The Walrasian and the Marxian numéraire: its link to gold as a variable standard of value

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Introduction

In the first part of the paper, we will demonstrate the exact correspondence between Walras’ and Marx’s numéraire which is defined as a quantum of a certain commodity assumed to be gold in Marx’s form IV. Although most economists reject any connection between money and a particular commodity (gold) – because of the existence of legal tender money in every country - it will be shown that it is pointless to deny that the international currency needs to be linked to a money-commodity as a standard of values or prices - which is not and never has been the same as the function of expressing the value of commodities. Through the exchange rate system, each domestic currency is linked to this international currency, and, consequently, is linked to the money commodity elected as a general equivalent.

This paper will show that, even if neoclassical economists deny that gold or any other goods are eliminated from the price system, this is an unfounded denial, because either they overlook the foundation of a price system or they refuse to analyse the meaning of a money price, preferring to discuss in terms of relative prices only.¹ Chosen as a general equivalent, a money commodity (gold) is isolated from the world of ordinary commodities, but its market price is the key link to money. If one wants to have a quick answer to the value of money and financial assets in a particular country, one has to check daily the value of a short list of indicators: the stock market index, the exchange rate and the price of gold in US dollars for the international currency. If gold disappeared from the monetary environment, why would one bother to report it every day? In a period of great stability, the price of gold is relatively constant and people prefer to speculate on (rare) natural resources. However, today with a major world crisis, the speculation on these specific commodities stopped and their prices went down abruptly, except the price of gold. The price of gold will soar in the future if the fear of inflation is greater than the fear of deflation. The question is, in the real world, how does a variable standard of value operate? The answer has already been examined in some of my previous articles (1982) published in French but totally ignored by English publications.

This paper is divided into two parts: the first part deals with the market value of the US dollar linked to gold and the second part is about financial instability based on the Marxian circuit of capital. The interest of the first part is to give some theoretical foundation to the recent Chinese position in favour of replacing the US dollar as an

¹ This also includes many Keynesian, post-Keynesian and Marxian economists.
international currency by SDRs based on a basket of other currencies. This may be a necessary but not a sufficient condition. The sufficient condition is the value of an SDR linked to gold or some other commodities. In other words, SDR should not be limited to the function of a unit of account, as it is right now; it should have a market value or a price expressed in the concrete form of another good or basket of goods.

The interest of the second part is to show the relevance of the Marxian circuit of capital in understanding the present financial crisis. It will be shown that Minsky’s financial instability hypothesis - and its terminology of hedge, speculative, Ponzi positions – has a similar characterization in Marx’s circuit of capital based on the business cycle, although Minsky’s circuit is more sophisticated with the presence of state and household sectors.

Part I The market value of a US dollar

This part is divided into three sections. The first section is a demonstration that the Walrasian numéraire is identical to the Marxian numéraire - this sounds elementary, but many economists would object. The second section is an econometric model of the concept of a variable standard of value related to gold. The third section gives an empirical look at the value of some determinants of the previous model.

1.0 Definition of the numéraire: Walras or Marx

The Walrasian formulation

Let \[ x_1, x_2, \ldots, x_{n-1}, x_n \] be a bundle of goods

Let \[ p_1, p_2, \ldots, p_{n-1}, p_n \] be their absolute prices

Assume that \( x_n \) is chosen as the general equivalent good

The relative prices are \[ \frac{p_1}{p_n}, \frac{p_2}{p_n}, \ldots, \frac{p_{n-1}}{p_n} \]

Assume that \( p_n = 1 \), a usual assumption for the definition of a numéraire in an elementary macroeconomic course.

The relative prices are \[ \frac{p_1}{p_n}, \frac{p_2}{p_n}, \ldots, \frac{p_{n-1}}{p_n} \] and they are now expressed in absolute money prices.

According to the definition of a price, it is a quantity of money per unit of a particular commodity. In dimensional analysis, let assume that \( M \) is money and \( G \) is gold.

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3 A good introduction to dimensional analysis is F.J. De Jong (1967)
\[ p_n = \left[ \frac{M}{x_n} \right] = 1 \rightarrow M = x_n = [ G ] \]. Therefore, money \( M \) is gold \( G \). For most economists, this is an unacceptable statement. In order to avoid it, they refuse to discuss the money price system and prefer to stick to the relative price system, avoiding to commit themselves to choose a particular commodity. They think that by assuming \( p_n =1 \), they have defined a purely abstract numéraire with no real foundation. Then \( x_n \) should be an abstract number, which is a dimensional contradiction with respect to the commodity status it has by definition\(^4\).

**The Marxian formulation**

Let \( x_A \leftrightarrow y_B \leftrightarrow w_D \leftrightarrow z_C \) be equivalence relations between commodities

Let \( [ A, B, -------D, C ] \) be the bundle of commodities

and \( [ x, y, -------w, z ] \) be their absolute values

Assume that \( C \) is chosen as the general equivalent commodity

The relative form of values are \( [ x/z, y/z, ------ w/z ] \)

Assume that \( z = 1 \)

The relative values are \( [ x, y, -------w ] \) and they are now expressed in *absolute money form*. According to the definition of a money form value, it is a quantity of money per unit of a particular commodity. In dimensional analysis, let assume that \( M \) is money and \( G \) is gold. Hence, \( z = \left[ \frac{M}{C} \right] = 1 \rightarrow M = C = [ G ] \) where \( G \) is a quantum of gold. Therefore, there is no difference between Walras’ and Marx’s numéraire.

### 2.0 Modelling a variable standard of value

#### 2.1 Definition of a variable standard of value

Let us first define a *variable* standard of value for \( G \) which is *elected* the general (universal) equivalent for all the other commodities. The word elected means chosen and accepted universally by people around the world. Some might object immediately that other basic commodities can be chosen instead of gold. Surely in principle, but if one compares for instance the price of oil and the price of gold between 1979 and 2009, the price of oil is around $50 a barrel (only $10 more than 30 years ago) while the price of gold is now around $900 an ounce, an increase of 25 times its price over that period.

\(^4\) Another embarrassing question is how can \( x_n \) be a universal equivalent outside the community of economists if it is an abstract number with no particular reference to the real world?
The price of gold is surely a more acceptable standard of value reflecting the inflation (or devaluation) that occurred over the last 30 years. Note that it is not the quantum of G which is variable over time but its price \( z \).

Assume \( z(t) \) is the *variable price* of gold which is equal to \( a \neq 1 \). We now add a third fundamental dimension \( [T] \) for time or \( [1/T] \) per period of time. Hence,

\[
z(t) = a(t) = \frac{M(t)}{G}.
\]

When expressed in dimensional analysis, \( [M/T] = [a/T][G] \). What does this mean?

Simply that a certain quantity of money per period \( [M/T] \) is equal to a certain quantity \( [a/T] \) of G for the same period. It is easy to see that, if the price of G is constant over time (which is the case for a discrete time period), the dimension T cancels itself on both sides of the equality and we have \( M = aG \), that is M is a certain (constant) proportion of G.

What is the particular nature of G? Marx pointed out very clearly (Book1,1967) that G has two use values: one as an *ordinary commodity* with its price related to its cost; the second as an *extraordinary commodity* used as a general equivalent and its price not related to its cost. One can call it the speculative or market price as a reserve of value. *It is this price which links the foundation of money with the real world.*

### 2.2 An econometric model

The interesting point here is not G, as such, but a(t). What are the determinants of a(t)? The short answer is the political, economic, cultural and military power of a dominant nation. In other words, there are countless numbers of determinants. As usual in economics, the ability of an economist is to select the most important ones and add a random variable for the others. Therefore, let

\[
a(t) = f[X'(t); u(t)]
\]

where \( X(t) \) is a column vector of the most significant determinants of the price of gold and \( u(t) \) a random variable which accounts for all other (stochastic) influences on the price of gold. The essence of an imperial power or a superpower is its dominant political, economic, cultural and military power. Let’s consider only the most important economic aggregates of any given superpower. For instance, one could test with a linear

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Note in passing that if oil were chosen as the standard of value, its market price is around its cost price and perhaps below for a number of producers in Canada. Therefore, oil would not have a dual price to reflect its role as a general equivalent. Some economists argue that the quality of a money commodity is the stability of its cost price. This is certainly not the case of oil the value of which has fluctuated from $140 to $50 a barrel in the last nine months.
regression whether or not the price of gold is related to the change of the net demand for gold (demand – supply), monetary stock, debt ratio, inflation rate, interest rate, and, above all, a fear factor measured by a volatility index that varies inversely with the stock market index. Therefore, the linear regression of the price of gold on these six determinants is:

\[ z(t) = \alpha + \beta^t X(t) + u(t) \]

where \( X(t) \) is a column vector of 6 components, \( \beta^t \) is a line vector of 6 parameters, \( z(t) \), \( u(t) \) and \( \alpha \) are scalars. Of course, this simple form can be complicated in many ways depending upon the assumptions made about \( u(t) \) and \( X(t) \). If for instance \( u(t) \) and \( X(t) \) are not independent from each other because of multicollinearity between the explanatory variables (which is surely the case for a certain number of them), then the model could be transformed into a simultaneous model of two or more equations. It is also quite likely that it is not as much the simultaneous interdependence which matters most, but the lagged response of the price of gold to the various determinants. Most of these determinants could be expected values instead of actual values. In which case, the model could take the form of

\[ z(t) = \alpha + \beta^t[H(L) X(t)] + u(t) \]

where \( H(L) \) is an infinite polynomial in the lag operator \( L \). This can always be approximated by a rational function of two finite polynomials \( A(L) \) and \( B(L) \) of order \( m \) and \( n \) respectively. Hence,

\[ z(t) = \alpha + \beta^t[A(L)/B(L)X(t)] + u(t) \quad \text{or} \]

\[ B(L)z(t) = \alpha' + \beta'[A(L)X(t)] + v(t). \]

Therefore, an autoregressive and/or a moving average process can be specified. One can also specify that the vector \( X(t) \) is stochastic. Once we have entered the world of econometric specifications, it is interesting to note that gold as a quantum seems to have vanished from these specifications because its price, according to the viewpoint of most economists, measures the value of gold as an ordinary commodity and the general equivalent is the US$. This may be why most economists conclude that gold has been eliminated as a standard of value- they accuse their opponents of being mystified by the fetishism of gold! They simply forget the definition and the significance of the general equivalent form and assume that it is irrelevant to investigate “outside” of the cost price of gold.

2.3 The form of the universal currency
In ancient times, each empire had the power to create its own money and allow it to circulate in other countries. Nowadays, the situation is not so different, but the form of money is much more sophisticated with the financial innovations around the U.S. dollar. In the 80s when I wrote my first essays on the topic, the international financial markets were not as sophisticated as they are today. We witnessed the development of the euro dollar phenomenon which allowed private banks to have access outside their domestic financial markets and borrow dollars on the world market. This was particularly useful for countries that tried to escape the control of the IMF and the World Bank for their development. However, this was insufficient since many developing countries were forced to accept structural adjustment plans with strict conditionalities. Continuous deregulation starting in the early 80s with the Reagan administration, led to uninhibited development of financial markets and the emergence of many kinds of derivative products and the securisation of debts (or titrisation in French). The risk factor became a new commodity that could be exchanged on a market like any other financial products. Therefore, ABS, ABCP, CDO, CDS etc… became the new craze developed by Wall Street bankers and their imitators across Europe and in other countries that had enough financial strength to issue and sell them. Since many of these products were difficult to price according to their risk factor, the market for them brutally collapsed and created the biggest financial meltdown at the world level.

2.4 The strength of the U.S. dollar
Before a new world order emerges, what is happening to the US dollar now? Surprisingly, despite the near two trillion dollar deficit for this year and additional trillions pumped into the monetary system by the FED, the strength of the US dollar is greater than ever. All currencies have been substantially devalued. For instance, the Canadian dollar lost 23% over the last nine months and the euro lost 15% (end of March 09). For Canadians in a country where the banking system is reputed for its sound management, this is somewhat of a surprise. Of course, the CDN dollar will start appreciating as soon as the prices of oil and other basic commodities start to rise again. However, the concern is the value of the US dollar and not the CDN dollar. The only plausible explanation is the flight to quality by rentiers and speculators around the world who consider that the U.S. dollar is their only safe haven. Fearing a global meltdown of the financial order and bankruptcy for many states, rentiers and speculators want to buy U.S. treasury bonds and any other U.S. titles except the toxic assets that created the
existing financial mess. The fear of a serious deflation is in the air. This is a unique advantage for an imperial power: even if the financial system is in shambles, Americans can finance their restructuring at a near 0 interest rate with savings coming from the rest of the world. Any other country in such a situation would be declared a failed state. The fear factor is, for the time being, the most important determinant for the price of gold. Presently, there seems to exist a negative relationship between fear and the price of gold. However, as soon as that fear will be transformed into another fear (i.e. the fear of inflation) other determinants will become more important and the price of gold could rise to a much higher level. This crisis will last as long as financial instability continues. It is Happening Again as would have written the late H.P. Minsky (1982).

3.0 Some empirical evidence

3.1 The inverse relation between fear and the TSX
Let us first look at a volatility index with respect to the Toronto stock exchange index. The volatility index (Globe & Mail, 03/21/09 p.B12) reflects the market’s expectation of how volatile the overall stock market in Canada will be over the next month. The MVX index is derived from option prices on the S&P/TSX 60 ETF.
An inverse correlation is observed between the TSX and the volatility index. Moreover, one can see that, between August and November 08, the fear factor index jumped from 20 to 60 and as high as 80 in mid-November. It fell back to 40 between December 08 and March 09 with spikes around 50 by the end of February and the beginning of March at the time when the stock market was most depressed: (TSX fell below 8000 and the DJ was around 6600). It is easy to see that the fear factor is still dominant in the first quarter of 2009. Now let’s look how these results correlate with the price of gold.

3.2 The CIRANO indices

The CIRANO Center of University of Montreal developed a new tool for analysing the crisis of 2008-09 by collecting a variety of indices from various sources (Chicago Board of Options Exchange, Bloomberg, Standard & Poor, etc...). This tool can combine three indices on the same graph from a pool of 24 indicators. Even if we have data only for 2008, it is interesting to graph results for the last six months when the financial crisis culminated in a fear of a severe depression. A graph of the volatility index VOX (based on S&P100 index options), the Dow Jones index and the price of gold is generated in the first instance-- by pointing the cursor on the time scale, one can read the values for each indicator at the beginning and middle of each month. Doing the same with three other indicators: interest rate (3 month US T Bills), expected inflation and the euro in U.S dollars, we get the following table.

Table 1

<table>
<thead>
<tr>
<th>Date</th>
<th>Gold</th>
<th>VXO</th>
<th>DJ</th>
<th>Int (3m)</th>
<th>E(p)</th>
<th>EURO</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/01</td>
<td>914</td>
<td>24</td>
<td>11330</td>
<td>1.63</td>
<td>2.17</td>
<td>1.56</td>
</tr>
<tr>
<td>08/15</td>
<td>786</td>
<td>21</td>
<td>11660</td>
<td>1.81</td>
<td>1.95</td>
<td>1.47</td>
</tr>
<tr>
<td>09/01</td>
<td>818</td>
<td>22</td>
<td>11540</td>
<td>1.69</td>
<td>1.72</td>
<td>1.45</td>
</tr>
<tr>
<td>09/15</td>
<td>832</td>
<td>39</td>
<td>10610</td>
<td>0.23</td>
<td>1.02</td>
<td>1.44</td>
</tr>
</tbody>
</table>

6 This index is the difference between the 5-yr nominal T-yield and the TIPS yield. (Woodward Hall Data). When the 5-yr nominal T-yield is below TIPS, inflation expectations become negative. It measures the fear of a deflation.
Empirical findings

1. As already observed, there is an inverse correlation between the VXO volatility index (CBOE) and the Dow Jones. At the beginning of August, the fear factor was fairly low (24) and the stock exchange was high (11660). By mid-November, the volatility reached a maximum (72) and the DJ was at a low (8420).

2. A similar inverse correlation is observed between volatility and the price of gold. At the beginning of August, the price of gold was at a maximum of 914 and dropped by mid-November to a low of 738. Therefore, the price of gold indicates a positive correlation with the Dow Jones index.

3. The euro follows the same pattern as the price of gold and is therefore inversely correlated with the fear factor. From a high of 1.56, it dropped to a low of 1.27 by mid-November decreasing 19% in three months. This is a significant devaluation for a supposedly strong currency with respect to the dollar.

4. However, perhaps the most interesting determinant is the expected inflation that is positively correlated with euro and the price of gold. A similar observation applies for the short-term interest rate.

The above mentioned empirical findings give a key role to the fear of another great depression and to the rush to a safe haven, the U.S. dollar. If that fear is transformed into a fear of inflation, the price of gold, the price of the euro, and the interest rate will start to rise again. But as already observed in the above graph, the fear factor remains relatively high (around 40), and even if the price of gold is around 925 (end of March), the value of the Euro remains depressed at 1.33 and also for the DJ at 7800.

### 3.3 The gold rush

According to the World Gold Council, the net demand for gold was estimated at 191 tonnes in 2008. As reported by D. Parkinson (G&M 03/19/2009), 60% of the world gold
demand is for gold as an ordinary commodity (jewellery and industrial/dental use) and 40% for other purposes (reserve value). The share of world net gold demand representing investment purchase was 30% in 2008 compared to 19% two years ago. Referring to other data from the World Gold Council, Parkinson affirms … “while demand for gold for industrial, dental and jewellery purposes fell 10% in 2008, net purchase of physical gold for investment purposes jumped 64% to 1,091 tonnes.”

Parkinson continues: “The 2009 recession and banking crisis has set off a rush to invest in gold and other precious metals at unprecedented levels—a move that has tightened the global supply/demand picture and helped push prices to record highs.” Parkinson quotes James DiGeorgia, a dealer in precious metals and editor of the Gold and Energy Adviser newsletter:

“People are scared to death that all this debt is going to debase the dollar and other currencies around the world.” Parkinson observes that …“legitimate concerns …have sent investors to gold as a stable safe haven for their money, and a way to diversify their portfolios away from more risky asset classes.”

“Especially in the industrialized countries, people are now buying precious metals for portfolio diversification, said Barry Wainstein, vice-chairman and global head of foreign exchange and precious metals at Scotia Capital.” Parkinson concludes his article by noting …“The growing desire to hold precious metals in their physical form may be another side effect of investor distrust in the crisis-riddle global banking sector.”

Concerning the actual and future drop of the U.S. dollar, A. Robinson (G&M 03/24/2009) quotes Robert Tebbutt, vice-president of Peregrine Financial Group Canada Inc:

“The sharp drop in the U.S. dollar likely indicates its rise since July of last year is over. Everybody panicked and tried to find a place that was safe. They found the U.S. dollar.”

B. Milner (G&M 03/28/2009) reports the gloomy picture of I. Gordon, a Vancouver-based investment adviser and market historian who forecasts that, according to the Kondradief’s cycle, the recovery will not happen before 2020. “In that kind of environment, the only thing that has ever made sense is gold because people will be so scared of anything else.”

3.4 China throws a brick in the pond
Starting first with a comment by Andrew Batson, (G&M 03/24/2009), a Wall Street Journal staff member in Beijing:

“Chinese officials are frustrated at their financial dependence on the U.S., with Premier When Jiabao this month publicly expressing “worries” over China’s significant holdings of U.S. government bonds. .. In his paper, Mr. Zhou [governor of the Central Bank of China] argued for reducing the dominance of a few industrial currencies, such as the dollar, euro and yen, in international trade and finance”… Most nations concentrate their assets in those reserves currencies, which exaggerates the size of flows and makes financial systems overall more volatile. Moving to a reserve currency that belongs to no individual nation would make it easier for all nations to manage their economies better”. “Mr. Zhou's comments—coming on the heels of Mr. Wen's musings about safety of China’s dollar holdings—appear to be a warning to the U.S. that it can’t expect China to finance its spending indefinitely. Mr. Zhou's proposal clearly reflects both China’s desire to hold its $1.95 trillion (US) in reserves in something other than U.S. dollars” … “Mr. Zhou's idea for creating such a system is to expand use of “special drawing rights” or SDRs—a kind of synthetic currency created by the IMF in the 1960s".

In another comment before the G20 meeting on April 2, B. Mckenna and K. Carmichael (G&M 03/25/2009) interviewed experts about the Chinese proposition. They reported the view of Paul Masson, an economic professor at the Rothman School of Management at University of Toronto and former IMF official:

“The idea of a global reserve currency administered by the IMF has merit, but it is not the time to try to implement it. The many issues that would need sorting include how to convert the trillions of dollars countries hold in reserve to the new currency and creating a market for SDRs by issuing securities in the IMF unit of exchange. But the biggest stumbling block would be the U.S. government, which benefits greatly from having the dollar as the world’s de facto currency…This might be viewed as a destabilizing force.” Mckenna-Carmichael conclude their article by quoting David Laidler, an economics professor emeritus at University of Western Ontario and former adviser at the Bank of Canada: “If I was [sic] a Chinese central bank, I would be worried about all the dollars I was holding and I would be happy to have an international institution convert them for me.”

The simple fact that the U.S. Secretary, Tim Geithner, chose first to acknowledge a favorable reception to the Chinese proposal sent the currency markets wild for one day, according to M. Phillips (G&M 03/26/2009):
“The euro surged more than 1% against the dollar immediately after Mr. Geithner’s remarks…. At a congressional hearing, Mr. Geithner denounced the notion of a global currency. .A senior Treasury official said Mr. Geithner initially meant he was open to giving IMF member nations greater access to SDRs, which would effectively increase their access to credit.”

This reaction illustrates how sensitive the issue is and will remain so in the foreseeable future. It is the best answer to those economists who discard the relevance of discussing the foundation of a new international currency: will it be defined with respect to gold or something else? Whatever support China will have in reforming the international financial system, the idea of giving a larger role to the IMF is Keynes’ idea after World War II in 1945 where the question was: how can we get rid of gold or the US dollar as the gold exchange standard in order to build a new international financial order? We are back to the very same question with the Chinese position: is gold, as a “barbarian relic,” still relevant?

One should explore the reasons why the SDR, based on a basket of strong currencies, did not replace the US dollar. **SDR had no real foundation** and the U.S. government had the power to accept it or reject it. **SDR had no market value.** U.S. power will be seriously eroded by the present financial meltdown. In the past, Keynes’s bancor unit had some (nominal) link with gold and it was almost impossible to think in terms of a variable standard of value. But SDR or Bancor needs to be defined with respect to a commodity. If universal consensus is ever to be achieved. The value of a new unit of account must be expressed by a variable price in gold. **This is as important as weighting the basket of currencies according to the economic strength of countries.**

### 4.0 Part I Conclusion

We first demonstrated that there is no difference between Walras and Marx in the definition of a numéraire for a price system although this finding is rejected by some economists of both tendencies. The definition of a variable standard of value implies that gold is elected as a general equivalent and its price expresses the market value of the international currency. The form of the international currency (US dollar) is much more sophisticated nowadays than twenty years ago.

Among the basic determinants of the price of gold, fear- measured by an index of volatility - plays a key role. The fear of deflation will depress the stock market while the
fear of inflation will lift the stock market. With the observations limited to the last six months of 2008, there is a negative correlation between the fear index and the stock market. This empirical finding seems to illustrate that the fear of deflation has been greater than the fear of inflation over the last year.

According to the opinion of some prominent pundits published in the Globe and Mail in March 2009, the price of gold will rise with the rise of inflation in a not too distant future. The Chinese position about the future role of SDRs in replacing the US dollar as the international currency could be more realist if there is a market price for SDRs.

Part II The financial instability or the Marxian circuit of capital

In the early 80s, inflation was the main preoccupation and money, credit and the circuit of value (realized) were the chief concerns of analysis. The question of linking money to a universal equivalent was incidental. One could not forget however that the price of gold shot up to $850 for a brief period in 1982. I wrote three articles on this subject (Loranger, 12982a, 1982b,1982c). The emphasis on the circuit of capital and fictitious capital, as one of the main causes of inflation, was the subject of two other articles (Loranger 1989, 1991). With the present world crisis, the analysis of fictitious capital has again become a hot topic; however, deflation instead of inflation is the greatest threat for the time being. Note that these articles were written in the years 1981-1982 when Minsky published his book “Can It Happen Again”? . Although I do not use Minsky’s terms Hedge, Speculative and Ponzi for characterizing the cycle --there is an obvious correspondence between Minsky’s terms and the notation I use where $A'$ denotes the amount of money (or money capital) resulting from the proceeds of sales and $A^*$ the debt or amount of money borrowed including interests to be paid.7 The term Hedge corresponds to a sound situation when the circuit ends with the proceeds of sales ($A' \geq A^*$) greater than the reimbursement of the interest-bearing capital (or debts). Similarly for the term Speculative where the proceed of sales ($A' < A^*$) is less than the full reimbursement of the debt but enough to cover the interest due and enough to reimburse part of the borrowed capital by putting the excess of profit over interest into a

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7 An important difference with the Minsky’s cycle is that our circuit model in its Marxian form does not have a state sector that can borrow and impose tax and also the household sector has no debt. Also dividends are included with the interest payment. These assumptions will be relaxed later in the analysis of the crisis.
sinking fund or reinvest on a larger scale. Finally, the Ponzi scheme corresponds to the situation where the proceeds of sales are insufficient to cover even the interest due and would cause a debt increase. As outlined by Minsky … “viability of a representative Ponzi unit often depends upon the expectation that some assets will be sold at a high enough price for some time in the future” (1982, p. 23). That was the gamble made by Bernard Madoff and many other speculators in the sub-prime mortgage situation.

This part is divided into three sections. In the first section, the monetarist explanation of inflation is briefly presented before summarizing the main points of a qualitative theory of money and inflation as opposed to the quantitative theory.

In the second section, the qualitative approach – based on an analysis of the credit cycle - is explained in more details. By introducing a distinction between money and pseudo-money (or financial capital), it is possible to analyse the specific functions played by each during the ante validation and the realization periods. The role of the value reserve function is at the bottom of the distinction between money and pseudo-money.

The third section analyses the origin of crises at the time of convertibility and at the more contemporaneous epoch of non convertible money (legal tender money). It is shown that the reduction of value reserves, or indeed, the creation of fictitious value reserves - by a refusal to devalue pseudo-money – is at the origin of crises, and in particular of inflation.

1.0 The problem of inflation

Although heterodox economists disagree with monetarists about the causes of inflation, they share the same definition of inflation. Inflation is a general increase of all nominal prices, or said differently, inflation is a devaluation of the purchasing power of money. If some Marxist and monetarist economists can agree on the same definition of inflation, their disagreements about the causes of inflation are so entrenched that there is a deep wedge between the two approaches. The monetarist approach (more than three centuries old) demolished and reintroduced in each generation, is essentially based on a incorrect interpretation of the causal direction of the Fisher quantitative equation MV=PT where M is money in circulation, V the speed of circulation, P the vector of prices and T the vector of goods. Quantitative theory is based on the hypothesis that inflation (dP) is

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8 The second part is mostly a translation of the original article Loranger (1982b) except a fourth part on international currency and gold which has been dropped in order to avoid redundancy with the first part.
caused by a too great exogenous increase of M (or dM) with all things equal with respect to V and T...

Opposing the monetarist approach where the value of money is based on a subjective utility approach, money will be defined as a social validation constraint of wealth created by labour. Money will be distinguished from pseudo-money by measuring money by M1 or M2 while pseudo-money is any financial title that yields money or-- to use Marx’s expression-- an interest-bearing capital. Even if money and pseudo-money are of the same dimension, contrary to the beliefs of monetarists (neoclassical and Keynesian), there is a clear difference between them. It will be shown, in particular, that pseudo-money can assume certain functions of money -- hoarding and measure value-in-process-- but cannot assume other functions -- such as standard of value and especially, erasure of debts (as a means of payment). A careful analysis of the credit cycle will show that the ante validation circuit is different from the realization circuit. Some might think that this distinction is another form of the monetarist dichotomy between money and the real economy where money is assumed to be exogenous. What is assumed is a relative autonomy between pseudo-money circulation and money circulation --the latter always being endogenous with money demand which varies with the business cycle. In short, it will be shown that if the banking system is at the origin of inflation, it is not because the banks issue too much money in circulation but rather because pseudo-money representing value-in-process cannot be integrally converted into true money corresponding to realized value. The non destruction or the maintenance in circulation of pseudo-money will have an adverse effect on the value reserves or on money as a value reserve -- a phenomenon assimilated to fictitious capital leading to money devaluation or inflation.

9 It is possible to draw a parallel between the quantitative equation and our fictitious capital approach, although there are large differences such as financial capital instead of money, variable speed of circulation corresponding to various debt maturities- a good example is the ABS, CDO, CDS - and a variable quantity of money capital realized (Loranger, 1989). The undeniable quantitative aspect our circuit of value has misled distinguished post-Keynesian such as Lavoie (1985) qualifying our approach as a neo-quantitative theory approach.

10 This distinction seems obvious and is based on the principle of homogenous money in its functions of standard of value, measuring value and mean of circulation. But as soon as money is viewed as a reserve of value, its role refers to the analysis of how money (or money capital) is transformed into interest-bearing capital and returned into money capital. This distinction is at the core of Minsky’s financial instability hypothesis.

11 Our definition of fictitious capital is quite different from Marx’s definition. Marx’s notion of fictitious capital is closer to the definition of money and pseudo-money including stocks traded on an exchange market. (Book 3, ch. 25 Credit and fictitious capital, ch.29 Component parts of banking capital, ch. 30 Money capital and real capital).
The monetarist refusal to distinguish, on one hand the pseudo-money circulation from the money circulation and on the other hand the specific functions assumed by each type of circulation, reduces the analysis to a single dimension -- the quantity of monetary or financial assets measured by an aggregate such as M1, M2, M3, etc. Moreover, the postulate of exogenous money supply forbids monetarists from understanding the endogenous character of value-in-process (measured by pseudo-money) with respect to the movement of real capital which must necessarily take the form of money capital. The realized value has to satisfy the monetary constraint: it must be turned into the form of money at the end of the cycle. The expression of relative autonomy of the pseudo-money with respect of the true money means simply that there is no equilibrium postulate between the ante validation and the realization circuit of value. Now let’s examine this statement more closely.

2.0 The credit cycle

What’s the point in analyzing the credit cycle? It’s because credit money is now the dominant form of money at the national and international levels. Metallic circulation (silver and gold) and money bill circulation are now only a small fraction of total money circulation -- the largest part being credit money or money created “ex nihilo” by bank deposits. Even if the form of money has changed over time, it is essential to analyse the specific functions devoted to money and pseudo-money. The general cycle of credit can be described by the following model:

\[ A^* - A - M \ldots - M' - A' - A^* \]

It is Marx’s general formula of capital framed by pseudo-money \( A^* \) at both ends which is a financial asset own by a bank \( B \).\(^\text{12}\) The latter has the usual form of a loan that bank \( B \) offers to an agent \( C \) for a limited time period at a specific interest rate. The nominal value of that title is money capital plus interest. Hence, \( A^* > A \) where \( A \) is money deposed in the account \( C \) and appearing to the liability side of the bank \( B \). The amount (capital + interest) or \( A^* \) is the amount that the borrower \( C \) must reimburse at the end of

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\(^{12}\) In Marx’s notation, (Book 3, section 5, ch. 21, p. 340) the same symbol is used for money and for credit title. This is in accordance with the double entry accounting where at the beginning of the cycle, \( A^* = A \) and at the end of the cycle, \( A' = A^{**} \). A similar notation is used in my last two articles (Loranger 1989, 1991). By using the same symbol \( A^* \) at the beginning and at the end, we stress the relative autonomy of the pseudo-money and also point out that there is no guarantee that the circuit will end in equilibrium. Therefore, there is a possibility that \( A' \neq A^* \neq A^{**} \).
the cycle or the credit period. M are inputs bought for production and M' is the output produced at the end of the cycle. A' is the realized value of the output sale. Therefore, the cycle can be decomposed into two sub-periods:

the ante validation period where \( A^* - A - M \)

the realization period where \( M' - A' - A^* \).

In the ante validation period, pseudo-money \( A^* \) has the function of measuring the value-in-process, since the bank and the borrower have an expectation about the value to be realized by this credit operation. Indeed, it is possible that the borrower buys or produces a commodity that will never be sold or could be sold at loss. This is why the interest rate includes a risk premium. The most common expectation is that the banker hopes that the borrower will sell the output and make a profit. If not, both of them could be bankrupt if credit is used for other purposes or has no value in the real world. On the other hand, the borrower C uses money A as a mean of purchasing inputs and living labour (mean of circulation) the value of which is represented by M. What is important to notice at this stage is that money enters the circulation as a \textit{mean of expressing value} -- an instrument of exchange \textit{but never as a mean of payment} (or a mean of erasing a debt). Moreover, its time of circulation is totally independent of the length of the credit period which is the length of the pseudo-money cycle. It is possible that agent D who sells inputs to C will hoard the money instead of putting it in his bank account --money A will now play the role of reserve of value which will be retired from circulation. It is also possible that agent D will use A for reimbursing a debt to agent E. In that case, money plays the role of a mean of payment. However, there is no reason why the amount of reimbursed debt by D would be identical to the amount of debt contracted by C.

Therefore, \textit{the quantity of money A put into circulation during the ante validation cycle has an existence and a period of circulation relatively independent from the existence and length period of the pseudo-money cycle.}

In the realization period, money A' that agent C collects by selling his commodity will now play the function of \textit{mean of payment in addition to its function of measuring the realized value} when C reimburses his debt A*. If the sale is made at a price allowing an average profit rate after the payment of his debt (interest included), we have \( A' > A^* \) (or \textit{hedge} position) and \( A' - A^* > 0 \) measures the monetary profit that constitutes a \textit{reserve available} either for consumption or for reinvestment into another cycle\textsuperscript{13}. If

\textsuperscript{13} If the state sector is introduced, part of the leftover profit would be used to pay taxes.
agent C considers that the return is not sufficient to continue the production process, he can decide

- either to save his money capital outside the monetary circulation, that is $A' - A^* > 0$ plays the role of reserve of value that has no yield (ex. money bills under the mattress or in gold if he has no confidence in money bills);
- either to transform his money capital into financial capital by buying interest-bearing securities from banks or other financial institutions. In that case, the money differential $A' - A^* > 0$ becomes a mean of purchase of a financial title and the value reserve now appears under the form of financial capital available for other agents.

On the other hand, if the commodity is sold at a price that creates a loss instead of a profit, we have

$$A' < A^*$$

and $A' - A^* < 0$ measures the monetary deficit which implies a reduction in the available money reserves (speculative or Ponzi positions). In order that money continues to play its function of mean of payment, it is not enough to assume that money is created from ex nihilo and disappear at the end of the cycle. That would imply that the cycle of value is always in equilibrium, a hypothesis made by many French circuitistes such as B. Schmitt (1971, 1975, 1977), C. Benetti and J. Cartelier (1980). Money remains in the cycle when the latter is in disequilibrium positively or negatively by its function of value reserve. What are those existing value reserves? They are the same as those already described in the case of profit realization: these reserves belong to agent C, they can be either outside the domestic banking sector -- money bills, gold bullion or foreign currencies -- or inside the domestic financial system in term deposits transferable into demand deposit or money.

However, can the monetary system create value reserves from ex nihilo? In principle, the answer should be “no,” and it will be demonstrated in the next section that the banking system can allow the creation of fictitious reserves of value that are the origin of modern crises of value realization.

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14 For instance, at the end of their book, Benetti-Cartelier are forced to confess to the impossibility of integrating banks and other financial institutions in their theoretical framework because of their refusal of acknowledging that money can assume the value reserve function.
3.0 From virtual to actual crisis

Since money must be the ultimate standard of any realized value -- it is the definition and the function of the monetary constraint -- it is, therefore, possible to observe the emergence of monetary and real crises when money A, linked to its function of value reserve, is no longer in equilibrium with the quantity of pseudo-money in circulation. In order to avoid a devaluation of money, it is necessary to devalue or eliminate a certain quantity of pseudo-money by forcing into bankruptcy non performing businesses.\(^{15}\) This is the implacable law of capitalism. However, the opposite often happens when non performing businesses, sometimes referred to as lame ducks, are not eliminated.

At the time when money was convertible into gold, the role of reserves owned by banks or individuals played a strategic role with respect to credit money and the appreciation or depreciation of its purchasing power. Indeed, what was the consequence if the realized values were smaller than the ante validated values (or values-in-process) of a loan, that is \(A' < A^*\)? In this case, the real economy was suffering losses and those deficits were financed by withdrawals from the financial reserves held by banks and individuals.

During a period of recession or contraction, if the value reserves were insufficient -- as it is the case when the net result of all the operations of economic agents is \(A' < A^*\) -- there was a deflation of all monetary prices (including those of the financial assets or pseudo-money) -- unless that the crisis was so severe that it commended the central bank to temporarily suspend the money convertibility. This temporary breakdown of convertibility was equivalent to the recognition of insufficient money reserves and would open the way to the creation of fictitious value reserves if the devaluation of securities remained below the level of real value in the economy.

On the other hand, if realizations were greater than expectations, that is \(A' > A^*\), there was a surplus in the economy which --if there was no immediate opportunity of investment at home or abroad -- would force money (and eventually gold) to retreat from circulation and reflux to banks or the reserve accounts of individuals on which no interest is paid.\(^{16}\) Inflation could however start from a speculative rise on certain financial titles characterizing the end of a boom period. This speculative movement on pseudo-money \(A^*\) corresponded to an increase of fictitious capital that reversed the inequality between

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\(^{15}\) Although the analysis of the credit cycle has been developed until now on a micro basis, the discussion of inflation requires to transpose it to a macro level.

\(^{16}\) The case of Switzerland or any other offshore paradise is a good example where a negative interest is paid by foreign capital for hiding there.
money and pseudo-money. The initial situation $A' > A^*$ was reversed to a new situation $A^* > A'$. The crisis then became unavoidable.

Now, what is the explanation of a crisis with non convertible money or the legal tender money? It has been stated already that credit money is not a simple creation from ex nihilo that appears at the beginning of a cycle and disappears at the end of a cycle without leaving a sign.

At the risk of repeating oneself, it is important to keep firmly in mind that money fulfills a hoarding or value reserve function that must be analysed within a flow and stock adjustment model of value reserve. This is the famous interdependence often stressed by Marx between money as a mean of circulation and money as a mean of hoarding.

Let’s return to the preceding model where agent C has a debt $A^*$ with bank B. At the end of the pseudo-money cycle --which is at the maturity date of the debt-- C must reimburse the bank. How C will acquit his debt? If C has succeeded in accumulating enough liquid reserves inside or outside the banking system, he simply erases his debt by transferring money out of his reserve account. Money is then destroyed because, in the bank statement, it is equivalent to erase the same amount on both sides of the balance sheet -- similarly for C balance sheet. A more interesting case is to assume that C has no accumulated reserve inside or outside the banking system and is forced to ask for the renewal of his loan. It is the classic case of debt refinancing. If C has a reasonably good record of solvency, the bank will gladly accept to refinance, although with a small increase in risk premium. However, if C’s solvency is doubtful because the bank considers C’s business in a bad state, the bank could refuse the renewal and, if C cannot borrow from another credit institution, normally, C would go bankrupt. But C plays golf regularly with the bank director and he accepts to renew C’s loan because they are old friends; then the bank accepts to erase a debt by another debt. This is where the beginning of the financial trouble starts: the bank accepts to create a fictitious reserve of value by creating a fictitious mean of payment. It is precisely the creation of such a fictitious value that is at the origin of a potential devaluation of money. It is as if C could eternally pay a debt with another debt, a situation that destroys the function of money as a mean of payment. The monetary constraint becomes elastic at will. Instead of supporting partly or totally its loss by forcing C to bankruptcy, the bank spreads the loss to the whole society by allowing a potential devaluation of money. The adjective potential is used in order to outline that the C case is not unique in society. However, these fictitious reserves must be compensated during a period by amounts of real
reserves of value that are simultaneously created by other agents who not only repaid their debts but succeeded in making a profit which constitutes the true substance of real reserves of value. Hence, the net negative or positive balance of value reserves will be the most important determinant of change for the value of money (devaluation or re-evaluation).

One can ask how the net balance of value reserves at the national level is linked with the reserve account of the international balance of payment. Another question is the link between the value of money at the national level and the flexible exchange rate with respect to universal money. This last question raises the issue of the status of the international money or its general equivalent at the world level with respect to the flows of international liquidities and gold. This question has already been examined in the first part of this paper.

4.0 Part II Conclusion

The first section developed a new qualitative theory of inflation as opposed to the quantitative theory of inflation by explaining the genesis of modern monetary crises by a disequilibrium between financial capital (pseudo-money) and money as a value reserve (money capital).

The development a qualitative money theory necessitates the identification of various forms of money specific to the actual mode of production. It is insufficient to state that the dominant form of money is credit money or, as was affirmed by Beneti-Cartelier (1980), that credit money is defined as a unit of account always in equilibrium with the real business cycle. The characterization of money in its various forms and functions -- in the domestic as well as in the international space -- allows us to discover all the complexity of the value form --the latter is far from being as homogenous as assumed usually by most contemporaneous economists who have written on that subject.

By distinguishing pseudo-money and money, we attempted to clarify the business cycle and the measure of value specific to each phase: the first form measures the value-in-process and the other measures the realized value. The dialectical interplay between these two forms is maintained by real or fictitious reserves which justify the function of value reserve. Indeed, it is the value reserve function that allows a relative autonomy of money forms and makes speculation possible. This allows one to understand how the banking and financial system is at the origin of the creation of fictitious value reserves.
that cause depreciation of the purchasing power of money or the relaxation of the monetary constraint.

The monetary space of each country is now open to the international space by a fluctuating exchange rate regime. A major change in the regulation of international money was made with respect to the standard of value function. We have moved from a regulation of the US dollar based on an official (invariant) definition of the gold exchange standard to a private variable gold exchange standard defined minute by minute by the price of gold. This change of regulation does not abolish the standard of value function of gold. Gold remains a commodity of which the market value does not express its value but expresses the value of the universal money, the US dollar. Today, and more than ever, the price of gold has little in common with its production price.

References


