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"Bubbles, External Imbalances & Demand for International Liquidity in the Bretton Woods II System"

• Andrea Ricci, (U. Urbino)

Bubbles, External Imbalances

and Demand for International Liquidity

in the Bretton Woods II System

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Abstract

Global structural factors both monetary and real played a prominent role in the burst of subprime crisis: 1) the Bretton Woods II international monetary system; 2) the reduction of US real investment return compared with competing countries. We develop a theoretical model to analyze the impact of these factors and macroeconomic policies on US current account and asset prices. The excess saving of U.S. nonfinancial corporations from 2000-2001 has undermined the stability of the Bretton Woods II system. Accommodative US monetary and fiscal policies have mitigated the imbalances but in the long term structural factors have prevailed. Only a recovery of US real capital profitability can ensure long run coexistence between present model of global development and current international monetary system.

Bubbles, External Imbalances and Demand for International Liquidity in the Bretton Woods II System.

Andrea Ricci[1]

1. **Introduction.**

In the decade prior to subprime crisis the US economy has been characterized by three stylized facts (see figure 1):

1) the explosion of current account deficit, rose from 111.2 billion dollars in 1997 (1,4% of GDP and 11,6% of exports of goods and services) to 720.9 billion dollars in 2007 (5.2% of GDP and 43.4% of exports);

2) the continuous increase in household total net borrowing[2], grew by 42.7 billion dollars in 1997 (0.5% of GDP) to 332.9 billion dollars in 2007 (2.4% of GDP), with a peak in 2005 to 446.1 billion dollars (3.6% of GDP)[3];

3) the emergence of long speculative bubbles in financial and real estate markets, which led to a total revaluation of the US assets of 28,617.3 billion dollars (24% of cumulated GDP)[4].

The three stylized facts are closely linked. Far from being merely internal to the US economy, they depict the global imbalances that have led to the crisis of 2007-2008

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[2] This indicator differs from FFA's net financial investment because total net borrowing excludes financial ownership (equities, shares of mutual funds, security credit, life and pension fund reserves and miscellaneous assets).
[3] During this period, households total net borrowing stock position has changed sign from + 56,2 billion dollars (+ 0,7% of GDP) in 1997 to – 3,298.4 billion dollars (- 23,7% of GDP) in 2007.
[4] 25,380.6 billion dollars arising from capital gains of households and 860.1 billion dollars arising from the revaluation of financial assets held by non-residents.

(Portes 2009). Understanding the causes of the crisis requires an explanation of the relationship between these three stylized facts. In this regard the interpretations differ in the economic literature.

Figure 1: Three stilized facts
(source: Integrated Macroeconomic Account for the U.S. 2009, NIPA-FRB)
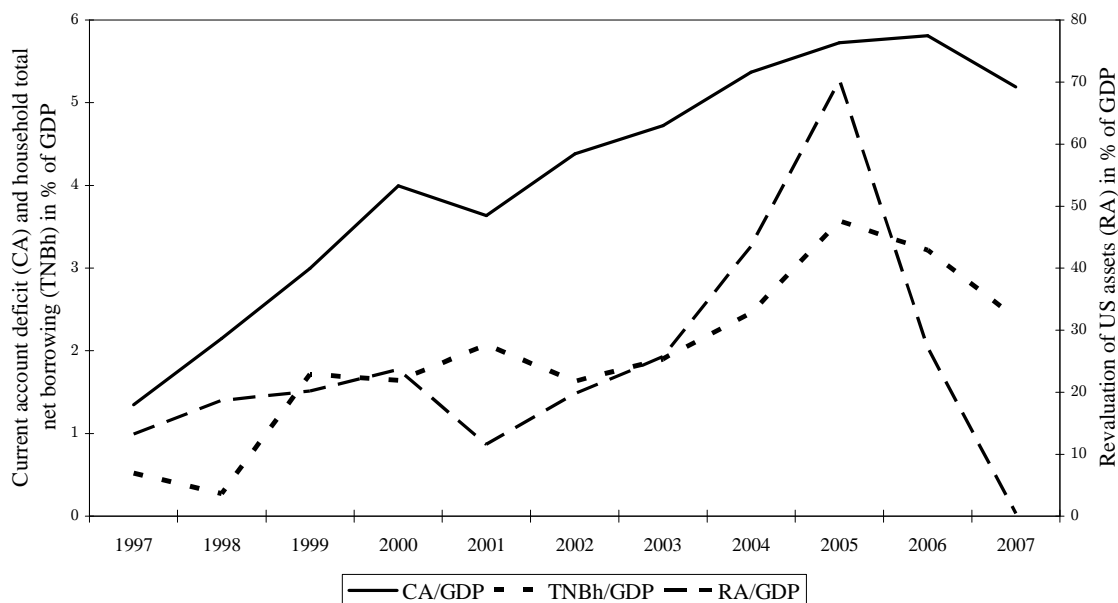
The conventional view identifies the cause of growing global imbalances in an increased US demand for imports accompanied by a fall in US national saving (Blanchard, Giavazzi and Sa 2005). The main responsibility for this situation lies in excessively expansionary macroeconomic policies (Eichengreen and Park 2006, Bems, Dedola and Smets 2007). Some authors have focused attention on a renewed version of the "twin deficit hypothesis" due to the sharp increase in budget deficit from the beginning of the millennium (Chinn 2005, Frankel 2006, Bartolini and Lahiri 2006). The main theoretical difficulty with this hypothesis is to explain the revaluation of US assets beyond generic assumptions on markets inefficiency (Kraay and Ventura 2007). Other authors have stressed the role of an accommodative monetary policy in

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determining the excess of total domestic demand which translates into external current deficit (Truman 2005, White 2007). In this case the excess liquidity would also be the basis for an inflationary process in asset prices (Rueffer and Stracca 2006).

Empirical evidence is not fully consistent with the conventional view. On the one hand, budget and current account deficits show a weak or even negative correlation (Cavallo 2005, Erceg, Guerrieri and Gust 2005, Kim and Roubini 2008). On the other hand, the influence of monetary policy on external balance is marginal and restricted to the short run (Meyer, Neumann and Wegleitner 2006, Burrell and Hurst 2007). Macroeconomic policy alone can not account for long persistence and growing dimension of US internal and external imbalances. Gruber and Kamin (2007) find that global imbalances are not explained either by adding to policy factors other traditional variables (demographic variables, per capita income, output growth and economic openness). Financial crises, instead, appear to have significantly contributed to the emergence of substantial surpluses in East Asia countries.

From the influential speeches of the Governor of the Fed on "saving glut" (Bernanke 2005 and 2007), an alternative framework has emerged. In this hypothesis, the three stylized facts are explained as a result of an exogenous increase in international demand for dollar-denominated financial assets. Numerous works have appeared that aim to show how the imbalance of the US current account is an endogenous product of global economy resulting from differences in financial development between countries. According to this interpretation, China and other Asian emerging economies reacted to the crisis of 1997-98 with an exogenous increase of saving, not offset by an increase of investment (Park and Shin 2009). This "saving glut" derives from precautionary measures to avoid speculative attacks against currencies of Asian export-led emerging

economies. Capital flows are directed to the US in search of liquid and sophisticated financial assets, not available elsewhere. Global shortage of assets would be the origin of historic decline in long-term interest rates and increasing US external deficit (Caballero 2006).

Until the outbreak of the crisis, the US external imbalance could seem the result of an equilibrium position in the global economy without need for rapid adjustments in the short term (Mendoza, Quadrini and Rios-Rull 2007, Cooper 2007, Caballero, Farhi, Gourinchas 2008a). Subsequently, other studies have highlighted the link between excess liquidity in US financial markets, households debt and growth of speculative bubbles (Caballero, Farhi, and Gourinchas 2008b). In this context, the new model of banking based on securitization and "originate and distribute" triggers global instability trough the transformation of subprime mortgages into derivatives (Mizen 2008, Brunnermeier 2009).

Both interpretations, the conventional one and the "saving glut" hypothesis, ultimately attribute the crisis to wrong or imprudent behaviour of public actors (government and Central Bank) and private (financial intermediaries). Through a new system of rules, based on new constraints and incentives to encourage proper behaviour, it would be possible to restore the lost conditions of global economic and financial stability (Siebert 2008, Issing at al. 2009)

The purpose of this work is to show how more structural factors, along with incorrect or fraudulent behaviour, contributed to unsustainable enlargement of global imbalances and rising of speculative bubbles in US asset markets. These factors include: a) the international monetary system emerged after the Asian crisis of 1997-98, known as Bretton Woods II, with an enhanced role of the dollar as international currency; b) a

decline in the relative rate of return on real investment within the US after the burst of the dot-com bubble in 2000-2001. The first factor acts on international demand side for US financial assets, while the second on domestic supply side.

In the model presented in next sections as in "saving glut hypothesis", US current balance and asset prices are endogenous results of international demand for and supply of dollar-denominated financial assets. However, unlike the "saving glut" hypothesis, long run stability depends mainly on US internal factors, specifically on the sector composition of net domestic financial debt. Moreover, unlike the "conventional view", monetary and fiscal policies in the US (as well as in the EU) appear to have acted in the right direction of reducing imbalances without being able to reverse the tendency towards crisis.

The conclusion that follows is that Bretton Woods II system guarantees financial global stability only in presence of adequate expected profitability of real capital in the US compared with competing countries. The weakening of this condition since 2001 has resulted in the emergence of speculative bubbles in US asset markets and unsustainable current deficits enlargement. The inevitable result was the crisis erupted in 2007-2008. In the next future the status of the dollar as international currency can not be considered in the abstract. It will depend on structural and political developments of the US as well as the emerging economies.

The paper is structured as follows. Sections 2 to 4 present a model of the US economy to illustrate the effects on the external deficit and asset prices, arising from changes in net demand for international liquidity, monetary and fiscal policies and expected profitability on US real capital. In Section 5 the results of the model are used to

reconstruct the causes of subprime crisis and their relations with the international monetary system. Finally, section 6 offers some concluding remarks.

2. International net demand for US financial assets.

Empirical evidence does not confirm the thesis about differences in financial development as cause of global imbalances. In particular, no correlation was found between global imbalances and differences in financial structures, or between current deficits and quality of financial products (Gruber and Kamin 2008). In a pure market approach the question of why massive capital flows are directed towards US financial markets remains open. To find a plausible answer is then appropriate to refer to specific historical and institutional features of US financial assets as vehicles of international liquidity.

After the breakdown of the Bretton Woods system and transition to flexible exchange rates between major currencies, it seemed that there was more role for the concept of international liquidity (Clark and Polak 2002). From the Asian crisis of 1997-98, instead, the accumulation of assets in foreign currencies (especially dollars) by emerging and oil-exporting countries has been growing without interruption (Obstfeld, Shambaugh and Taylor 2008). This fact was explained by the appearance of a new version of the Bretton Woods system[5], the so-called Bretton Woods II, based on a renewed exchange rates regime pegged to dollar (Dooley, Folkerts-Landau and Garber 2004). This new international monetary system is based on mutual interests between US

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[5] See Eichengreen (2004) for a discussion of the similarities and differences between the old and new Bretton Woods system.

and emerging countries. On the one hand, emerging countries can keep their currency undervalued in order to pursue an export-led growth model. On the other hand, US can easily finance current account deficits and fully exploit "exorbitant privilege" as "world venture capitalist" borrowing short and lending long (Gourinchas and Rey 2007).

Empirical studies have confirmed this interpretation. Since the end of the Nineties, the number of currencies partially or totally *de facto* pegged to dollar is significantly increased. This is due in particular to mercantilist exchange rate policies of emerging countries (Clark, Zenaidi and Trabelsi 2008).

In this context the distinctive feature of US financial assets resides in the fact that they are denominated in dollars and the dollar performs the typical functions of a world currency: medium of exchange, unit of account and store of value (Kenen 2003, McKinnon 2004). With the liberalization of capital movements and deregulation of financial markets, the concept of international liquidity has expanded well beyond official reserves held by Central Banks. In a first step the concept was expanded to borrowed reserves, that is to all available resources in foreign currency that Central Banks can mobilize trough borrowing in domestic or international private capital markets (Horne and Nahm 2000). Subsequently, the concept of international liquidity is still extended to include virtually all assets held or borrowed by domestic residents and tradable in international organized markets (Caballero and Krishnamurthy 2000).

The principal component of international liquidity is net acquisition of US financial assets. Indeed, the euro, despite having increased its role as a store of value, is still far from eroding the role of the dollar as a medium of exchange and unit of account (Galati and Wooldridge 2009). Even using a new very broad concept of global currencies,

including domestic and international use and overall status of financial markets in global economy, the dollar retains all its pre-eminence (Thimann 2008).

Net demand for US financial assets from Rest of World may then be regarded as exogenous net demand for international liquidity. Similarly to domestic money demand, demand for international liquidity consists of three components: transactions, precautionary and speculative. We assume the following standard hypotheses: a) transactions and precautionary demands depend positively by income and exports of Rest of World; b) speculative demand depends positively by total return on dollar-denominated assets and negatively by total return on assets denominated in currencies other than dollar.

To simplify the notation of the model we consider asset total return as given by the interest rate plus a risk premium in terms of capital gains differentiated according to the riskiness of assets:

(1) $tr_n = i_n + \Delta P_{Vn}$

with:

tr = asset total return;

i = interest rate;

ΔP_{Vi} = asset price change for n = US, Rest of World.

To complete the assumptions is convenient to specify the type of expectations. We suppose that the information is not perfectly distributed among all players. This is a realistic hypothesis for the global economy in which each agent has a particular view of the world, conditioned by its economic and geographical location. In this case, as shown by Morris and Shin (2006), a small amount of uninformed agents produces wide phenomenon of persistence in aggregate expectations despite the presence of many

forward-looking agents. Consequently, our hypothesis is that of backward-looking expectations. This implies that the demand for and supply of assets are influenced by the current level of asset prices that embody expectations about future capital gains.

Finally we assume that exchange rates are pegged to dollar by the monetary authorities of Rest of World in accordance with the Bretton Woods II view of actual international monetary system. Therefore, net demand for international liquidity is unaffected by exchange rates movements.

We can then represent the international net demand for US financial assets (AF^d_{US}) as follows:

(2) $AF^d_{US} = d_1\, Y_{RW} + d_2\, X_{RW} + d_3\, i_{US} + d_4\, P_{V\$} - d_5\, i_{RW} - d_6\, P_{VN\$}$

with:

Y_{RW} = income of Rest of World;

X_{RW} = exports of Rest of World;

i_{US} = US interest rate;

i_{RW} = interest rate in Rest of World;

$P_{V\$}$ = dollar-denominated asset prices;

$P_{VN\$}$ = prices of assets denominated in currencies other than dollar.

3. International net supply of US financial assets.

Net demand for dollar-denominated financial assets has its counterpart in corresponding net financial liabilities issued by US residents, that is in net supply of US financial assets to Rest of World.

In national accounts the current account of balance of payments is identical to the excess saving (S) on investment (I) of total economy and represents the change in net asset position of the country. Thus the net supply of US financial assets to Rest of World (AF^s_{US}) is the sum from past to present of current account deficits:

(3) $\sum (M - X)_{US} = \sum (I - S)_{US} = AF^s_{US}$

with:

M = US imports of goods and services;

X = US exports of goods and services.

The players who, through financial intermediation, provide financial assets for Rest of World are households (H), firms (F) and government (G). Therefore:

(4) $AF^s_{US} = \sum (M - X)_{US} = \sum [(I - S)_H + (I - S)_F + (I - S)_G]$

We now look separately the three sources of financial asset net supply for Rest of World.

a) Households

We define household investment as the acquisition of real estate and equities[6] and we suppose that US residents do not have assets in currencies other than dollar. We assume that households borrowing depends on: a) a portfolio factor given by the difference between the total return on asset investment and the cost of debt and b) a dimensional factor related to the US income (Y_{US}):

(5) $(I - S)_H = \Theta (tr_\$ - i_{US}) + h_1 \Delta Y_{US}$

Considering equation (1) we can then write:

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[6] Household investment does not include consumer durable goods, in accordance with the definition used in the *Integrated Macroeconomic Accounts for the United States* that exclude this item from the net capital formation (Teplin et alt. 2006). In this way, household investment consists of the purchase of residential property and equity shares from the business sector. This definition implies that firms investment is equal to net capital formation minus new share issues. The criterion used is to allocate the investment to who bears the risk.

(6) $\sum(I - S)_H = \Theta\ Pv_\$ + h_1\ Y_{US} = (AF^s_{US})_H$

with:

$(AF^s_{US})_H$ = household net supply of financial assets to Rest of World.

Since households do not issue directly financial assets, household supply to Rest of World takes place indirectly trough banking intermediation and household debt consists of bank loans. Expression (6) indicates that households obtain net credit in the form of bank loans secured by the revaluation of assets in their portfolio as well as by their income. This was a common practice in the US before the outbreak of the crisis, especially in the form of home equity extraction (Greenspan and Kennedy 2007).

b) Firms

Firms rely on credit when the desired variation of capital stock exceeds the internal funds available. The capital stock desired by firms depends positively on expected return of real investment and negatively on cost of borrowed funds. Based on these simple assumptions we can state that US firms net debt is positively related to US expected real investment return (r^e_{US}) and negatively to US interest rate:

(7) $\sum (I - S)_F = f_1\ r^e_{US} - f_2\ i_{US} = (AF^s_{US})_F$

with:

$(AF^s_{US})_F$ = firms net supply of US financial asset to Rest of World.

c) Government

The excess of US government investment on saving is given by the public budget deficit, determined by fiscal policy. Therefore the government net supply of financial asset to Rest of World, $(AF^s_{US})_G$, is equal to the public debt:

(8) $\sum (I - S)_G = \sum (G - T)_{US} = (AF^s_{US})_G$

with:

G = public expenditure;

T = tax.

From previous assumptions the net supply of US financial assets for Rest of World can be written as follows:

(9) $AF^s_{US} = \Theta\, P_{V\$} + h_1\, Y_{US} + f_1\, r^e_{US} - f_2\, i_{US} + \sum (G - T)_{US}$

4. Asset prices boom and current account imbalances in Bretton Woods II system.

Exogenous variables of the model are: a) US budget deficit determined by fiscal policy; b) US interest rate determined by monetary policy; c) US firms expected real investment return; d) US income; e) income and exports of Rest of World; f) foreign interest rate determined by monetary policies in Rest of World; g) revaluation of assets denominated in currencies other than dollars. Because interest rates and exchange rates are set by policy authorities, balance between demand and supply is achieved through changes in US external position and US asset prices. The endogenous variables are thus US external debt and prices of dollar-denominated assets[7].

The model is in equilibrium when net international liquidity demand matches net U.S financial asset supply:

(10) $AF^d_{US} = AF^s_{US} = \sum (M - X)_{US}$

Solving the model for the endogenous variables we obtain the following solutions:

(11) $P_{V\$} = \beta\, [\, (EX^d_{RW}) - \sum (G - T)_{US} + (d_3 + f_2)\, i_{US} - h_1\, Y_{US} - f_1\, r^e_{US}]$

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[7] The theoretical underpinning of the model fits into a post-Keynesian framework because Central Bank controls interest rates and not quantity of money, wealth effects arising from assets revaluation influence macroeconomic behaviour and finally investment demand is autonomous and independent. For a review of Post-Keynesian features see Lavoie (2006) and Godley and Lavoie (2007).

(12) $\sum(M - X)_{US} = \Theta\beta \; EX^d_{RW} - (\Theta\beta - 1) [\sum(G - T)_{US} + f_1 \Delta r^e_{US} + h_1 Y_{US}] +$

$+ [f_2 (\Theta\beta - 1) + \Theta \beta d_3] \Delta i_{US}$

with:

$EX^d_{RW} = d_1 Y_{RW} + d_2 X_{RW} - d_5 \; i_{RW} - d_6 \; P_{VN\$}$

$\beta = 1 / [\Theta - d_4]$

To analyze the equilibrium solutions of the model is crucial to know the value of the coefficient β.

In particular we assume that $\beta > 0$ and consequently $\Theta \beta > 1$.

This assumption is verified if:

(13) $\Theta > d_4$.

The economic meaning of (13) is that wealth effects arising from changes in prices of dollar-denominated assets are greater for US households than for Rest of the World. In other words, the portfolio composition in dollar-denominated assets of foreign investors is more liquid and less risky than that of residents. A positive value of coefficient β is therefore a realistic assumption, considering that the households share on US capital gains is significantly higher than the corresponding share perceived by Rest of World, as it is shows in note 3. Moreover, empirical studies show that since the Asian crisis of 1997-98 the demand for international liquidity has been little sensitive to the financial return because it was by far predominant the precautionary motive (Ainzeman and Lee, 2007, Lane and Milesi-Ferretti 2007). Another way of considering a positive value of β is to assume a greater liquidity preference of foreign asset-holders than domestic ones, as postulated by the classical hypothesis of international financial intermediation as cause of external deficit (Kindleberger 1965, Salant 1972).

To the condition that $\beta > 0$, we can summarize in Table 1 the qualitative effects of changes in exogenous variables on U.S external deficit and dollar-denominated asset prices.

| *Table 1: Effects of changes in exogenous variables on US external deficit and asset prices*		
	US current account deficit	**Prices of US assets**
Y_{RW}	+	+
X_{RW}	+	+
i_{RW}	-	-
$P_{VN\$}$	-	-
$G - T$	-	-
Y_{US}	-	-
i_{US}	+	+
r^e	-	-

The model can be represented graphically with US external debt in the vertical axis and prices of US assets in the horizontal axis. Equation (2) represents the curve of international net demand for dollar denominated assets. Equation (9) represents the curve of net supply of U.S assets to Rest of World. Both curves are positively inclined. Since that $\beta > 0$, the supply curve has a slope greater than the demand curve.

The following graphs assume that when the US external position is in equilibrium there is excess demand for US financial assets. This assumption is consistent with the existence of an exogenous net demand for US financial assets arising from the role of the dollar as international currency in the context of Bretton Woods II system.

We shall now proceed to illustrate graphically the effects of changes in exogenous variables.

a) *Increase in income and exports of Rest of World. Reduction in total return on assets denominated in currencies other than dollar.*

In this case the increase in net demand for US financial assets causes a current deficit and a revaluation of dollar-denominated assets (see Graph 1).
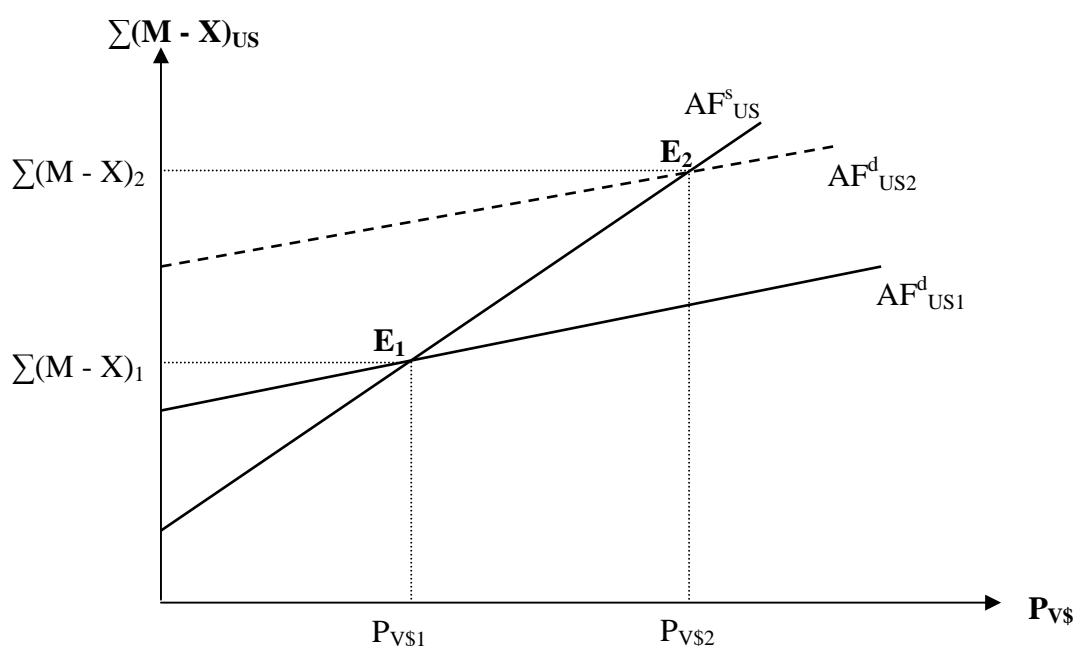

Graph 1. Increase in foreign income and exports. Reduction in total return on foreign assets.

This result is similar to Caballero and Krishnamurthy (2009), who argue that foreign demand for riskless US assets is a major cause of increasing speculative bubbles in US financial markets. Indeed, in the present model, the higher the liquidity preference of foreign investors the smaller the slope of demand curve and consequently the greater the effects of exogenous changes on US asset prices.

b) Decrease in budget deficit, US firms expected real investment return and US income.

In this case, the decrease in net supply of US financial assets produces a current deficit and a revaluation of dollar-denominated assets (see Graph 2).
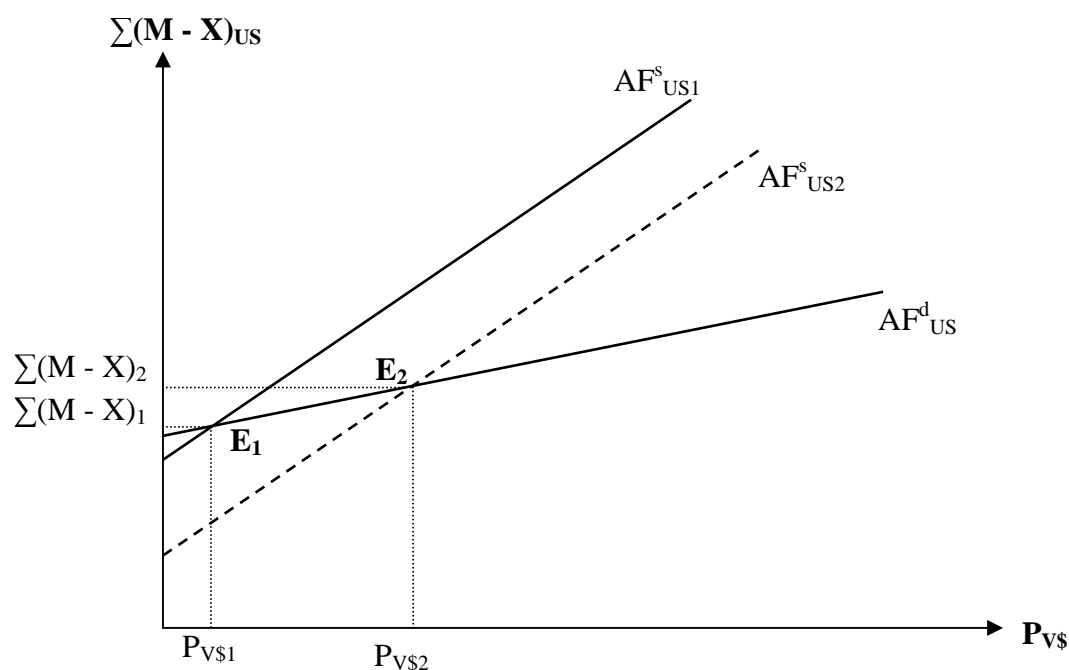

Graph 2. Decrease in budget deficit, expected real investment return and US income.

It is interesting to note that appropriate increases in budget deficit, real investment return and income improve the current balance, but at the price of US asset devaluation. These results are not standard. They show that to avoid the simultaneous triggering of speculative bubbles and current account deficit requires that the credit received from abroad is used productively by government and businesses, or that the household debt is guaranteed by an adequate increase in income.

c) Increase in US interest rate.

In this case the increase in international net demand for US financial assets and the simultaneous reduction in net supply produce a current deficit and a revaluation of U.S assets (see Graph 3). This result depends crucially on the assumption of a greater liquidity preference of foreign investors compared to residents.
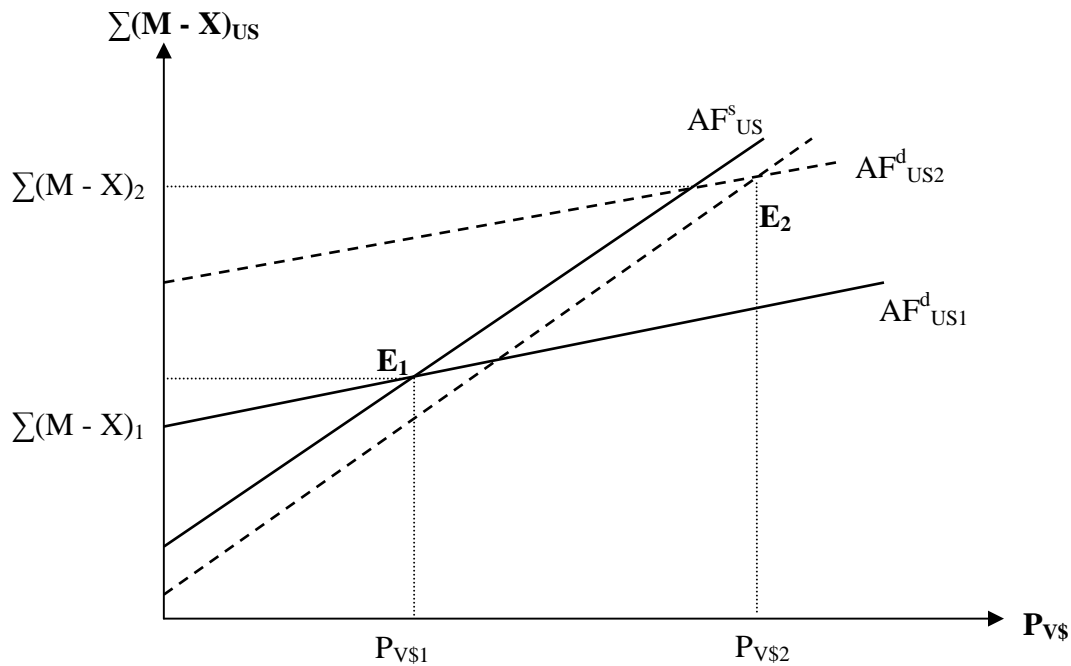
Graph 3. Increase in US interest rate.

5. 1997-2007: the road to global crisis.

The model presented in previous sections allows explaining the evolution of the US economy during the years preceding subprime crisis. The three stylized facts presented in section 1 are the result of a pattern of global development, began with the Asian crisis of 1997-98 and the switch to mercantilist policies by emerging economies, structurally inadequate to produce situations of dynamic equilibrium. The crisis has its epicentre in

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the US because of the unique status of dollar as international currency. The widening US external deficit has been the necessary counterpart of an increasing international demand for dollar-denominated financial assets (see graph 1). However, this fact alone is not sufficient to explain the outbreak of the crisis. The results may be different in terms of dynamic stability, depending on which players (firms, households, and government) absorb the excess demand for international liquidity.

The pattern of global development has moved towards instability after the burst of dot-com bubble in 2000-2001, when US non financial corporations have reduced their debt to reach a positive net stock position on credit markets. As shown in a study of the OECD, increase in non financial corporate net lending is a common feature for most industrial countries in recent years and generally, as standard macroeconomic theory suggests, it was positively correlated with a strong improvement in external balance (André et al. 2007). What distinguishes US from other industrial countries is the existence of an inverse relationship between non financial corporate net lending and current account balance.

This apparent paradox can be explained in the context of the model presented in previous sections. Other things being equal, in the institutional arrangement of Bretton Woods II, a reduction of net financial liabilities of US nonfinancial corporations must be offset by an increase in US household net borrowing in order to satisfy the international net demand for dollar-denominated financial assets. This is made possible by a simultaneous increase in current deficit and asset prices which may lead to prolonging boom in real estate and financial markets (see graph 2).

What can explain the behaviour of US firms? The main suspect is a decline in the relative expected rate of return on investment within the US. In this regard, what matters
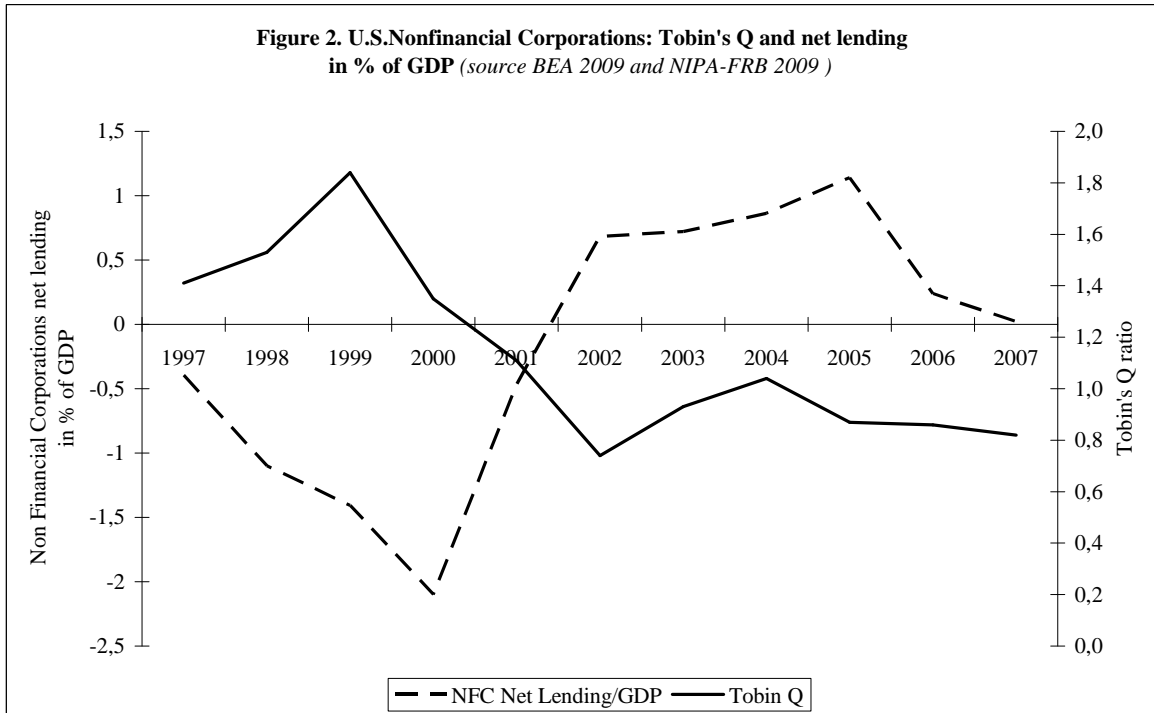
is not the absolute level of profits over the period that has historically been high in the global economy, but the opportunity cost of real investment compared to other forms of use of disposable funds.

A well-known measure of relative expected future profitability of current investment is the "Tobin's Q", i.e. the ratio of financial-market valuation of corporate assets to the current-cost value of the assets (Brainard and Tobin 1968, Tobin 1969). A Q ratio above 1 indicates an increase in present discounted value of expected future profits on real investment and conversely a ratio below 1 indicates a decrease.

As shown in Figure 2, in the period 1997-2007 the movements of Tobin's Q and nonfinancial corporate net lending are clearly negatively related. Starting from the bursting of the dot-com bubble, the Tobin's Q becomes significantly less than one and simultaneously the position of nonfinancial corporations on credit market improves rapidly from a net borrowing of 2.1% of GDP in 2001 to a net lending of 1,1% of GDP in 2005. Tobin's Q could be a misleading measure of expected profitability when firms face financing constraints (Bond and Van Reenen 2007). The inverse correlation between firms net lending and Tobin's Q indicates that this is not the case in the period considered. Therefore Tobin's Q is a good proxy of relative expected profitability on real investment of US nonfinancial corporations.

The reduction in the relative rate of return of US real investment is also evident from other indicators. The unprecedented lending capacity of US non financial corporations was mainly directed abroad in the form of FDIs and this fact is a clear indicator of a lower profitability of investments in the US than abroad (Moëc and Frey 2006). Empirical evidence on profit share confirms this interpretation. In the period 2000-2007 the profit share on gross value added of US non financial corporations was respectively

10 and 11 percent points below EU 27 and EU 15 and this difference was reflected in an

US non financial corporations gross investment rate (15,8% of gross value added) lower

than EU 27 (22%) and EU 15 (21,9%)[8].

Figure 2. U.S.Nonfinancial Corporations: Tobin's Q and net lending in % of GDP *(source BEA 2009 and NIPA-FRB 2009)*

In summary, over the period considered despite an increase in the global rate of return

on physical capital due to a larger global supply of labor (Ferguson and Schularick

2007), the distribution of returns was not uniform among different countries. In

particular, in the US the return on real investment was lower than other developed areas

such EU and even more less than in emerging countries because of segmentation in the

global market for produced capital (Daly and Broadbent 2009). This explains the excess

saving of US nonfinancial corporations that has been used in ways alternative (FDIs and

financial assets) to investment in physical capital. The profitability of US companies has

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[8] Eurostat (2009).

been significantly supported by gains from foreign direct investment. However, the profits generated by FDI reduce the net supply of US financial assets available for the Rest of World as they improve the current account. To this end, what matters is the real return on investment within the US that pushes companies to resort to debt financing.

The sharp drop in relative expected real investment profitability within the US has resulted in a reduction of nonfinancial corporations net supply of financial assets to Rest of World. The increase in public deficit, which occurred since 2001, was not sufficient to offset this reduction and, in any case, budget deficit can not be the main source of net supply of international liquidity as it is itself subject to constraints of financial sustainability. The excess demand for international liquidity was thus absorbed in increasing proportions from households, through financial intermediation.

The growth of US income was not sufficient to avoid a significant increase in the household debt/income ratio. Because of significant wealth effects, the increasing indebtedness of households has been the basis for a continuing revaluation of US real and financial assets, which was soon transformed into speculative bubbles. The accommodative economic policy adopted by US authorities was the most appropriate at this juncture, as fiscal or monetary restrictions have resulted in a further accentuation of imbalances (see graphs 2 and 3). The model presented in previous sections provides a rational justification to the "benign neglect" approach of the Fed[9]. European Central Bank also acted in the sense of reducing global imbalances through higher interest rates in EU than USA (see graph 1).

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[9] For a discussion on the validity of "benign neglect" see Bordo and Jeanne (2002) and Berger, Kissmer and Wagner (2007)

The inevitable transformation of US asset markets boom in speculative bubbles led to the crisis. Faced with "credit crunch" for households and firms resulting from subprime crisis, the explosion of public expenditure has ensured the flow of international net supply of dollar-denominated financial assets. In this way, the Bretton Woods II system has been able to resist the global financial storm (Bordo and James 2008, Dooley, Folkerts-Landau and Garber 2009). However, the restoration of financial stability trough "twin deficits" can not represent an assurance in the long run. As Eichengreen (2005) suggests, a "banker of the world" with growing budget and current deficits is equivalent to "a bank with negative net capital".

The problem is not in the abstract whether the dollar can continue to be the global currency. The problem is whether the present international monetary system may stand in the long term. Today, international financial stability requires that the profitability of real capital in US is to appropriate levels compared with competing countries. In the next future, this situation can be reached through a substantial decrease in financial-market valuation of capital assets. In the long term, however, only an increase in the relative return on US real capital, which brings US firms to the role of provider of net financial assets for Rest of World, can ensure the survival of the actual international monetary system. Indeed, the US current external imbalance is under control and sustainable in the long run only if it corresponds to a productive use of capital inflows. The country that issues the international reserve currency is not excused from complying with this standard condition.

If this does not happen Bretton Woods II system becomes unstable. On this circumstance there are two possible ways: either the international monetary system fits the present model of global development, or is the model of global development to

adapt to the present international monetary system. In the first case the theme of a new international monetary order no longer based on dollar or other national currencies but on a form of supranational money, like the Keynes proposal at the Bretton Woods conference, is the subject of a renewed attention. (D'Arista 2008, Davidson 2008, Alessandrini and Fratianni 2009). In the second case, the theme concerns the transition of emerging economies from an export-led growth model based on mercantilist exchange rate policies to an economic development driven by domestic demand to meet the social needs of their populations (Roubini 2007).

6. Concluding remarks.

The crisis of 2007-2008 is not only the result of an improper and imprudent behaviour of financial operators and political authorities. Structural causes played a prominent role. They are related to the model of global development emerged after the Asian crisis of 1997-98. The Bretton Woods II monetary system, based on mercantilist exchange rate policies by emerging economies and an enforced status of the dollar as world currency, is subject to precise stability conditions. If these conditions are not met, serious internal and external imbalances are being produced in the centre of the system, the US economy.

The model presented in the previous sections helps to understand the basic requirements for Bretton Woods II stability. Given the institutional and structural characteristics of the system, US current account and dollar-denominated asset prices are endogenous variables of global economy. Exogenous demand for international liquidity greatly interferes with internal development of US economy. Net supply of dollar-denominated

asset to Rest of World should have a particular sectoral composition so that not occur simultaneously US asset bubbles and unsustainable current deficits.

The excess savings of US nonfinancial corporations from the bursting of dot-com bubble has undermined the stability of the Bretton Woods II system. Accommodative US macroeconomic policies have mitigated the imbalances but in the long term structural factors have prevailed. Increasing nonfinancial corporate net lending was caused by a reduction in expected return of US real investment compared with competing countries. Only a recovery of real capital profitability within the US can provide long term survival of Bretton Woods II international monetary system. If this does not happen, the present model of global development is incompatible with the current international monetary system. Which one must adjust to another is a question more political than scientific.

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