thai Baht on 2 July 1997 many South East Asian countries, in an attempt to stamp off depreciation pressures, raised interest rates dramatically. In Hong Kong, the inter-bank rate rose to nearly 300 per cent on October 26 1997 as the Hong Kong Monetary Authority refused to accommodate market demand for liquidity.

² Indonesia was actually rated as a “star performer” in 1996 in being able to reduce inflation and

A vicious circle--in the form of depreciation leading to higher interest rates, in turn leading to weaker economies and thus more pressure on currencies to depreciate—had developed.

The tragic thing in this course of events is that even otherwise well-managed firms fell. International borrowing in the highly globalized world of today is not, by nature, an imprudent venture. Yet the potential risks associated with international borrowing in a turbulent world are huge. To the extent that the debt is denominated in one foreign currency, rapid depreciation of the local currency could ruin those firms whose incomes are denominated in the domestic currency. To protect themselves against possible default creditors will scramble to dump their bond holding, and, when they are in the position to do so, they will recall any outstanding callable loans upon any threat of depreciation. To the extent that the debt is denominated in the local currency, depreciation of the local currency could ruin the lenders if they do not get out fast enough. Either way, once fears of depreciation have been ignited, herd behavior becomes rational and foreign lenders will scramble to either call back their loans or dump their bonds. Such self-defense actions become even more necessary if short term interest rates are raised by central banks, since higher short term interest rates will further sap the strength of companies. An otherwise containable problem could then cascade into a full-scale catastrophe.

This discussion leads to the concept of *sovereign risk*, which are risks not related to the soundness of the businesses raising money in international markets, but rather

the current account deficit while achieving a good growth rate in the PECC Economic Outlook.

with the soundness of the entire economy and with particularly the risk of large depreciation. A sound, well-managed locally oriented business in Thailand or Indonesia which had an outstanding internationally raised debt, *whether denominated in the home currency or in a foreign currency*, in 1997 would run into repayment or liquidity problems on account of the currency crisis. The local currency may well have been overvalued relative to economic fundamentals(Schnatz, 1998), but any overvaluation is not the fault of the firms concerned. Yet none of these considerations would spare them from serious difficulties.

It may seem logical that firms whose revenue is essentially denominated in the local currency should try to raise their capital locally. Many of the South East Asian countries, however, had been facing relatively high interest rates at home so that there was great attraction to borrow more cheaply internationally, especially in view of an explicit undertaking by their central banks to link their currencies to the US dollar. This begs the question of why local interest rates were so high in the first place.

Interest rates were high largely partly because domestic savings were not sufficient to finance all the domestic investment, and partly because central banks wanted to maintain an exchange value for their currencies which had, over time, become unrealistically high. Rather than dwelling on the wisdom of the monetary policy adopted, however, I propose to investigate the nature of the world monetary order as it stands today and whether a fundamental change is required. The thesis of this paper is to propose the use of a standardized currency basket, to be called the “*World Currency Unit*,” to serve as the basic linking instrument for those countries which opt for a currency board arrangement, and the introduction of a standardized

debt instrument called *the "Indexed Global Bond"* to improve the efficiency of the world's capital market and to facilitate the development of rational monetary policy. Section II will outline seven basic concepts underlying the proposal. Section III will describe the proposal and explore the implications. Section IV will discuss the practical difficulties in implementing the proposal and assess the prospect of the world adopting the proposal.

II. Basic concepts

I now introduce seven definitions and explain the concepts behind them.

1. *The World Currency Unit:* This is defined as a fixed basket of the world's 5 major freely traded currencies³ weighted according to value added created (i.e., GDP). Let Q_k be the GDP of country k , where country k is one of the top 5 countries/economic entities in terms of gross domestic product. Then define w_k , the weight of country k in the World Currency Unit, to be equal to the percentage of country k 's output in the sum of the five countries' GDP. Suppose we define one unit of the World Currency Unit today be equal to US\$100. Then the number of units of currency k , u_k , in the WCU will be calculated from:

$$\sum u_k \cdot \text{price of currency } k = \$100 = 1 \text{ WCU}$$

$$\lambda \sum w_k \cdot \text{price of currency } k = \$100 = 1 \text{ WCU}$$

$$\text{where } u_k = w_k \lambda; \quad w_k = \text{GDP}_k / \sum \text{GDP}_i$$

³ It is proposed that the US dollar, the Euro, the Yen, the Canadian dollar, and the Australian dollar would be included. The first three are included for obvious reasons. The latter two are included because Canada and Australia are major commodity exporting countries.

The concept is obviously closely related to the Special Drawing Right, which is a basket of five major currencies and was created by the IMF in 1969. The following table lists out the key similarities and differences between them.

Table 1: Comparison between the WCU and the SDR

World Currency Unit	Special Drawing Right
Proposed by this author as an instrument to streamline international capital markets	Created by the IMF in 1969 as a supplementary reserve asset
May be used to denominate internationally raised bonds called the Indexed Global Bond	Can be used to denominate private financial instruments
May be used as the key instrument for currency boards to peg local currencies	As of April 30, 1996 the currencies of three member countries of the IMF were pegged to the SDR
Currencies include the US dollar, the Euro, the Japanese yen, the Canadian dollar, and the Australian dollar, and they are weighted according to the relative size of the GDP's of their respective countries	The US dollar, the Deutsche mark, the French franc, the Japanese yen, and the pound sterling, representing the top five exporters in the world during the reference period, are included in the basket in proportion to their relative importance in international trade and reserves.
There is an implicit real interest rate that can be calculated from the interest rates of local currency-denominated instruments and local inflation rates.	There is an SDR interest rate that is calculated as a weighted average of the yields on specified short-term instruments in the domestic money markets of the five respective countries.
The WCU is not expected to evolve into a full-fledged world currency but much benefit will ensue if it should become the principal unit of account in the world's capital market.	The SDR is not expected to evolve into a full-fledged world currency or even the principal reserve asset.

2. *The benchmark global real cost of capital:* This is defined as the interest rate applicable to *borrowers with a minimum of default risk* and it is calculated when both repayments and the loan amount are expressed in the World Currency Unit and when adjustment has been made for global inflation.
3. *The real cost of capital for a project:* This is equal to the benchmark global real cost of capital plus the risk premium applicable to the project.
4. *Global inflation* is calculated as the GDP-weighted average of inflation in the countries of the constituent currencies in the World Currency Unit.
5. *The global real rate of return on an investment:* This is the rate of return on the original investment when both returns and costs are calculated in the World Currency Unit, with allowance for world inflation. There is an *ex ante* and a realized or *ex post* rate. *The ex ante global real rate of return* is the global real rate of return that is expected to be achieved, either on an investment or on average among a broad range of investment projects. *The ex post* global real rate of return is the real rate of return expressed in the WCU realized for an investment or on average among a broad range of projects.
6. *The nominal(in contrast to global) realized rate of return on an investment:* This is the rate of return calculated in the currency of the originating country. It is inclusive of the rate of appreciation of the investment income vis-a-vis the currency of the originating country.

7. *The nominal realized borrowing cost an investment:* This is the actual rate of interest paid by an investor when all repayments are calculated in the currency in which the loan amount is used.

III: The Proposal

The proposal has three elements. First is the *standardization of the world's international debt instruments* through the issuance of "indexed global bonds," which are on the one hand denominated in the composite "world currency unit," and on the other hand indexed against global inflation. Second is promotion for the use of the world currency unit as the *key currency* to link with for *currency boards* throughout the world. Third is the development of a monetary policy guidepost in the form of the ratio between the *benchmark global real cost of capital* and the average *global real rate of return on a broad range of investment projects*. If the guidepost ratio is larger than 1, there is a *prima facie* case for relaxing monetary policy; if the latter is less than 1, on the other hand, there will be a case for tightening up monetary policy.

We shall start with the third element of the proposal. There is much evidence that the return to real investment has been declining over the past three decades and that a productivity slowdown has occurred on a global scale (Morrison, 1993; Echevarria, 1997; Hamilton and Monteagudo, 1998). This is in part related to increasing competition from emerging markets and the long term trend towards globalization, and in part due to the limits of technological breakthrough. Real interest rates, however, have stayed at a high level. This may be the main reason behind the excess capacity in manufacturing and high unemployment on a global scale

and may well be an important underlying reason behind the Asian financial crisis which took place since July 1997.

Thus, prior to the currency crisis in Asia *the average real rate of return on global investment has been declining*, while global real interest rates have been maintained at a high level, resulting in widespread unemployment and idle capacity. Particularly for Asian countries, the effective cost of borrowing had become much higher than the effective rate of return on productive investment. High interest rates, on the one hand, engender excess capacity and stifle demand. On the other hand they cause a serious adverse selection problem (Stiglitz and Weiss, 1981; Boyd and Smith, 1993). Because global competition had driven down the rate of return in manufacturing, manufacturing investment could not compete with *high risk, high return speculative investments*.

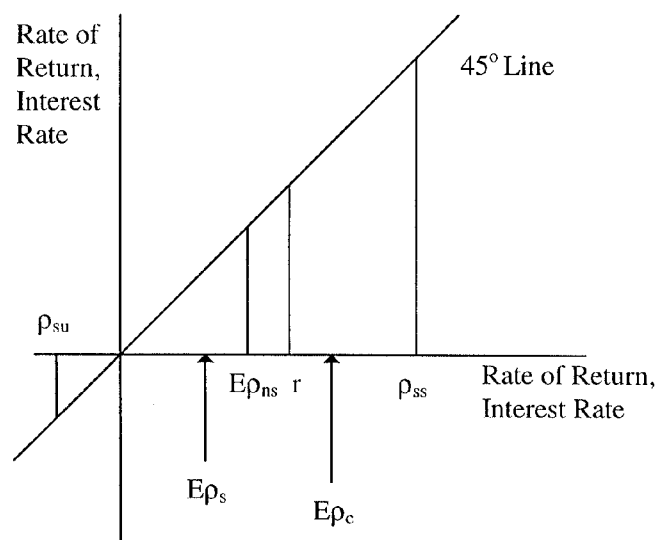


Figure 1

In Figure 1 the expected rate of return for non-speculative investment is $E\rho_{ns}$. Because this is lower than the interest rate it is unprofitable. On the other hand, more speculative, high risk investment carries a possibility of a high(successful) rate of return(ρ_{ss}) as well as a negative(unsuccessful) rate of return(ρ_{su}). However, the negative rate of return is irrelevant in view of limited liability and possibility of default. The *constrained* expected rate of return is $E\rho_c$ and is higher than the interest rate. In this example high interest rates are seen to lead to more risky investment.

The problem in South East Asia has been aggravated by the availability of funds looking for both high yields and liquidity, which boils down to high-yield short term debt. Clearly, borrowers who pay such high rates of interest cannot afford to invest the borrowed money in low return investment and therefore tend to put the funds into highly speculative ventures.

Proposition One: Monetary Policy and the Condition for Viability of an Investment

The key to global investment being in equilibrium lies in a monetary policy such that the global rate of return to investment is roughly in line with the real global cost of borrowing(the “benchmark global real cost of capital”).

In order for an investment to be viable over the long run, the realized rate of return on investment, in nominal terms or in real global currency unit terms, must not be smaller than the realized interest rate, in nominal terms or in real terms respectively. For an international borrower borrowing in a foreign currency *whose incomes are denominated in the domestic currency*, depreciation of the home currency will,

provided that the depreciation is large enough, render the investment unprofitable because, in real terms, returns are reduced drastically by the depreciation, and in nominal(domestic currency) terms, the cost of borrowing is increased drastically. For an international borrower *whose incomes are denominated in a foreign currency*, depreciation of that foreign currency relative to the WCU would have the same effect on the attractiveness of the investment. Thus the level of the real WCU interest rate would determine the level of global investment.

Now we shall turn to the second element of the proposal, which is the introduction of the WCU as an international unit of account and an instrument for currency linkage among countries which opt for a currency board approach to monetary policy. The WCU is akin to the Special Drawing Right.

Proposition Two: (Lower Risks Associated with World Currency Unit-linked currencies)

The availability of a standardized WCU provides a more stable anchor for small countries to link their currencies under a currency board arrangement. This reduces bilateral exchange rate volatility and is conducive to lower interest rates.

Human kind has been looking for a stable anchor for their monies since money was born. The various commodity standards, particularly the gold standard and the silver standard, bore witness to this search and its futility. Indeed the value of commodities are inherently unstable, as are single currencies such as the U.S. dollar and the pound sterling. The fact is that the value of any single commodity or single currency is subject to fluctuations. An inflation-protected basket of international

currencies is by definition more stable and hence potentially require less painful adjustment than that required when alternative anchor instruments become over-valued or under-valued. Coats(1989) proposed using a SDR valuation basket with a constant real value as a new monetary anchor, and his idea corresponds to mine.

Let us now consider the first component of the proposal regarding the standardization of an international debt instrument.

Proposition Three: (Efficient International Capital Market)

Equalizing the perceived (risk-adjusted) cost of capital is a necessary condition to efficient allocation of global capital. A standard indexed WCU-denominated bond helps equalize the perceived cost of capital. Such a “global bond” will also be very attractive to the world’s savers as it will be a good store of value. Being less subject to exchange risk, they will likely accept lower interest rates thus rendering low risk low return investments viable.

Different expectations of currency movements may lead to an investment with a lower expected rate of return being financed at the expense of investments with higher rates of return. This happens when the investor expects the borrowed currency to depreciate by more than others expect or to appreciate by less than others expect. Individual borrowers may be subject to different interest costs on account of differences in the risks associated with the loans, but in so far as the differences in interest costs are due to borrower-specific risks, allocation of capital is efficient. An indexed WCU-denominated bond is less subject to “sovereign risks” than are single currency-based bonds and thus is more conducive to the cultivation of borrower and

lender responsibility. In contrast if loans are denominated in a single currency borrowers' effort in reducing risk may be overwhelmed by the exchange risks as perceived by lenders. By the same token, if a country follows a currency board arrangement and its currency is linked to the WCU, exchange risks and exchange risk related default risks become less of a concern to lenders lending money to that country.

A bonus to the proposal of indexing the WCU-denominated "global bond" is that it makes a world depression less likely. It may be recalled that during the 1930s deflation has wiped out many investment projects. The real cost of borrowing increases in the face of deflation if interest payments and repayments are fixed in nominal terms. If prices and incomes are falling, indexing offers the borrower protection as it allows repayments as well as debt-servicing cost to fall.

Proposition Four: (Indexing reduces risks of global deflation risks)

The indexing of the global bond shelters borrowers from the risks of deflation. Because of this protection their productive activities continue to be viable even in the face of falling prices. Thus less unemployment and idle capacity will be engendered.

Just as indexing loan instruments to the general price level protects borrowers from the risks associated with deflation, it also protects creditors from the risks associated with inflation, and in providing this protection it also allows real interest rates to stay at a more reasonable level. Following a major depreciation, such as what happened in Thailand in July 1997, the market expects inflation to rise sharply. But to what extent inflation rises is everybody's guess, so an inflation risk premium

emerges on top of the average expected inflation among market participants. With indexing, because creditors are compensated in full ex post for any realized inflation, market interest rates tend to be lower, thus providing a more favorable environment for recovery.

Proposition Five: (Indexing reduces risks of recession due to excessively high interest rates)

Indexing loan instruments against the general price level eliminates any need for a risk premium arising from uncertainty over the rate of inflation and is therefore conducive to a lower interest rate regime and hence economic recovery.

IV: Practical Difficulties and Concluding Remarks

If having a monetary anchor which has stable value is technically possible and administratively feasible, one wonders why nothing that resembles this development has happened so far. The SDR, a close relative of the WCU, has far from having become a standard for the issue of international debt instruments, except for the IMF. Only a handful of tiny countries, including Libya, Myanmar, Rwanda, and Seychelles, linked their currencies to the SDR. Coats(1994) provided a good explanation. The convenience of using a commonly accepted unit of account is so great that “even a relatively bad one already in use is better than using an uncommon unit.”(p.15) For major players in international trade and finance, there is little to gain from pioneering a substitute unit of account to take the place of their currencies. For small players there is little credibility and insurmountable difficulties in pioneering a new standard. To make things worse, the meaning of the name Special Drawing Rights is both obscure and humiliating for sovereign countries to link their currencies to.

In principle individual borrowers can, even today, custom-make their liability structure by borrowing in different currencies in order to reduce their exposure to the exchange risks against a single currency. At the same time, they are free to offer price index adjustment on their debt. This procedure, unfortunately, suffers from several drawbacks.

First, this procedure is highly costly. It implies a need to offer multiple issues of bonds, implying multiple defraying of overhead flotation costs. Smaller businesses, in particular, will not be able to take advantage of such opportunities.

Second, in so far as the debt is not standardized, the cost of capital, *ex ante* or *ex post*, will vary from borrower to borrower and from project to project. As explained, this goes against capital market efficiency.

Third, savers will not have a neat, inflation-protected, exchange risk-protected instrument. They are then apt to have their savings channeled into high risk “inflation hedges” which could become the embryo of bubble economies with their inherent dangers⁴. The Asian financial turmoil which started in 1997 shows that the world is not short of capital but rather is short of reliable investment outlets. Notwithstanding or because of financial market innovations a safe investment vehicle

⁴ The asset bubble of Japan and its bursting is a case in point. It is most unfortunate but in retrospect unavoidable that asset prices in Japan boomed during the eighties given Japan’s huge success in accumulating savings. The rise of the yen, a direct consequence of the success of Japan’s exports machine, led to the fall in the yen value of foreign assets acquired. It also produced much incentive to sell assets in Japan. This results in a double jeopardy for Japanese banks whose liabilities do not fall with the value of assets.

that offers future retirees a modest inflation-adjusted rate of return and protection for exchange risks is still for many people not available.

The idea of a world currency unit is not to suggest that we could have one single currency for the entire world. Indeed such an undertaking even if possible is likely to be undesirable because of the diversity of economic conditions around the world. However, a WCU as an anchor for many of the world's currencies is eminently feasible. To meet the need for a stable anchor for the world's currencies, the GDP-weighted currency basket seems to be the best answer. Modern computing technology has made it possible to design an "alloy" of currencies with almost any degree of value stability that we want. Certainly such alloys are far superior to any material that occurs by the bounty of nature.

A global bond denominated in the world currency unit and indexed against inflation is the true investment vehicle with a stable value. There is no technical difficulty in designing such a vehicle, though there will certainly be some difficulties arising from a lack of consensus about weighting. Economists are well aware of the fact that the index number problem can never be solved. There is simply no perfect weighting that serves all purposes. For practical purposes I have proposed using GDP's as weights and have proposed the US dollar, the Euro, the Yen, the Canadian dollar, and the Australian dollar as the constituent currencies of the WCU. The rationale behind this suggestion is simple. These are all totally convertible currencies. Canada and Australia are key resource producing economies, so the Canadian dollar and the Australian dollar complement the first three currencies quite well. The five economies together account for roughly 53 per cent of world

trade in 1997.

Once the WCU and the indexed global bond have been launched, it will be a relatively simple matter for smaller countries who want to use a currency board system to link their local currencies with the WCU. Alternatively, they can link with a trade-weighted basket of currencies⁵. If they choose the former, the meaning of “sovereignty risk” will change completely. If Indonesia had been on such a system and had borrowed in WCU the economic melt-down would have been avoided. Individual borrowers of course would default on their loans, but what we had seen during the period 1997-98 was default *en bloc*. Even if individual countries choose to link their currencies with a trade-weighted basket of currencies, the values of these local currencies will still fluctuate to a far smaller degree relative to the WCU than what happens under a single currency peg. Provided that debt is standardized in WCU exchange risks would be smaller than under a single currency peg. Borrowers will have much greater chance to be assessed on the basis of their own merits instead of being victimized by considerations of sovereign risk.

⁵ Linking to one single currency is not recommended because of the much greater risk of over or under valuation.

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