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Breeding one's own sub-prime crisis: The labour market effects on financial system stability

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ABSTRACT

Crisis may spread through economy *via* the propagating mechanisms of the labour market – households becoming delinquent due to an initial unemployment shock may be unable to continue servicing obligations *versus* the financial system. With large debts – e.g. mortgages – such defaults pose a threat to financial system stability. In this paper we use the Polish household budget surveys to simulate the impact of changes in the labour market status of household members on the ability of the household to service its mortgage payments. The simulation results are subsequently aggregated to facilitate a macro-level interpretation of the findings. We simulate various scenarios of labour market deterioration. Finally, we also introduce a policy instrument into the simulations providing, in a fiscally neutral manner, additional stability to the financial system. Based on robustness checks, the findings seem to be reliable. The results suggest that even with shares of debtors among consumers as low as in Poland, the propagation mechanism may indeed result in a considerable threat, while the fiscally neutral instrument is effective and well-suited to be addressed in providing additional stability to the financial system.

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1. Introduction

In most theoretical approaches, creditworthiness is evaluated based on one's likelihood to service the future burden of repayments. The future liquidity position of debtors remains unknown at the time of credit approval, which is the core of risk associated with the approval decision. For mortgages,

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it has been frequently argued in the literature that scoring models can help to partly alleviate this problem by allocating potential clients a different probability of becoming delinquent over the credit horizon. Scoring models rely on proxies (e.g. demographic status, educational attainment) to forecast future labour market prospects (Wagner, 2004). Consequently, these models evaluate future earnings using a Heckman corrected Mincerian approach. However, such models may prove unreliable in the context of large swings in the unemployment rate, since such periods are typically associated with out-of-equilibrium labour market behaviour. Such swings are frequent in the context of developing or transition countries, but also occur in highly industrialised countries (e.g. Finland in the mid 1990s or Ireland and Spain over the 2007–2009 period).

It is believed that the current global financial crisis, emerging from the so-called US sub-prime breakdown, is a result of lax lending standards on the part of financial institutions. However, most central banks in the world perform regular stress-testing on consumer lending to verify the vulnerability of the financial system to a sudden drop in debt servicing. Adversely changing labour market conditions may significantly affect debtors' ability to repay loans, while mortgages are characteristic in the sense that the ratio of instalment to the total outstanding debt is the highest among credit products. Consequently, deterioration of the labour market situation may be strongly propagated to the financial system *via* the mortgage sector. What is the risk of observing a crisis similar to the sub-prime breakdown in the US as a consequence of the deterioration in the labour market? How large can the accumulated effect of the labour market propagation mechanisms be?

We address these questions by developing a simulation framework at the household level. The majority of stress-tests use macro-level relationships to evaluate micro-level effects. Thus, they predominantly rely on the behavioural relationships between macroeconomic aggregates. We take the alternative approach, deriving the macro-level implications from analysing micro-level behavioural patterns. We use two household-level datasets (Polish annual household budget surveys for 2007 and 2008) to simulate future employment prospects of income earners in these households using adapted labour force survey data (quarterly surveys for 1995–2008). The methodology captures individual heterogeneity, since individually observed labour market outlooks used for simulation take factors such as education and gender into account. We observe the changes in the liquidity of households as a result of their changing labour market status. We subsequently aggregate these findings to derive the macro-level implications.

Our findings suggest that changes in employment prospects will noticeably affect the ability of Polish households to service mortgage payments. The impact – which depends on the scenario – may even result in an increase by 3.4% in the stock of outstanding unserviced mortgage. We also introduce a fiscally neutral instrument which supports households' debt servicing ability. The performance of the instrument is surprisingly high, since it reduces the overall aggregated effect on the financial system by roughly 40%, equivalent to 1.4% of outstanding mortgages.

The paper is structured as follows. In Section 2, we briefly present a review of the literature. Section 3 discusses the situation in order to justify the stylised facts used for the simulation. In Section 4, we describe the data. Subsequently, we present the model setup in Section 5. Section 6 presents the results and implications for policy.

2. Literature review

Even prior to the global financial crisis central banks have recognised the threat to the stability of the financial systems posed by delinquency of households burdened with debts. Typically, this question has been approached through stress-tests, applied to both consumer and commercial loans. These approaches have become increasingly sophisticated, using micro-level data, but the shock imposed in the stress-tests is usually exogenous and by the very construct of the stress-tests cannot lead to propagation effects. To enrich this set-up, central banks (including the Bank of England, the Bank of Canada and the Bank of Greece) have endeavoured to use household level data to approximate the distribution of the debt servicing burden (Barwell et al., 2006; Simigiannis and Tzamourani, 2006; Faraqui, 2006). However, these approaches are backward looking in the sense that they analyse historical indicators, while the projections are based on structural relationships between macro-level aggregates.

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