

# DEPARTMENT OF ECONOMICS

Faculty of Social Sciences

Seminar on Economics No. 187



## In 'Memory': How Do Long-memory Shocks Determine Housing Prices and Macroeconomic Interactions? Evidence from the US

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The housing market-macroeconomy interaction is often governed by the persistence of endogenous or intervention of exogenous shocks. Regarding the shocks, particularly the rate at which they converge to the long-run mean determines the time profile of macroeconomic impacts on equilibrium housing price determinations. In a case where the interaction demonstrates a tendency to cointegrate, a possible presence of long-memory shocks in the interaction means that the real disequilibrium error corrections should be slower than conventionally assumed. Thus, rather than using the conventional strategy, capturing this slow speed of convergence could better interpret the co-movement system between housing prices and macroeconomic fundamentals, and contribute to more meaningful policy suggestions for the long-run stability of the system. In this spirit, we propose a long-memory cointegration approach to explain the dynamic interdependence, and clearly identify it through the two distinct effect-transmission channels via the housing demand and supply aspects, respectively. Using a quarterly US dataset from 1975Q1 to 2016Q1, our long-memory fractionally cointegrated VAR estimations demonstrate that there is a gradual price adjustment towards housing market clearing while shock adjustments are inherently slow and non-linear. We find that macroeconomic variables are able to influence housing price movements not only exclusively through the housing demand- or supply-functions, but also simultaneously through both the functions with dual roles. An overall function is then derived by solving the simultaneous demand and supply function system for equilibrium housing price determinations. Moreover, we further test that a failure to identify the distinct effect-transmission channels of macroeconomic variables through the demand and/or supply perspectives could lead to a mis-estimation of their real impacts. Robustness checks support our baseline results.

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All are welcome