

UNIVERSITÀ DEGLI STUDI DI SIENA

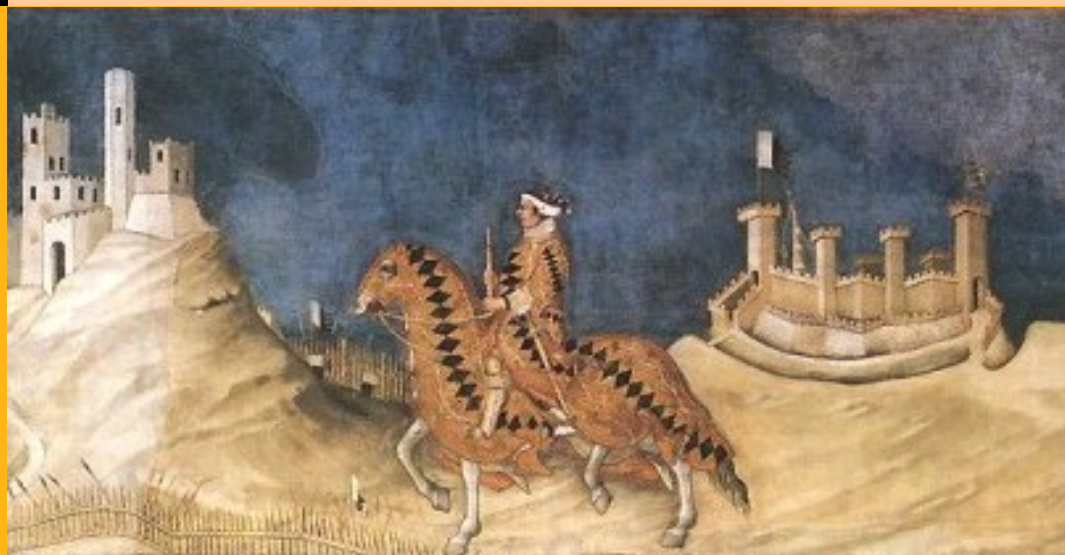


QUADERNI DEL DIPARTIMENTO
DI ECONOMIA POLITICA E STATISTICA

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Current account and fiscal imbalances
in the Euro-area: Siamese twins
in an asymmetrical currency union

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Abstract - In this paper a model connecting fiscal and external imbalances in Euro peripheral countries is presented. The underlying idea is that, after the negative shock of the 2007 financial crisis, the current account position constitutes the main element in originating different behavior of foreign lenders toward single countries. Once the interaction between the two has started, it turns into a never ending self-fulfilling process. For peripheral countries, positive results of fiscal retrenchments and real devaluation to restore stability and stop capital outflows are subject to unlikely conditions that undermine the improvements of public accounts. The choice governments face is therefore, at least in the short run and in recessive conditions, either to restore the equilibrium of public finance, or to counteract the real shocks coming from the crisis. This conclusion suggests to adopt shared policy instruments to contrast centrifugal forces in EMU.

Keywords: EMU, sovereign debt crisis, current account imbalances, national policies,
JEL classification: E61, E65, F33

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1.Introduction

After the 2007 financial crisis, countries in the European Monetary Union (EMU) have been divided into two major blocks according to their ability to respect fiscal criteria and to have sound public finance. The standing common view has been to connect the crisis of the fragile countries adhering to EMU, with trends of public sector regarding the ratios of public deficit and public debt, to GDP. Moving from such an assumption, the basic prescription was aimed at raising a “fiscal retrenchment” to prevent speculative attacks and preserve the financial stability of the whole Currency Union. Profligacy of peripheral countries has been causing a lack of credibility of the common currency, which is the necessary and sufficient condition for the long term growth¹.

This approach has been recently associated with an increasing attention devoted to external imbalances among EMU countries, conceived as a presence (or co-presence) of current account deficit and short term capital outflows.

However, in the revised approach, the critical role of “fiscal retrenchment policy” is maintained, thanks to the link established between external imbalance and internal public imbalance on deficit and debt. A clear descriptive synthesis of approach to Euro Crisis is included in the EEAG Report on the European Economy (EEAG 2012): Euro Policy devotes its attention to public debt issue, aiming at re-establishing the fiscal discipline as the core of a viable monetary union. But this must be accompanied by the resolution of two main problems: the large intra-euro current account imbalances and the emergence of massive cross-border capital flight (Kumhof and Laxton, 2009; Sinn and Wollmershauser, 2011). The identification of the deep causes of these imbalances, beside the fiscal discipline, would guarantee the structural homogeneity inside the EMU and the proper functioning of the monetary policy action.

A different story concerning the role of external imbalance has been traced by a less conventional approach. (Alessandrini ., Fratianni, Hughes Hallett and Presbitero , 2012; Cesaratto S., 2012; De Grauwe P., 2011; De Grauwe. and Yuemei., 2012; Gros D., 2012). Following this perspective the trade relations in the Eurozone has been dominated by a few disproportionately large imbalances, widened markedly after the introduction of the common currency and characterized by high persistence (Berger and Nitsch, 2010). Considering the specific euro-area countries, major differences can be observed: the peripheral countries posted sharply rising current account deficits already existing at the Euro birth; a second group, made of France, Italy and Belgium, which started with surpluses and posted moderate deficits and a third group, with Austria and Germany, that were able to turn slight deficits into surpluses (Deutsche Bundesbank, 2010).

The relevance of the current account is the leading idea of this approach: EMU has been built upon a shaky equilibrium determined, before the international financial crisis, in the short-run by the capital- flows compensative role, but undermined by the absence of a realignment mechanism of the real exchange rate. When the crisis reduced GDP growth rate and induced an increase of public deficit to stabilize both output and banking system, national balance of payments turned back to be relevant, registering the (un)willingness of financial markets to finance additional private and public debt despite the increasing returns.

¹ On the opposite position there is the “Keynesian view” following the fiscal restrictions that further increase the deficit/GDP and debt/GDP ratios because of the positive value of the fiscal multiplier.

To these views correspond two solutions to foster the adjustment: the stability needs to be restored through severe fiscal retrenchments (Neumann 2012) on the one side; public investment programs need to be implemented to compensate the output gap on the other (De Long and Summers 2012) (the updated debate about the effectiveness of the austerity measures is reported in Corsetti 2012).

In such a vision, therefore, the fragility and the peculiar features of the Euro zone crisis is based on a deep real external imbalance and on the volatility of capital flows; the internal imbalance and the instability of the national bond market - albeit internal political responsibilities need to be recognized - are to be considered as a consequence rather than a cause. Furthermore once the interaction between the two has started, it transforms in a never ending self-fulfilling process (De Grauwe 2012). The underlying idea is that, after the negative shock of the 2007 financial crisis, the current account position represents, in the Euro Area, a major element in originating different behaviors of foreign lenders toward the single countries. The spreads, the valid proxy of a country's potential default, are deeply affected by current account position because it is a measure of the ability to repay its private and public debt in the future (De Grauwe, 2012 and Gros 2011).

From these two perspectives different policy prescriptions derive. According to the conventional view it is a matter of the single country to restore stability: what it has to be done is to reduce deficit and debt ratios through severe fiscal retrenchments and induce real depreciation, through prices and wages reductions. The policy prescriptions are "new bottles with old wine" (Fratzcher, 2011).

According to the opposite position the EMU asymmetries cannot be solved without a shared policy action and without taking into account the systemic shock coming from the crisis. Fiscal retrenchments and real devaluation are alleged to further depress the internal demand and widen the inability to repay the debts. Furthermore the negative trade effects can weaken the economy of the virtuous countries and threaten the EMU existence. In line with the emerging positions about the role of fiscal policy in depressed economies (DeLong and Summers 2012 for the updated debate see Corsetti 2012), downward price movements are not to be considered a signal of increasing competitiveness, but rather of stagnation. In this context a leap of quality toward a political union is required, setting apart the framework of the OCA theory according to which single states try to counteract their structural differences and moving toward a federal state.

The paper is organized as follows: the next paragraph recalls the theoretical issues about the links underlying internal and external imbalances applied to the special case of the Euro-area. The third paragraph specifies how and why financial markets ask for increasing returns in buying fragile countries bonds and the reasons of capital flight. The fourth section contains a model describing through a maximization process how a demand shock affects public finance sustainability differently, according to the level of current account imbalances. Once in an EMU country with structural fragilities and external imbalances a demand shock has occurred, the Government is forced to fiscal retrenchment to restore the sustainability of public finances and stop capital outflows. Without intra Euro-area agreements, positive results are subject to so many conditions, to make the improvement of public accounts very uncertain. The choice the government faces becomes therefore, at least in the short run and in recessive conditions, either to restore the equilibrium of public finance, or to counteract the real shocks coming from the crisis. The last paragraph draws conclusions and depicts the alternative scenarios EMU is going to face.

2.Theoretical issues about budget deficit and current account deficit: the special case of the Euro

The identities of national accounts state that the sum of private ($Y-C = S_p$) and public saving ($T-G = -D$) equals investments (I) plus the net value of current account (CA):

$$(Y - C) + (T - G) = I + CA$$

or

$$S_p - D = I + CA$$

So that the current account deficit covers the difference between saving (public and private) and investment.

These identities have found different both explanations and relations of causality in the literature.

The first, is the Ricardian equivalence hypothesis of Barro (1974) and Barro (1989) and the intertemporal approach to the balance of payments (Obstfeld and Rogoff (1995)). In a closed economy a debt-financed increase of deficit does not affect aggregate demand because of the expected tax increase. The same principle would be valid in an open economy if consumption were financed by internal availability of funds or if the external debt financed consumption today is the substitute of a current account surplus in the future. Under the rational expectation hypothesis (REH) debt or tax financed deficit spending does not alter the current account intertemporal path. Budget deficit could alter the intertemporal internal and external equilibrium if there is a lack of information about the future trend of the national economy. The increase in interest rates is therefore caused by an excess of debt that cannot be financed by the internal saving.

On the other side there is the twin deficit hypothesis, related to the Keynesian framework: an increase in the budget deficit would induce domestic absorption (an expansion of aggregated demand) and hence, an increase in imports, causing a worsening of the current account deficit. Along the Keynesian framework the reverse causality works, too: a loss of competitiveness worsens current account and reduces aggregate demand, increasing the needs for deficit spending and the amount of debt issued. This would alter interest rates and cause a further deterioration of the external position.

This twin deficit issue is also related to the degree of international capital mobility and to the Feldstein and Horioka (1980) puzzle, according to which domestic savings and domestic investments are highly uncorrelated. Reflecting high capital mobility, budget and current account deficits are therefore expected to move together, and it is not possible to define univocally the direction of causality.

As a matter of fact the difference between saving and investment can be financed through the inflow of capital as the balance of payment account states. In particular, under a pure floating exchange rates regime, the relative price of currency automatically puts the balance of payments in equilibrium so that:

$$BP = CA + MC = 0$$

While under fixed exchange rate regimes it holds:

$$BP = CA + MC = \Delta RU$$

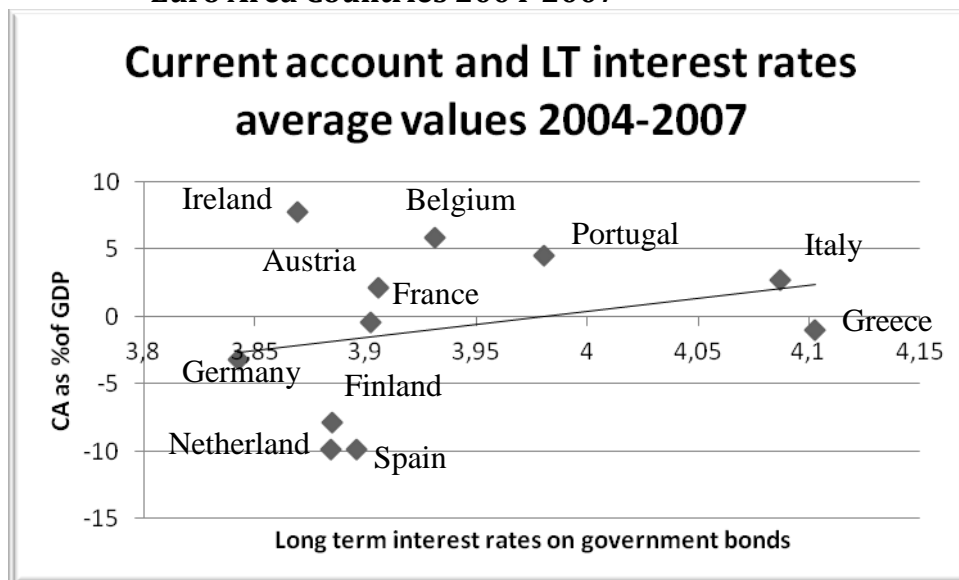
It means that the decrease (increase) in foreign reserve currency covers the current account deficit (surplus) private capital does not finance. As a huge amount of literature states, a currency crisis occurs when foreign reserves exhaust (first generation models) and the monetary policy attempts to attract capital via interest rates increase becomes too costly for the internal equilibrium (second and third generation models).

The Eurosystem is comparable to a fixed exchange rate regime. However because the currency is the same there is a settlements mechanism called TARGET (evolved in recent times in TARGET2), as an alternative to the variation of foreign exchange reserves. Following TARGET2 countries with a balance of payment surplus receive, via their national central bank, the net credit coming from balance of payment deficit countries. Deficit countries, in turn, have a net debt with surplus countries whose cost is determined by interest rates ECB sets with the European Banking system.

Before the 2007 financial crisis, it worked as a settlement mechanism among Euro area banks, in a perfectly integrated capital market. As the framework of the Mundell-Fleming model describes, capital flew from one country to another according to the interest rates differential, under the umbrella of trust in the common currency. Until the 2007 financial crisis, the

difference between saving and investment was considered a good opportunity for capital coming from surplus countries and going toward deficit ones to gain additional returns. In other terms, the current account imbalances were considered to be a predictor of a uniform rate of growth (Blanchard and Giavazzi 2002). Public bonds were not considered risky and the spread were absolutely negligible.

Graph 1. Long term interest rates and Current account as percentage of GDP in selected Euro Area Countries 2004-2007



Source: ECB for LT interest rates and Eurostat for CA

Graph 1 depicts the relation between the average values 2004-2007 of ten years government bond yields and current account position as a percentage of GDP for countries considered relevant for the imbalances: Portugal, Ireland, Italy, Greece and Spain (PIIGS) for vicious ones, Finland, Germany, Netherland and Austria as representative of virtuous countries; France and Belgium as borderline.

The range of long term government bond yields is between 3,85 and 4.1 percent while the current account varies from +8% to -10%. The intuition associated with graph 1 suggest that there is not any explicit relation between long term interest rates and current account.

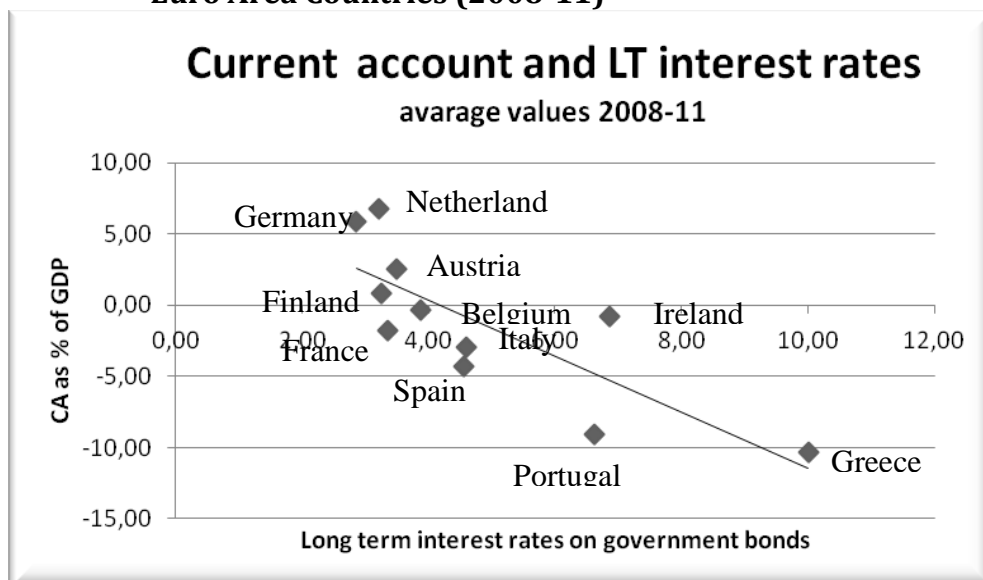
Once the crisis hit the aggregate demand and revealed the lack of structural differences among euro-zone countries, the value of current account became the proxy for financial markets to evaluate the ability to repay the debts. Coherently with the intertemporal approach to the balance of payments the direction of causality reverted: countries experiencing current account deficit had outflows of capital and increase in interest rates. The resulting real effects further boosted capital flight and entangled countries in a self-fulfilling process of downward growth.

National borders turned back to be relevant and the TARGET 2 started registering discrepancies among the components of the balance of payments. It is alleged, therefore, to be a permanent mechanism supporting the deficit of peripheral countries, which substitutes private with public credit (Sinn and Wollmershauer 2011).

However, in times of crisis, it has some further flaws not occurring in a fixed exchange rate regime revealing the limits of the Euro currency area: 1) it works under a common currency so that the relative price adjustment mechanism does not work or at least it works much slower; as a general principle the increasing inflation would have to guide the core countries to a real realignment of the exchange rate. However the existence of a common currency

slows down the process of adjustment and increases the burden on deficit countries.; 2) it unlimitedly finances the speculative private capital shifts. In a period of missing trust it boosts capital flight from periphery to core countries increasing the needs of refinancing deficit and debt, via the increase of interest rates.

Graph 2. Long term interest rates and Current account as percentage of GDP in selected Euro Area Countries (2008-11)



Source: ECB for LT interest rates and Eurostat for CA

Our interpretation stems for supporting that in times of crisis there is a tight relationship between current account imbalances and the ability to finance additional public deficit. Whatever low the interest rate the ECB sets the existence of a common currency widens the differences and increases the needs of public finance adjustment.

Graph 2 shows the relation between long term interest rates and current account imbalances (average values 2008- 2011) for the same selected countries as in graph 1.

It is just a picture providing the intuition of a negative relationship between the two variables considered. The range of long term interest rates varies from 2% to 10%, while the current account varies from a surplus of almost 6% to a deficit of 10%. Higher interest rates are always associates with higher current account deficits and vice versa.

3. Interest rates and capital flows in euro disequilibria

Literature assigns to Euro fragile countries some of the characteristics of Asian crisis². In the late 90s the growth of current account deficit in those countries determined the sudden reversal of short-term foreign currency denominated borrowing (Becker and Noone 2008) and showed a volatile behaviour of capital account (Forbes and Warnock, 2012).

The sudden change in capital flows direction is said to be determined by the perverse effects of interest rates increase on internal equilibrium and by the subsequent increase of a market sentiment about default (Merler and Pisany-Ferry, 2012). While the models about currency crisis attribute this result to the behavior of central bank, that, in the attempt to attract capital flows, raises interest rates, in a currency union this outcome is due to the financial market

² The seminal contribution about Asian crisis is Calvo (1998) Cole and Kehoe (2000)

behavior, on what can be certainly identified as belonging to the troubled country: the public debt.

The reduced availability of financial markets to finance additional deficit at current rates can exacerbate the balance of payments disequilibrium and increase the possibilities of a government default, according to a phenomenon called a “Risky-return Laffer Curve” (Pakko, 2000) extended to a currency union.

Investors, in choosing whether to buy and continue holding public debt consider the effective rate of return r which is given by: $r = pR + e$

Where p is the probability the country continue to service its debt and is $0 \leq p \leq 1$, R is the explicit rate on bonds and e is the exchange rate.

In a currency union, with a simplifying assumption it holds:

$$e = 0$$

An outflow of capital will occur if:

$$r = pR < r_{EU}$$

Where r_{EU} is the reference rate of the low risk countries in the currency union

A value of $0 \leq p < 1$ describes the presence of expectations of default on public debt.

Default expectations grow as interest rates grow so that results at odds with the Mundell-Fleming model can arise. In particular the existence of current account deficits in case of occurrence of systemic shocks arise default expectations through two different channels: the effect on public debt service and the unsustainability of external balance.

The probability of default p may be summarized as the result of the following variables:

$$p = p(R, r, CA)$$

And

$$\frac{\partial p}{\partial CA} = \frac{\partial p}{\partial R} \frac{\partial R}{\partial r} \frac{\partial r}{\partial PC} = f_{pr} * f_{Rr} * f_{rPC}$$

The crucial relation is given by f_{Rr} : the excess of sales on public bonds will raise interest rate (r), attract capital and lower the probability of default to the extent that expect net return (R) will raise, that is if $f_{Rr} > 0$.

Then a counterintuitive result will be given by $f_{Rr} > 0$ that is if a raising interest rate will not attract foreign capital and will rise the probability of default. These assumptions allow to hypothesis the existence of a risky-return Laffer Curve (Pakko, 2000), that is the possibility that the increase of government bonds interest rate will depress their effective rate of return

Figure 1 depicts the paradox:

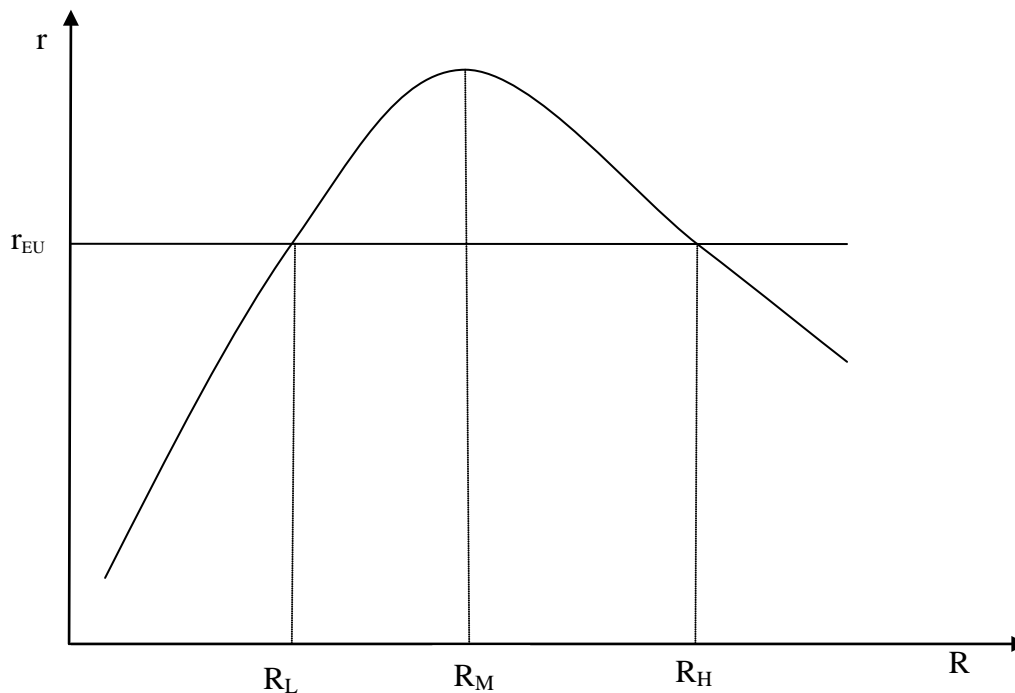


Figure 1. Risky return “Laffer Curve”

For interest rate lower than r_{EU} , the currency union interest rate, the country can exhibit capital outflows while for interest rates higher than r_{EU} there can be controversial effects. There will be a value of r , corresponding to the effective rate of return R_M , above which it will not be possible to increase capital inflows. Furthermore, at a value of nominal bond returns of R_H , the capital flows will become negative.

4. A stylized model

In this section we present a model to evaluate national policy action of a country belonging to EMU, in case of occurrence of a shock. We consider two alternative cases: a first one, where financial markets evaluate the shock as temporary and continue to finance additional public deficit without increasing interest rates toward an unsustainable path; a second one, where interest rates increase so much as – given current conditions – the path of public finance becomes unsustainable.

The model has two actors: government and financial markets. Government use deficit spending to counterbalance the shock on real equilibrium income and need to raise funds on the market; while financial markets react to this increase of demand for funds increasing the requested return. The greater this increase, the greater the current account deficit. Raising interest rates, financial markets – other things being equal – determine the real adjustment needed to restore a sustainable path of external finance. In the absence of a monetary policy serving national interests and positive shocks coming from other EMU countries, targeting a lower output and real devaluation appear to be the instruments available to reduce financial dependence from abroad. The efficacy of the instruments, however, is very uncertain.

National governments behaviour

As a general case, let us suppose that fiscal policy authorities have a loss function linked to output fluctuations:

$$L_F = L_F \left[-\frac{1}{2}(y - y^T) \right]^2$$

where y^T is the fiscal policy income target to be achieved; y is the aggregate equilibrium income given on the side of demand by the following:

$$y_d = m - \pi_I + \varphi_F D + \varphi_A A + \varphi_{w_I} w_I - \rho(i - \pi^e) + \xi e$$

and on the side of supply by:

$$\pi_I = \sigma y_s + \pi_I^e$$

All the variables are expressed in terms of growth rates.

As in any demand function, y_d increases as real money growth $m - \pi$ increases, following the real balance effect. Deficit spending D can increase autonomous demand if $\varphi_F > 0$; the aggregate demand depends on its autonomous component A according to $\varphi_A > 0$ and on wages distributed inside the country w_I according to $\varphi_{w_I} > 0$. Inflation expectations π_I^e increase demand because of the effect on real interest rates; when nominal interest rate i increase, demand decreases as usual according to the parameter ρ . Demand increases even if real exchange rate devaluates (rises).

The real exchange rate growth - once given the nominal value of the Euro - is given by: $e = \pi_E - \pi_I$ where π_E and π_I are European inflation rate and internal inflation rate respectively. As a good approximation - given in the short run productivity and institutional settings - we can use the relative growth of wages as a proxy of the relative inflation growth so as $e = \gamma(w_E - w_I)$.

As in any supply function, current inflation increase with output growth following the parameter σ and with inflation expectations.

Substituting the value of inflation derived from the supply curve into the demand curve we obtain the value of equilibrium income to be inserted in the loss function.

Then deriving the loss function for D , making the function equal to zero and solving, we have the following analytical relation expressing how the deficit increases as a reaction to offset the change of variables influencing the current equilibrium output:

$$(1) \quad D_t = \frac{\rho}{\varphi_F} i + \frac{(1-\rho)}{\varphi_F} \pi^e - \frac{\varphi_A}{\varphi_F} A - \frac{1}{\varphi_F} m - \frac{(\varphi_{w_I} - \xi\gamma)}{\varphi_F} w_I - \frac{\xi\gamma}{\varphi_F} w_E + \frac{1+\sigma}{\varphi_F} y^T$$

Equation (1) can be interpreted as a reaction function or as a demand for funds: fiscal policy authorities, in order to ensure a certain value of equilibrium income, have to react positively to interest rate movements. If the target equilibrium income increases, deficit spending has to increase as well. The effect of inflation expectations depends on the value of $(1-\rho)$. If the effect of inflation expectations on aggregate demand is higher than the negative effect on aggregate supply - or in other words if $\rho > 1 - \frac{\partial D}{\partial \pi^e} < 0$, i.e. deficit spending can decrease when

π^e increases, in order to have the same equilibrium income. Deficit spending has to decrease if autonomous demand increases $\frac{\partial D}{\partial A} < 0$ and if nominal money growth increases $\frac{\partial D}{\partial m} < 0$. The

relation with the external wage is negative $\frac{\partial D}{\partial w_E} < 0$ stating that a real depreciation of the

exchange rate if it improves the current account, reduces the need for deficit spending. Evaluating the effect of internal wages on the amount of deficit spending separately, it

results $\frac{\partial D}{\partial w_I} > 0$ if $\varphi_{w_I} - \xi\gamma < 0$ or if $\xi\gamma > \varphi_{w_I}$ meaning that a decrease of national wages triggers

an improvement of fiscal position (a deficit reduction) just if the effects on external competitiveness is greater than the effect on internal demand.

The deficit variation to interest rate movements is given by the following:

$$(1') \quad \frac{\partial D}{\partial i} = \frac{\rho}{\varphi_F}$$

which shows that the greater the effect of interest rates on aggregate demand the greater the deficit increase that allows to preserve the equilibrium income; the greater the multiplier effect of government spending on equilibrium income, the smaller the increase of deficit needed.

Financial markets behaviour

Suppose now that, in order to finance deficit spending, the fiscal policy authorities have to raise funds on the market. The cost of raising these funds depends on the reference rate the Central Bank sets and on the interest rates which the financial markets apply to finance the increasing deficit.

$$(2) \quad r = r_{bc} + \alpha + \beta D$$

Equation (2) can be interpreted as a supply of funds where $\alpha > 0$ is a constant.

Moreover, if the country is not constrained in raising funds on foreign markets $\beta = 0$; if it is financially fragile because it has a current account deficit and is dependent from foreign funds $\beta > 0$.

Thus in the first case the following holds:

$$\frac{\partial i}{\partial D} = 0$$

while in the second case, for a country in search of funds:

$$\frac{\partial i}{\partial D} = \beta$$

This assumption is consistent with the theoretical explanation and the empirical results presented in Corsetti and Muller (2006): a deficit financed public expenditure worsen external position to the extent that it increases demand of tradable goods. (See also Eggertsson and Krugmann 2010 for the positive (negative) effects of inflation expectation increase (decrease) on interest rates)

A Graphical representation

Fiscal policy authority behaviour and the financial market behaviour can be represented with two lines. The line FP shows how, given the current output, the target output the autonomous demand and the real exchange rate, government raises the deficit when interest rates increase to compensate for –or as a result of - the effect of demand reduction.

The slope of the curve FP is given by:

$$\frac{\partial i}{\partial D} = \frac{\varphi_F}{\rho}$$

i.e. the inverse relation described in (1)'

To be noted is that the smaller the positive effect of deficit spending on aggregate demand the smaller the slope of the line, i.e. the greater is the deficit increase when interest rates rise. Opposite considerations holds for the parameter ρ - or the effects of interest rates on aggregate demand

The line FM represents the financial market behaviour to supply funds to cover the increasing deficit. Its slope is given by:

$$\frac{\partial i}{\partial D} = \beta$$

Case 1. Sustainable shocks

Suppose as a first case that $\beta \geq 0$ and at the same time $\beta < \frac{\phi_F}{\rho}$ such that the slope of the curve

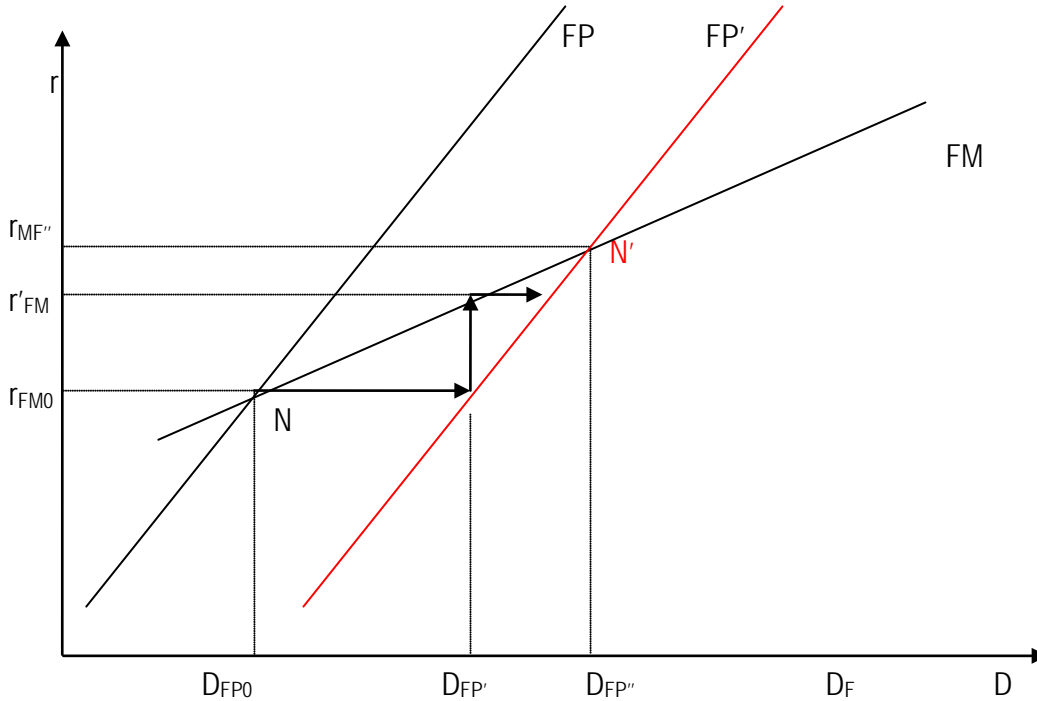


Figure 3. Sound fiscal dynamics

FM is lower than that of curve FP. The two lines meet at the point N where the demand for additional funds meets supply (Figure 3)

Suppose that a negative shock on autonomous demand occurs. Curve FP shifts rightward into FP', increasing the demand for deficit to D_{FP'}, once the interest rate r_{FM0} is given. After the shock the financial market increases interest rates to r'_{FM}, further increasing the deficit. However, the path shows that a new equilibrium point can be reached at point N' where again the fiscal policy reaction function meets the financial market preferences.

If there is no institutional constraint on the level of deficit and the country is considered capable to repay its debts through future current account surplus there will be no further worsening of public accounts.

Case 2. Unsustainable shocks

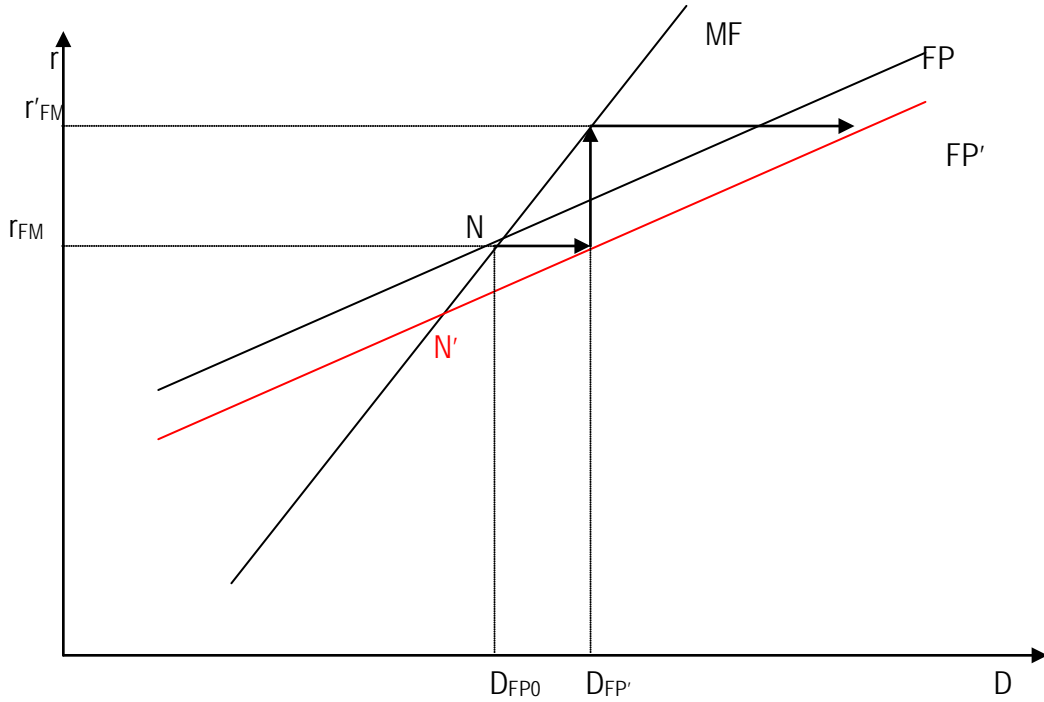


Figure 4. Unsound fiscal dynamics

Suppose now that $\beta > \frac{\varphi_F}{\rho}$ such that the line FM has a higher slope than the line FP (Figure 2).

A negative shock on aggregate demand shifts, as in the previous case, the FP rightward. In FP', the fiscal policy demand for liquidity increases in $D_{FP'}$ and financial markets apply a greater interest $r_{FM'}$ rate which in turn causes an increase in deficit. Figure 4 describes the explosive dynamics of public finance under the condition that financial markets apply an ever increasing interest rate as the need for liquidity increases. Fundamentally, within the existing conditions, an equilibrium level of deficit cannot be reached.

A positive dynamic of public finances can be restored if the point N is moved above current interest rates and deficit (Figure 5). This result can be reached by shifting the line FP leftward. Looking at equation (1)

$$D_t = \frac{\rho}{\varphi_F} i + \frac{(1-\rho)}{\varphi_F} \pi^e - \frac{\varphi_A}{\varphi_F} A - \frac{1}{\varphi_F} m - \frac{(\varphi_{w_i} - \xi\gamma)}{\varphi_F} w_i - \frac{\xi\gamma}{\varphi_F} w_E + \frac{1+\sigma}{\varphi_F} y^T$$

this can be done, given the other variables that cannot be moved by internal policy authority, if:

- a) government pursues the goal of a lower output;
- b) there is an internal devaluation through internal wages decrease. However the result depends on the effects of wage decrease on internal demand or if

$$\xi\gamma > \varphi_{w_i}$$

toward a political union is required, setting apart the framework of the OCA theory and moving toward a federal state.

The absence of a political project will pave the way to those who are convinced that rather than bear such high social costs, it would be better to grant autonomy to the national economic policy. However in the globalization era this would likely be- following the "Rodrick's trilemma"³ (Rodrick 2011)- a loser choice.

References

- Alessandrini P., Fratianni M, Hughes Hallett A. and Presbitero A.F., (2012), *External Imbalances and Financial Fragility in the Euro Area*, MoFIR Working Paper N°66, may.
- Barro, R. J.(1974) "Are government bonds net wealth?", *Journal of Political Economy*, 82(6): 1095-1117.
- Barro R. J. (1989) "The Ricardian Approach to Budget Deficits", *Journal of Economic Perspectives* 3(2),: 37-54
- Becker, C. and C. Noone. (2008), *Volatility and Persistence of Capital Flows*. BIS Papers 42. Basel, Switzerland: BIS.
- Berger H and Nitsch V. (2010), *The Euro's Effect On Trade Imbalances*, IMF Working Papers n°226
- Blanchard O. and Giavazzi F. (2002), *Current Account Deficits in the Euro Area. The End of the Feldstein Horioka Puzzle?*, MIT, department of Economics, Working Paper 03-05, September.
- Calvo, G. A. (1998). "Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops," *Journal of Applied Economics*, vol. 0, pages 35-54, November.
- Cole, H. L and Kehoe T.J, 2000. "Self-Fulfilling Debt Crises," *Review of Economic Studies*, Wiley Blackwell, vol. 67(1), pages 91-116,
- Cesaratto S. (2012), *Controversial And Novel Features Of The Eurozone Crisis as a Balance Of Payments Crisis*, Quaderni del Dipartimento di Economia e Statistica, Università di Siena N°640
- Corsetti G. ed. (2012) *Austerity: Too much of a good thing?*, CEPR.
- Corsetti G. Müller G. J. (2006) *Twin Deficits: Squaring Theory, Evidence and Common Sense*, European University Institute, <http://www.eui.eu/Personal/corsetti/research/tdh.pdf>.
- De Grauwe P. and Yuemei J., (2012), *Self-Fulfilling Crises In The Eurozone: An Empirical Test*, CeSifo Working Papers N°3821.
- De Grauwe P., 2011, *Managing A Fragile Eurozone*, CeSifo Forum 2/2011
- De Long B. and Summers L.(2012), *Fiscal Policy in Depressed Economies*, Brooking Papers in Economic Activity, march.
- Deutsche Bundesbank (2010), *On The Problems of Macroeconomic imbalances in the euro area* ,Monthly report, July.
- European Economy Advisory Group (EEAG) (2012) *Report On The European Economy*, CeSifo.
- Eggertsson and Krugmann (2012), *Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach*, "The Quarterly Journal of Economics" 127(3): 1469-1513
- Feldstein, M. and Horioka, C. (1980) "Domestic Saving and International Capital Flows." *The Economic Journal*, Vol. 90, June , pp. 314-329
- Forbes J. and Warnock F.E., (2012), *Capital Flow Waves: Surges, Stops, Flight And Retrenchment*, "Journal of International Economics", march

³ The "old" trilemma states that perfect capital mobility, fixed exchange rates and autonomous management of monetary policy are not reconcilable (Obstfeld 1995), while the Rodrick's trilemma states that it is impossible to have at the same time globalization, democracy and autonomous policy management.

- Fratzscher M. (2011), *Capital Flows, Push Versus Pull Factors And The Global Financial Crisis*, ECB, Working Paper Series No 1364. July
- Gros D. (2012), *Macroeconomic Imbalances in The Euro Area: Symptom or Cause of the Crisis?*, CEPS Policy Brief, April N°266.
- Kumhof M. and Laxton D. (2009), *Fiscal Deficits and Current Account Deficits*, IMF Working Paper N°237
- Merler S. and Pisani-Ferry J. (2012), *Sudden Stops In The Euro Area*, Bruegel Policy Contribution March 2012/06.
- Mundell, R.A. (1961), *A Theory of Optimum Currency Areas*, "American Economic Review", Vol. 51, pp. 657-665
- Neumann, M.J.M.(2012), *Too early to sound the alarm*, *VoxEu*, 17 April.
- Obstfeld, M. (1995), 'International capital mobility in the 1990s,' in P.B. Kenen, ed., *Understanding interdependence: The macroeconomics of the open economy*. Princeton, NJ: Princeton University Press
- Obstfeld M. and Rogoff K. (1995) "Exchange rate dynamics redux", *Journal of Political Economy* 103, 624-60.
- Pakko M.R., 2000, *Do High Interest Rates Stem Capital Flows?*, "Economic Letters" n.67, 187-192
- Rodrick D.(2011) *The Globalization Paradox: Democracy and the Future of the World Economy*, W.W. Norton, New York and London.
- Sinn, H.W. and Wollmershäuser T.(2011), "Target Loans, Current Account Balances and Capital Flows: The ECB's Rescue", CESifo Working Paper 3500, CESifo, Munich