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**Imbalances and rebalancing scenarios in an estimated structural model for Spain**

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In the first decade of EMU, many southern European countries experienced sharp deteriorations in their external balances, from close-to-balance to large current account deficits. Spain was not alone in experiencing this build-up of imbalances, but its size led to growing concerns. Escalating current account deficits were early on recognised as one of the main challenges for adjustment in EMU (European Commission, 2006, 2008). For example, in its EMU@10 report the European Commission stated "Developments within Member States such as the growth of current account deficits, persistent inflation divergences or trends of unbalanced growth need to be monitored given that the occurrence of spillover effects and the growing interdependence of euro-area economies mean these developments represent a concern not just for the country in question but for the euro area as a whole". (European Commission, 2008, p. 8). The EU's new Macroeconomic Imbalances Procedure (MIP) is designed to deal with this, with a preventive arm to detect the build-up of imbalances and, if a country is placed in an 'excessive imbalance position', a corrective arm requiring corrective action.

While the reduction in external imbalances has started, external indebtedness remains high and further corrections are required. The crucial questions are what factors were behind the build up of imbalances and how a rebalancing can be achieved. This paper uses an estimated structural model for Spain to analyse the factors behind the build-up of imbalances in the Spanish economy. For that purpose we estimate a structural model of Spain as a small open economy in a monetary union and use this to identify the main shocks that have played a role in creating the imbalances. Our model has some features which make it especially suitable to analyse the Spanish economy, namely residential investment and credit constraints as introduced by Kiyotaki and Moore (1997). Given the prominent role of residential investment and innovations in mortgage lending we model housing investment explicitly and allow for collateral constraints. This should both help us in quantifying the extent in which financial innovations have contributed to the boom but also shed light on the effects of a possible credit crunch in mortgage lending.

For a historical decomposition, we use the fitted shocks of the model for a shock accounting exercise to decompose growth rates, domestic demand and trade balance to GDP ratios to quantify the relative contributions of these shocks. This can help to identify the main driving factors behind the build-up of external imbalances and find policies which are most likely to be successful in rebalancing the economy. Our shock decompositions suggest that one of the main factors behind the build-up of imbalances was low real interest rates, linked to the

inflow of cheap capital due to the disappearance of the risk premium and monetary policy set at the euro area level. This conclusion is broadly in line with the findings in other studies.

We proceed by using the model to project forward the correction that is required for a return to steady states. Any reduction in external indebtedness will require significant trade balance surpluses. The crisis may have forced some adjustment, but further corrections are needed. In the model projections, this occurs through a contraction in domestic demand and leads to a period of below trend inflation. The degree of demand contraction and the speed at which it occurs depend crucially on the debt-contingent interest rate premium. Over the estimation period this risk premium is relatively small. But risk assessments have changed fundamentally since the financial crisis, and in order to assess the sensitivity of our results to this risk premium, we compare our projections with an alternative scenario where we assume a lower risk tolerance in the projection period. This second scenario illustrates what could occur in a more risk-averse environment with a higher risk premium related to external indebtedness: it would lead to a much sharper contraction and more prolonged period of deflation. This scenario with a lower risk tolerance of international creditors, would drive net foreign liabilities towards a target of 35% of GDP, as used as threshold in the EU's Macroeconomic Imbalances Procedure MIP, through significant trade surpluses in the projection period. This alternative scenario illustrates the danger for highly exposed countries like Spain of a sudden reappraisal of risks in the financial markets. It also shows that adjustment is then more likely to rely on expenditure reduction than on expenditure switching, with a decline in domestic absorption, in particular in consumption, but the accompanying deflation and decline in unit labour costs also bringing about a strong depreciation of the real effective exchange rate.

This analysis highlights the need for an integrated analysis of external imbalances and a proper framework for addressing such imbalances, as provided in the new Macroeconomic Imbalances Procedure (MIP). As the main driver identified in the model is related to low real interest rates, the correction of the imbalances in the model projections also has to come from an adjustment to the borrowing costs for economic agents. This will lead to a protracted period of depressed demand, and a painful correction to past excess demand growth. This underlines the importance of avoiding the build-up of such imbalances in future. The Macroeconomic Imbalances Procedure (MIP) is intended to deal with this by stricter surveillance and introducing early warning mechanisms that can alert policy makers to the build-up of unsustainable imbalances in order to take timely action. Possible policy responses include timely fiscal adjustment. Although this may be an appropriate strategy for other deficit countries, it should be noted that public sector borrowing was not an important driving factor behind Spain's external imbalances and its fiscal position was, at least up to 2007, on a sustainable path. Policies that improve competitiveness may be called for, in particular reforms reducing wage costs in the tradable sector, but productivity enhancing matters will also raise demand, partly offsetting the net effect on external balances. To the extent that non- fundamental shocks have played a role in the build-up phase, the policy recommendation would be to avoid such bubbles building up in the first place. But whether the inflow of cheap capital in a monetary union can or should be avoided is a more challenging question, if at all possible. Prudential policies in both recipient countries (Spain) of capital flows and source countries (surplus countries like Germany) could have played a role in preventing the build-up of imbalances. Restrictions on the access to credit for households and firms, or policies to promote savings could have been introduced to avoid excessive demand growth in the early years in EMU, but it is not a priori clear whether such policies would be desirable from a welfare perspective.