



Housing markets and unconventional monetary policy



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ABSTRACT

While the role of housing markets in the run up to the recent financial crisis is well documented, we consider how housing markets have since responded to unconventional monetary policy shocks in the form of innovations in total assets and the monetary base. We build quarterly and monthly housing market datasets for eight OECD countries, estimating a range of specifications in panel vector autoregressions identified through a combination of zero and sign restrictions across both frequencies. Despite a minor amount of individual cross-country heterogeneity, our mean group panel estimators show a positive, persistent response of house prices which peaks at between one and two years following a policy shock. Residential investment responds more strongly than house prices, but takes longer to peak, consistent with the conveyancing procedures involved in construction. Mortgage rates are shown to initially decrease by between five and six basis points following a 3% balance sheet shock.

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1. Introduction and policy background

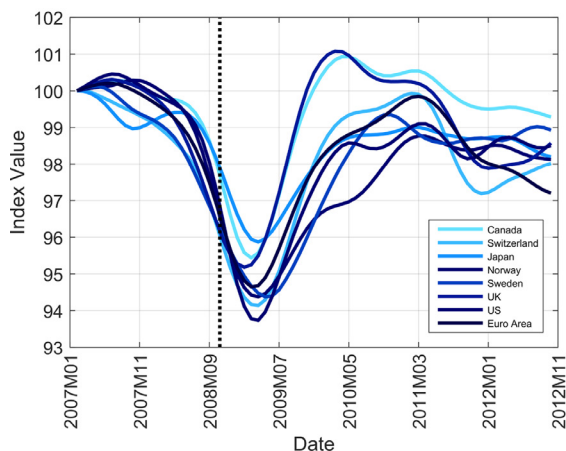
The recent financial crisis, developing out of the faltering United States mortgage market and two collapsed Bear Sterns hedge funds, began its trajectory as early as March 2007. With the threat of global financial and economic instability looming large in the world's most developed economies, governments and central banks began to pursue unorthodox policies in the face of recessionary and deflationary fears in order to prevent a collapse akin to the Great Depression of 1929. While most countries have pursued a mix of monetary and fiscal policies, some actions taken by central banks in response to the crisis have often been termed 'unconventional'. Such policies quickly became the primary monetary policy tool after interest rates began their descent to the zero lower bound (ZLB). Following the collapse of Lehman Brothers Holdings Inc. (15th September, 2008), formerly the fourth largest investment bank in the United States, economic confidence indicators

fell and implied stock market volatility rose dramatically (Fig. 1). While malfunctioning residential markets are well accepted as one of the primary originators of the crisis, this paper analyzes their response to the unconventional policy measures undertaken since.

The role of housing is vital in the transmission mechanism of monetary policy. The first potential channel – the contentious housing wealth effect – has a significant body of literature in its own right, with varied empirical findings. There is also the closely related potential for a substitution effect, specifically concerned with the relative price of housing to other goods and services. It is also possible that turnover in housing markets creates aggregate demand in the form of transaction costs associated with high housing turnover, such as surveying fees, fixtures and furnishings, or a transaction related tax. Academic models postulate that house prices are integral to determining the magnitude of residential investment (and, in particular, housing starts – Leamer (2007)) which can subsequently stimulate the supply side of an economy and create real activity. Another mechanism by which monetary policy may affect housing markets is through the credit channel

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1.1 Confidence leading indicators



1.2 Implied volatility of national stock markets

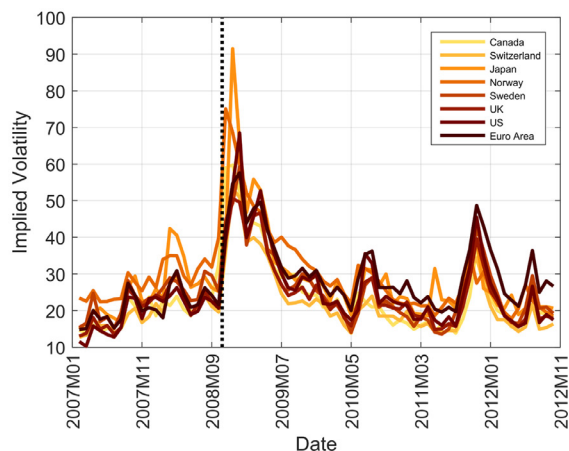


Fig. 1. Economic indicators during the 'Great Recession', source: OECD and volatility indices, dashed – collapse of Lehman Brothers Inc.

by means of collateral values, as described in the model outlined in [Iacoviello \(2005\)](#). An important example of this channel is provided by [Fuster and Willen \(2010\)](#) who show that large reductions on agency mortgage-backed security rates around the 25th of November 2008 were quickly followed by large reductions in residential mortgage rates offered by lenders to households, something also considered in this paper. Unconventional monetary policy can reduce real interest rates, reducing the user cost of housing, and therefore increasing the demand for (and price of) houses.

Following the financial crisis, it has never been more important to estimate the impact of policies on the value of residential assets. Any asset whose value is linked to residential real estate is an essential component of the aggregate portfolio of financial intermediaries, and therefore significant for the wider economy. The need for this study can also be identified throughout the early literature on quantitative easing stemming from the crisis, where it is claimed: 'Analysis suggests that the purchases have had a significant impact on financial markets and particularly gilt yields, but there is clearly more to learn about the transmission of those effects to the wider economy' ([Joyce et al., 2011, p.4](#)). However, because of the nature of the crisis and the policies involved (due to the presence of the ZLB), standard econometric tools which would have otherwise included estimation across a pre-crisis period are not appropriate. We create a dataset for both monthly and quarterly housing variables across the crisis period, informed by pre-crisis studies such as [Goodhart and Hofmann \(2008\)](#) and [Assenmacher-Wesche and Gerlach \(2008\)](#) which consider the response of house prices to conventional monetary policy shocks in PVAR models. We use this dataset (and variants of the baseline specification) to analyze the response of housing markets following an unconventional monetary policy shock.

Fig. 2 shows the time paths of central bank total assets and the monetary base. While there has been a strong cross-country correlation in the rise of central bank total

assets as a policy tool, with the balance sheets of the Federal Reserve and the European Central Bank tripling, the size of the balance sheet of the Bank of England rose more than fivefold. The central banks of smaller economies, such as the Swedish Riksbank, the Swiss National Bank, and, to a lesser extent, the Bank of Canada also expanded their balance sheets sharply after September 2008 (and such actions guide our sample selection in the remainder of the paper). However, such policies have been predominantly heterogeneous in the ways they were undertaken. The transmission of such policies to housing markets is also likely to be strongly characterized by the institutional structure regarding how mortgage finance is provided. In general, the countries in our sample are those which have experienced faster and deeper innovations in mortgage markets, such as the United Kingdom, the United States, Canada and the Nordic countries, and tend to have a higher stock of mortgage debt as a ratio to GDP, compared to the international averages. This heterogeneity helps to drive our research design.

As argued for in both the theoretical and empirical literature ([Section 2](#)), countries with a larger stock of mortgages may be expected to experience stronger effects of monetary policy shocks. This will not only depend on the proportion of owner-occupiers, but the amount of debt outstanding per residence. Areas with a higher proportion of variable (as opposed to fixed) rate mortgages may be more sensitive, and variation in loan-to-value (LTV) ratios may cause a heterogeneous degree of pass-through, magnified by variations in mortgage/credit market efficiency. The remainder of this paper is structured as follows. We next discuss the literature along four inter-related paths ([Sections 2.1 to 2.4](#)). Following this, we detail the intricate construction of our monthly and quarterly housing market datasets across eight OECD countries in [Section 3](#). In [Section 4](#) we discuss the estimation method and identification scheme. In [Section 5](#) we document our results and finally, [Section 6](#) concludes.

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