

Comments on Olivier Blanchard and Francesco Giavazzi: “Current Account Deficits in the Euro Area. The End of the Feldstein Horioka Puzzle?”

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Introduction

This paper addresses two distinct issues. The first concerns the current account behaviour of a country which undergoes greater international financial and real trade integration while, starting from a low level of per capita productivity and income, it is catching up with or converging to, the superior productivity levels of its main trading partners. The paper argues that both theoretical considerations and empirical observation (mainly based on the experience of countries that have joined or are about to join the European Union and the Economic and Monetary Union) support the view that convergence plus greater international integration mean larger current account deficits.

This issue is of particular interest to me because of my recent work in and on the Central and East European candidate countries for EU accession. These ten countries moved very swiftly from a state of almost perfect financial and trade autarky vis-a-vis the market economies outside the Soviet block to one of a high degree of international financial integration and trade integration with the West. They also started from low levels of per capita income and productivity. We do indeed see in quite a few of these countries, especially in the Baltic states, large and persistent current account imbalances that fit the ‘catch-up, integration and current account’ or CICA story quite well.

Second, the paper argues that as financial and trade integration proceed among a group of countries, we should see a greater ‘uncoupling’ of national saving and domestic capital formation. The Feldstein-Horioka puzzle becomes less puzzling. This applies also to countries at comparable levels of development and per capita income.

My comments will deal only with the CICA nexus. Unlike the Feldstein-Horioka ‘puzzle’, the CICA nexus has important policy implications, relating to the assessment of sustainable current account imbalances. As regards Feldstein-Horioka, I will only state the

view that running regressions of the investment rate, $\frac{I_t}{Y_t}$, on the saving rate, $\frac{S_t}{Y_t}$, is one of the more pointless exercises in open economy macroeconometrics, even when it includes time-varying parameters. There must be 50 ways to account for changes in the contemporaneous correlation between saving and investment. No matter what pattern one finds in the data, the questions “and?” and “so what?” are unavoidable. For instance, a country could have a perfect positive correlation between saving and investment while running a persistent current account deficit of 25 percent of GDP. And? So what? Below we show that in the authors’ model, perfect international financial integration will, produce a current account balance that is always zero. Of course the current account is also always zero if there is no international financial integration at all.

Catch-up, integration and the current account

There is rather little by way of explicit theoretical underpinnings to constrain the estimating equations that are taken to the data. Part of what little there is, does not get used in the specification of the estimating equations. Formally, only household saving is modelled, and the current account surplus as a fraction of national income is the same as the household saving rate. Household saving is driven by the gap between current income and the present value of future income (or between current income and permanent income). Because the logarithmic utility function used by the authors has exactly offsetting income and substitution effects, a lower interest rate reduces saving only through a ‘valuation effect’: a lower discount rate increases the present value of future income, if future income is positive.

Formally, period 1 consumption by residents of country k is given by

$$C_1^k = \frac{1}{2}W_1^k, \quad k = 1, \dots, N \quad (1)$$

where W_1^k is the period 1 present value of household lifetime resources in country k .¹ Let $Y_{j,k}$, $j = 1, 2$; $k = 1, \dots, N$ be the period j endowment of country k (country k 's GDP) and $P_{j,k}$ its price in terms of the composite consumption good. With a completely non-diversified portfolio of real assets – the only case considered by B&G – only residents of country k can possess title to country k 's endowment stream. The present value of household lifetime resources in country k is given by

$$W_1^k \equiv P_{1,k} Y_{1,k} + [R(1+x)]^{-1} P_{2,k} Y_{2,k} \quad (2)$$

Equations (1) and (2) and the general equilibrium solutions for $P_{j,k}$, $j = 1, 2$ and R imply that country k 's current account surplus as a fraction of national income in period 1 is given by the last expression on the RHS of equation (3).

$$ca_1^k = \frac{1}{2} \left[1 - \frac{P_{2,k} Y_{2,k}}{R(1+x) P_{1,k} Y_{1,k}} \right] = \frac{1}{2} \left[1 - \left(\frac{1}{1+x} \right) \left(\frac{1+g}{1+g^*} \right)^{\frac{\sigma-1}{\sigma}} \right] \quad (3)$$

A higher level of output in the rest of the world relative to that in country k improves country k 's terms of trade (raises the relative price of country k 's output). Increased trade integration is modelled as an increase in σ , the (absolute value) of the price elasticity of demand for country k 's output, assumed to exceed 1. It is clear that (1) a higher domestic growth rate relative to the foreign growth rate, (2) a smaller wedge, x , (the authors' metric for deviations from full financial integration) and (3) a higher σ , (the authors' metric for the degree of international trade integration), all are associated with a smaller current account surplus or a larger deficit. These results are, however, not robust to a relaxation of the assumption of a unit elasticity of intertemporal substitution. A sufficiently low intertemporal

¹ If the period felicity function were of the constant elasticity of intertemporal substitution type, the period 1 consumption function would be $C_1^k = \frac{1}{1 + [(1+x)R]^{\mu-1}} W_1^k$, where $\mu > 0$ is

elasticity of substitution could dominate the valuation effect of changes in the wedge, and a lower wedge could be associated with a smaller current account deficit.²

If we add investment to the model, a reduction in the wedge is likely to raise investment in most conventional models of investment. If low per capita output is due to a shortage of capital, and if the marginal productivity of capital decreases with the capital-labour and capital-output ratios, we would expect to see a higher rate of investment in poorer countries. Under these conditions, investment therefore reinforces the effect of reductions in x and greater trade integration on the current account operating through the saving channel.

The authors argue, correctly, that EU membership has made for greater trade and financial integration. For late-joining EU members that started off at a much lower level of output per capita than the existing EU average, such as Portugal, Greece and especially Ireland, we would expect high catch-up growth. EMU membership further reduces the wedge and increases the substitutability between domestic and foreign goods. All these factors make for larger current account deficits. In addition, increased international financial integration was accompanied by domestic financial liberalisation. This too may reduce private saving.

The issue has important policy implications. If we can quantify the magnitude of the equilibrium (and optimal) current account deficits that countries in the process of real convergence can be expected to run, domestic and international policy makers will gain important guidance about when actual current account deficits become excessive or even

the elasticity of intertemporal substitution.

² In the constant elasticity of intertemporal substitution case, the current account surplus

would be given by $ca_1^k = \left[\frac{1}{1 + (1+x)^{(\mu-1)}(1+g^*)^{\left(\frac{\mu-1}{\mu}\right)}} \right] \left[1 - \left(\frac{1}{1+x} \right) \left(\frac{1+g}{(1+g^*)^{\left(\frac{\sigma-\mu}{\sigma-1}\right)\frac{1}{\mu}}} \right)^{\frac{\sigma-1}{\sigma}} \right]$. If the

intertemporal elasticity of substitution, μ , is sufficiently below 1, a lower value of the wedge, x , would raise household saving and increase the current account surplus.

unsustainable. Those would be very useful benchmarks, for instance, for the eight EU accession candidates from Central and Eastern Europe. Such quantitative benchmarks were not part of this paper, however.

Financial integration: beyond the x-factor

The authors adopt a narrow perspective on international financial integration. Formally, greater international financial integration is captured exclusively by a reduction in the wedge between the domestic and the foreign interest rate: it reduces the rate of return to saving and the cost of capital. It is true that, in the EU and a fortiori in EMU, risk-free nominal rates have converged. However, modelling financial integration as a reduction in x has two weaknesses.

First, while greater financial integration may well reduce the cost of capital for domestic investors (enterprises) in countries that are catching up, it is not at all obvious that it would also reduce the (risk-adjusted) expected rate of return available to domestic savers. Lack of international financial integration tends to go together with domestic financial underdevelopment and financial repression, including large spreads between domestic borrowing and lending rates. These spreads reflect domestic monopoly power, risk that cannot be diversified effectively within the domestic economy, and high intermediation costs resulting from suboptimal scale, organisational slack and *X*-inefficiency (not *x*-inefficiency !) in domestic financial institutions and markets. It is quite possible that financial integration would raise the risk-adjusted real rate of return to domestic savers, at the same time that it reduces the cost of capital for enterprises engaged in domestic capital formation. In the B&G model, private saving would increase as a result of greater international financial integration.

It would not have been difficult to address directly what are *empirical* issues about (1) movements over time in rates of return to saving and in the cost of capital and (2) the

interest-sensitivity of private saving and investment in countries engaged in catch-up. It is unclear why the authors did not do so and instead opted to bundle untested hypotheses about these two issues and many other issues into the composite hypothesis that is ultimately taken to the data.³

Second, international financial integration is not just about more efficient intertemporal trade. It also permits more effective international risk sharing. It might appear that including enhanced diversification among the benefits of financial integration would strengthen the negative effect on private saving of greater financial integration. If the private sector is not only risk-averse but also cautious or prudent, there will be a precautionary saving motive. Enhanced international risk sharing will then cause household saving to decline (see e.g. Kimball [1990] and Parker and Preston [2002]).⁴

However, more advantageous intertemporal trade and precautionary saving do not exhaust the list of possible effects of financial integration on private saving behaviour. Full financial integration would allow national consumers to diversify their portfolios, including their ownership claims on real resources, such as the national endowment streams (*equity*). In the B&G model, each country is specialised in the production of a single good *and* the residents of a country own, in addition to the internationally traded risk-free financial asset, only their own country's endowment stream. This is an extreme form of home bias in the equity portfolio. In a risky world the risk-averse residents of a nation would not to put all their equity eggs into one basket. If all equity were traded, there would exist a 'pooling equilibrium' (as in Lucas [1982]) in which each country's residents would own a share of the world portfolio. If each nation's consumers hold the world portfolio, then, in the formal

³ For household saving to tell us all we need to know about private saving, we must be in a Modigliani-Miller world where the corporation is but a veil. For private saving to tell us all we need to know about national saving, we must be in world with debt-neutrality or Ricardian equivalence, where government borrowing is but a veil.

model considered in the paper, differences in growth rates between domestic outputs would not differentially impact the consumers of different nations. Differential growth rates of national outputs, changes in σ or any other shock would not differentially impact the consumers in different nations and there would be no effect on the current account. Thus, the achievement of full international financial integration (including unrestricted international risk sharing could) break any link among national growth rates and national saving rates. The CICA nexus vanishes. This is easily demonstrated formally.

The shares of country j 's endowment in periods 1 and 2 owned by residents of country k are denoted $\alpha_{k,j}$ respectively $\beta_{k,j}$. If completely unrestricted international portfolio diversification were possible, the present value of life-time resources of country k 's households would be:

$$W_k^1 \equiv \sum_{j=1}^N \left(\alpha_{k,j} P_{1,j} Y_{1,j} + \frac{\beta_{k,j} P_{2,j} Y_{2,j}}{R(1+x)} \right) \quad (4)$$

The extreme home bias case considered by B&G given in (2) corresponds to $\alpha_{k,k} = \beta_{k,k} = 1$ and $\alpha_{k,j} = \beta_{k,j} = 0$, $k \neq j$.

National income for country k in period 1 is $\sum_{j=1}^N \alpha_{k,j} P_{1,j} Y_{1,j}$. *Domestic* income for country k in period 1 is $P_{1,k} Y_{1,k}$. The current account surplus of country k , as a fraction of national income is given by

$$ca_1^k \equiv \frac{\sum_{j=1}^N \alpha_{k,j} P_{1,j} Y_{1,j} - C_1^k}{\sum_{j=1}^N \alpha_{k,j} P_{1,j} Y_{1,j}} = \frac{1}{2} \left(1 - \frac{\sum_{j=1}^N \beta_{k,j} P_{2,j} Y_{2,j}}{R(1+x) \sum_{j=1}^N \alpha_{k,j} P_{1,j} Y_{1,j}} \right) \quad (5)$$

Consider the special, limited case of international portfolio diversification where the representative consumer in country k holds a constant fraction of the world portfolio, that is,

⁴ The logarithmic utility function in the authors' example exhibits caution, as the third

she owns claims to a common, constant fraction of each country's endowment in both periods: $\alpha_{k,i} = \beta_{k,i} = \alpha_k > 0$. The current account balance of country k in period 1 then becomes

$$ca_1^k = \frac{1}{2} \left(1 - \frac{\sum_{j=1}^N P_{2,j} Y_{2,j}}{R(1+x) \sum_{j=1}^N P_{1,j} Y_{1,j}} \right) \quad (6)$$

Note that, $\frac{\sum_{j=1}^N P_{2,j} Y_{2,j}}{\sum_{j=1}^N P_{1,j} Y_{1,j}} = 1 + g^*$ the growth factor of world real output (measured in units of the

composite consumption good). The global capital market equilibrium gives us $R = 1 + g^*$.

Country k 's current account balance is therefore given by:

$$ca_1^k = \frac{1}{2} \left(1 - \frac{1}{1+x} \right) \quad (7)$$

The interest rate 'wedge', x , experienced by country k , was tagged onto the Fischer and Frenkel [1974] model by B&G in an *ad-hoc* manner that did not address general equilibrium considerations. There is no counterpart anywhere else in the world economy to country k 's x . It is not clear whether x represents a real resource cost to the world economy as a whole or a transfer from borrowers to lenders, or who bears any real resource cost or receives the transfer. We are not given enough information to determine whether the way in which x is added to the Fischer-Frenkel model represents a proper or improper use of the 'small country' assumption. With $x = 0$, country k 's current account surplus for the stock market economy is given by the following transparent (and testable) expression:

$$ca_1^k = 0 \quad (8)$$

derivative of the period felicity function is positive.

I recognise that for a perfectly pooled risk-sharing equilibrium to exist, all assets would have to be traded, including human capital. In practice we continue to observe a marked, albeit slowly diminishing home bias in most countries as regards the ownership of stocks and shares (see e.g. Obstfeld and Rogoff [2000]). Human capital cannot be traded, for legal reasons, either within countries or across national boundaries.⁵ We are a long way from a global pooling equilibrium.

Nevertheless, the extent of international risk sharing is increasing steadily. For the ten countries scheduled to become members of the European Union in 2004, the opportunity for their pension funds to access the EU wide financial markets represents a big step from financial autarky to international risk sharing.

The implications of increasing financial integration are clearly not exhausted by a consideration of what happens to x . Greater financial integration would also have to include a move from a situation where $\alpha_{k,k} = \beta_{k,k} = 1$ and $\alpha_{k,j} = \beta_{k,j} = 0$, $k \neq j$ to one where $\alpha_{k,k}, \beta_{k,k} < 1$ and $\alpha_{k,j}, \beta_{k,j} > 0$, for at least some $k \neq j$.

The Empirics of the CICA hypothesis

The main empirically estimated relationship differs in important ways from equations (2) or (3), unless a number of auxiliary and untested (but testable) conditions are met.

$$ca_t^k = a_t + b_t \left(\frac{Y_{kt} / N_{kt}}{Y_{*t} / N_{*t}} \right) + X_{kt} \beta + \varepsilon_{kt} \quad (9)$$

⁵ Private investors could trade synthetic (contingent) claims whose payoffs could replicate those of GDP or of labour income (see e.g. Shiller and Schneider [1998] and Shiller and Athanasoulis [2000]).

The model of household saving used by the authors suggests a specification of the estimating equation that includes as regressors either the world real interest rate, the wedge and the gap between current (per capita) income and permanent income in country k , or the wedge and the gaps between current income and permanent income in country k and in its trading partners. Of these we find back only country k 's current per capita income relative to average capita income in its trading partners. It is unlikely that the omitted variables (either the world real rate of interest, the wedge and (a proxy for) permanent income in country k , or the wedge and the gap between permanent income in country k and average permanent income in the trading partners) are orthogonal to the included regressors. The resulting estimates are therefore likely to be both biased and inconsistent. Capturing the missing variables by the initial net foreign asset position of a country requires too many further untested hypothesis to be maintained to be helpful.

It is especially troubling that the authors decided to *maintain* the assumption of convergence of country k 's productivity level towards that of its trading partners.⁶ Convergence could and should have been tested for the countries in the sample using the available output per capita data. The evidence reported in the '(conditional) convergence' literature on convergence within the group of OECD (or EU, or EMU countries) is mixed at best (see Quah [1993a,b], Durlauf [1996] and Durlauf and Quah [1999]). One could very easily reject equation (9) even though the model of saving (and investment) of the authors is correct. One could accept equation (9) while the authors' assumptions about saving and investment behaviour are incorrect. While recognising that any statistical test is subject to type I and type II errors, I would still insist on warning against type III errors – not being sure as to exactly what is being tested, because there are just too many jointly maintained hypotheses. Because the mapping from the theoretical model to the estimating equation is

tenuous at best, we end up none the wiser about the validity of the authors' key hypothesis, that financial and trade liberalisation imply larger current account deficits for converging countries, and that EU accession and EMU membership are examples of this mechanism at work. I believe they are correct, but this paper does not contain any robust evidence. The more detailed narratives of the Greek and Portuguese experience since their EU accession fits the CICA mechanism. Ireland provides an emphatic rejection. Further work, bringing theory and empirics closer together, is required.

⁶ The growth rate of output (in country k) is included among the additional regressors X_{kt} , but it is given a cyclical rather than a longer-term catch-up or convergence interpretation.

References

- Durlauf, Steven [1996], "Interpreting Tests of the Convergence Hypothesis," with A. Bernard, *Journal of Econometrics*, 71, 161-173,
- Durlauf, Steven and Danny Quah [1999], "The New Empirics of Economic Growth," with D. Quah, in *Handbook of Macroeconomics*, Taylor and M. Woodford eds., North-Holland, Amsterdam.
- Fischer, Stanley and Jacob Frenkel [1974], "Economic Growth and the Stages of the Balance of Payments", in *Trade, Stability and Macroeconomics*, G. Horwich and P. Samuelson eds., Academic Press, New York.
- Kimball, Miles [1990], "Precautionary Saving in the Small and in the Large," *Econometrica*, 58(1), 53-73.
- Lucas, Robert E., Jr. [1982], "Interest rates and currency prices in a two-country world." *Journal of Monetary Economics*, 10, November, pp. 335-60.
- Obstfeld, Maurice and Kenneth Rogoff [2000], "The Six Major Puzzles in International Macroeconomics: Is There a Common Cause?" in Ben Bernanke and Kenneth Rogoff (eds.), *NBER Macroeconomics Annual 2000* (Cambridge: MIT Press). 339-390.
- Parker, Jonathan A. and Bruce Preston [2002], "Precautionary Saving and Consumption Fluctuations", NBER Working Paper No. 9196, September.
- Quah, D. [1993a], "Galton's fallacy and tests of the convergence hypothesis " *Scandinavian Journal of Economics*, December, vol. 94, no. 4, pp. 427-443
- Quah, D. [1993b], "Empirical cross section dynamics in economic growth, *European Economic Review*, April, vol. 37, no. 2/3, pp. 426-434
- Shiller, Robert J. and Ryan Schneider [1998], "Labor Income Indices Designed for Use in Contracts Promoting Income Risk Management" (with), *Review of Income and Wealth*, Series 44(2):163-182, June.
- Shiller, Robert J. and Stefano G. Athanasoulis [2000], "The Significance of the Market Portfolio", *The Review of Financial Studies*, 13(2), pp. 301-329.