



Review

A global macro model for emerging Europe



Martin Feldkircher

Oesterreichische Nationalbank (OeNB), Otto-Wagner-Platz 3, 1090 Vienna, Austria

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ABSTRACT

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This paper puts forward a global macro model comprising 43 countries and covering the period from Q1 1995 to Q4 2011. Our regional focus is on countries in Central, Eastern and Southeastern Europe (CESEE) and the Commonwealth of Independent States (CIS). Applying a global VAR (GVAR) model, we are able to assess the spatial propagation and the time profile of foreign shocks to the region. Our results show that first, the region's real economy reacts nearly equally strongly to an U.S. output shock as it does to a corresponding euro area shock. The pivotal role of the U.S.A. in shaping the global business cycle thus seems to partially offset the region's comparably stronger trade integration with the euro area. Second, an increase in the euro area's short-term interest rate has a negative effect on output in the long-run throughout the region. This effect is stronger in the CIS as well as in Southeastern Europe, while it is comparably milder in Central Europe. A similar result is obtained for an U.S. based interest rate shock. Third, the region is negatively affected by an oil price hike, with the exception of Russia, one of the most important oil exporters worldwide. The oil-driven economic expansion in Russia seems to spill over to other – oil-importing – economies in CIS, thereby offsetting the original drag brought about by the hike in oil prices. Finally, our results corroborate the strong integration of advanced economies with the global economy. By contrast, the responses in emerging Europe are found to be more diverse, and country-specifics seem to play a more important role. *Journal of Comparative Economics* 43 (3) (2015) 706–726. Oesterreichische Nationalbank (OeNB), Otto-Wagner-Platz 3, 1090 Vienna, Austria.

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E-mail address: martin.feldkircher@oebn.at

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1. Introduction

Central, Eastern and Southeastern Europe (CESEE) saw rapid economic growth in the years preceding the global financial crisis. The remarkable growth process was accompanied by a steady rise in trade integration with the EU. When the global financial crisis started to unfold, however, growth abruptly stalled. Strong economic ties with Western Europe exposed the region to stress emanating from the global economy. This development highlights the importance of analyzing the CESEE countries in a global context, in particular in a way that allows to model repercussions caused by the global economy.

Recently, the examination of *growth spillovers* to Eastern Europe has thus gathered the attention of policy institutions. In its Spillover Report (see IMF, 2012), the IMF estimates that a 1% GDP shock to Western Europe adds on average about 0.4–1% to output in CESEE, depending on the methodological framework. The EBRD estimates country-specific VARs and introduces external shocks as additional regressors into the corresponding models (see Chapter 2 in EBRD, 2012). Their results point to important country-specifics revealing some countries as strongly vulnerable to a broad range of external shocks (e.g., Ukraine, Baltics), while others have been proven to be rather resilient (e.g., Poland). Other studies that assess the impact of growth shocks on real GDP fluctuations in emerging Europe include Caraiani (2008) for Romania, Krznar and Kunovac (2010) for Croatia and Jiménez-Rodríguez et al. (2010) for ten CEE economies. A second branch of the literature has focused on the effect of euro area based *monetary policy shocks* on emerging Europe (Minea and Rault, 2011; Horváth and Rusnák, 2009; Benkovskis et al., 2011). Both strands of the literature find substantial spillovers for the region.

In this paper we extend the literature surveyed above in several ways. We are the first ones to deliver a consistent global macro model for emerging Europe, which we define in a broad way to cover economies from CESEE and the CIS. Using a global VAR (GVAR) model, we are able to go beyond the simple analysis of a single country's reaction to a foreign shock. Incorporating bilateral economic links, the GVAR framework put forward in Pesaran et al. (2004) allows us to examine within regional spillovers, and consequently knock-on effects through economies that function as gatekeepers to the region. We furthermore extend the time series coverage to include the period of the recent global financial crisis. Since the real economy of the region was strongly affected by the crisis, extending our analysis over the period might yield further insights about how external shocks are transmitted through the global economy. In this vein, we estimate generalized impulse responses of the real economy in emerging Europe to an unexpected decline in euro area real output and an increase in euro area short-term interest rates. To set these responses into perspective, we carry out the analysis for the same shocks emanating from the U.S. economy. Finally, we use a 50% increase in the oil price as a proxy for a hike in commodity prices and look into the response of the region, which consists of both oil exporters and importers. The dynamic analysis is complemented by a forecast error variance decomposition exercise to further investigate the regional propagation of the five shocks outlined above.

The paper is structured as follows. The next section introduces the literature related to our study, while Section 3 lays out the econometric framework. Section 4 illustrates the data and introduces the specification of the model. In Section 5 we carry out five macroeconomic shocks and present the results for CESEE and the CIS based on generalized impulse response functions and a forecast variance decomposition. Section 6 concludes.

2. Related literature

The literature on *growth spillovers* to emerging Europe is limited. Jiménez-Rodríguez et al. (2010) provide the most coherent contribution, using monthly data to examine the impact of various foreign shocks on domestic industrial production via structural near-VAR models. They show for ten Central Eastern European (CEE) countries that industrial production rises significantly after a positive shock to industrial production in the euro area. Strikingly, this effect is even larger if the shock originates in the U.S.A. While the effects of a commodity price shock are found to be rather mixed, a positive shock to euro area interest rate curbs industrial production in the majority of the countries in their sample. Other – country-specific – contributions examining foreign shocks comprise Caraiani (2008), who uses a structural DSGE model to assess the effects of foreign shocks to the Romanian economy. According to his results, euro area demand and interest rate shocks have a moderate impact on domestic output, while supply and interest rate shocks exert a significant and persistent impact on the price dynamics in the economy. Krznar and Kunovac (2010) use a structural VAR to assess the impact of a GDP shock in the EU on the Croatian economy. They find that a 1% increase in EU GDP boosts the Croatian GDP by an astonishing 2% in the long run and conclude that EU GDP shocks are the key determinants of domestic real activity.

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