



The asymmetric impacts of monetary policy on housing prices: A viewpoint of housing price rigidity

I-Chun Tsai *

Department of Finance, National University of Kaohsiung, Taiwan, ROC

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ABSTRACT

Previous studies have discovered the defensive characteristics of housing prices, which is also known as downward price rigidity. This paper discusses whether this feature would result in an asymmetric relationship between housing prices and monetary policy. This paper first uses the loss aversion behavior of traders to assess the viability of housing price rigidity in the housing market and to deduce further that if downward housing price rigidity actually existed, then the impact of monetary policy on housing prices should be asymmetric. For empirical tests, this paper uses data from the UK housing market and then uses the money supply as the proxy variable of monetary policy. The relationships between these two variables are observed. This paper performs estimation using both traditional and threshold error correction models by comparing the coefficients of both models. The results indicate that housing price is indeed asymmetrically adjusted to money supply. When housing prices increase to reflect a loose monetary policy, a modification behavior is evident. Conversely, housing prices cannot easily reflect a tight monetary policy. This result indicates that housing prices tend to overreact in upturn and underreact in downturn. The results imply that when implementing relevant policies for the housing market, the government should consider the asymmetry of housing price changes. Otherwise, the situation can easily result in the creation of a bubble or the collapse of the housing market because of incorrect policies.

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1. Introduction

After the housing market bubble burst in the U.S., a significant amount of research focused on factors that destabilized the housing market, such as government control over the housing market and the irrational behavior of investors. Studies have suggested that the housing market is not as efficient as assumed in theory (Case and Shiller, 1989; Shiller, 1993, 2005) because not all buyers behave rationally according to the hypothesis in the theoretical model, and their irrational behavior causes housing price inefficiency.

Researchers have suggested that the inefficiency is caused by inappropriate government intervention. For instance, in the case of subprime mortgage, excessive subsidy policy (Shiller, 2009) and easing monetary policy are the causes of housing market imbalance in the U.S.

This paper proposes that inappropriate government intervention and irrational behavior of investors might both be the cause of the housing market crisis. In addition, if the government fails to consider the irrational behavior of traders during the process of market intervention, then the intervening policies might be invalid and might even cause severe fluctuations in the market place.

Previous studies documented evidence indicating that investors in the housing markets are irrational. For example, Genesove and Mayer (2001) examined the trading data in the real estate markets of central Boston during the 1990s and confirmed the presence of the “disposition effect”¹ because real estate sellers were unwilling to recognize capital losses. By exploring irrational behavior, Genesove and Mayer proposed a loss aversion model, which asserts that the seller would consciously avert the loss.

In an attempt to solve the puzzle of housing market behavior, the observed reluctance of prospective sellers to reduce asking prices in down markets, Engelhardt (2003) empirically examined the effect of equity constraints and nominal loss aversion on household mobility. The results of Engelhardt (2003) supported the findings of Genesove and Mayer (2001) that household mobility is significantly influenced by nominal loss aversion. Therefore, Engelhardt suggested that loss aversion is an important housing market phenomenon across a broad spectrum of metropolitan areas.

The observed irrational behavior in real estate traders, specifically loss aversion, might have crucial impact on the price characteristics of this market. Dobrynskaya (2008) proposed a behavioral model in

* Department of Finance, National University of Kaohsiung, No. 700, Kaohsiung University Rd., Nanzih District, 811, Kaohsiung, Taiwan, ROC. Tel.: +886 7 5919767; fax: +886 7 5919239.

E-mail address: ictsai@nuk.edu.tw.

¹ The disposition effect, which was proposed by Shefrin and Statman (1985), used the “prospect theory,” which was initially proposed by Kahneman and Tversky (1979) to describe the tendency of investors to sell shares with prices that increased while retaining assets that dropped in value.

which traders maximize reference-dependent utility. The utility is characterized by loss aversion to explain several stylized facts of asymmetric price rigidity, which are empirically observed. This study proposes, based on the model developed by Dobrynskaya (2008), that housing price downward rigidity should also exist because loss aversion has been demonstrated to exist in housing markets (Engelhardt, 2003; Genesove and Mayer, 2001).

The empirical evidence of the asymmetric price adjustment, specifically housing price downward rigidity, was also provided by Tsai and Chen (2009). They demonstrated the presence of a defensive effect in the U.K. housing market. The results in their paper indicate that the volatilities between housing prices moving up and down are asymmetric, that is, when bad news occurs, the variance decreases.

Studies have demonstrated that in the real estate market, traders were irrational, housing prices lacked efficiency, and prices exhibited downward price rigidity. This important feature of housing prices might also influence its relationship with other variables. In recent years, governments of various countries typically used monetary policy to influence the housing market because of the close relationship between the housing market and the business cycle. If housing prices experience downward price rigidity, then correctly estimating the relationship between housing market and the overall economy and the influence of policy on the housing market would be difficult. Therefore, this paper is designed to observe if the impact of monetary policy on housing prices is asymmetric.

Similar to previous studies, this paper includes the following characteristics: first, this paper adopts the U.K. market data from 1986Q3 to 2011Q4. This data, which spans 25 years, is sufficient to observe the long-term housing price features rather than the performance of a particular period. Second, this paper observes the U.K. housing market. In the past few decades, the irrational fluctuation in the U.S. housing market has caused a global financial crisis. Investors worldwide were concerned if government policy would be efficient or if the market was over stimulated. If the significant features of housing price behavior interfered with the effectiveness of government policy, then a huge U.S. housing market crisis would expectedly emerge despite serious concerns from the government. Hence, among the current studies that test the housing market efficiency and the effectiveness of government policy, the issue in the U.S. housing market has attracted the most attention. However, Tsai and Chen (2009) demonstrated the presence of a defensive effect, specifically housing price downward rigidity, in the U.K. housing market. This feature of housing prices might also influence its relationship with other variables. Observing whether the influence of monetary policy on housing prices is asymmetric is also crucial to prevent a housing crisis. This paper aims to provide further evidence in the area by applying the viewpoint of housing price rigidity. In addition, by adopting both traditional and threshold error correction models, this paper can test if house prices are asymmetrically adjusted.

Third, this paper belongs to a minor group of studies that applied the principles of behavioral finance to the housing market. Although a significant amount of research has been conducted on the irrational behavior of traders toward market prices in other financial markets (especially in the stock market), and although the problem of housing price inefficiency and the problem of irrational trader behavior may be more severe in the housing market than in other financial markets, only a few papers relevant to this area exist. The current paper could illustrate the housing price features caused by the irrational behavior of traders (loss aversion) in the market. Therefore, the research theme of this paper is of particular importance.

This paper is structured as follows: Section 2 presents the literature review. Section 3 describes the applied methodologies. Section 4 reports the data and estimation results. Finally, Section 5 provides a summary of the main findings and draws several conclusions.

2. Literature review

A significant amount of research has focused on analyzing the irrational behavior of investors in recent years. In contrast with the research on financial markets, research and discussions concerning the irrational behavior of investors in the property market are rare. Genesove and Mayer (2001) were the first researchers to examine the loss aversion behavior in the housing market. Nominal loss aversion mainly extends the concept of the prospect theory of Kahneman and Tversky (1979), who argued that people have an asymmetric attitude to gains and losses, and people obtain less utility from gaining than losing.

The observed loss aversion behavior in real estate traders might have a crucial impact on the price characteristics of this market. Based on the model developed by Dobrynskaya (2008), the present study proposes that housing price downward rigidity should also exist. The real estate sellers will choose not to trade during bad market conditions (a decline in nominal house prices) because they are unwilling to recognize capital losses. The reserve price of the seller is higher than the expected prices of the buyer during depression, thereby lengthening the selling time for residences. Hence, the housing prices are less likely to drop sharply and rapidly, which leads to downward housing price rigidity.

If the government fails to consider the irrational behavior of traders during the process of market intervention, the intervening policies might be invalid and might even cause severe fluctuations in the market place. Hence, whether the housing price features could be caused by the irrational behavior of traders in the market is important to illustrate. Moreover, price rigidity is one kind of price inefficiency. The downward price sticky means that the price inefficiency is asymmetric. The volatilities between housing prices moving up and down are asymmetric and could result in asymmetric relationships between housing prices and other variables.

For example, Tsai et al. (2011) proposed the existence of a long-term equilibrium relationship between the housing and stock markets, but adjustments from disequilibrium errors are asymmetric. Nonlinear adjustments are likely to be observed because the two markets respond rather differently to negative shocks. The stock market is more volatile but price rigidity is observed in the housing market. The results of their empirical tests supported the hypothesis of the existence of an asymmetric wealth effect between the two markets in the U.S.

In recent years, because of the close relationship between the housing market and the business cycle,² governments of various countries typically used monetary policy to influence the housing market (Leamer, 2007; Mishkin, 2001).³ Researchers have claimed that monetary policy had a central function in past crises, and they have also suggested that monetary policy had a substantially greater function for preventing and controlling bubbles in house prices.⁴ In particular, several observers claimed that excessively easy monetary policy implemented by the Federal Reserve during the past decade helped cause a bubble in housing prices in the U.S. (Taylor, 2007). Completely discriminating the effects of monetary policy on housing prices is crucial and is connected if central banks should intervene or not in housing bubbles. Several related studies discussed if monetary policy makers should respond to asset prices

² Beltratti and Morana (2010) investigated linkages between general macroeconomic conditions and the housing market for the G-7 area. Their results indicate that the linkage between real housing prices and macroeconomic developments is bidirectional.

³ Mishkin (2001) demonstrated that despite the significance of asset prices in the conduct of monetary policy, targeting asset prices by central banks is likely to lead to worse economic outcomes and might even erode the support for their independence. Leamer (2007) claimed that for the U.S., housing is the business cycle because in his findings, developments in the housing sector actually lead to economic activity. He also proposed a monetary policy based on the features of the housing sector such as housing starts as opposed to output gap.

⁴ McDonald and Stokes (2011) focused on the analysis of determining the extent to which monetary policy produced the housing price bubble. The findings in McDonald and Stokes (2011) are consistent with the view that the interest rate policy of the Federal Reserve in the period from 2001 to 2004 was a cause of the U.S. housing price bubble.

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