

Appendix

The Commodity Buffer Stock

The commodity unit will be of standardized commodities, such as those quoted on commodity exchanges that have a low cost of storage. The composition of this basket would be determined by international agreement; ideally, the basket would be composed of a wide range of standardized and durable commodities which are universally used, and whose values therefore, taken individually, would not be greatly changed by their use as a reserve medium. The relative proportions of the commodities in the basket would be determined by their share of world trade (periodically re-evaluated).

Table 1. Standardized and storable commodities for possible inclusion in an international commodity reserve currency.

Agricultural Raw Materials	Edible Oils	Metals and Energy
Cotton	Rapeseed	Copper
Wool	Canola	Zinc
Rubber	Palm Oil	Tin
Wood		Lead
Paper Pulp	Food and Beverages	Aluminum
	Sugar	
Wheat	Coffee	
Corn	Tea	Columbite-tantalite*
Rice	Cocoa	Natural Gas*
Soybeans	Pork bellies, frozen	Ethanol*
Oats	Orange Juice, frozen	Bio-diesel*
	Dried Milk	Carbon Permits*

*Commodities not in previous the Graham or Kaldor plans. ¹⁵

Parity between Bancor and the current market price level of the commodities in the commodity bundle should in principle be assured by arbitrage operation of private traders who would buy commodities in the open market for the purpose of tendering to the ICC*, or buy commodities from the ICC* for the purpose of tendering in the open markets whenever there is a profit in doing so (Hart et al 1964, p.156).

Under Kaldor, Bancor was pegged to gold, or in other words gold would be pegged to the commodity unit. The ICC would do this through open market operations in gold*. The primary commodities in the bundle should be stable in terms of gold, irrespective of variations in the exchange rate of individual currencies. Any tendency for prices to fall and the ICC* would absorb stocks of commodities, increasing bancor income to primary producers and adding to world liquidity. The opposite when prices fall.

The target basket price will be based on some historical average, e.g. past 10 years, and re-evaluated to meet the goal of a long-run stable inventory as a percentage of world trade. Kaldor suggested that commodity-reserves should grow at 3 per cent per year. This could be different

¹⁵ The suggestion of Carbon permits comes from Lietaer (2004).

from the rate of growth of industry, but it would be a rate that brought these two sectors into balance and stabilized the terms of trade.

The common problem with issuing a new international currency is how to make it liquid enough to be used widely such that it becomes liquid. This problem does not exist for a commodity reserve currency because it is already useful, and can be taken up by the private sector and redeemed into commodities. The tables below present the use of Bancor in private sector balance sheets.

Four Different International Monetary Reserve Systems

Below are tables of balance sheet transactions for different international reserve regimes. These are overly simplified in order to give an overview of the mechanics of the different regimes. Central banks are assumed to lean against the wind in foreign exchange transactions pegging their exchange rate. There is no sterilization of domestic cash injections in what is presented here.

Examples of International Reserve transaction scenarios:

- Gold
- Bancor overdraft à la Keynes
- Bancor backed by commodities à la Graham and Kaldor
- US dollar held as US Treasuries, deposits with the Federal Reserve, plus other central bank deposits in other currencies

Terminology

Entity with red name is the initiator of a series of transactions. Transactions are put in an order of sequence, though in many cases this is purely subjective and can be rearranged. Red arrows are the direction of international reserves. Green arrows are the direction of domestic deposits or domestic bank central bank reserves.

Explanation of Tables

1. Gold Standard, no international central bank

Under the Gold standard gold could be held privately and issued privately. Capital flows in this example are controlled through central bank mediation.

A. Creation of Gold Reserves

Most gold creation was determined not so much as prices, but gold discoveries. If a gold miner were located in a LDC then he would sell his gold to his local bank, which would sell to its central bank in order to get pesos back to the gold miner. If gold is hoarded in the private

system there may not be a sale to the central bank.

B. Redistribution of Gold Reserves

A LDC firm that wants to pay back a USD denominated loan from a US bank will first have to acquire USDs from its local bank. The local bank gets dollars from the central bank, which can acquire them by selling gold to the US central bank. It then effectively transfers these reserves to the US Bank. The red arrow is the movement of the international gold reserve.

C. Redistribution of Gold Reserves

A UK firm that imports manufactured goods from a US firm will first need to acquire USD deposits from its local bank. This will result in a contraction of Sterling reserves and the use of gold by the Bank of England to purchase USD reserves, which it offers as deposits to its local banks. It can transfer these deposits to its counter party in the US through the banking system. Gold is held on the books at the Federal Reserve and USD reserves are expanded.

2. Bancor à la Keynes, International Clearing Union (ICU) and International Commodity Control (ICC).

Bancor was fixed in terms of gold, dollars and pounds but adjustable. Countries would adopt a fixed rate but could apply to the ICU for modification. The quota limit for both deficit and surplus countries was $(\text{total imports} + \text{total exports})/2$ for a year. (There was no limit on surplus countries in the 1942 proposal). Interest is charged at 1% on credit or debit Bancor balances in excess of 25% of quota on average. This increases to 2% when 50% of quota is reached. However any member state in deficit could borrow from a surplus state, and then both would avoid these expenses. A deficit country that is allowed to increase its quota by more than 50% may also have to devalue its currency. Greater than 75% and it will be declared in default and no longer have access to its account. Surplus countries in excess of 50% will have to either: expand domestic credit and demand, appreciate its currency in terms of bancor, increase money wages, reduce excess tariffs on imports, offer international loans to developing countries.

Countries can come to the ICU to borrow Bancor with no conditionality.

Bancor reserves are only held on the books of central banks, which they can use to back the creation of their own domestic currency. Central banks enforce foreign currency capital controls.

A. Creation of Bancor

Keynes' model of Bancor was an overdraft system but new issues of Bancor could be produced by selling gold to the ICU. While gold could be redeemed for Bancor, Bancor could not be redeemed for gold.

B. Creation of Bancor

Bancor is also created by crediting Bancor reserve assets to the LDC central bank. If a farmer

wishes to import manufactured goods from China then it must first acquire Yuan deposits. Since capital flows are controlled by central banks, the local bank must go to its central bank to get Yuan. The local bank buys Yuan from the Chinese central bank with Bancor. This Bancor is lent to the LCD by the ICU. In the process of trade, Bancor is transferred from the importing country to the exporting country.

C. Creation of Bancor

The ICC under Keynes can also readily borrow to stabilize individual commodity prices. The ICC will price commodities in Bancor. By buying commodities it will create Bancor, though payments must be held in local currencies by the farmers or commodity exchanges. Hence Bancor ends up in the accounts of the local central bank.

D. Redistribution of Bancor

A Chinese firm that has a surplus of Bancor over 100% of its quota will have it confiscated. Hence the incentive is to use it either in buying imports or in FDI. In this case we show FDI by a Chinese investor into a LDC farmer. The Chinese investor will first need to acquire peso deposits by going to his bank, which goes to the central bank. The Chinese central bank will sell Bancor for Peso deposits from the LDC central bank. The Chinese investor will exchange his Peso deposits for equity in a LDC farm.

3. Commodity Bancor à la Graham-Kaldor, and International Commodity Corporation (ICC*).

Under Kaldor's model Bancor could be held privately and issued privately. It is 100 percent backed by commodities, which we call Commod as with Keynes, but in this case each commod is a basket of 30-60 commodities in quantities that reflect their relative importance in world production and trade. They would be standardized commodities with appropriate inventory management to minimize spoilage. The commodity unit or index is stabilized in relation to market prices in terms of USD or whatever the denomination of the trading price.

A. Creation of Bancor

Bancor is created when commodities in the buffer stock increase, usually during a decline in commodity prices. The farmer will sell to the highest bidder, which may be the ICC. While the ICC only buys baskets of inventories, middlemen, futures exchanges, etc would be ready to bundle baskets for sale. The farmer (if receiving cash) would get the going price for his product. If he chose to receive Bancor by selling a basket then he would then want to exchange this Bancor for local currency at his national bank. To the extent that the Bank requires more reserves to complete this request the local central bank will buy Bancor.

B. Destruction of Bancor

A Chinese Firm that requires commodities could purchase them from the ICC if they are selling for Bancor. The Chinese firm would exchange its Yuan deposits for Bancor at its Bank. The Bank will go to the market for Bancor in exchange for Yuan. To the extent that the Chinese central Bank is

pegging the exchange rate it may choose to sell Bancor for Yuan. The red arrows describe the movement of Bancor from the Chinese central bank to the ICC, resulting in a reduction of total Bancor outstanding.

C. Redistribution of Bancor

A Chinese investor may acquire Bancor from his local bank, who could acquire it from his central bank, to invest in a commodity producing LDC. The farm or firm in the LDC will want to exchange this Bancor into local currency with its bank, which can exchange it with its central bank. Thus foreign direct investment redistributes Bancor from one country to another.

4. US Dollar Standard, no international central bank

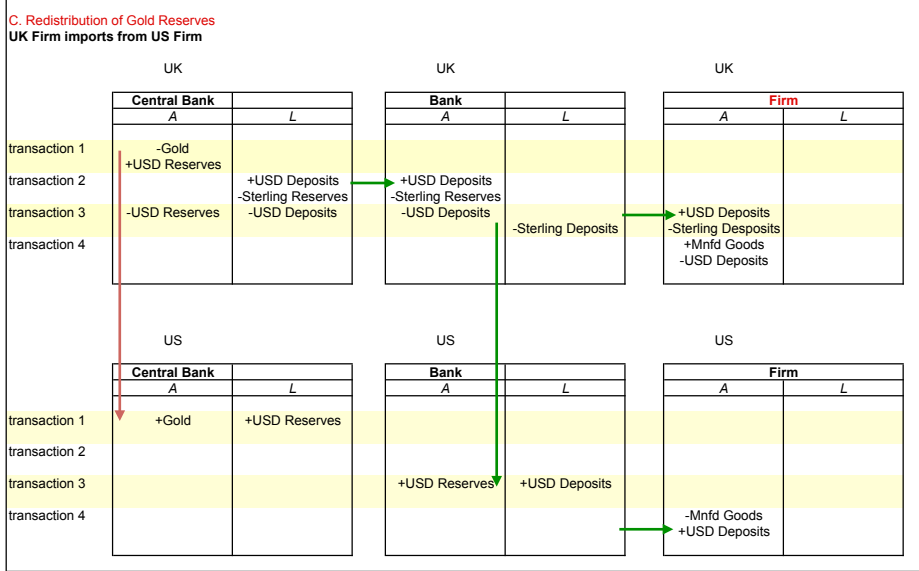
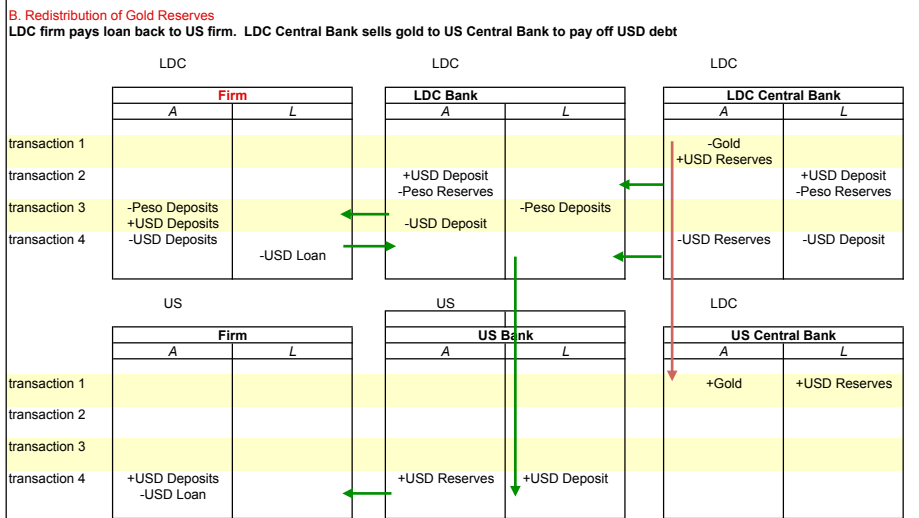
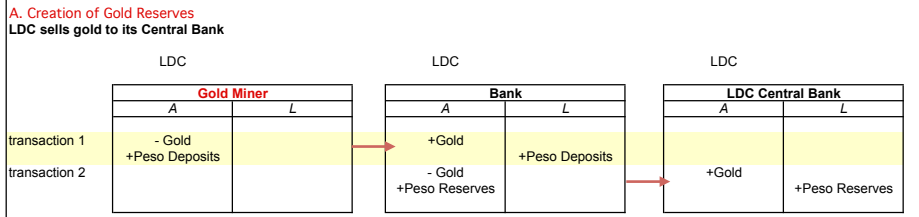
A. Creation and Recycling of International Reserves – US Trade Deficit

The creation of international USD reserves through a trade surplus in Germany begins with a US firm purchasing manufactured goods from a German firm with USD deposits. We assume that the German firm can have a USD denominated account with the foreign branch of a US bank. At this point there are no international reserves yet created, as the reserves are still on the books of the US parent bank. Once the German firm exchanges into Euro's instead of dollars, then the Foreign Branch will go into the market for Euros selling USD deposits and appreciating Euros/USD. If the central bank chooses to peg their exchange rate they will buy foreign exchange and sell Euro reserves. In the table the injection of Euros is not sterilized (bought back with government bonds). Even with flexible exchange rates the central bank usually leans against the wind and accumulates USD reserves over time. Now international reserves have been created, transferred from the US parent bank to the German central bank in Transaction 2. These USD reserves are usually held in the form of US Treasury Bills, providing short-term capital inflow back into the US replacing the initial loss of bank reserves. The sovereign flow back into the US can also occur through a German sovereign wealth fund into US private securities. The recycling of reserves can be unlimited (ignoring capital constraints), building up international reserves and US debt.

B. Recycling of USD capital flows – US FDI

In this scenario US bank borrowing comes through the discount window or open market operations of the US central bank, increasing overall domestic reserves. The bank finances the US firm's desire to invest in manufacturing overseas. Again the German firm has USD deposits in Germany with a US foreign branch of a US bank. These funds could ultimately be converted into Euros or be recycled back and forth between nations in the private sector capital markets. For example, the German firm could exchange its USD deposits for US commercial paper, just as the US bank might do. By buying this (or any other corporate commercial paper) the US bank with the new cash funds (or new deposits) can pay back its short-term loan from the Federal Reserve. In this particular scenario there are no international reserves created, but since this is an unlimited loop (ignoring capital or reserve requirements) at steps during this process official foreign USD reserves will be created if Euro deposits are desired.

Gold Standard, no international central bank



A. Creation of Bancor

Central Bank sells Gold to ICU

ICU		China Central Bank	
A	L	A	L
+Gold	+Bancor	+Bancor	-Gold

B. Creation of Bancor

ICU offers bank overdraft up to quota for LDC to net import goods from China

International ICU		LDC Central Bank		LDC Bank		LDC Farmer	
A	L	A	L	A	L	A	L
+Bancor Deposits	+Bancor (LDC)	+Bancor	+Bancor Deposits				
	-Bancor (LDC)	+Yuan Reserves	+Yuan Deposit	+Yuan Deposit			
	+Bancor (China)	-Yuan Reserves	-Peso Reserves	-Pesos Reserves	-Yuan Deposits		
			-Yuan Deposits				

China Central Bank		China Bank		China Firm	
A	L	A	L	A	L
	+Bancor				
	+Yuan Reserves	+Yuan Reserves	+Yuan Deposits		

Surplus Nation exports to LCD

C. Creation of Bancor

ICC gets loan from ICU to buy commodities from LDC commodity exchange to stabilize Commodity prices

International ICC		LDC Central Bank		LDC Bank		LDC Farmer	
A	L	A	L	A	L	A	L
+Bancor	+Bancor Deposits	+Bancor	+Peso Reserves	+Peso Reserves	+Peso Deposit		
+Commod	-Bancor					-Commod	+Peso Deposit

International ICU	
A	L
+Bancor Deposits	+Bancor (ICC)
	-Bancor (ICC)
	+Bancor (LDC)

C. Redistribution of Bancor

FDI by China to LDC

International ICU		China Central Bank		China Bank		China Investor	
A	L	A	L	A	L	A	L
		-Bancor	+Peso Deposits	+Peso Deposits			
		+Peso Reserves	-Yuan Reserves	-Yuan Reserves			
				+Peso Deposits	-Yuan Deposits	+Peso Deposits	-Yuan Deposits
		-Peso Reserves	-Peso Deposits			-Peso Deposits	+Farm Equity

International ICC		LDC Central Bank		LDC Bank		LDC Farmer	
A	L	A	L	A	L	A	L
		+Bancor	+Peso Reserves	+Peso Reserves	+Peso Deposits	+Peso Deposits	+Farm Equity

Commodity Bancor à la Graham and Kaldor, with the International Commodity Corporation (ICC). In this example Bancor is allowed to trade privately.

A. Creation of Bancor

LDC farmer sells Commod to ICF for Bancor which is sold to the Bank and then to Central Bank

	International ICC*		LDC Farmer		LDC Bank		LDC Central Bank	
	A	L	A	L	A	L	A	L
transaction 1	+Commod		-Commod					
transaction 2		+Bancor	+Bancor		+Bancor			
transaction 3			+Bancor Deposit -Bancor Deposit +Peso Deposit		+Bancor Deposit -Bancor Deposit +Peso Deposit		+Bancor	+Peso Reserves

B. Destruction of Bancor

Chinese Manufacturer buys Commod from ICF

	China Central Bank		China Bank		China Firm		International ICC	
	A	L	A	L	A	L	A	L
transaction 1	-Bancor		+Bancor					
transaction 2		-Yuan Reserves	-Yuan Reserves -Bancor		+Bancor -Yuan Deposits			
transaction 3				-Yuan Deposits	+Commod		-Commod	-Bancor

C. Redistribution of Bancor

US Importer buys manufactured goods from China using Bancor

	International ICC*		US Central Bank		US Bank		US Retailer	
	A	L	A	L	A	L	A	L
transaction 1			-Bancor		+Bancor			
transaction 2				-USD Reserves	-USD Reserves -Bancor			
transaction 3						-USD Deposits	+Bancor -USD Deposits -Bancor +Mnfd Goods	
transaction 4								

	China Central Bank		China Bank		China Firm	
	A	L	A	L	A	L
transaction 1					+Bancor	
transaction 2						-Mnfd Goods
transaction 3					-Bancor	
transaction 4			+Bancor		+Bancor Deposits -Bancor Deposits +Yuan Deposits	
transaction 5	+Bancor		-Bancor +Yuan Reserves			

C. Redistribution of Bancor

FDI by China to LDC

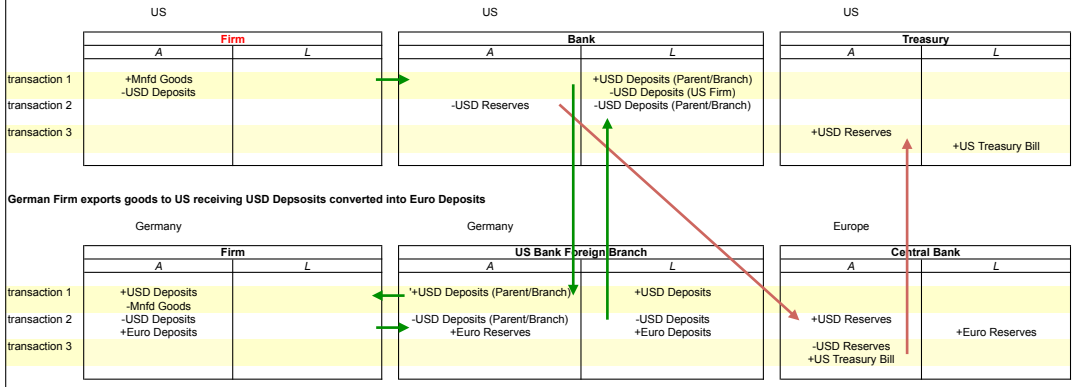
	International ICC*		China Central Bank		China Bank		China Investor	
	A	L	A	L	A	L	A	L
transaction 1			-Bancor		+Bancor			
transaction 2				-Yuan Reserves	-Yuan Reserves -Bancor			
transaction 3						-Yuan Deposits	+Bancor -Yuan Deposits -Bancor +Farm Equity	
transaction 4								

	LDC Central Bank		LDC Bank		LDC Farmer	
	A	L	A	L	A	L
transaction 1					+Bancor	
transaction 2						+Farm Equity
transaction 3					-Bancor	
transaction 4			+Bancor		+Bancor Deposits -Bancor Deposits +Peso Deposits	
transaction 5	+Bancor		-Bancor +Peso Reserves			

Dollar Standard, no international central bank

A. Creation and Recycling of International USD Reserves - US Trade Deficit

US Firm imports from German Firm manufactured goods. German Firm has USD and Euro deposits at US Foreign Branch



B. Recycling USD capital flows - US FDI

Recycling of US Firm FDI into German Firm and back to US

