Available online at www.sciencedirect.com
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Int. Fin. Markets, Inst. and Money 17 (2007) 403–419
Journal of INTERNATIONAL FINANCIAL MARKETS, INSTITUTIONS & MONEY
www.elsevier.com/locate/intfin

Global monetary policy shocks in the G5: A SVAR approach

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Received 18 October 2005; accepted 15 March 2006
Available online 27 April 2006

Abstract

The paper constructs a global monetary aggregate, namely the sum of the key monetary aggregates of the G5 economies (US, Euro area, Japan, UK, and Canada), and analyses its indicator properties for global output and inflation. Using a structural VAR approach we find that after a monetary policy shock output declines temporarily, with the downward effect reaching a peak within the second year, and the global monetary aggregate drops significantly. In addition, the price level rises permanently in response to a positive shock to the global liquidity aggregate. The similarity of our results with those found in country studies might support the use of a global monetary aggregate as a summary measure of worldwide monetary trends.

JEL classification: E52; F01

Keywords: Monetary policy; Structural VAR; Global economy

1. Introduction

Over recent years, monetary trends in the major industrialized countries have exhibited many similarities. Moreover, several commentaries suggest that global liquidity significantly affects financial conditions in international markets and that liquidity developments in one financial center can influence financial conditions elsewhere. However, so far only a limited number of studies have examined the role of shocks to monetary aggregates in driving business fluctuations or, more generally, in influencing the behavior of global macroeconomic and financial variables.

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1042-4431/$ – see front matter
doi:10.1016/j.intfin.2006.03.001

After the early attempt by McKinnon (1982), in which the author studied the effects of changes in the "world money supply" on US price inflation, only recently sound econometric works emerged on the issue of cross-country monetary spillovers (Baks and Kramer, 1999; Kim, 2001; Holman and Neumann, 2002; Canova, 2005). This paper follows this recent strand of research and goes a step further by studying the effects of shocks to global money on global inflation and output.

The analysis is based on an aggregated model of the most industrialized countries. The basic idea is to use global (G5) monetary aggregates in order to pool information from several countries to assess to what extent stylized facts in closed economies can be extended to a broader global model. In fact, such global aggregates are likely to internalize cross-country movements in monetary aggregates (due to capital flows between the different regions) that may make the link between money and inflation and output more difficult to disentangle in the single country case.

A further motivation of this paper is to investigate to what extent a global monetary aggregate can be useful for analyzing international liquidity conditions. Several institutions (ECB, IMF, OECD) have used global aggregates as summary measures of the worldwide monetary situation. Since we think that such use deserves a rigorous test of the information content of global monetary indicators, we propose in this paper an econometric analysis based on the structural VAR approach. In fact, a mere correlation between global money and global inflation and/or output is not sufficient to determine the direction of the relationship between the variables given that they are all endogenously determined. In this regard, the structural VAR approach is a more powerful methodology to investigate this link, as it controls for the interactions between the variables allowing us to provide a more appropriate assessment of the contribution of monetary shocks to global output and inflation.

The paper is organized as follows: Section 2 provides some information and stylized facts about global liquidity and its relationship with other aggregated variables, Section 3 presents the empirical framework of the SVAR analysis. In Section 4 we introduce our global model with aggregate variables for the group of the G5 countries. In Section 5 we perform a robustness check while Section 6 concludes.

2. Preliminary evidence on global liquidity

The global liquidity aggregate analyzed in this paper is constructed as a sum of the reference monetary aggregates for the US, the Euro area, Japan, the UK and Canada using exchange rates vis-à-vis the euro based on purchasing power parities to convert them into a common currency (see data Annex for further details).[2]

In order to get some insights into the series underlying the global liquidity aggregate, Fig. 1 plots the annual growth rate of broad monetary aggregates in different countries in domestic currency. As can be seen in the chart, although money growth rates in the different areas seem to be only weakly correlated in the short-run, in longer periods there appears to be clear co-movements. In particular, the 1980s are characterized by higher monetary growth almost everywhere, while in the 1990s average money growth was lower in all the economies considered. In addition, in the early 1990s there is a clear slowdown in money growth that has occurred at about the same time in most of the countries. Only in the Euro area, such slowdown took place somewhat later, in the years

[2] The monetary aggregates have been chosen by looking at the most common indicators used in the econometric literature, for each country, when dealing with money demand and supply. See Sims and Zha (1998), Hendry and Mizon (1998), Coenen and Vega (2001), Yamada (2000) and Holman and Neumann (2002), among others.