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Housing market dynamics in a small open economy: Do external and news shocks matter?



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ABSTRACT

We study the sources of fluctuations in the housing market of a small open economy. We use an estimated dynamic stochastic general equilibrium (DSGE) model and data from seven small open economies to assess the quantitative effects of both contemporaneous and news shocks to domestic and external fundamentals on housing market dynamics. External shocks and news shocks have significant effects. Cyclical fluctuations in housing prices and housing investment are mainly driven by contemporaneous shocks related to foreign housing preferences and terms of trade, and by news shocks related to domestic consumption-goods technology, housing preferences and terms of trade. The spillover effects of external shocks on housing prices are notably larger than those of domestic shocks.

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1. Introduction

What are the sources of fluctuations in the housing market? This is an important question for an economy with highly leveraged housing. In the small open economy of Hong Kong, more than half of households own residential property and the net housing wealth is three times the GDP.¹ If there was

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¹ According to the Hong Kong Census and Statistics Department, the home ownership rate in Hong Kong was 51.2% in 2013. Net housing wealth is defined as the market value of private residential housing minus the value of outstanding mortgage loans. In 2013, the ratio of net housing wealth to GDP was 3.2. For comparison, in 2010 the ratio was 2.1 for Canada and 1.8 for the US (Wong, 2014).

a substantial collapse in the housing market, the wealth of most households would decrease significantly. A decline in housing prices might lead to negative equity for those households with mortgages and reduce their consumption and investment thereafter.

Economists use different quantitative theory approaches, mainly in the context of business cycle models, to investigate the driving forces behind housing market fluctuations. [Davis and Heathcote \(2005\)](#) develop a neoclassical multi-sector stochastic growth model. They find that contemporaneous (unanticipated) shocks to sector-specific technology can generate highly volatile housing investment. [Ortalo-Magné and Rady \(2006\)](#) develop a life-cycle model with a housing market featuring ‘starter’ and ‘trade-up’ homes. They show that unanticipated shocks to household income generate housing price overreaction, with the prices of trade-up homes exhibiting the highest volatility. [Monacelli \(2009\)](#) introduces a collateral constraint in the New Keynesian model. He finds that contemporaneous shocks to monetary policy can generate highly volatile durable spending and a positive correlation between durable and non-durable spending. [Iacoviello and Neri \(2010\)](#) build a dynamic stochastic general equilibrium (DSGE) model of a housing market. They find that unanticipated shocks to housing demand and to housing technology together account for half of the variance in the US housing prices and housing investment.² [Liu et al. \(2013\)](#) develop a DSGE model with land as a collateral asset in firms’ credit constraints. They find that contemporaneous shocks to housing demand drive large swings in land prices and strong co-movements between land prices and investment.

Some survey studies, such as those of [Case and Shiller \(2003\)](#) and [Piazzesi and Schneider \(2009\)](#), find that booms in the US housing prices are related to optimism about future housing price appreciation. Such optimism may be linked to expectations of future fundamental factors such as household income or domestic interest rates. A few recent studies use business cycle models to study the role of expectation (news shocks) in driving housing market dynamics. [Lambertini et al. \(2012\)](#) find that news shocks related to productivity and monetary policy can generate housing market booms. However, only expectations of monetary policy and inflationary shocks that are not fulfilled can generate recessions. [Tomura \(2013\)](#) develops a business cycle model with heterogeneous expectations among households. The model implies that the over-optimism of borrowers generates boom–bust cycles in the housing market, if borrowers are credit-constrained and savers do not share their optimism. [Gomes and Mendicino \(2015\)](#) find that news shocks related to productivity, cost-push inflation and monetary policy account for 37% of the variance in housing prices and explain well the US housing market cycles in the last three decades.

The abovementioned articles focus on a closed economy and on the effect of domestic shocks on housing market dynamics. Some recent studies attempt to address the role of external shocks in explaining housing market fluctuations in small open economies. By default, a small open economy is a price-taking economy that participates in international trade, but is small enough that its domestic policies do not affect world prices or interest rates. [Bao et al. \(2009\)](#) show that world interest rate shocks drive fluctuations of the relative rental price of housing, which can amplify the responses of output and inflation. [Tomura \(2010\)](#) finds that uncertainty about the duration of a rising trend of terms of trade can generate boom–bust cycles in housing prices if the economy is open to international capital flows. [Hu and Zhang \(2011\)](#) incorporate the financial accelerator mechanism in the household and entrepreneur sectors. They find that unanticipated shocks to interest rates account for 97% of the volatility of housing prices in Hong Kong. [Funke and Paetz \(2013\)](#) develop a small open economy DSGE model with a housing market. They find that contemporaneous shocks to domestic housing preferences dominate foreign demand shocks in explaining fluctuations in the Hong Kong property price inflation.

To the best of our knowledge, existing studies on housing market dynamics in small open economies focus on the role of contemporaneous shocks to external fundamentals such as terms of trade

² [Ng \(2015\)](#) applies the model of [Iacoviello and Neri \(2010\)](#) to analyse the housing market in China and arrives at similar findings. He also finds that housing preference shocks are positively related to sex ratio and negatively related to the equity market index.

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