Economic Modelling 62 (2017) 16–22

Contents lists available at ScienceDirect

Economic Modelling

journal homepage: www.elsevier.com/locate/econmod

The effect of a Chinese slowdown on inflation in the euro area and the United States[☆]

Luca Metelli, Filippo Natoli

Bank of Italy, Italy

ARTICLE INFO

JEL:
F40
F42
E31

Keywords:
China
Slowdown
Deflation
Devaluation

ABSTRACT

We investigate the effect of a Chinese slowdown on inflation in the euro area and the United States using the NiGEM multi-country model. We construct different scenarios including a fall in Chinese aggregate demand, a commodity price slump, financial market corrections and a devaluation of the renmimbi. While the commodity slump has the strongest impact on inflation, the demand and exchange rate shocks also play a role; on the contrary, financial turbulences have minor effects. Finally, we study the extent to which monetary policy in advanced economies can succeed in reflating the economy following such a Chinese slowdown. The room for central bank interventions is large.

1. Introduction

Since 2011, inflation in the euro area and the United States has been declining reaching values closes to zero (Fig. 1). Moreover, since 2014 also long term inflation expectations have been trending down, undershooting the respective inflation targets (Fig. 2). While part of the current disinflationary trend is related, especially for the euro area, to domestic factors, uncertainty about future growth prospects in emerging countries – especially in China – adds further concern. It is therefore important to investigate the potential spillovers that a marked slowdown in emerging economies could generate on advanced countries' inflation.

In this paper we study the impact of a possible Chinese slowdown on inflation in the euro area and the United States using the NiGEM, a multi-country New-Keynesian model designed by the National Institute of Economic and Social Research (NIESR). China's growth has slowed down in the last few years and concerns have been raised about the sustainability of its growth model (Eichengreen et al., 2012; Barro, 2016). Currently, the weakness of its imports, high indebtedness of its non-financial companies and uncertainty about its policy strategy are weighing on international trade flows, commodity prices and financial markets; moreover, capital outflows from China could become unsustainable such that the Chinese central bank stops defending its currency, triggering a devaluation of the renmimbi and possible concomitant devaluations of other managed Asian currencies.

We construct different scenarios to investigate the effects of a marked Chinese slowdown, that we define as a "hard landing". In particular, we assume a fall in Chinese investments, a negative shock to oil and metal prices and a global stock market correction. The analysis is split into three steps. In the first one, we assume that the Chinese authorities keep the renmimbi exchange rate fixed vis-a-vis the US dollar, and that central banks in the euro area, United States, United Kingdom and Japan do not undertake any actions in response to the shock.[1] In the second one, we maintain the assumption on the Chinese exchange rate but we allow central banks to react. A special focus of the analysis is made on the case of the euro area: with policy rates at zero and an ongoing asset purchase programme, we draw some insights on the monetary policy space still available to counter further deflationary pressures. In the third step, we impose a strong depreciation of the renmimbi vis-a-vis the US dollar, that could be motivated by a desire by the Chinese authorities to halt increasingly expensive currency interventions. We extend the latter scenario by imposing a simultaneous devaluation of other Asian currencies in light of their documented comovement with the renmimbi (Ito, 2008, 2010; Fratzscher and Mehel, 2014; Eichengreen and Kawai, 2015).

The main results of our simulation exercise are the following.

[☆] We thank an anonymous referee, Sushanta Mallick, Pietro Catte, Riccardo Cristadoro and Andrea Finicelli for their helpful comments and suggestions. The views expressed in this paper are those of the authors and do not necessarily reflect those of the Bank of Italy. All the remaining errors are ours.

E-mail addresses: luca.metelli@bancaditalia.it (L. Metelli), filippo.natoli@bancaditalia.it (F. Natoli).

[1] In December 2015, the PBOC has announced the introduction of a new currency index, signaling the intention to peg to a basket of foreign currencies instead of the US dollar only. Since then, however, the renmimbi has remained substantially anchored to the US dollar (less than 1% devaluation): in light of this, we still consider the US dollar peg as a reasonable assumption in the first two steps of our analysis.

http://dx.doi.org/10.1016/j.econmod.2016.12.026
Received 10 June 2016; Received in revised form 21 December 2016; Accepted 23 December 2016

0264-9993/ © 2016 Elsevier B.V. All rights reserved.

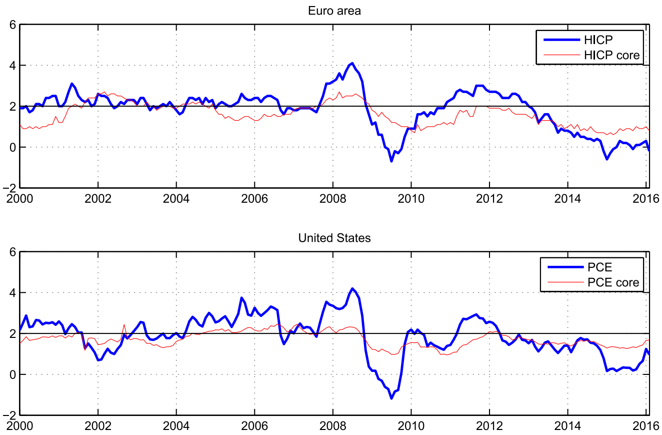

Fig. 1. Inflation, Fig. 1 reports HICP inflation for the euro area and PCE inflation for the United States. Core indexes are all items less food and energy.

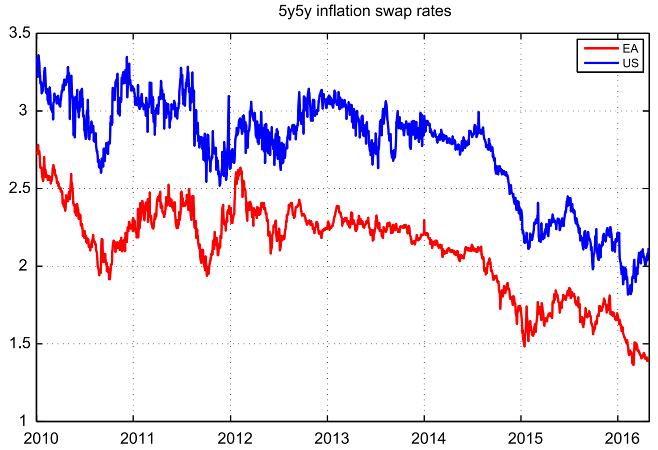

Fig. 2. Long-term inflation expectations, Fig. 2 reports long-term inflation expectations proxied by 5y5y forward inflation swap rates. The underlying inflation indexes are the HICPxT for the euro area and the CPI for the US.

Evaluating the effects over the first two years, we find that the negative commodity price shock has the strongest impact on inflation in both the euro area and the US; the slowdown of Chinese growth and the depreciation of the renmimbi also play an important role, but their effects are lagged. By contrast, the financial shock and the devaluation of other Asian currencies have minor effects on inflation. Concerning central bank reactions, we find that monetary policy in the euro area and the US can offset part of the disinflationary spillover.

Our main contribution is to carry out a comprehensive investigation of the main transmission channels to foreign inflation of a wide range of shocks hitting the Chinese economy, including financial shocks and exchange rate shocks. Recent papers that have simulated the spillover effects of a Chinese hard landing include Ahuja and Nabar (2012), OECD (2015), IMF (2015), Gauvin and Rebillard (2015) and Kireyev and Leonidov (2016); however, they have mainly evaluated the transmission to GDP growth rather than inflation. We also contribute to the ongoing debate on available monetary policy space in advanced countries by studying the effectiveness of monetary policy responses, both conventional and unconventional.

The advantages of using the NiGEM model for this exercise are twofold. First of all, a framework that links a large number of countries (more than 50) is suitable to reproduce the propagation of shocks through a network of trade linkages or the cross-border impact of financial shocks through internationally diversified portfolios.[2] Secondly, being microfounded, the model incorporates the structural characteristics of each economy (e.g., different degrees of price stickiness) and allows flexible specifications of the shocks; the shortcoming is that the identification of each transmission channel is not straightforward.

The rest of the paper is organized as follows. Section 2 presents a brief overview of the main features of the NiGEM and describes the main transmission channels to inflation. Section 3 describes the results under the assumption that major central banks do not react. Section 4 proposes the alternative scenario, in which central banks in the major advanced economies respond to the previously described shocks. Section 5 investigates the effects of the devaluation of the renmimbi and of other linked Asian currencies. Section 6 concludes.

2. Model features and transmission channels

2.1. Overview of the NiGEM

The NiGEM is a global framework that comprises more than 50 economies, some of them modeled individually, the others as regional blocks.[3] For all economies there are equations specifying domestic demand, export and import volumes, prices and the current account. The demand side affects output in the short-run, while a production function including labor, capital and oil usage determines the long-term steady-state; there is a government sector and different alternative specifications for the short-term interest rate, among which the Taylor rule and the possibility of pegging monetary policy to the United States or the euro area.

Economic agents set wages and prices in a forward-looking manner; equity prices are the discounted value of future profits of firms; long-term interest rates are the convolution of future short rates; finally, the uncovered interest rate parity (UIP) links the short-term rate and the exchange rates of countries that have an autonomous monetary policy. Consumption and investment depend on present discounted income and wealth and on the expected interest rate path. The framework is partly calibrated and partly estimated; a dynamic error-correction structure allows the model to adjust gradually towards equilibrium in response to shocks.

Economies are linked through trade, competitiveness and financial markets. Demand for exports equals total imports across the world, and exchange rate fluctuations and changes in export prices affect the relative price competitiveness of each country. Agents hold a portfolio of domestic and foreign bonds and equities, so that volatility in the price of these assets creates cross-country spillovers through wealth effects in foreign portfolios. Commodity prices depend on global export prices of non-commodities and on the intensity of commodities of output in each economy; however, commodity demand is not significantly responsive to aggregate demand shocks, and this is particularly an issue in countries, like China, in which aggregate demand is highly commodity-intensive.

2.2. Transmission channels to foreign inflation

In the NiGEM, consumer prices are a function of a domestic component, i.e. unit total costs of inputs, and a foreign one, i.e. the

---

[2] Two types of indirect or third-party effects on inflation are relevant in our simulation: (1) the induced growth slowdown in South Korea and other Asian countries amplifies the

(footnote continued)
fall in euro area and US export volumes and import prices; (2) the slowdown in commodity exporters' growth – notably Russia, the Middle East and African countries – that follows the commodity price shocks adds further negative price pressures in the advanced economies.

[3] The main properties of the NiGEM are discussed in Barrell et al. (2004). The structure of the equations can be found on the Niesr website (http://www.niesr.ac.uk. Most OECD economies and other advanced and emerging countries are modeled individually, while regional blocks are Latin America (excluding Brazil), Africa (excluding South Africa), East Asia, Developing Europe, OPEC countries and a miscellaneous group comprising mainly countries in West Asia.

Download English Version:

https://daneshyari.com/en/article/5053252

Download Persian Version:

https://daneshyari.com/article/5053252

Daneshyari.com