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Overoptimism and house price bubbles

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ABSTRACT

The paper explores the significance of overoptimism for house prices in Denmark using both aggregated data from the Danish Consumer Expectations Survey as well as the underlying household-level microdata matched with administrative register data at a household level. The results indicate that house price developments are partly driven by sentiments decoupled from underlying economic fundamentals. This seems especially to have been the case during the strong house price booms in the mid-1980s and the mid-2000s, where overoptimism might have accounted for 15–20% of the house prices' deviation from a constant growth trend. Furthermore, overoptimistic households were more likely to purchase real estate in the 2000s compared to other households, and they leveraged more when purchasing real estate. There seems thus to be a separate “confidence” channel in the determination of house prices in addition to the variables usually found in standard macroeconomic house-price models.

1. Introduction

The recent international financial crisis has fuelled an active research interest in the key drivers of macroeconomic imbalances and financial instability. One of the topical issues is whether overoptimism is a key driver of house prices in general and in particular around house-price bubbles.

Optimism and pessimism played a dominant role in the macroeconomic business cycle models of the 1920s and 1930s (Pigou, 1927; Keynes, 1936). More recently, Shiller (2005, 2008) has pointed at “animal spirits” as a factor that drives the stock markets and the real estate markets, and Akerlof and Shiller (2009) have argued that over-optimism played an important role in generating and amplifying the most recent international financial crisis.

Following these lines of reasoning, it might be argued that consumer confidence partly reflects elements of optimism and pessimism decoupled from underlying economic fundamentals and that such behavioural and psychological factors might influence spending and investment decisions and thereby can have a causal effect on current and future economic activity (Ludvigson, 2004; Malmendier and Taylor, 2015). However, consumer confidence is also an endogenous variable that reflects current economic fundamentals and expectations about future economic fundamentals formed on the basis of news received by households. This makes it difficult to identify the exact nature of the links between consumer sentiments and other economic variables in empirical studies.

In this paper we explore the significance of nonfundamentals-based sentiments for house price developments in Denmark using both aggregated data from the Danish Consumer Expectations Survey as well as the underlying household-level microdata behind the survey matched with administrative register data at a household level.

We start by exploring the linkages between consumer confidence and house prices within the framework of standard structural VAR (SVAR) models. The idea is to get a rough feel for the magnitudes of the main correlations in the data without imposing too much structure on the models. Our models are estimated on the basis on quarterly data for the Danish economy spanning the past

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40 years or so and include real GDP, consumer prices, the short-term interest rate, house prices, share prices and consumer confidence as endogenous variables. By including share prices in the system, we aim to control for news shocks regarding future economic fundamentals. We find significant transitory effects on nominal and real house prices from exogenous shocks to consumer confidence. We focus particularly on nominal house prices since the nominal market value of a house usually serves as collateral in nominal loan contracts. Developments in nominal prices are therefore of particular interest from a financial stability point of view. Our estimations indicate that overoptimism might have accounted for 15–20% of the deviation of nominal house prices from a constant growth trend in both the mid-1980s and the mid-2000s.

Due to the well-known problem of identifying truly exogenous shocks in SVAR-models, we turn to the underlying household-level microdata behind the monthly Danish Consumer Expectations Survey 2004–2013. Since the identity of each participating household is known by Statistics Denmark, we are able to obtain a micro dataset that combines the qualitative information from the surveys with household-level information on income and other background variables drawn from a range of annual register datasets. We find that overoptimistic households were more likely to buy real estate compared to other households, particularly in the pre-crisis period. The share of overoptimistic households involved in real estate trades was particularly large during the house-price boom in the mid-2000. Furthermore, overoptimistic households may have contributed to an upward pressure on house prices by leveraging to a larger extent than other households.

Overall, our analysis indicates that house price developments are partly driven by sentiments decoupled from underlying economic fundamentals, especially during strong house price booms. This finding indicates the existence of a separate "confidence" channel in the determination of house prices in addition to the variables usually found in standard macroeconomic house-price models.

Our main contribution to the literature is that we are able to draw insights on the significance of nonfundamentals-based sentiments on house prices using both aggregate data from the Danish Consumer Expectations Survey as well as the underlying household-level microdata behind the survey matched with administrative register data at a household level. To our knowledge this is the first paper that combines the use of all these three types of data.

Further, while earlier contributions have primarily focused on financial behaviour, this paper explores the impact of consumer sentiments on housing-market outcomes. Housing-market decisions are relatively rare (only 3–6% of households in our sample purchase real estate in a given year), so a large sample is needed in order to have enough observations in which households are active on the housing market. In addition, the sample period for our microdata covers both a period with a strong house price boom as well as a subsequent crisis period, which enables us to study the interaction between consumer sentiments and the business cycle.

Finally, our use of administrative registers to measure characteristics of households (such as income) in the sample is an advantage compared to most of the literature, which is based on survey information only. Administrative data based on third-party reporting is usually considered to have a higher quality than self-reported survey data and allow us to track households over time.

2. A brief review of related literature

The literature based on macroeconomic data has been somewhat divided on the issue whether shocks to aggregate consumer confidence indices reflect "nonfundamentals-based sentiments" or "news" (Jaimovich and Rebelo, 2007). Blanchard (1993) represents a seminal contribution to the "sentiments" or "behavioural" view on confidence shocks. His paper presented a bivariate VAR model estimated on quarterly US data for the period 1959–92 with consumption of non-durable goods and services and real GDP as endogenous variables. The analysis showed that the 1990–91 recession in the US economy was the result of a negative shock to consumption that had a long-lasting effect on output. Blanchard concluded that the consumption shock at least to some extent was caused by "animal spirits". Other VAR-based papers that subscribes to the "sentiments" view on confidence shocks include Fuhrer (1993), Farmer and Guo (1994), Matusaka and Sbordone (1995), Chauvet and Guo (2003), Golinelli and Parigi (2004) and Ling et al. (2015).

The "news" strand of the VAR-based macro literature includes contributions from Cochrane (1994) and Barsky and Sims (2012). The latter estimates a VAR model on quarterly US data for the period 1960–2008 with real consumption, real GDP, inflation, real interest rate and consumer confidence as endogenous variables. Barsky and Sims conclude that the empirically observed relationship between shocks to consumer confidence and future economic activity mainly reflects news shocks regarding future productivity not reflected in current economic activity rather than a causal effect of "pure sentiments" or "animal spirits" on economic activity. However, they make no attempt to control for news shocks in order to identify truly exogenous shocks to consumer confidence. In contrast, Lambertini et al. (2013) control for news shocks and show that exogenous changes in house price expectations account for a significant part of the volatility in house prices. Ahmed and Cassou (2016) suggest that shocks to consumer confidence reflect news during economic expansions and animal spirits during economic contractions.

The results in our paper are in line with the "sentiments" view, which is also supported by a growing strand of microeconomic literature investigating behavioural implications of household expectations. A recent contribution is the study by Hyytinen and Putkuri (2017). They find that households making large optimistic forecast errors tend to carry greater levels of debt than other households. Previous studies along the same line include Brown and Taylor (2006), Puri and Robinson (2007) and Souleles (2004). Brown and Taylor (2006) study determinants of financial expectations as well as the subsequent impact of financial expectations on consumption and savings. They find that individual financial predictions are influenced by both the life cycle and the business cycle and in addition that more optimistic households have lower savings. Puri and Robinson (2007) find that optimists work longer, invest more in individual stocks and save more. However, they also find that moderate optimists display more reasonable financial behaviour than extreme optimists. In contrast to the wide range of outcomes studied by Puri and Robinson, Souleles (2004) focuses on

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