The Fed's Dual Shocks and the Housing Market

Samer Adra[a]

University of Sheffield

Elie Menassa[b]

Amity University Dubai

Abstract

The Federal Reserve has both a monetary and an informational impact on the housing market. Using high-frequency identification, we separate monetary shocks in the conventional sense from the shocks that convey the Federal Reserve's assessment of the economic outlook. Conventional monetary contraction reduces residential investment, home prices, and returns on Real Estate Investment Trusts (REITs). In contrast, monetary contraction that conveys positive economic information shocks triggers subsequent rises in both housing prices and residential investment, in addition to larger gains for REITs. We provide novel support from the housing market for the recent emphasis on the Fed's role as a credible assessor of the macroeconomic outlook.

Keywords: Federal Reserve; Housing Market; Information Shocks; Residential Investment.
JEL Codes: D8, E50, E52.

[a] Sheffield University Management School, Conduit Rd, Sheffield, S10 1FL, United Kingdom. Email: samer.adra@sheffield.ac.uk
[b] Amity University Dubai, PO Box 345019, Dubai International Academic City, Dubai, United Arab Emirates. Email: emenassa@amityuniversity.ae
We thank Leonidas Barbopoulos, Jairaj Gupta, Faten Hammoud, and Natalie Kelly for useful comments and suggestions.

1. Introduction

A widely held view suggests that, through expansionary monetary policy, the Fed stimulates residential investment and contributes to significant rises in home prices, potentially paving the way for housing bubbles (Leamer, 2015; McDonald and Stokes, 2013; Taylor, 2007). Various empirical applications based on time series models challenge this view. Citing evidence from Vector Autoregression (VAR) models, former Fed Chair Ben Bernanke argues that the link between monetary shocks and the housing market is generally weak (Bernanke 2010). Bernanke's predecessor, Alan Greenspan, offered similar insights (Greenspan, 2009).

In this paper, we reassess the Fed's influence on the housing market from a new angle. Our main conjecture is that disentangling monetary shocks in their conventional sense from those attributed to new assessments of the macroeconomic outlook by the Fed (Miranda-Agrippino and Ricco, 2021; Nakamura and Steinsson, 2018) allows a clearer evaluation of the Fed's influence on the housing market. While most of the analysis of the Fed focuses on its traditional function as an executor of monetary policy (Barakchian and Crowe 2013; Gertler and Karadi 2015), the Fed's role as an information producer is gaining more relevance. Non-monetary news occupies a growing share of central bank announcements (Cieslak and Schrimpf, 2019). Contrary to what is predicted by conventional monetary models (Nakamura and Steinsson, 2018), there is evidence that monetary tightening, when treated as a signal of the Fed's confidence in the economic outlook, increases the forecasts of output growth and inflationary pressures.

We posit that the inability of VAR models to highlight a significant influence of the Fed on the housing market stems from conflating the Fed's conventional and information roles. Survey evidence by Fuster and Zafar (2021) suggests that demand for housing is largely driven by households' perceptions of their wealth, which are partly influenced by the prevailing economic conditions. Given the Fed's rising influence as a credible producer of macroeconomic forecasts, we expect the housing market to expand despite the rising rates when monetary contraction reflects a positive assessment of the macroeconomic outlook by the Fed. In contrast, we expect conventional monetary contraction to curb the expansion in the housing market, as predicted by the commonly held view about the Fed's influence on the housing market (Fischer et al., 2021; Iacoviello and Minetti, 2008; McDonald and Stokes, 2013; Taylor, 2007).

We apply the high-frequency identification method of Jarociński and Karadi (2020) to separate monetary shocks in the conventional sense from the shocks conveying new assessments of the economic outlook. Our analysis of a sample extending from 1991 to 2019

supports our prediction, suggesting that conventional and information shocks have largely opposing effects on housing starts, home prices, and REIT returns. A standard deviation contractionary shock, in the conventional sense, leads to significant declines in housing starts and house prices by more than 25% and 9%, respectively, over the subsequent 36 months. This shock also leads to a noticeable decline in REIT returns over the same period. In contrast, monetary contraction that conveys a positive assessment of the economic outlook is associated with a subsequent rises in housing starts by 18% and home prices by roughly 9%, in addition to higher REIT returns over the same period. This suggests that the content of the Fed's information shocks is validated by the unfolding economic realities.

2. Housing Market Data

Our dataset covers monthly economic indicators from January 1991 to June 2019. The housing start series is compiled by the U.S. Census Bureau and the U.S. Department of Housing and Urban Development. The variable *Housing Starts* is calculated by taking the natural logarithm of the housing starts series and multiplying it by 100. Our proxy for home prices is the S&P/Case-Shiller home price index. In our analysis, the variable *Home Prices* refers to the natural logarithm of the monthly S&P/Case-Shiller index, multiplied by 100. Our proxy for the returns realized by REIT investors is the performance of the Dow Jones Equity REIT Total Return Index which is available from Bloomberg. The 30-year fixed mortgage rate is retrieved from the Freddie Mac dataset reported in the FRED database. This variable is introduced as the difference between the mortgage rate in the last week of each month and its equivalent level at the same time in the prior year. Our models also cover the natural logarithms of the Consumer Price Index and Industrial Production, retrieved from FRED.

3. Identification and Results

The Jarociński and Karadi (2020) approach separates conventional shocks from informational ones by using the correlation between the 30-minute changes in the rates on Fed funds futures and stock market returns around FOMC announcements. In particular, conventional monetary contraction in FOMC announcements is characterized by a negative association between the rates on Fed funds futures and the stock market. Along these lines, a rise in Fed funds futures triggers a decline in stock returns as monetary contraction is expected to tighten lending conditions and reduce investment opportunities. In contrast, monetary contraction that reflects positive Fed information shocks is associated with a rise in stock returns, reflecting improved market expectations of future economic performance based on the signals conveyed by the FOMC announcement.

We cover 251 FOMC announcements between January 1991 and June 2019, kindly made available by the Jarociński and Karadi (2020) online appendix between 1991 to 2016 and Professor Refet Gürkaynak's online appendix of Gürkaynak, Karasoy-Can, and Lee (2019) for the remaining period. 189 out of the 251 (75.29%) announcements are interpreted as conventional monetary surprises with a negative correlation between the three-month Fed funds futures and the changes in S&P returns. The remaining surprises are interpreted as information shocks. The reaction of Fed funds futures and the S&P 500 to each FOMC meeting is plotted in Figure 1.

(Figure 1)

Our sign restrictions are as follows:

1. For conventional shocks, we restrict a positive sign on interest rates and a negative sign on stock returns.

2. For Fed information shocks, we restrict a positive sign on interest rates and a positive sign on stock returns.

3. We also impose the restrictions of zero effects of the remaining variables on the high-frequency ones.

The impulse response results reported in Figure 2 provide various insights from a VAR model with a three-month lag. These insights are strongly aligned with our empirical predictions. In particular, while both conventional and Fed information shocks raise mortgage rates, these shocks have opposing effects on housing starts, home prices, and REIT returns. A standard deviation contractionary monetary shock in the conventional sense reduces housing starts by up to 25%, home prices by up to 9%, and REIT returns by up to 30% over the subsequent 36 months. In contrast, a contractionary shock that coveys a positive assessment of the macroeconomic outlook is followed by a rise in housing starts by 18%, home prices by 9%, and REIT returns by 15% over the same period.

The continuous effect of these information shocks suggests that they are, on average, later validated by the changing macroeconomic conditions. Moreover, as in Jarociński and Karadi (2020), we find that conventional monetary contraction is followed by a reduction in economic activity and inflation, contrary to the case of Fed information shocks. It is worth noting that the rise in mortgage rates after Fed information shocks is larger than the case of conventional ones, possibly suggesting that the information conveyed by the Fed reflects macroeconomic fundamentals that go beyond monetary considerations. These insights are also supported in Figure 3 with a six-month lag.

Recent work by Kaminska et al. (2021) highlights the tight relationship between monetary policy and the housing market. Their detailed yield-curve-based analysis depicts circumstances where monetary contraction improves stock returns and economic activity. The informational role of the Fed is presented as a potential explanation for these effects. However, Kaminska et al. (2021) show that, regardless of the type of identified shock, monetary contraction reduces home sales and prices. Our approach extends the emphasis on the Fed's informational role by showing that the Fed information shocks also have strong relevance for the housing activity.

(Figures 2 and 3)

References

Barakchian, S.M., Crowe, C., 2013. Monetary Policy Matters: Evidence from New Shocks Data. J. Monet. Econ. 60, 950–966.

Bernanke, B., Kuttner, K.N., 2005. What Explains the Stock Market's Reaction to Federal Reserve Policy? J. Finance 60, 1221–1257.

Bernanke, B.S., 2010. Monetary Policy and the Housing Bubble, in: Annual Meeting of the American Economic Association.

Cieslak, A., Schrimpf, A., 2019. Non-Monetary News in Central Bank Communication. J. Int. Econ. 118, 293–315.

Fischer, M.M., Huber, F., Pfarrhofer, M., Staufer-Steinnocher, P., 2021. The Dynamic Impact of Monetary Policy on Regional Housing Prices in the United States. Real Estate Econ. 49, 1039–1068.

Fuster, A., Zafar, B., 2021. The Sensitivity of Housing Demand to Financing Conditions: Evidence from a Survey. Am. Econ. J. Econ. Policy 13, 231–265.

Gertler, M., Karadi, P., 2015. Monetary Policy Surprises, Credit Costs, and Economic Activity. Am. Econ. J. Macroecon. 7, 44–76.

Greenspan, A., 2009. The Fed Didn't Cause the Housing Bubble: Any New Regulations Should Help Direct Savings Toward Productive Investments. Wall Str. J.

Gürkaynak, R.S., Karasoy-Can, H.G., Lee, S.S., 2019. Stock Market's Assessment of Monetary Policy Transmission: The Cash Flow Effect. CFS Work. Pap. 628.

Iacoviello, M., Minetti, R., 2008. The Credit Channel of Monetary Policy: Evidence from the Housing Market. J. Macroecon. 30, 69–96.

Jarociński, M., Karadi, P., 2020. Deconstructing Monetary Policy Surprises—The Role of Information Shocks. Am. Econ. J. Macroecon. 12, 1–43.

Kaminska, I., Mumtaz, H., Šustek, R., 2021. Monetary Policy Surprises and Their Transmission Through Term Premia and Expected Interest Rates. J. Monet. Econ. 124, 48–65.

Leamer, E.E., 2015. Housing Really Is the Business Cycle: What Survives the Lessons of 2008–09? J. Money, Credit Bank. 47, 43–50.

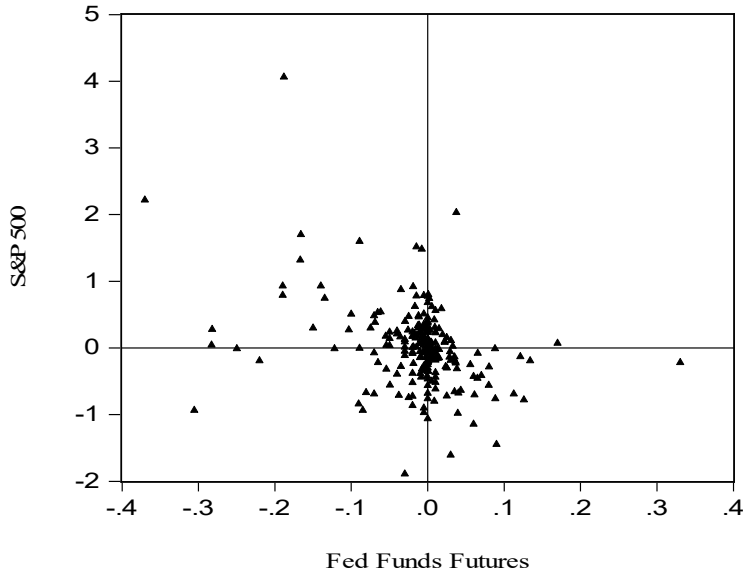
McDonald, J.F., Stokes, H.H., 2013. Monetary Policy and the Housing Bubble. J. Real Estate Financ. Econ. 46, 437–451.

Miranda-Agrippino, S., Ricco, G., 2021. The Transmission of Monetary Policy Shocks. Am. Econ. J. Macroecon. 13, 74–107.

Nakamura, E., Steinsson, J., 2018. High-Frequency Identification of Monetary Non-Neutrality: the Information Effect. Q. J. Econ. 133, 1283–1330.

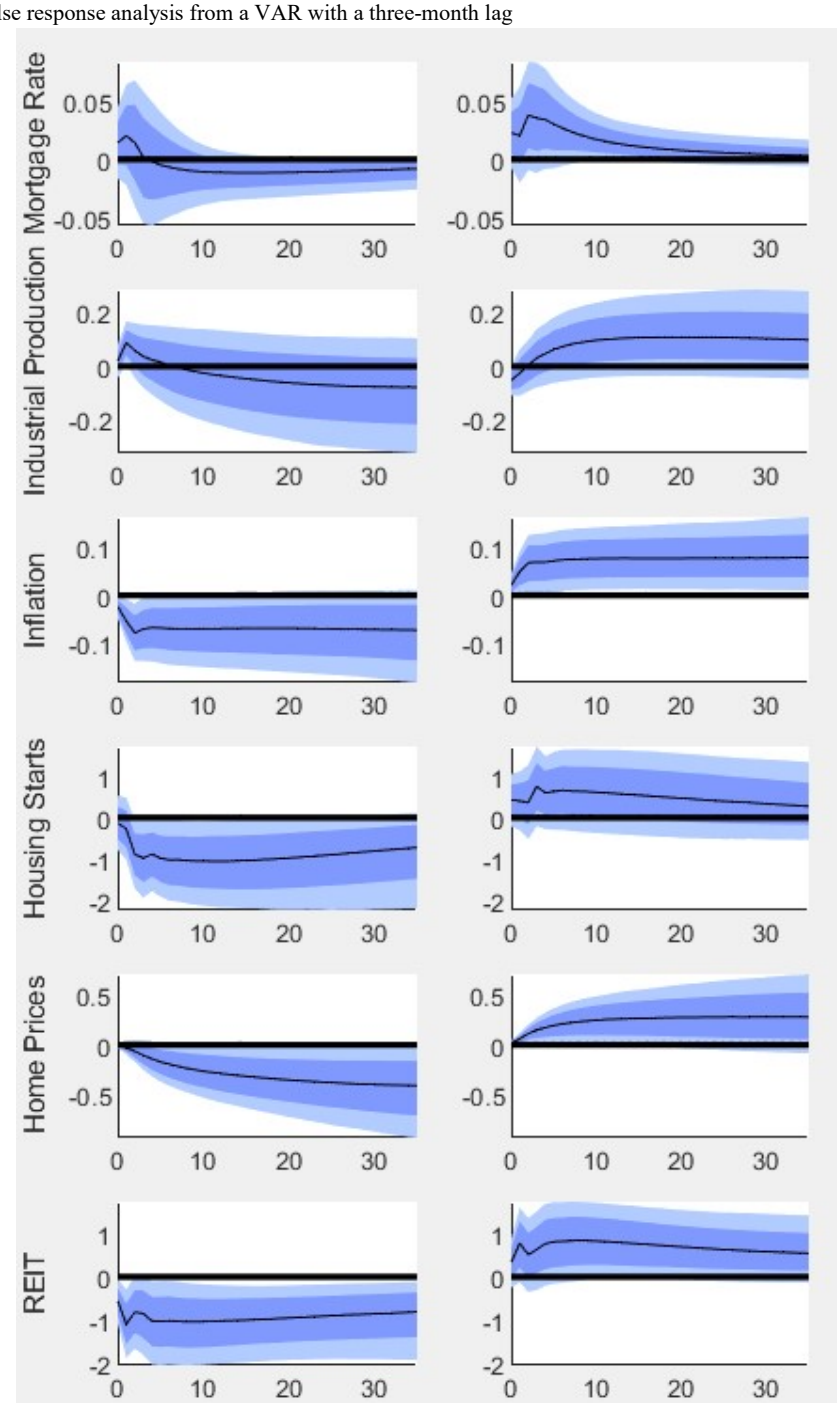
Taylor, J.B., 2007. Housing and Monetary Policy. Natl. Bur. Econ. Res.

Figure 1: Stock market and interest rate surprises around FOMC announcements



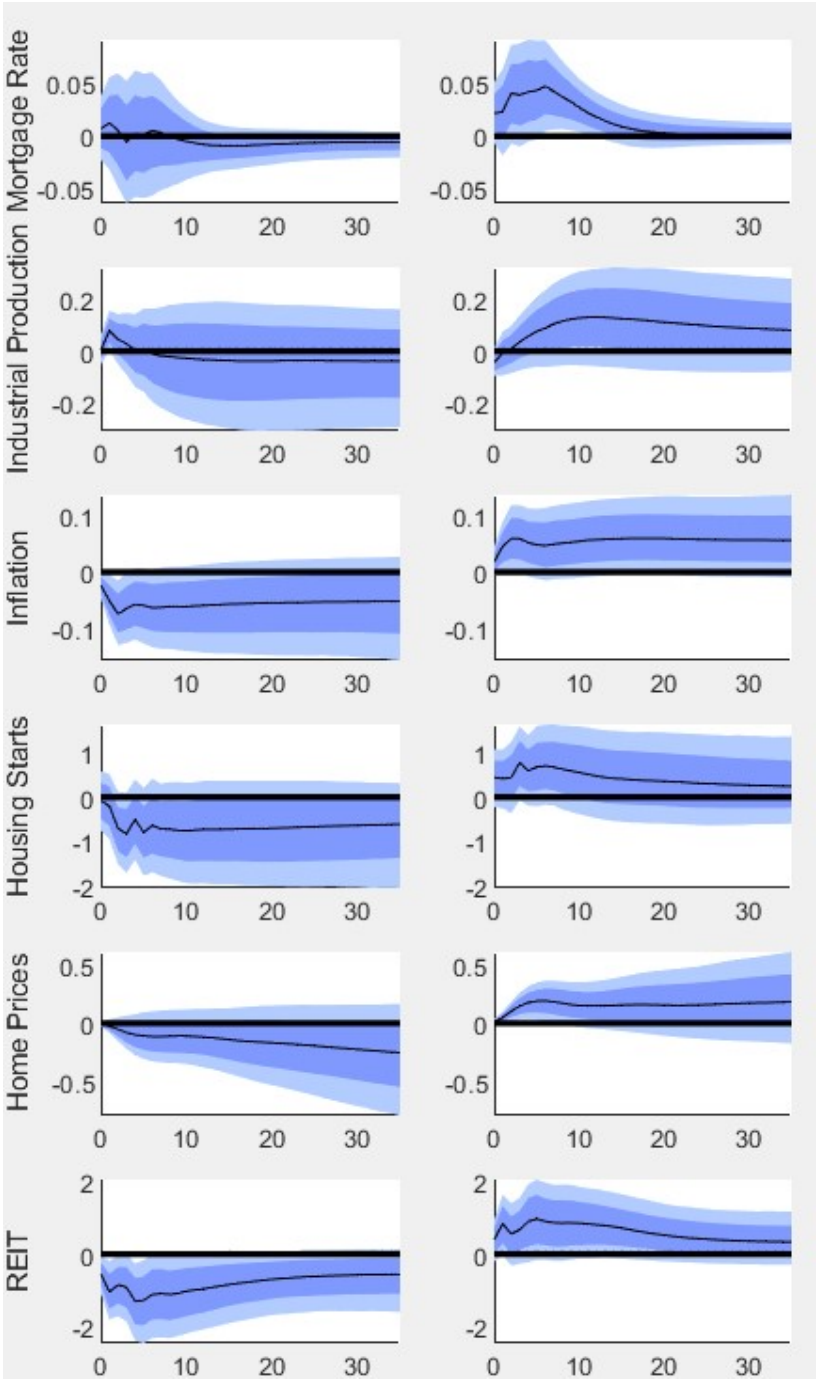
Note: Each triangle represents the joint reaction of the rate of return on the three-months-ahead Fed funds futures (x-axis) and the S$P 500 returns (y-axis) around a separate FOMC announcement between January 1991 and June 2019.

Figure 2: Impulse response analysis from a VAR with a three-month lag



Note: This figure presents the effect of one standard deviation conventional (left) and informational (right) shock on a wide range of economy- and housing-related factors from a VAR model with a three-month lag. The black curve represents the median, the darker blue band represents the range from the 16th to the 84th percentile, and the light blue band represents the range between the 5th and 95th percentiles.

Figure 3: Impulse response analysis from a VAR with a six-month lag



Note: This figure presents the effect of one standard deviation conventional (left) and informational (right) shock on a wide range of economy- and housing-related factors from a VAR model with a six-month lag.