Withdrawal of Italy from the euro area: Stochastic simulations of a structural macroeconometric model[☆]

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ARTICLE INFO

ABSTRACT

This paper assesses the impact on the Italian economy of Italy withdrawing from the euro area by means of stochastic simulations of a macroeconometric model. The model considers the effect of devaluation on output, sovereign debt valuation, and the development of bilateral economic relations between Italy and its major trade partners. The simulation results are consistent with the findings of recent applied research: the Italian economy would follow the V-shaped pattern observed in most currency crises. After an initial period of stress, and provided an appropriate set of countercyclical policy measures is implemented, real GDP would recover and resume growth at a reasonable pace. In particular, while the expected positive impact of nominal exchange rate realignment on external balance would be transitory, higher nominal growth would bring about a persistent reduction in unemployment and the public debt-to-GDP ratio. These results are robust to a set of sensitivity checks, considering a number of adverse circumstances such as exchange rate overshooting, financial panic, supply-side constraints, and the application of retaliatory tariffs.

1. Introduction

The economic performance of the euro area (EA) has so far been disappointing. Eurostat (2017) reports that from 1999 to 2015 real annual growth averaged 1.3% in the EA12 countries, and 2.3% in the other European Union (EU) countries. Dreyer and Schmid (2016) show that while EU membership has had a positive impact on growth, membership in the EA has no additional effect on growth, except during economic crises, when it affects growth negatively. Average growth in the EA has been 0.2% since 2008, while the other EU countries have achieved a real growth rate of 1.3%. These outcomes are consistent with the findings of Bohl et al. (2016) that exchange rate regimes and financial crises interact in a way that makes recovery harder under pegged exchange rates, of which a monetary union is the most extreme case.

The difficulty experienced by a currency union in coping with external shocks in the absence of a federal government is a standard prediction of optimum currency area (OCA) theory (Krugman, 2013). As a consequence, the persistence of the EA crisis is shedding new light on the long-standing debate between scholars who have advocated the need to build a political union before adopting a single currency in order to make the latter sustainable (Meade, 1957; Kaldor, 1971), and those who have claimed that the single currency would become endogenously sustainable without any need for major institutional changes before its adoption (Scitovsky, 1958; Frankel and Rose, 1997). A growing body of evidence supports the hypothesis that the single currency has fostered divergence among its member countries, thus leading to the underperformance of the EA and undermining its resilience to external shocks. This has happened in different ways. Economic and financial integration has encouraged the exploitation of EMU member's comparative advantages, as anticipated by Krugman (1993) and confirmed by Caporale et al. (2015), increasing the occurrence of idiosyncratic shocks, and hence making a one-size-fits-all monetary policy unsuitable. Rafiq and Mallick (2008) argue that

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since the response to monetary policy in the three largest EA countries is not homogenous, a common monetary policy may amplify misalignment of national business cycles. This asymmetry is confirmed by, among others, Barigozzi et al. (2014), while van Ewijk and Arnold (2015) stress the pro-cyclical role of financial integration on member countries' output gaps, both in the short and in the long run. These findings explain the recent results of Granville and Hussain (2017), who demonstrate that adoption of the euro has actually lowered the concordance among member countries' business cycles.

Another finding of recent research is that monetary union has not only affected business cycle synchronization, but also trend productivity, because the fall in real interest rates has caused allocative distortions that have undermined labour productivity in weaker countries (Gopinath et al., 2015, Cette et al., 2016). On the other hand, the windfall of low interest payments provided perverse fiscal policy incentives that undermined sovereign debt sustainability in peripheral countries, as anticipated among others by Feldstein (2005) and confirmed by Fernández-Villaverde et al. (2013) and Ciżkowicz et al. (2015). At the same time, since in a monetary union "the task of adjusting for competitiveness and relative prices" is transferred to the labour market (Dornbusch, 1996), the single currency tends to deny its users the benefits of a larger common market. The reason for this is that the cushion against external shocks afforded by the common market is impaired by the pro-cyclical effect of internal devaluation policies, as argued among others by Bofinger (2015). The deflationary bias of these policies, highlighted by Krugman (1998), has had a negative effect on the banking systems of several peripheral EA countries, contributing to an alarming increase in non-performing loans (Notarpietro and Rodano, 2016).[1]

The idea that the single currency could come to an end is creeping into the debate: euro-sceptic political parties are gaining momentum in EA member countries[2] and can provoke mainstream parties to be less supportive of European integration (Meijers, 2015); the flaws of the EMU were cited by Brexit advocates in their successful campaign to persuade a majority (51.9%) of voters in the United Kingdom to support their cause in the EU membership referendum that took place on 23 June 2016; the largest EU countries that do not yet belong to the EA and did not negotiate an opt-out clause, as the United Kingdom and Denmark did, are postponing their entry into the ERM-II mechanism (a prerequisite for joining the euro).[3]

Consequently, several scholars who regard European political integration as a sensible goal have now come to regard the adoption of the single currency as having delayed, rather than accelerated, the achievement of that goal (Zielonka, 2014; Majone, 2014), as foreseen by Kaldor (1971). At the same time, as recently argued by Stiglitz (2016), in the absence of a political union (as advocated by the "Five presidents' report"; Juncker et al., 2015), or at least of a coordinated policy response, there is a possibility of the single currency collapsing, an event that would generate systemic uncertainty at the political and institutional level.

Against this backdrop, an analysis of the macroeconomic impact of such an event becomes increasingly relevant. We contribute to such an analysis by developing a set of stochastic simulations of an annual structural macroeconometric model to assess the macroeconomic consequences of a withdrawal of Italy from the EA. We focus on Italy because the weakness of its banking system makes it extremely vulnerable to financial shocks, and because, since Italy is the third largest country in the EA, its withdrawal could precipitate an overall

collapse of the single currency.[4] In assessing the macroeconomic stress caused by withdrawal, we identify the following four channels of potential uncertainty: first, our model disaggregates the trade relations of Italy among seven partner areas, allowing us to distinguish between realignments of the new Italian currency with respect to the currencies of its main trading partners, estimated using the behavioural equilibrium exchange rate (BEER) approach of Clark and MacDonald (1998); second, the sovereign debt spread is endogenised by relating it to macroeconomic fundamentals according to Gödl and Kleinert's (2016) approach; third, the model considers the possible contractionary effects arising from the balance sheet effects of a large devaluation (Krugman and Taylor, 1978), i.e. the real consequences of the financial stress that some categories of agents would incur because of their exposures in foreign currencies regulated by contracts under foreign law; finally, the simulations control for the possibility of a banking crisis by drawing on the results of Céspedes (2005).

The next section describes the model used in the scenario analyses. Section 3 describes the counterfactual scenarios. Section 4 presents the simulation results. Section 5 is devoted to sensitivity analyses. In Section 6, we formulate some concluding remarks.

2. The model

The scenario analysis is carried out with a medium-sized structural econometric model of the Italian economy. Structural models are often used to assess the macroeconomic consequences of major institutional changes (see e.g. Pain and Young, 2004; Baker et al., 2016; Ebell et al., 2016). As with every econometric methodology, they have strengths and weaknesses as shown for instance by Bacchini et al. (2013). However, as far as the EMU is concerned, the main criticism of the structural approach, namely, its potential vulnerability to Lucas's (1976) critique, was found to be empirically irrelevant by Smith (2009). Granger and Newbold's (1974) criticism that estimated structural equations may reflect spurious correlations can be dealt with by using cointegration techniques, as we have done in estimating our equations. Finally, another major criticism, Sims's (1980) claim that structural models impose "incredible" overidentifying restrictions, must be gauged against the fact that the VAR approach, proposed to overcome this potential shortcoming, can be applied to a relatively limited set of variables, and as a consequence does not allow the researcher to design detailed scenarios. This may explain why central banks of EA member countries rely on structural models (among others) for forecasting and policy analysis (Fagan and Morgan, 2005).

Table 1 summarizes the model's structure (a complete description of the model's equations, data sources, estimates, and simulation properties is provided by Bagnai and Mongeau Ospina, 2014). The model adopts the AS/AD framework as in the case of models of comparable size (Welfe, 2013): potential output is defined using Cobb-Douglas technology with labour-augmenting technical progress (Eq. [8]); labour demand follows from the same technology (Eq. [9]); capital accumulation is a function of the gap between marginal productivity and user cost of capital (Eq. [10]); aggregate demand is modelled through a standard IS block (Eq. [1]–[7]); the output gap feeds back on price dynamics (Eq. [19]) and on interest rates according to the Taylor rule (Eq. [25]), keeping the model on its long-run growth path. Although national reaction functions such as the Taylor rule are inconsistent with the EA monetary policy implementation, some models run by EA national central banks use national Taylor rules for running counterfactual analyses (Fagan and Morgan, 2005, p. 13). The two other solutions adopted by national models, namely taking interest rates as exogenous, or specifying an area-wide reaction function, are ruled out by the design of our experiments. Indeed, considering the interest rate as exogenous would prevent us from examining its evolution in the

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[1] Italy has experienced one of the most severe banking sector crises: non-performing loans to total gross loans reached 18% 2015 compared to 7% in 2006 (source: World Bank http://data.worldbank.org/indicator/FB.AST.NPER.ZS).

[2] See, e.g., The Economist (2015), or the special issue of the *International Political Science Review* (vol 36, issue 3, June 2015) recently devoted to the analysis of the rise of critical positions towards the euro: "Euroscepticism, from the margins to the mainstream".

[3] These countries include Sweden (which enjoys a *de facto* opt-out since the referendum held in 2003), Poland, the Czech Republic and Hungary.

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[4] Most empirical studies devoted to analysing the effects of a withdrawal from the euro concern a much smaller country, Greece, whose withdrawal would not necessarily endanger the overall existence of the single currency (Kasimati and Veraros, 2013; Papadimitriou et al. 2014).