Household debt and foreign currency borrowing in new member states of the EU

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Motivation

- Many new members of the EU
  - Poland, Hungary, Czech Republic, Slovakia, Slovenia, Estonia, Latvia, Lithuania, Bulgaria, Romania

  have been experiencing rapid debt growth in the household sector

- Credit growth is an essential – and natural - element of the catching-up process

- Excessive household indebtedness, especially if it is in foreign currency, may, however, increase a country’s susceptibility to a crisis
  - To what extent did it matter during the global financial crisis of 2008?
Objective

- The objective of the paper is to:
  - identify risks related to the evolution of debt in NMS and
  - derive implications for macroeconomic policy
    - Households’ borrowing: its scale and currency composition – lessons from the global financial crisis
Outline

- Household indebtedness in the NMS: stylised facts
- Quantitative assessment of the sustainability of debt
- Qualitative discussion of risks arising from borrowing in foreign currencies
- Conclusions
  - Lessons of the crisis of 2008
Household indebtedness in NMS: stylised facts
Stylised facts

- New member states’ debt levels have been catching up relatively rapidly with levels observed in the old members of the EU

- The Baltics
  - have recorded the fastest pace of debt growth

- The Central European economies
  - the debt to income ratios in Poland, Hungary and the Czech Republic have been increasing relatively moderately

- The Southern European countries
  - the HH debt in Romania and Bulgaria, although increasing, has remained at low levels
Debt drivers

- The expansion of the household debt results from two factors:
  - the convergence process
    - in which case the expanding indebtedness constitutes a necessary element of the medium-, long term macroeconomic equilibrium
  - short term borrowing trends
    - driven by the business cycle or by autonomous factors
    - these may result in credit booms, posing risks of overheating to the economy and of financial instability in the downturn
Quantitative assessment of sustainability of debt in NMS
Qualitative assessment of debt sustainability

3 steps

1. Estimate a model of debt
   - What does the debt to income ratio depend on?
2. Determine the equilibrium level of debt
   - How do you measure the equilibrium?
3. Assess excessive indebtedness of households
   - In the short run
   - In the medium run
   - In the long run
The model of debt to income

The model

- defines the debt to income ratio as a function of:
  - GDP per capita, interest rates, house prices
- encompasses:
  - selected new member states: Poland, Hungary, Czech Republic, Estonia, Latvia and Lithuania
  - major economies of the Euro Area as comparator countries: Germany, France, Italy, Belgium and
- is estimated: as a panel within error correction framework (using annual data for 1996 -2007)

Long run

\[ DEBT_t = -5.91 + 0.64 \ln(GDP_t) - 0.006 LR_t + 0.21 \ln(PH_t) \]

(−8.1) (7.9) (−2.2) (9.2)

Short run

\[ DEBT_t = DEBT_{t-1} - 0.24 ECT_{t-1} + 0.77 \Delta \ln(GDP_t) - 0.005 \Delta LR_t + 0.15 \Delta \ln(PH_t) \]

(−3.4) (7.7) (−1.8) (5.2)

where:
- DEBT - debt to personal income ratio, GPC – real GDP pc,
- LR - long term interest rate, and PH - house prices
Model results

- Residuals suggest the debt to income ratio in the new member states has largely evolved in line with its fundamentals:
  - GDP per capita, the long term interest rate and house prices
- There is, however, some evidence of excessive debt growth in recent years in:
  - Estonia, and possibly the other Baltic economies and
  - Hungary

![Estonian residuals chart](image)

![Hungarian residuals chart](image)
What is the equilibrium level of debt?

- The evolution of debt to income ratio in line with its determinants - GDP per capita, interest rates and house prices - does not necessarily guarantee the sustainability of debt growth in the long run.

- GDP per capita, interest rates, and house prices are subject to cycles and/or bubbles.
  - If bubbles burst or cycles are reverted, the debtors are still left with large amounts of debt to repay, so as to reduce the level of debt to income ratio to a new equilibrium.

- We argue that the equilibrium level of debt should correspond to equilibrium levels of its determinants.
Equilibrium level of debt to income

- Calculating the equilibrium level of debt requires removing house price bubbles and GDP cycles
  - Bubbles in house prices result in significant deviations from equilibrium. Once they burst an immediate adjustment of households’ balance sheets is not possible
  - Cycles in GDP – overborrowing during an upturn may result in an increased risk of insolvency during a downturn
Bubbles in house prices

There have been strong demand pressures on new member states’ housing markets, suggesting that house prices may exhibit bubble properties.

Countries reporting the highest growth of house prices have been Latvia, Lithuania and Estonia (plus Bulgaria and Slovakia).

Over the period 2000-2007 the average growth rate of house prices in the new member states significantly exceeded the average growth rate of house prices in the selected old members of the EU. This can be partially attributed to fundamental factors, partially to a bubble.
GDP cycle

- Cycle-driven risks related to debt => nonperforming loans

- An increasing level of such loans reflects either unwise lending or deteriorating macroeconomic situation which would imply that shares of bad loans in total loans increase
Excessive indebtedness

- Estimating the model of debt to income ratio
  - for selected NMS and major OMS
- and removing bubbles/cycles from debt determinants (defining their equilibrium levels)
- allows us to determine 3 types of risks related to excessive debt:
  - Short run risks
  - Medium run risks
  - Long run risks
Measuring excessive indebtedness

The riskiness of the dynamics of debt can be assessed against:

- long term absolute equilibrium
  - characterising developed economies
- medium term sustainable convergence path
  - corresponding to the equilibrium level of fundamentals
- short term fundamentals-based path
  - which may be affected by cycles and bubbles

Source: own modification based on Kiss, Nagy, Vonnak, 2007
Medium- and long term equilibria

How sustainable is debt to income?

Probably (highly) unsustainable in Estonia

Relatively unsustainable in Hungary

Probably sustainable in the Czech Republic

Debt growth in Estonia has exceeded not only its sustainable convergence path, but also what the absolute equilibrium level would suggest.

In Hungary the debt to income ratio has exceeded its sustainable convergence growth path.

The Czech level of debt to income may have gradually reached the absolute equilibrium territory.
Sustainability of debt

- 3 types of risks
  - Long term risks (debt to income ratio exceeds the absolute equilibrium)
  - Medium term risks (debt to income exceeds its sustainable convergence path)
  - Short term risks (debt to income exceeds its fundamentals-based path)

<table>
<thead>
<tr>
<th>Country</th>
<th>Long term risk Deviation from the absolute eq. path</th>
<th>Medium term risk Deviation from the convergence path</th>
<th>Short term risk Deviation from the model path</th>
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<tbody>
<tr>
<td>Estonia</td>
<td>high</td>
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<tr>
<td>Latvia</td>
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<tr>
<td>Hungary</td>
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<td>high</td>
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<tr>
<td>Czech Republic</td>
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<tr>
<td>Poland</td>
<td>low</td>
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Qualitative discussion of risks arising from borrowing in foreign currencies
Foreign currency borrowing

- The volume of borrowing in foreign currencies in new member states has tended to rise over time.

The highest share of borrowing in foreign currencies (and predominantly in the euro) has been recorded in the Baltics.

Central European borrowers (in Poland and Hungary) have borrowed also in other currencies (and in particular in the Swiss franc).

Borrowing in foreign currencies in the Czech Republic and Slovakia has been practically absent.
Determinants of foreign currency borrowing

Key factors behind borrowing in foreign currencies:

- Interest rate differential
- Exchange rate volatility

In normal times – borrowers in countries with a free float are exposed to a greater level of currency fluctuations – and more serious risks

In turbulent times – borrowers in countries with a fixed exchange rate may be exposed to risks of devaluation
Determinants of foreign currency borrowing

- Key factors behind borrowing in foreign currencies:
  - The ratio of credits to deposits (if credit demand exceeds available funds banks borrow abroad)
  - Expectations of EMU adherence
  - Other
  - The rising integration of financial markets (manifesting itself e.g. in the presence of foreign banks (which may affect the availability of credit in a foreign currency))
Conclusions and policy implications
Lessons of the crisis of 2008
Conclusions

- Over the period 1995-2007 the ratio of debt to income in the NMS increased - which can be regarded as a natural element of the catching up process.

- In Estonia, Latvia, and Hungary, the debt growth was, however, worryingly fast - which could increase the susceptibility of these economies to a crisis. Moreover, the share of borrowing in foreign currencies was exceptionally high.

- As the crisis came, these economies were exposed to particularly high risks.

Lessons of the crisis of 2008

- Risks related to the volume of debt
- Risks related to the currency structure of debt
Lessons of the crisis of 2008: 
Risks related to the volume of debt

Did the scale of households’ indebtedness contribute to the deterioration of the macroeconomic situation in the NMS during the crisis?

- In the *Baltic countries* credit booms of 2005-2008 generated imbalances in property markets and led to serious “overheating” of the Baltic economies. In effect, the recession, these countries experienced, has been very deep (“hard landing” => the greater the imbalance, the more painful the adjustment)

- Over the analysed period, debt growth in the *Central European economies* was relatively more balanced, and the recession – somewhat milder

- The relative weight of the domestic shock (resulting from the internal disequilibrium) and that of the external shock (resulting from the global crisis) have been varying across countries
Lessons of the crisis of 2008:
Risks related to the currency composition of debt

- Did the scale of borrowing in foreign currencies contribute to the deterioration of the macroeconomic situation in the NMS during the crisis?

- Depreciation of *Central European* currencies (2008Q2) put borrowers at serious risk
  - The risk was partially offset by foreign interest rates cuts

- The *Baltic* currencies were exposed to speculation (and the Latvian Lat in particular, which, contagiously, could have spread to the neighbouring countries):
  - Although the devaluation could have improved the Baltic countries’ competitiveness, the large share of borrowing in euro, could have generated risks of insolvency of households (+ domestic banks (and their foreign parent banks)). It could have also affected the credibility of the Baltic countries’ central banks and their plans of adoption of the euro
  - The above mentioned risks did not materialise

![Depreciation of the Central European currencies](image.png)

Effective exchange rate 2008q2=100
Thank you
Literature

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