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ScienceDirect
Journal of Macroeconomics 30 (2008) 977–990
Journal of MACROECONOMICS
www.elsevier.com/locate/jmacro

Monetary policy and the US housing market: A VAR analysis imposing sign restrictions

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Received 7 July 2006; accepted 10 July 2007
Available online 28 July 2007

Abstract

This article examines the impact of monetary policy shocks on the US housing market using an identification procedure similar to the one suggested by Uhlig [Uhlig, H., 2005. What are the effects of monetary policy on output? Results from an agnostic identification procedure. Journal of Monetary Economics 52, 381–419]. The identification procedure imposes sign restrictions on the response of some variables for a certain period. No restrictions are placed on the response of the housing variable. Overall, the results indicate that housing starts and residential investment respond negatively to contractionary monetary policy shocks. However, the magnitude of the impact is sensitive to the selection of the horizon for which the restrictions hold. Moreover, a comparison of the results with those obtained from a conventional Choleski decomposition, suggests that the impact of monetary policy on the housing market is much less certain under the sign restrictions approach.

JEL classification: E52; R2; C32

Keywords: Monetary policy; Housing; VAR

1. Introduction

There is plenty of evidence in the literature suggesting that the housing market is linked to aggregate economic activity in the US (e.g. Iacoviello, 2005). Housing investment is an

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0164-0704/$ - see front matter
doi:10.1016/j.jmacro.2007.07.004

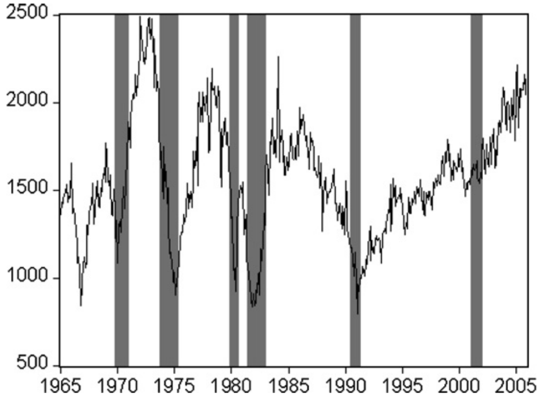

Fig. 1. Housing starts (thousand units, annualized) and recessions as determined by the NBER (shaded areas). *Source*: US Census Bureau.

important indicator of household wealth (Case et al., 2005), and at the same time is one of the most volatile sectors of the US economy (Bernanke and Gertler, 1995). The importance of the housing market is clearly visible in Fig. 1, which plots the number of new privately owned housing units starts each year (solid line), and recessions as determined by the National Bureau of Economic Research (shaded areas). It is common for a large drop in housing starts to precede a recession.[1]

This article examines the impact of monetary policy innovations on the US housing market. In a recent testimony before the US Congress, the Chairman of the Federal Reserve Ben S. Bernanke argued that "given the substantial gains in house prices and the high levels of home construction activity over the past several years, prices and construction could decelerate more rapidly than currently seems likely. Slower growth in home equity, in turn, might lead households to boost their saving and trim their spending relative to current income by more than is now anticipated", Federal Reserve Board (2006). The events in the housing market have a significant effect on household wealth, and thus have a big influence over household behavior.[2] Therefore, a comprehensive analysis of the impact of monetary policy on the housing market is necessary in order to understand the impact of monetary policy on the whole economy.

There is an extensive literature on the impact of monetary policy on different sectors of the US economy (for some examples in the housing sector, see Ahearne et al., 2005; Falk, 1986). Vector autoregressive (VAR) models are commonly used to measure the impact of monetary policy innovations. VARs provide a plausible assessment of the response of macroeconomic variables to monetary policy shocks without requiring a

[1] The housing market is perceived as having predictive power over the future course of the economy. For instance, the Conference Board includes housing starts as an element of its Index of Leading Economic Indicators (Fratantoni and Schuh, 2003). Moreover, Green (1997) shows that there is Granger causality from housing investment to GDP, while there is no Granger causality from non-residential investment to GDP.

[2] A similar view about the importance of the housing market for analyzing household behavior is shared by the former Chairman of the Federal Reserve Alan Greenspan. In a testimony before the US Congress, Greenspan stated that "among the factors contributing to the strength of spending and the decline in saving have been developments in housing markets and home finance that have spurred rising household wealth and allowed greater access to that wealth", Federal Reserve Board (2005).