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The ECB's asset purchase programme: A model-based evaluation

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HIGHLIGHTS

- I use a DSGE model to assess the ECB's recent asset purchase programme.
- The macroeconomic effects are potentially important when the programme is associated with forward guidance.
- The signalling that the future monetary policy stance will remain accommodative is the prominent transmission channel.

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ABSTRACT

This paper uses a dynamic stochastic general equilibrium model with financial frictions to quantify the effects of the European Central Bank's recent asset purchase programme. Our results suggest that the macroeconomic effects of purchases are potentially important when the programme is associated with forward guidance on the interest rate. The signalling that the future monetary policy stance will remain accommodative is the prominent transmission channel.

1. Introduction

In January 2015, the European Central Bank (ECB) announced the launch of an asset purchase programme (APP) with the objective to provide additional monetary policy stimulus in face of increasing deflation risks. It consists of purchases of private securities and euro-denominated investment-grade securities issued by euro area governments and institutions in the secondary market. Under this programme, the combined monthly purchases of public and private sector securities will amount to 60 billion euros and are intended to be carried out at least until end-September 2016. In March 2015, the first month of purchases under the APP, the amounts purchased were in line with the monthly target, comprising around 47 billion euro of sovereign bonds (with an average residual maturity of 8.6 years).

Theoretically, asset purchases produce two types of effects, though the prospect of supply scarcity (Krishnamurthy and Vissing-Jorgensen, 2011; D'Amico et al., 2012; Bauer and Rudebusch, 2014). First, it reduces the actual availability of those assets in the market, leading financial institutions to reallocate their portfolios (*portfolio rebalancing channel*). Greater demand for other assets increases their prices and lowers their yields. Higher asset prices increase the wealth of holders, which should result in a boost to their spending. Falling bond yields reduce the borrowing costs for corporates resulting in investment. Second, it modifies market expectations about further credit easing in committing to bring down interest rates (*signalling channel*). In addition to the announcement effect, a central bank may give signals to the market about the future path of interest rates or the probability of a future policy intervention (forward guidance), so allowing the market to discount it over a longer period of time and reducing market impact.

By introducing the evolution of the Eurosystem asset portfolio deriving from the APP in a dynamic stochastic general equilibrium (DSGE) model, this paper quantitatively assesses the macroeconomic effects of this non-standard monetary policy measure. We show that the impact on the economy of purchases is potentially

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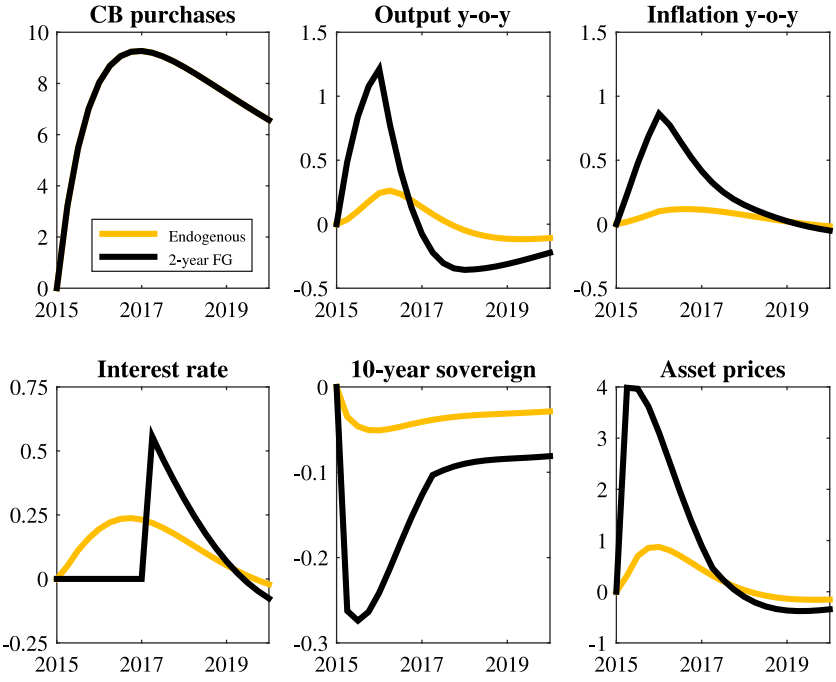

Fig. 1. Government bond purchase shocks with and without forward guidance.

important, especially when the programme is associated with forward guidance. The ECB's signalling that its future monetary policy stance will remain accommodative is the prominent transmission channel.

2. The framework

The framework is based on Gertler and Karadi (2013) and Cahn et al. (2014). The model economy is comprised of final good producers, intermediate goods producers, capital producers, households, a banking sector, employment agencies and the public sector (government and central bank). Households consume, save, and supply labour. They can hold private securities and long-term government bonds that are subject to transaction costs. Labour unions differentiate labour and sets wages in a monopolistically competitive market. Competitive labour packers buy labour services from the unions, pack it and sell it to intermediate goods firms. The goods market has a similar structure: retailers buy goods from intermediate goods firms, differentiate them and sell them in a monopolistically competitive market. The intermediate goods firms finance their capital acquisitions each period by obtaining funds from commercial banks. Capital producers purchase investment and depreciated capital to transform them into effective capital useable by intermediate goods firms for production. They face adjustment costs for investment. The aggregate final good is produced by perfectly competitive firms assembling a continuum of intermediate goods.

Banks transfer funds from households to firms, as well as to the government. The balance sheet of a bank simply states that net worth and deposits should be equal to the quantity of financial claims on intermediate goods firms times the price of each claim and the quantity of long-term government bonds times the price of each bond.[1] Banks face an incentive constraint stemming from

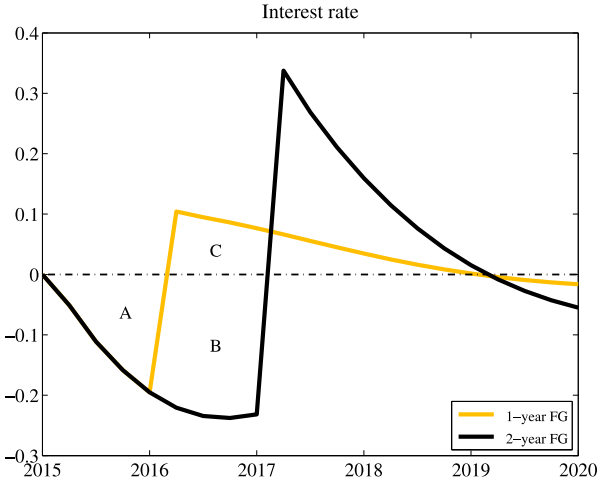

Fig. 2. Accommodation area with a 1-year and 2-year forward guidance.

their ability to divert a fraction of their private loan portfolio and a fraction from their government bond portfolio and transfer the proceeds to the household of which she is member. The depositors require to be willing to supply funds to the banker that the gains from diverting assets should be less or equal than the costs of doing so. The cost to the banker is that the depositors can force the intermediary into bankruptcy and recover the remaining fraction of assets. However, it is too costly for the depositors to recover the funds that the banker diverted. In equilibrium, bankers charge a higher interest rate on loans than the interest rate they pay on deposits. This credit spread turns out to be counter-cyclical, thus proving an important amplification and propagation device.[2]

The central bank conducts monetary policy either by adjusting the short-term interest rate (via a Taylor-type rule) or by engaging

[1] Each government bond is assumed to be a consol that pays one euro in perpetuity. The long-term government rate is then computed as the constant per-period nominal discount rate that yields the same nominal value as the consol, given the same sequence of coupon payments.

[2] When the incentive constraint is binding, limits to arbitrage emerge that lead to a positive excess return on government bonds (i.e. the spread between the rate of return on bonds and the rate of return on the short-term debt) in equilibrium.