

Property prices and real estate financing in a turbulent world

Report on the SUERF/Nykredit Conference in association with Danmarks Nationalbank held in Copenhagen on 15 November 2012

Nykredit



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(l-r) Per Callesen (Governor Danmarks Nationalbank), Giovanni Dell'Ariccia (IMF), Alan Boyce (CEO Absalon Project)

75 conference participants gathered in the auditorium of Nykredit on the harbour front in central Copenhagen. **Jesper Berg**, Senior Vice President, Regulatory Affairs and Rating, Nykredit and **Frank Lierman**, SUERF Vice President and Belfius Bank gave welcome addresses.

The first session was chaired by **Ernest Gnan**, Oesterreichische Nationalbank and SUERF. **Per Callesen**, Governor, Danmarks Nationalbank gave a presentation “*Property prices, debt and financial stability*”. He characterised the subsequent documentation as stylised facts rather than scientific evidence. The speaker showed in several diagrams the development of house prices in a number of European countries. In many countries, house price movements tend to be correlated with output gaps. In Denmark, another important factor is the tax value of interest rate deductions, which has been reduced in steps since 1982. Movements in the after-tax interest rate tend to be correlated with movements in real house prices. Whereas changes in interest deductibility has made house ownership less attractive, recent changes in property taxes has had the opposite effect. One diagram illustrated the development of property and land taxation in Denmark. The property tax curve for owner occupied single family houses has been completely flat for several years due to a political decision by a majority in the Danish parliament. The speaker characterised the policy of keeping property taxation low also in boom periods as “not healthy”. Over the years, there have been

many changes in Danish mortgage market regulation. The mixture between annuity loans, loans with constant instalments, fixed rate and floating rate loans, and interest only loans have changes several times. With reference to the implications for financial stability, the speaker seemed to have a sceptical attitude to floating rate loans and interest only loans. In a slide, housing wealth, pension wealth, other financial wealth and net wealth in a sample of countries were compared. In Denmark and the Netherlands, both pension wealth and debt represent a high proportion of disposable income. The build up of gross positions reflected favourable tax treatment of both debt and pension. Thus, one should be careful not to interpret the large household debt as a source of weakness. Other slides illustrated recent data on housing expenditures in per cent of disposable income, arrears on mortgage or rent payments and loan impairment and foreclosures. In Iceland, Greece and Ireland, property owners and mortgage lenders seem in recent years to be in more serious trouble than owners in the Northern part of Europe. The speaker concluded by repeating that in all countries tax policy matters a lot for the property market.

Giovanni Favara, IMF gave a presentation “*Credit supply and the price of housing*”. The underlying paper is co-authored by Jean Imbs, Paris School of Economics. The authors identify exogenous shifts in the supply of credit through changes in the regulation of credit, trace their effects on the size and standards of mortgage loans,

and evaluate their end impact on house prices. In the US it is possible to point out episodes of interstate branching deregulation that can be used to answer the questions: 1) did branching deregulation impact the mortgage market? 2) did branching deregulation impact house prices? And 3) is the end effect on house prices channelled via a response of the mortgage market? Detailed information on mortgage loans is available from the Home Mortgage Disclosure Act (HMDA) database. County-level house price indexes are available from Moody's Economy.com. It is thus possible to document that the lifting of branching restrictions increases the number and volume of mortgage loans and decreases denial rates. Deregulation enables non-local banks to enter new markets and obtain real geographical diversification gains. Based on a comprehensive regression analysis, the speaker concluded that a causal chain from deregulation via mortgage credit to house prices has been uncovered.

Session 2 was chaired by **Klaus Willerslev-Olsen**, Danish Bankers Association. **Kristian Vie Madsen**, Deputy Director, Danish FSA gave a presentation on "*How legal rules on loan-to-value ratios, maturity, repayment profiles and refinancing options can contribute to financial stability*". The speaker started with a number of diagrams which illustrated the price development in Denmark of owner occupied houses, rented houses, agricultural properties and other types of real estate. Impairment rates on mortgage loans have varied considerably across different types of property. Recently, developers and farmers have caused relatively high losses for banks. Losses in mortgage institutions have been much lower than losses in commercial banks. From 2008 to 2010 there was a decline in lending by banks and mortgage institutions. The FSA uses a so-called "Supervisory Diamond" as a tool to assess the potential vulnerability of a bank. The "Supervisory Diamond" includes inter alia measures of capitalisation, liquidity, large exposures and exposures to real estate. The experience shows that many banks with a high exposure to the commercial property market have been in trouble. The FSA has also formed a task force on how to deal with price bubbles on the property market. It aims to further better risk management in banks. In Norway, Sweden and Finland, the supervisory authorities have issued guidelines that should put limits on leverage and improve the credit evaluation of mortgage borrowers. In Denmark, there are loan-to-value (LTV) requirements for mortgage banks. However, the LTV requirements are not adjusted to reflect risks of a price bubble. In addition to adjusting lending limits, changes of capital requirements may be used counter-cyclically. In response to a question from the audience, the speaker confirmed that the potential use of variable capital requirements had to be planned within the framework of EU's Capital Adequacy Directive.

The title of the next presentation by **Thomas Sangill**, Danmarks Nationalbank was: "*Liquidity of Danish real*

estate mortgage bonds versus liquidity of Government bonds". The relevance to banks of liquidity has been enhanced by the recent Basel proposal on a liquidity coverage ratio (LCR) requiring banks to hold a buffer of high quality liquid assets (HQLA). A 2008-2012 diagram with outstanding government bonds and covered bonds broken down by investor sector shows that Danish MFIs own a considerable part of the outstanding covered bonds and only have limited government bond holdings, reflecting the low Danish government debt. Data on liquidity comes from MiFID transaction reports 2007-2011. The dataset includes all transactions in Danish government and covered bonds carried out by an investment firm or a credit institution in the EU as one of the counterparties in the transaction. All transactions below DKK 10 million are removed. In the sample, short-term covered bonds are defined as bonds with maturities less than 1.2 years while long-term covered bonds are standard 30-year fixed rate callable bonds. In the sample, short-term government bonds have a maturity of less than 5 years while long-term government bonds have maturities from 5 to 10 years. By means of a measure of price impact and a measure of liquidity risk the speaker characterises the behaviour of the bond markets in respectively a crisis period (August 2008-December 2008), a post-crisis period (December 2008-April 2010) and a sovereign crisis period (May 2010-December 2011). The conclusion of the analysis is that the differences between liquidity and liquidity risk in the two markets are economically small and that both markets were fairly liquid during the crises. There is therefore no empirical support for the BCBS proposal of giving covered bonds a lower weight than government bonds in the LCR.

Session 3 was chaired by **Esa Jokivuolle**, Bank of Finland and SUERF. **John Muellbauer**, Nuffield College, Oxford University gave a presentation: "*When is a housing market overheated enough to threaten stability?*" In many countries, house prices are subject to boom/bust cycles and in some these are linked to severe economic and financial instability. In the decade 1997 to 2007, the rise in real house prices was unprecedented in many countries. OECD data allows cross-country comparisons of boom/bust cycles in property prices. The speaker selected respectively four Anglo-Saxon countries, four countries from the Eurozone and a special group consisting of Germany, Italy, Japan and Korea. A great heterogeneity in boom/bust cycles appear.

Researchers at IMF have constructed indicators, which should reflect house price gaps. These indicators were criticised in rather tough terms ("Sausage-machine approach" to large multi-country data sets) by the speaker for having too weak a theoretical foundation. Feedback loops via construction, via consumption and via the financial system are ignored. Much depends on the land use planning regime, which profoundly affects

the supply response. It is, according to the speaker, high time that central banks and other policy makers conduct regular quarterly surveys of house price expectations of potential housing market participants to help assess the degree of overshooting. Credit supply conditions in the mortgage market are the “elephant in the room”. You need to take them into account. A credit conditions index can be extremely useful, but the results need careful interpretation. Important factors to include are the vulnerability of consumption to higher levels of household debt, the degree to which mortgage debt has floating interest rates, and the role of property taxes. Because of the large number of determining factors and important feed-back loops, any model of early warning must be rather complex.

The next presentation “*Identifying the fundamental economic trend of commercial real-estate in UK: with applications to pricing derivatives on the IPD Index*” was given by **Radu S. Tunaru**, University of Kent. He investigated empirically what determines the dynamics of an Investment Property Database Index (IPD), which is representative for commercial real-estate in the UK. The analysis covers the period January 1987 to December 2011, and it is conducted at monthly frequency and at quarterly frequency. The motivation is to provide a tool for pricing IPD property derivatives and other investment and risk management applications based on these financial products. The model can be used for risk management purposes and for trading strategies. A model-determined fundamental economic term (FET) return is confronted with the actual observed index return. When, during a boom, the observed index return departs from the FET return too much and for too long, then the fall in the property prices becomes inevitable. The speaker used the expression “market sentiment” to describe the reason for the difference between observed and FET-based property prices. Between January 1993 and July 2007, all IPD index logarithmic returns were positive. After 2007, they were negative but to a different extent. The variables spanning the FET returns at monthly and quarterly frequencies are often quite different. Large departures from FET signal market corrections. Hence, the model can be used not only for pricing IPD derivatives but also as a basis for trading strategies and policy making and intervention.

Session 4 was chaired by **Philipp Hartmann**, ECB and SUERF. **Giovanni Dell’Ariccia**, IMF gave a presentation “*Dealing with real estate booms: Policy options and institutional design*”. Before the crisis, monetary policy focussed on inflation and the output gap. Asset prices were a concern only through their impact on GDP and inflation. Benign neglect was justified by the observation that bubbles were difficult to identify, and that the costs of cleaning up afterwards were limited. Then the crisis came with enormous negative consequences. The limited effectiveness of traditional policies was demonstrated and

there were large fiscal and output costs. A benign neglect approach could no longer be accepted. There were, however, problems and difficult trade-offs with a more interventionist strategy. It was difficult to detect bubbles in real time. There were risks associated with pricking bubbles and with the ineffectiveness of traditional policies. Housing markets are special: Many owners are highly leveraged, houses represent large storages of wealth, and there are major supply-side effects and network externalities. The speaker presented a diagram in which historical house price appreciation was confronted with mortgage delinquencies in different states in the US. In another diagram, house price appreciation in a sample of countries was confronted with indicators for the severity of crisis. The bottom line is everywhere that there seems to be a strong association between real estate boom-busts and financial distress. Leverage is key. In his conclusion, the speaker described advantages and disadvantages of using respectively monetary policy and macro-prudential tools to deal with real estate boom-busts. Ensuring financial resilience and avoiding boom-bust cycles are not mutually exclusive. The division of responsibility for respectively monetary policy and macro-prudential policy depends on the institutional design. He mentioned pros and cons related to separate agencies and a centralised organisational structure.

The next presentation “*Macroprudential measures, housing markets and monetary policy*” was presented by **Margarita Rubio**, Banco de España. The recent financial crisis has made clear the necessity of introducing policies and regulations that restrict credit. In many countries, loan-to-value (LTV) ratios had increased a great deal, enhancing the housing bubbles. New policy intervention may follow a so-called macroprudential approach to mitigate systemic risk. Tools should dampen the build-up of financial imbalances and thus build defences that may contain the speed and sharpness of subsequent downswings and their effects on the economy. The housing sector plays a key role during crises. It is crucial to understand how the new macroprudential measures affect the conduct of monetary policy. In the presented paper, the author tries to evaluate the effects of a rule on LTV. This is done by means of a DSGE model with equations for saver, borrower and firm behaviour. The author assumes that there is a macroprudential Taylor-type rule for the LTV ratio, so that it responds to output and house price changes. During booms, a lower LTV is triggered. The effects of three types of shocks are analysed. It is demonstrated that a LTV rule dampens the effects of house price shocks and also the response of inflation to monetary policy shocks. The effects of different Taylor rules are compared. LTV rules are also welfare enhancing because they contribute to a more stable financial system.

Session 5 was chaired by **Catherine Lubochinsky**, University Paris 2 and SUERF. **Hans-Joachim Dübel**, FinPolConsult, Berlin gave a presentation “*The transatlantic mortgage credit crisis – the role of financial structure and regulation*”. The speaker said in his introduction that he would talk about mortgage finance system design, competition between and regulation of financial intermediaries, consumer protection regulation and housing policy. He referred to a comprehensive IMF study of capital inflows and structural factors in credit booms in 47 economies in the period 1960 to 2010. Causality between capital flows and credit booms goes both ways. Particularly in emerging economies, mortgage lending has often been driven by active capital imports initiated by investors seeking attractive investment possibilities, while in industrial countries with highly developed financial markets passive capital inflows often seem to be related to insufficient domestic supply of mortgage financing. On the macro level, European commercial banks did not materially act differently from US institutions involved in mortgage financing. The main carrier of credit boom in both cases was debt securities. Debt securities and transactions via the interbank market allow lending beyond an exhausted local deposit base. Regulators could intervene via leverage, mismatch and valuation of respectively real and financial assets. While LTV ratios generally increased monotonously until the crash, the LTV-curve is hump-shaped in the UK with a maximum in the middle of the 1990s. Americans, despite the high homeownership ratio, do not save ex-ante for housing. In Germany, in contrast, prior savings are required to buy a house or an apartment. Housing demand for those, who have no savings is met by a well developed social housing rental market. Thus, Germany has avoided the subprime problems of the US. Recently, adjustable rate loans (ARMs) have on average been more than 70 % of all loans in Europe. In many countries, they have been introduced by commercial banks in competition with traditional mortgage banks. Collateral valuation seems to be passively tracking house price inflation rather than protecting consumers. In the view of the speaker, a conservative bias was desirable. All in all, regulators should look carefully at rules concerning LTVs, maturities, amortisation, interest-only loans and spreads. Regulators could introduce “Volcker Rules” for the mortgage markets to discourage interest rate risk speculation.

Ronan C. Lyons, Oxford University presented the paper “*Inside a bubble and crash: evidence from the valuation of amenities*”. The speaker started by saying that property is at the heart of modern economies. Shelter is the most important consumption good. Real estate is the most important investment asset class. It is therefore important to understand the internal workings of the housing market. Housing markets play an important role in the economic history of all OECD countries. Ireland is a particularly interesting case. We need to understand the

market for location-specific amenities. We have data on respectively the sales segment and the lettings segment. From consumer attitudes surveys we know that important factors are proximity to employment, environmental amenities and transport amenities. The rich Irish dataset include prices, time, location and property characteristics. The study applies 22 different amenities. Hypotheses concerning property valuation across segments and over the cycle are tested. Proximity to employment is shown to be a primary amenity. As expected, distance to the coast has a positive impact on prices, while distance to polluting institutions has a negative impact. Urban green space and school quality have a positive impact. It is less likely that bubbles overstate the fraction of housing wealth in amenity-rich areas than in low-amenity areas.

Session 6 was chaired by **Klaus Kristiansen**, Realkredit Danmark. **Kevin J. Lansing**, Federal Reserve Bank of San Francisco and Norges Bank gave the presentation “*Housing bubbles and expected returns to home ownership: lessons and policy implications*”. Asset prices appear to exhibit “excess volatility” when compared to the discounted stream of ex post realized dividends or cash flows. Fundamental explanations of volatility require rational agents discount rates to be extremely volatile (e.g., habit formation). If true, then agents should expect low future returns after a sustained price run-up. Survey evidence reveals the opposite: Investors appear to expect high future returns after a sustained price run-up. Models in which agents employ extrapolative or moving-average forecast rules are a promising way to capture excess volatility and can deliver a positive correlation between price-rent ratios and expected future returns. Should central banks take deliberate steps to prevent or deflate suspected bubbles? If so, what policy instruments should be used to do so? A balanced approach involving both macroprudential regulation (first line of defense) and interest rate policy (second line of defense) may be the best way to prevent credit fuelled financial imbalances. The speaker presented several diagrams with loan-to-value (LTV) ratios and debt-to-income (DTI) ratios. There is a clear pattern showing that countries with strong increases in house prices 1997 to 2007 have also strong increases in LTV- and DTI-ratios. Quotations from Alan Greenspan and Ben Bernanke were used by the speaker to demonstrate a gradual change in the attitude of the Federal Reserve concerning the policy to deal with real estate bubbles. From “we do not try to contain bubbles – we focus on policies to mitigate the fallout when they happen” to “pre-emptive action is preferable to cure”. The Financial Crisis Inquiry Commission used strong words in its 2011-report: “in the mid 2000s the authorities demonstrated pervasive permissiveness”. Mervyn King, Bank of England was also quoted by the speaker for having said: “Risks must be dealt with beforehand”.

Session 7 was chaired by **Morten Balling**, Aarhus University and SUERF. **Morten Baekmand Nielsen**, Nykredit gave a presentation “*Recent developments in mortgage lending in the EU*”. It was based on a paper co-authored by Jesper Berg, Christian Sinding Bentzen and Henrik Schönemann. The speaker started by showing diagrams with stylized balance sheets for respectively deposit taking banks issuing covered bonds and specialized mortgage banks. An important difference between the two types of institutions is that the combination of deposit taking and sale of covered bonds imply a certain subordination of depositors. The speaker listed four possible objectives for mortgage systems: 1) affordability for households, 2) resilience towards falling property prices, 3) robustness during and after periods of stress, and 4) minimization of the need for Government support. The average cost of housing loans in 12 EU countries in 2003, 2007 and 2011 was used to illustrate affordability. It turns out that households in Spain, Ireland and Italy on average face lower interest on their mortgage than the typical German or Dutch household. By combining data on house price dynamics and housing debt dynamics one can make the observation that the countries experiencing the largest pre-crisis increases in house prices also tend to be the countries with the largest declines during the crisis. To some extent resilience can be evaluated by comparing ratings of covered bonds. Collateral risk, with a few exceptions in particular related to countries that have suffered during the debt crisis, does not differ that much. What differs and also matters most is market risk. High market risk can result in demands for overcollateralization of covered bonds well above 50 percent. This can be a severe constraint on lending and also increases the risk of subordination. The robustness of a mortgage system can be evaluated by studying the development of mortgage lending during and after crises. Data shows that growth in mortgage lending in Europe did slow down after the collapse of Lehman, but with the exception of Belgium and Ireland, all countries maintained positive growth rates in mortgage lending. Looking at owner-occupied housing, it is striking that the Nordic countries with their welfare state models seem to have taken a much more market oriented approach to housing finance than the US, where FHA, GNMA, Fannie Mae and Freddie Mac have been supported heavily by the Government. The speaker concluded that European mortgage systems have generally done well in terms of maintaining the capacity to lend during the crisis and with significantly less need for government support than in the US. Within Europe, there seems to be a case for mortgage lending by specialised institutions that do not take deposits, in order to avoid structural subordination, and a strict management of market risk to limit overcollateralization requirements.

The last presentation “*Which types of financial institutions are most efficient in housing finance?*” (or “*The good, the bad and the ugly*”) was given by **Alan Boyce**, CEO, Absalon. The speaker praised the Danish mortgage system. Danish covered bonds are still the safest in the world. Danish borrowers have lots of choices and they are all priced by the bond market. During the crisis, Danish mortgage credit institutions, regulators and the Government have made some mistakes but they have shown leadership on moral hazard and bank resolution issues. A large part of Danish mortgage loans are provided for commercial, agricultural, rental housing and social housing. Those loan segments have natural preferences for adjustable rate mortgages (ARMs). This explains a large part of the Danish ARM issuance. There are roughly 1.2 million households with loans. 44 % of these loans are ARMs. The ARM frequency is much higher for loans to commercial, agricultural, rental housing and social housing. There is some risk, but according to the speaker there is plenty of Danish capital to deal with worst case situations. Based on data on external debt and net financial assets, the speaker observed that Denmark is rich. The Government debt is only 35 % of GDP and the entire pension funding system is solvent at market discount rates and underweighted in mortgage bonds. Households own the country and the companies. Danish households are the most indebted in the Nordic region, but also the most wealthy. Other countries could benefit from introducing the Danish standardized bond market solutions.

The SUERF Vice President **Frank Lierman** concluded the conference by thanking Nykredit for hosting and sponsoring the event, Danmarks Nationalbank for financial support, the organisers, the speakers and authors and the participants.

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This *SUERF Study* will appear at www.suerf.org/ss20124

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