

Financial Globalisation, Monetary Policy Spillovers and Macro-Modelling: Tales from One Hundred and One Shocks¹

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Abstract

We hypothesise that standard structural monetary macroeconomic models do not adequately account for the importance of cross-country financial spillover channels in the data. We derive and test predictions from this hypothesis using a database of monetary policy shock estimates from more than 100 macro models in the literature. Consistent with our hypothesis we find that standard structural macroeconomic models produce cross-country correlated monetary policy shock estimates. Moreover, consistent with our hypothesis, we find that the magnitude of the cross-country correlation in monetary policy shock estimates from structural macroeconomic models is stronger for country pairs that are more financially integrated with global and US financial markets. Our findings imply that accounting for powerful financial spillover channels in structural macroeconomic models is critical in order to unravel the domestic and international effects of monetary policy.

Keywords: Financial spillover channels, monetary policy shocks, DSGE models, macro-modelling.

JEL-Classification: F42, E52, C50.

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A salient feature of the global economy since the 1990s has been the dramatic rise of financial globalisation. Whether measured by capital flows or indicators reflecting the extent of legal capital account restrictions, economies' financial markets have been exhibiting an increasing degree of interdependence. As a result, the global economy has become subject to large cross-country spillovers through financial channels.

At the same time, important advances in structural monetary macroeconomic modelling have been achieved over the last two decades. In particular, New Keynesian (NK) DSGE models have been established as the standard monetary macroeconomic model. However, despite progress in structural macroeconomic modelling (e.g. financial frictions) many, in particular medium-scale, models used for the analysis of monetary policy still do not routinely account for cross-country financial spillover channels.

In this paper we argue that structural models that do not adequately account for financial spillover channels are prone to providing misleading descriptions of the role of domestic and foreign monetary policy shocks. We test our hypothesis in a meta-study-like fashion. More specifically, we explore the interrelations between estimates of monetary policy shock time series from more than 100 macroeconomic models, including NK DSGE models, empirical reduced-form models, approaches based on financial market expectations and the narrative approach. In a counterfactual Monte Carlo experiment we illustrate that when the true data-generating process is a multi-country model with significant financial spillovers, single-country models that do not feature financial spillover channels produce monetary policy shock estimates that are contaminated by a global component. The common global component gives rise to positively cross-country correlated monetary policy shock estimates and mis-measured estimates of the cross-border spillovers from domestic monetary policy.

We document that there is a significant, positive cross-country correlation between a large number of monetary policy shock time estimates implied by a range of NK DSGE models routinely used in the profession, and that this correlation is likely to stem from a common US component. Moreover, spillover estimates based on these monetary policy shock time series suggest domestic monetary policy affects the rest of the world by the same magnitude for spillover-sending economies that are rather different in terms of their systemic importance in the global economy.

We claim that these surprising and counter-intuitive results stem from the failure to adequately account for the dramatic degree of financial globalisation and the importance of financial spillover channels in the data, resulting in the estimates of monetary policy shocks

obtained from the NK DSGE models being convolutions of the true domestic and US monetary policy shocks. We run regressions that analyse the determinants of the cross-country correlations between the monetary policy shock estimates in our database. Our regression results show that the cross-country correlation between monetary policy shock estimates in our database is indeed higher for economies which are more strongly integrated in global financial markets, and for economies which are more strongly integrated bilaterally with US financial markets.

The empirical evidence we obtain in this paper also supports the hypothesis of a global financial cycle driven by US monetary policy (Bekaert et al., 2013; Bruno and Shin, 2015b,a; Miranda-Agrippino and Rey, 2015; Passari and Rey, 2015; Rey, 2015). Specifically, a prediction from the global financial cycle hypothesis in the light of our paper is that monetary policy shock estimates from NK DSGE models which do not feature powerful financial spillover channels should contain a US component. Indeed, we find that monetary policy shock estimates for non-US economies obtained from NK DSGE models are systematically correlated with their US counterparts, and that the cross-country correlation is larger for country pairs that are more financially integrated with US – in addition to global – financial markets. The empirical evidence we obtain is also consistent with the important role of global banks for the increase in financial integration prior to the global financial crisis (see Goldberg, 2009; Cetorelli and Goldberg, 2012; Bruno and Shin, 2015b,a; Morais et al., 2015). Specifically, we find that the cross-country correlation between monetary policy shock estimates obtained from NK DSGE models is particularly strong for country pairs that are more financially integrated through international banking linkages.

Our paper is related to the literature which finds that powerful financial spillover channels in structural monetary models are crucial in order to replicate the cross-country business cycle correlations in the data (Iacoviello and Minetti, 2006; Ueda, 2012; Yao, 2012; Chin et al., 2015). Within this literature, our paper is most closely related to Justiniano and Preston (2010) as well as Alpanda and Aysun (2014), who find that standard open-economy NK DSGE models fail to replicate the large degree of cross-country business cycle co-movement in the data, and that they imply only a minor role of foreign disturbances for domestic variables. More specifically, these studies find that the theoretical moments implied by the models without powerful financial spillover channels are much closer to their empirical counterparts if it is assumed that the structural shocks are cross-country correlated. This result is consistent with our finding that NK DSGE models that do not account for financial spillover channels produce cross-country correlated monetary policy shock estimates. While the analyses of Justiniano

and Preston (2010) as well as Alpanda and Aysun (2014) are based on counterfactual simulations of specific structural models, in this paper we consider a database of monetary policy shock estimates from more than 180 monetary including non-structural models.

The results from this paper imply that the modelling of powerful financial spillover channels in structural monetary macroeconomic models needs be taken more seriously and to become standard. Standard macroeconomic models without such elements might compromise the likelihood-based estimation of these models and provide severely misleading results regarding spillovers, historical decompositions and estimation of parameters as they are based on a convolution of the true domestic and foreign monetary policy shocks.

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