Vítor Constâncio: Nonlinearities in macroeconomics and finance

Speech by Mr Vítor Constâncio, Vice-President of the European Central Bank, at the conference on "Nonlinearities in Macroeconomics and Finance", Frankfurt am Main, 15 December 2014.

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Ladies and Gentlemen,

It is a great pleasure to welcome you to Frankfurt for this conference on "Nonlinearities in macroeconomics and finance in the light of crises".

Nonlinearities might arise in many economic contexts. Yet, in practice, before the recent global financial crisis, economists have often relied on linear approximations when trying to capture economic interdependence. One reason for this is that the solution and estimation of non-linear models involves many challenges.

There is a saying that when an economist mentions some nonlinear effects, it means this person does not have a proper model worked out. This is not the case concerning this conference, where significant advances in several dimensions are on display.

For investigating normal business cycle phenomena, linear models might serve as a good approximation. However, the experiences of the recent global financial crisis and the European sovereign debt crisis have highlighted the importance and usefulness of nonlinear models and suggest that nonlinear models should receive more prominence than they had in the past. Indeed, these models appear crucial for conducting research on the kind of phenomena we have observed during the recent crises.

The progress achieved in developing solution techniques to include nonlinearities in macro models has been impressive in the past few years. This conference demonstrates that nonlinear models are relevant for a broad range of economic themes of high relevance to policy-making. In my remarks, I will focus on some of the issues of particular importance to the ECB, where nonlinearities assume a significant role. These include issues related to the conduct of monetary policy at the zero lower bound (ZLB), housing, financial markets and the macroeconomy, fiscal policy and the European sovereign debt crisis.

The Zero Lower Bound

One key characteristic that introduces nonlinearities in economic developments is the ZLB. This is taken up in a number of papers in the conference, particularly the ones by Arouba and Schorfheide or by Larry Christiano *et al* (2014).[1]

Let me elaborate on the relevance of the ZLB for policy-making at the ECB at the current juncture. In the summer of 2012, we faced a fragmented financial system, with banks being reluctant to lend and the euro area economy in recession. Since then the ECB has carried out several measures to address these problems and the financial situation in the euro area has improved dramatically. However, the economic situation remains difficult, with negative implications for investment. The prospect of a prolonged period of low inflation might have adverse effects, including a possible de-anchoring of inflation expectations. This is why, after setting our policy rates to their effective lower bound, the ECB has decided to engage in a mix of further unconventional monetary policy measures. We are convinced that these measures, working through several channels, will provide further monetary easing and underpin the anchoring of inflation expectations.

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[1] See e.g. Aruoba and Schorfheide (2014), Christiano et al (2014).

From a policy point of view it is important to incorporate the ZLB explicitly in models that inform the policy process. This results in nonlinearities that have far-reaching implications, including for the size of the fiscal multiplier and for the role of goods and labour markets to exit the ZLB.

Housing

Another important theme treated in the conference is housing and its relationship with global macroeconomic conditions. The model used[2] by Justiniano *et al* (2014) explains the U.S. house price boom that preceded the Great Financial Crisis as the consequence of looser lending conditions in the mortgage market. Looser lending conditions were the direct consequence of a variety of factors, in particular of the process of securitisation and the diffusion of market-based financial intermediation. The lax macro-prudential regulatory framework was a pervasive factor in producing looser lending conditions. An important lesson to be drawn from this analysis is the significance of an active macro-prudential policy capable of containing the unwanted effects of the kind of credit standard loosening that seems to have been responsible for the inception of the housing boom.

Monetary Union

The future of the European Monetary Union is another particularly relevant theme. It is possible to relate the current problems faced by many euro area countries to the existence of relevant heterogeneity in financial frictions across single member countries.[3] In the model used by Simon Gilchrist et al (2014), these differences allow firms from strong countries to undercut prices and gain market share from firms in vulnerable countries. This generates real exchange rate misalignments and current account deficits in peripheral countries, which may be viewed as a cause of the current sovereign debt crisis in Europe. Under these circumstances, a possible way forward is to implement measures to enhance risk-sharing between core and periphery countries.

As the ECB has repeatedly indicated, the Stability and Growth Pact should remain the anchor of confidence in the sustainability of public finances. Nevertheless, a further sharing of sovereignty over economic policy making is necessary to strengthen both discipline and solidarity within EMU. Further steps from common rules towards common institutions will be discussed in the upcoming report by the Euro Summit on the future of economic governance.

In addition, pursuing structural reforms aimed at increasing the overall efficiency of financial intermediation, and thus eliminating asymmetries in financial friction, will greatly contribute to reduce the pro-cyclicality of capital flows and the magnitude of fiscal imbalances[4] as illustrated by Jaccard and Smets (2014).

Financial markets and the macroeconomy

The research agenda on the interaction between the real economy and financial markets has become extremely important in light of the recent global financial crisis and European sovereign debt crisis. In his keynote speech, the Nobel Laureate Christopher A. Sims will focus on expanding an empirical structural vector autoregressive model with structural identifying restrictions to jointly model financial and macro variables allowing for nonlinearities. Nonlinearities can be allowed in shock volatility and the transmission of those shocks through the economy. In this context, he will consider novel identifying restrictions.

2 See e.g. Justiniano et al. (2014).

3 See e.g. Gilchrist et al. (2014).

4 See e.g. Jaccard and Smets (2014).

Results from these estimated models provide crucial empirical evidence to complement insights from structural economic models.

The growing literature on structural models to study macro-financial relationships includes, at this stage, fully articulated nonlinear models that are solved with global methods, as well as Markov-Switching DSGE models to capture the sort of dynamics that underscored the 2008–9 financial crisis. Recent papers make key contributions to incorporating financial instability in macroeconomic theory, featuring, for instance, credit constraints, endogenous risk taking and regime changes, bank defaults and imbalances on banks' assets or liabilities. An important extension is to incorporate risk premia and to allow them to vary with the state of the economy, in order to draw conclusions on the risk aversion of agents in the economy as in the model by Swanson (2014).[5] Such a model can be used to assess the effects of policy changes and structural breaks on asset prices. From a policy perspective, enhancing our knowledge about the role of risk aversion and amplification mechanisms in explaining the build-up and unravelling of crises provides important insight on how to conduct monetary and financial stability policy.

Fiscal policy and the euro area sovereign debt crisis

The last theme of the conference that I would like to mention is the effect of fiscal policies and the evolution of the sovereign debt crisis in the euro area. By using a suitable nonlinear model, Born *et al* (2014) show that the effects of fiscal consolidations on the cost of servicing sovereign debt depend crucially on the degree of fiscal stress.[6] While expenditure-based fiscal consolidations carried out in normal fiscal circumstances have favourable effects on the cost of servicing debt, in situations of fiscal stress, sovereign spreads tend to rise.

These findings suggest that fiscal policies in the euro area should be oriented towards a growth-friendly composition. As pointed out by the ECB President in his 2014 Jackson Hole speech, selective tax cuts should be matched by corresponding selective spending reductions, targeting taxes with high fiscal multipliers and unproductive expenditures. Additional benefits could be reaped by implementing strong co-ordination among fiscal policies of the different euro area countries, with an active role for complementary actions at the EU level with public investment.

Another important concern for the ECB has been the possibility that self-fulfilling beliefs might lead to unsustainable sovereign debt dynamics and therefore precipitate a crisis.[7] As Bacchetta *et al* (2014) show, a belief-driven crisis cannot be prevented by conventional monetary policy, unless the monetary authority is ready to generate very high inflation levels for a prolonged period. Non-conventional policies – based on issuing monetary liabilities in the form of fiat money – could be used, but their effectiveness would be limited. Either the central bank has a large amount of assets relative to the sovereign debt, or the zero lower bound has to bind for an unrealistically long time.

Hence, it seems legitimate to conclude that the effectiveness of policy actions in preventing self-fulfilling sovereign debt crises is subject to important qualifications. This is in line with the ECB announcement of the Outright Monetary Transaction (OMT) programme in August 2012, aimed at eliminating self-fulfilling beliefs of a euro area break-up. The OMT programme announcement has been successful so far mainly because of its careful design. The programme is strictly conditional on adjustment programmes and structural reforms actually being implemented and is limited to short-term maturities, in this way containing the duration of risk exposure of the ECB to any given bond issuer.

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5 See e.g. Swanson (2014).

6 See e.g. Born et al. (2014).

7 See e.g. Bacchetta et al. (2014).

Conclusions

Let me conclude. Novel and effective nonlinear techniques allow us to gain a deeper and more nuanced understanding of highly policy-relevant issues. We believe that these methods will be further incorporated among the tools routinely used also by central bankers as valued sources of policy advice. I wish you a stimulating and productive conference.

Thank you for your attention.