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Money and inflation: Consequences of the recent monetary policy☆

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Abstract

We use a multivariate state space framework to analyze the short run impact of money on prices in the United States. The key contribution of this approach is that it allows to identify the impact of money growth on inflation without having to model money demand explicitly.

Using our results, that provide evidence for a substantial impact of money on prices in the US, we analyze the consequences of the Fed's response to the financial crisis. Our results indicate a raise of US inflation above 5% for more than a decade. Alternative exit strategies that we simulate cannot fully compensate for the monetary pressure without risking serious repercussions on the real economy. Further simulations of a double dip in the United States indicate that a repetition of the unusually expansive monetary policy – in addition to increased inflation – might cause growth losses exceeding the contemporary easing of the crisis.
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1. Introduction

Central banks all over the world increased money supply substantially in reaction to the current financial crises.[1] While this does not cause inflationary pressure at the moment due to the current business cycle environment, the question arises if and when excess liquidity endangers price stability.

While the long run relation between money and inflation is well established, empirical evidence on the transmission mechanism is very heterogeneous. Partially, this is due to the high dependency of the adjustment process on the current economic and institutional environment. This in turn induces strong volatility in the transmission from money to prices that renders current and lagged money growth ineffective in explaining inflation.

A key issue in the identification of the relation between money and prices is the identification of the "money overhang". Since movements of money supply, that do not correspond to a matching money demand, first of all cause velocity to deviate from its equilibrium, this requires a decomposition of velocity into equilibrium and deviation.

First attempts in this direction have been undertaken by Orphanides and Porter (2000, 2001), who rely on the difference between velocity and the predicted velocity of a simple regression model for their decomposition.

Contrarily to their approach, we embed the decomposition in a full fledged macro econometric framework, that is inspired by the two pillar Phillips-curve P-Star-model developed by Gerlach and Svensson (2003).

While our paper is focused on explaining inflation, it relies on the long run assumptions that are commonly used in the money demand literature, where the long run validity of the quantity theory, is often taken for granted. Besides integrating the strands of literature that focus on the driving forces of inflation and money demand respectively, the present paper contributes to the literature in several ways.

First, we distinguish changes in money velocity that are due to institutional developments and thus do not induce inflationary pressure and changes that reflect transitory movements in money demand. Most notably we develop a multivariate state space model of velocity that allows a decomposition within a structural model, without applying restrictions on the causes of velocity development.

Then, we use our model to illustrate the consequences of the monetary policy that has been employed to mitigate the impact of the financial crisis. In addition to the simulation that is derived using the past behavior of the central bank, we discuss different exit strategies and potential developments when facing a "double dip" in the US.

In situations such as the one following the crisis, where monetary policy has strongly been using instruments beyond interest rates that dominated monetary policy in the past decades, our monetary approach seems especially relevant for policy evaluation.

The remainder of the paper is structured as follows. Section 2 further outlines the underlying theoretical concepts and relevant literature. Section 3 introduces the dataset that is used for our estimations. Section 4 presents the methodology that is used for velocity filtering. The

[1] In the fourth quarter of 2008, immediately after the collapse of Lehman, the monetary base has been increased by roughly 50% in a single quarter. While the impact on M2 that is traditionally employed to analyze the relationship between money and prices is substantially smaller, the growth rates in 2008Q4 and 2009Q1 (3.5% and 3.0%) have been the highest rates observed since the 1970s.

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