Crisis and Global Imbalances: the Fragility of the Current International Monetary System

Andrea Ricci
CRISIS AND GLOBAL IMBALANCES: THE FRAGILITY OF THE CURRENT INTERNATIONAL MONETARY SYSTEM

Andrea Ricci*

1. Introduction

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

1) The explosion of the current account deficit, which 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\(^1\) grew from 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)\(^2\);

3) The emergence of lasting bubbles in financial and real estate markets, which led to a 28,617.3 billion dollar (24% of cumulated GDP)\(^3\) total appreciation of US assets.

The three empirical findings are closely linked. Far from being merely internal to the US economy, they depict the global imbalances that led to the crisis of 2007-2008 (Portes 2009). The analysis of the relationship between these three stylized facts may help to understand some of the underlying causes of the crisis. In this regard the interpretations differ in the economic literature.

* University of Urbino, Italy, Department of Economics. E-mail: andrea.ricci@uniurb.it.

1 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).

2 During this period, the household 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.

3 25,380.6 billion dollars arising from household capital gains and 860.1 billion dollars arising from the appreciation of financial assets held by non-residents.
The conventional view identifies the cause of growing global imbalances as an increased US demand for imports accompanied by a fall in US national savings (Blanchard et al. 2005). The main responsibility for this situation lies in excessive expansionary macroeconomic policies (Eichengreen and Park 2006, Bems et al. 2007). Some authors have focused attention on a renewed version of the «twin deficit hypothesis» due to the sharp increase in budget deficits from the beginning of the millennium (Chinn 2005; Frankel 2006; Bartolini and Lahiri 2006). The main theoretical difficulty with this hypothesis is explaining the appreciation of US assets beyond generic assumptions on market’s inefficiency (Kraay and Ventura 2007). Other authors have stressed the role of an accommodative monetary policy in determining the excess of total domestic demand which translates into external current deficits (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 one hand, budget and current account deficits show a weak or even negative correlation (Cavallo 2005; Erceg et al. 2005; Kim and Roubini 2008) and, on the other hand, the influence of monetary policy on external balance is marginal and restricted to the short run (Meyer et al. 2006; Burrell and Hurst 2007). Macroeconomic policy alone cannot account for the lasting persistence and growing dimensions of US internal and external imbalances. Moreover, Gruber and Kamin (2007) found that global imbalances are not explained by adding other traditional variables (demographic variables, per
capita income, output growth and economic openness) to policy factors. Financial crisis, instead, appear to have significantly contributed to the emergence of substantial surpluses in East Asian countries.

From the influential speeches of the governor of the Fed on «saving glut» (Bernanke 2005; 2007), an alternative framework has emerged. In this hypothesis, the three stylized facts are explained as a result of an increase in international demand for dollar-denominated financial assets, and the US current account imbalance would be the consequence of 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 in savings not offset by an increase in investments (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 unavailable elsewhere. A global shortage of assets would be the origin of a historic decline in long-term interest rates and an increasing US external deficit (Caballero 2006).

Until the outbreak of the crisis, the US external imbalance seemed to be the result of an equilibrium position in the global economy without need for rapid adjustments in the short term (Mendoza et al. 2007; Cooper 2007; Caballero et al. 2008a). Subsequently, other studies have highlighted the link between excess liquidity in US financial markets, household debt and the growth of bubbles (Caballero et al. 2008b). In this context, the new model of banking based on securitization and «originate and distribute» triggers global instability through the transformation of subprime mortgages into derivatives (Mizen 2008; Brunnermeier 2009).

Both interpretations, the conventional and the «saving glut» hypothesis, ultimately attribute the crisis to the incorrect or imprudent behaviour of public actors (governments and central banks) and private (financial intermediaries). Through a new system of rules, based on recent constraints and incentives to encourage proper behaviour, it could be possible to restore the lost conditions of global economic and financial stability (Siebert 2008; Issing et al. 2009).

The purpose of this paper is to show, with the help of a two-country partial equilibrium model, that, along with incorrect or fraudulent behaviour, other structural factors contributed to the unsustainable enlargement of global imbalances and lasting bubbles in US asset markets. These factors include: a) the international monetary system that 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-
The first factor acts on the international demand side for US financial assets, while the second pertains to the domestic supply side.

In the model presented in next sections, 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, particularly on the specific economic sector (households, non financial business or government) that provides net dollar-denominated assets supply. Moreover, unlike the «conventional view», monetary and fiscal policies in the US appear to have acted in the right direction by reducing imbalances without being able to reverse the tendency towards crisis.

The conclusion that follows is that the Bretton Woods II system guarantees financial global stability only in the presence of adequate expected profitability of real capital in the US compared with competing countries. The weakening of this condition since 2001 resulted in the emergence of bubbles in US asset markets and increase in current deficits. The inevitable result was the crisis that erupted in 2007-2008.

The paper is structured as follows: Section 2 shows the main characteristics of the Bretton Woods II system, with particular attention to the problem of international liquidity. Section 3 presents a two-country partial equilibrium model to illustrate the effects on the US 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 4, the results of the model are used to reconstruct some of the causes of the sub-prime crisis in relation to the international monetary system. Finally, section 5 offers some concluding remarks.

2. International liquidity in the Bretton Woods II System

Using a panel regression model, Gruber and Kamin (2008) empirically tested the hypothesis on the differences in financial development as a cause of global imbalances and they found no significant evidence to support this thesis. Even more surprisingly, they found no evidence of any special attractiveness regarding US assets compared to that of other industrialized countries. 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, it is then appropriate to refer to specific historical and institutional features of US financial assets as vehicles of international liquidity.

The concept of international liquidity generally refers to those assets available to the monetary authorities for the purpose of managing the exter-
nal value of domestic currency. More precisely, international liquidity consists of those assets that monetary authorities can use to maintain a balance of payments imbalance without implementing any form of domestic macroeconomic adjustment (Genberg and Swoboda 1993). The amount of foreign currencies available to central banks (official foreign reserves and borrowed reserves) is the main component of international liquidity.

After the breakdown of the Bretton Woods system and transition to flexible exchange rates between major currencies, the problem of the international liquidity provision seemed to have disappeared along with the need to maintain a par value of the currencies (Clark and Polak 2002). In fact, the opposite happened, as evidenced by the continuing increase in the share of global reserves on global GDP, which tripled in 1995 compared to 1965. Since the Asian crisis of 1997-98, the accumulation of assets in foreign currencies has further accelerated, especially by emerging and oil-exporting countries.

As in the Bretton Woods era, the principal component of global official reserves remains the acquisition of dollar-denominated 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 an instrument of international liquidity (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).

The maintenance of the international role of the dollar was explained by Dooley et al. (2004) with the appearance of a new de facto version of the Bretton Woods system, the so-called Bretton Woods II. The Bretton Woods II consists of a dual system of exchange rates with the dollar at the center: floating exchange rates between the US and other industrialized countries and

---

4 Borrowed reserves are defined as all available resources in foreign currency that Central Banks can mobilize through borrowing in domestic or international private capital markets (Horne and Nahm 2000).

5 With the liberalization of private capital movements and deregulation of financial markets, some authors have proposed a broader concept of international liquidity, including virtually all assets held or borrowed by domestic residents and tradable in international organized markets (Caballero and Krishnamurthy 2000). However, in the presence of high international capital mobility, such a broad definition makes the concept of international liquidity operationally indistinguishable from that of domestic liquidity.

6 The historical data on official reserves are reported in Flood and Marion (2002) and Jeanne (2007). For a discussion on alternative theoretical explanations of the reserves hoarding by monetary authorities, see Obstfeld et al. (2008).

7 See Eichengreen (2004) for a discussion on the similarities and differences between the old and new Bretton Woods system.
pegged exchange rates between the US and emerging countries, in particular China, other East Asian countries and oil-exporting countries. In this context the US dollar performs the typical functions of a world currency: medium of exchange, unit of account, and store of value (Kenen 2003; McKinnon 2004). This new international monetary system is based on mutual interests between the US and emerging countries. On one hand, emerging countries can keep their currency undervalued, with respect to a long run external equilibrium position, in order to pursue an export-led growth model involving permanent current account surpluses. On the other hand, the US can easily finance current account deficits and fully exploit «exorbitant privilege» as «world venture capitalists» by borrowing short and lending long (Gourinchas and Rey 2007).

3. A two-country partial equilibrium model of the Bretton Woods II system

Empirical studies have confirmed the «Bretton Woods II view» of the actual international monetary system. Since the end of the 1990s, the number of currencies partially or totally de facto pegged to the US dollar has significantly increased. This is due in particular to mercantilist exchange rate policies of emerging countries (Clark et al. 2008). Furthermore, the global imbalances that characterized the decade prior to the crisis were largely concentrated in countries that adhere to the de facto pegged exchange rate system. In the period 1997-2007 East Asian and Middle Eastern countries had a cumulative current account surplus of 4,009 billion dollars compared to a cumulative US current account deficit of 5,360 billion dollars8. Flexible exchange rates countries had conversely a rather marginal role in explaining global imbalances.

In this contest, it seems justified to use a two-country partial equilibrium model in order to analyze the impact of the Bretton Woods II system on US internal imbalances.

The basic assumptions of the model are the following:
1) The two countries are the US and Emerging Countries (EC);
2) EC have a fixed exchange rate to the US dollar;
3) Dollar-denominated assets are internationally tradable;
4) Assets denominated in EC currency are not internationally tradable;
5) There are adaptive expectations because the information is imperfectly distributed among all players9. This implies that the demand for and supply

8 Source: International Monetary Fund, World Economic Outlook Database, October 2009.
9 The assumptions of imperfect information is a realistic hypothesis for the global economy in which each agent has a particular view of the world, conditioned by its economic and
of assets are influenced by the current level of asset prices that embody expectations about future capital gains.

3.1. Net international demand for US financial assets

Net international demand for US financial assets may be regarded as consisting of two components: an exogenous demand for international liquidity by the EC monetary authority, and a typical portfolio demand by EC private sector. The first component derives essentially from transactions and precautionary motives\(^{10}\) while the second from speculative reasons.

In this regard, we assume the following standard hypotheses:

a) Transactions and precautionary demands depend positively on income and exports of EC\(^{11}\);

b) Speculative demand depends positively on total return on dollar-denominated assets and negatively on total return on EC domestic assets.

Assets total return is given by the interest rate plus a risk premium in terms of capital gains:

\[
tr_n = i_n + \Delta PV_n
\]

with:

\(tr\) = asset total return;
\(i\) = interest rate;
\(\Delta PV_n\) = asset prices change for \(n = \text{US, EC}\).

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

\[
FA_{US}^d = d_1 Y_{EC} + d_2 X_{EC} + d_3 i_{US} + d_4 P_{VS} - d_5 i_{EC} - d_6 P_{EC}
\]

with:

\(Y_{EC}\) = income of Emerging Countries;

\(X_{EC}\) = exports of EC;

\(i_{US}\) = interest rate of US financial assets;

\(P_{VS}\) = price of US financial assets;

\(i_{EC}\) = interest rate of EC financial assets;

\(P_{EC}\) = price of EC financial assets.

geographical location. As Morris and Shin (2006) have shown, a small incidence of sticky information can generate large amounts of persistence when embedded in a differential information framework. In this case, backward-looking behaviour results from a process of rational choice because past events are the only source of reliable information common to all agents.

\(^{10}\) See Batten (1981) and Ainzeman (2008).

\(^{11}\) Empirical studies have shown that since the Asian crisis of 1997-98 the demand for international liquidity has been less sensitive to the financial return because it was, by far, the predominant, precautionary motive (Ainzeman and Lee 2007; Lane and Milesi-Ferretti 2007).
3.2. Net international 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 EC.

In national accounts the current account of balance of payments is identical to the excess savings \((S)\) on investments \((I)\) of the total economy and represents the change in net asset position of the country. Thus the international net supply of US financial assets \((FA_{US})\) is the sum from past to present of current account deficits:

\[
\sum (M - X)_{US} = \sum (I - S)_{US} = FA_{US}
\]

with:

- \(M\) = US imports of goods and services;
- \(X\) = US exports of goods and services.

The players who, through financial intermediation, provide international financial assets are households \((H)\), firms \((F)\) and government \((G)\). Therefore:

\[
FA_{US} = \sum (M - X)_{US} = \sum [(I - S)_H + (I - S)_F + (I - S)_G].
\]

We now look separately at the three sources of financial asset net supply for foreign investors.

\(a)\) Households

We define household investment as the acquisition of real estate and equities\(^{12}\) and we assume that household borrowing depends on: \(a)\) a por-
**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 ($Y_{US}$):**

\[ (I - S)_H = \Theta(tr_s - i_{US}) + b_1 \Delta Y_{US} \]

Considering equation (1) we can then write:

\[ \sum (I - S)_H = \Theta PV_s + b_1 Y_{US} = (FA_{US})_H \]

with:

\[(FA_{US})_H = \text{household net supply of financial assets to EC.}\]

Since households do not directly issue financial assets, household supply takes place indirectly through 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 appreciation 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 the expected return of real investment and negatively on the cost of borrowed funds. Based on these simple assumptions we can state that a US firm’s net debt is positively related to their expected real investment return ($r^*_{US}$) and negatively to the US interest rate:

\[ \sum (I - S)_F = f_1 r^*_{US} - f_2 i_{US} = (FA_{US})_F \]

with:

\[(FA_{US})_F = \text{firms net supply of US financial assets to EC.}\]

**c) Government**

The excess of the US government investments on savings is given by the public budget deficit, determined by fiscal policy. Therefore the government net supply of financial assets to EC, \((FA_{US})_G\), is equal to the public debt:

\[ \sum (I - S)_G = \sum (G - T)_{US} = (FA_{US})_G \]
with:
\[ G = \text{public expenditure}; \]
\[ T = \text{tax}. \]

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

\[ FA_{US} = \Theta P_{VS} + b_1 Y_{US} + f_1 r_{US} - f_2 i_{US} + \Sigma (G - T)_{US} \]

3.3. The model’s equilibrium

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 EC; f) foreign interest rate determined by EC monetary policy; g) appreciation (depreciation) of EC domestic assets. Because interest rates and the exchange rate are set by policy authorities, balance between demand and supply is achieved through changes in the US external position and US asset prices. The endogenous variables are thus US external debt and prices of dollar-denominated assets\(^\text{13}\).

The model is in equilibrium when net international liquidity demand matches net international supply of US financial assets:

\[ FA_{US}^d = FA_{US}^i \]

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

\[ P_{VS} = \Theta [(EX_{EC}^d) - \Sigma (G - T)_{US} + (d_3 + f_2) i_{US} - h_1 Y_{US} - f_1 r_{US}] \]

\[ \Sigma (M - X)_{US} = \Theta \beta EX_{EC}^d - (\Theta \beta - 1)[\Sigma (G - T)_{US} + f_1 r_{US} + b_1 Y_{US}] + [f_2(\Theta \beta - 1) + \Theta \beta d_3]i_{US} \]

with:
\[ EX_{KW}^d = d_1 Y_{EC} + d_2 X_{EC} - d_3 i_{EC} - d_6 P_{EC}; \]
\[ \beta = 1/[(\Theta - d_4)]. \]

\(^{13}\) 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 appreciation 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).
To analyze the equilibrium solutions of the model, it is crucial to know the value of the coefficient $\beta$.

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 EC investors. A positive value of coefficient $\beta$ is therefore a realistic assumption, considering that the household’s share on US capital gains is significantly higher than the corresponding share perceived by foreign investors, as it is shown in note 3. Another way of considering a positive value of $\beta$ is to assume a greater liquidity preference for foreign asset-holders than domestic ones, as postulated by the classical hypothesis of international financial intermediation as cause of the 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 US external deficit and dollar-denominated asset prices.

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 international net supply of US assets. 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

<table>
<thead>
<tr>
<th>Tab. 1. Effects of changes in exogenous variables on US external deficit and asset prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>US current account deficit</td>
</tr>
<tr>
<td>$Y_{EC}$</td>
</tr>
<tr>
<td>$X_{EC}$</td>
</tr>
<tr>
<td>$i_{EC}$</td>
</tr>
<tr>
<td>$P_{EC}$</td>
</tr>
<tr>
<td>$G - T$</td>
</tr>
<tr>
<td>$Y_{US}$</td>
</tr>
<tr>
<td>$i_{US}$</td>
</tr>
<tr>
<td>$r_{US}$</td>
</tr>
</tbody>
</table>
assets arising from the role of the dollar as international currency in the context of the Bretton Woods II system.

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

\textit{a) Increase in income and exports of Emerging Countries. Reduction in total return on EC domestic assets.}

In this case the increase in net demand for US financial assets causes a current deficit and an appreciation of dollar-denominated assets (see Figure 2). This result is similar to Caballero and Krishnamurthy (2009), who argue...
that foreign demand for riskless US assets is a major cause of increasing bubbles in US financial markets.

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

In this case, the decrease in the net supply of US financial assets produces a current deficit and an appreciation of dollar-denominated assets (see Figure 3). It is interesting to note that increases in the budget deficit, real investment return and income improve the current balance, but at the price of US asset depreciation. These results are not standard. They show that avoiding the simultaneous triggering of 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 an appreciation of US assets (see Figure 4).


The model presented in previous sections offers an explanation of the evolution of the US economy during the years preceding the subprime cri-
sis. The three stylized facts presented in section 1 are the result of a pattern of global development, which 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 had its epicentre in the US because of the unique status of the dollar as international currency. The widening US external deficit was the necessary counterpart of an increasing international demand for dollar-denominated financial assets (see Figure 2). 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 moved towards instability after the burst of the dot-com bubble in 2000-2001, when US non financial corporations reduced their debt to reach a positive net stock position in credit markets. As shown in a study of the OECD, increases in non financial corporate net lending is a common feature for most industrialized countries in recent years and generally, as standard macroeconomic theory suggests, it was positively correlated with a strong improvement in the external balance (André et al. 2007). What distinguishes the US from other industrial countries is the existence of an inverse relationship between non financial corporate net lending and current account balances.

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 non financial 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 a prolonging boom in real estate and financial markets (see Figure 3).

What can explain the behaviour of US firms? The main suspect is a decline in the relative expected rate of return on investments 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 investments compared to other uses for 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 the present discounted value of expected future profits on real investment and, conversely, a ratio below 1 indicates a decrease.
As shown in Figure 5, in the period 1997-2007, the movements of Tobin’s Q and non financial corporate net lending are clearly negatively related\(^\text{14}\). Starting from the bursting of the dot-com bubble, Tobin’s Q becomes significantly less than 1 and, simultaneously, the credit market position of non financial corporations improves rapidly from a net borrowing of 2.1% of GDP in 2001 to a net lending of 1.1% of GDP in 2005.

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 percentage points below EU 27 and EU 15, and this difference was reflected in a US non financial corporations gross investment rate (15.8% of gross value added) lower than EU 27 (22%) and EU 15 (21.9%)\(^\text{15}\).

\(^{14}\) 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 non financial corporations.

\(^{15}\) Eurostat (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 in other developed areas, such as EU, and even less than in emerging countries because of segmentation in the global market for produced capital (Daly and Broadbent 2009). This explains the excess savings of US non financial corporations that was used in ways alternative (FDIs and financial assets) to investment in physical capital. The profitability of US companies has been significantly supported by gains from direct foreign investment. However, the profits generated by FDI reduce the international net supply of US financial assets 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 non financial sector international net supply of financial assets. The increase in public deficit, which has occurred since 2001, was not sufficient enough 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 by households, through financial intermediation.

The growth of US income was not sufficient enough to avoid a notable increase in the household debt/income ratio. Because of significant wealth effects, the increasing indebtedness of households was the basis for a continuing appreciation of US real and financial assets, which was soon transformed into bubbles. The accommodative economic policy adopted by US authorities was the most appropriate at this juncture, as fiscal or monetary restrictions 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 Fed16.

The inevitable transformation of the US asset markets boom in bubbles led to the crisis. Faced with a «credit crunch» for households and firms resulting from the 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 et al. 2009). However, the restoration of financial stability through «twin deficits» can not represent

---

16 For a discussion on the validity of «benign neglect» see Bordo and Jeanne (2002) and Berger et. al. (2007).
an assurance in the long run. As Eichengreen (2005) suggests, a «banker of the world» with a growing budget and current deficits is equivalent to «a bank with negative net capital».

The problem that arises after the outbreak of a global crisis is the compatibility of the international monetary system with financial markets stability. Today, international financial stability requires that the profitability of real capital in the US is to appropriate levels compared with competing countries. In the 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, 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, the Bretton Woods II system becomes unstable.

5. Concluding remarks

The crisis of 2007-2008 was not only the result of the 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 that emerged after the Asian crisis of 1997-98. The Bretton Woods II monetary system, based on mercantilist exchange rate policies of 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 produced in the centre of the system, the US economy.

The two-country partial equilibrium model presented in the previous sections helps to understand the basic requirements for Bretton Woods II sta-
bility. 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 the US economy’s internal development. On the supply side, US capital inflows should be used for profitable purposes in order to avoid US financial bubbles and unsustainable current deficits.

The excess savings of the US non financial business sector from the bursting of the 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 non financial corporate net lending was caused by a reduction in the 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 the 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.

References


Clark P.B. - Polak J.J. (2002), International Liquidity and the Role of SDR in International Monetary System, IMF working papers, 02/217, December.


Eichengreen B. (2005), Sterling’s Past, Dollar’s Future: Historical Perspectives on Reserve Currency Competition, NBER Working Papers, 11336.


Eurostat (2009), Business Profit Share and Investment Rate Higher in the EU than in the USA: Profits and Investment of Non-financial Corporations, 1995-2007, Leythienne D., Smokova T. (authors), Statistics in Focus, 28.


Greenspan A. - Kennedy J. (2007), Sources and Uses of Equity Extracted from Homes, StFAf working papers in the Finance and Economics Discussion Series (FEDS), 2007-20, Federal Reserve Board, Washington, D.C.


Obstfeld M. - Shambaugh J.C. - Taylor A.M. (2008), Financial Stability, the Trilemma, and International Reserves, NBER working papers, 14217.


Global structural factors both monetary and real played a prominent role in the burst of the sub-prime crisis: 1) the so-called Bretton Woods II international monetary system; 2) the reduction of US real investment return compared with competing countries. We develop a two-country partial equilibrium model to analyze the impact of these factors and macroeconomic policies on the US current account and asset prices. The excess savings of US nonfinancial business sector 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 prevailed. Only a recovery of the US real capital profitability can ensure long run coexistence between the present model of global development and current international monetary system.

Keywords: international monetary system, current account, saving investment, international liquidity, asset prices.