NATIONAL BANK OF ROMANIA

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Adjustments in the balance sheets – is it normal this “new normal”?

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Note: The opinions expressed in this presentation are those of the author and do not necessarily reflect the views of the National Bank of Romania

Agenda

- Introduction and problem discussion
- Data
- Methodology
- Results
- Conclusions

Introduction and problem discussion

Balance sheets' adjustments – the new normal after the burst of the financial crisis:

- Companies and households search for more sustainable debt levels
- Banks shrink their business
- Governments consolidate their accounts

Introduction and problem discussion

Objective: identify critical debt thresholds, by grasping, in connection, the indebtedness level of all sectors (companies, households, government, external and total)

Data

Sample: December 2004 – December 2014

Frequency: quarterly

Panel: seven emerging European economies

Variables: six distinct debt categories, GDP, relevant macroeconomic indicators

Methodology

Two approaches:

- A multivariate panel logit regression
- An asset pricing model

Methodology

Panel logit model (1)

Recession event indicator

$$y_{i,t} = \begin{cases} 1, & if\ \Delta GDP < 0\ for\ two\ consecutive\ quarters \\ 0, & otherwise \end{cases}$$

Six models run, one for each debt category

Total debt:

$$y_{i,t} = total\_debt_{i,t-4} + gfcf_{i,t-4} + consumption_{i,t-4} + trade\_gdp_{i,t-4} +$$

$$govt\_balance_{i,t-4} + ir\_dob_{i,t-4} + hicp\_all_{i,t-4}$$

=> Similar regressions used for external debt and private debt

Methodology

Panel logit model (2)

Government debt:

$$y_{i,t} = govt\_debt_{i,t-4} + unemployment_{i,t-4} + consumption_{i,t-4} + govt\_balance_{i,t-4} + ir\_dob_{i,t-4} + hicp_{all}{}_{i,t-4}$$

Companies' debt:

$$y_{i,t} = nfc\_debt_{i,t-4} + gfcf_{i,t-4} + trade\_gdp_{i,t-4} + govt\_balance_{i,t-4} + ir\_dob_{i,t-4} + hicp_{all}{}_{i,t-4}$$

Households' debt:

$$y_{i,t} = hh\_debt_{i,t-4} + unemployment_{i,t-4} + consumption_{i,t-4} + import\_gdp_{i,t-4} + ir\_dob_{i,t-4} + hicp_{all}{}_{i,t-4}$$

Methodology

Asset pricing model

From an Euler-type equation, the following debt relation is derived:

$$D_{t-1}(s_t) = \tau_t - g_t + \sum_{j=1}^{\infty} \beta^j E_t \left[\frac{u'(y_{t+j} - g_{t+j})}{u'(y_t - g_t)} (\tau_{t+j} - g_{t+j}) \right]$$

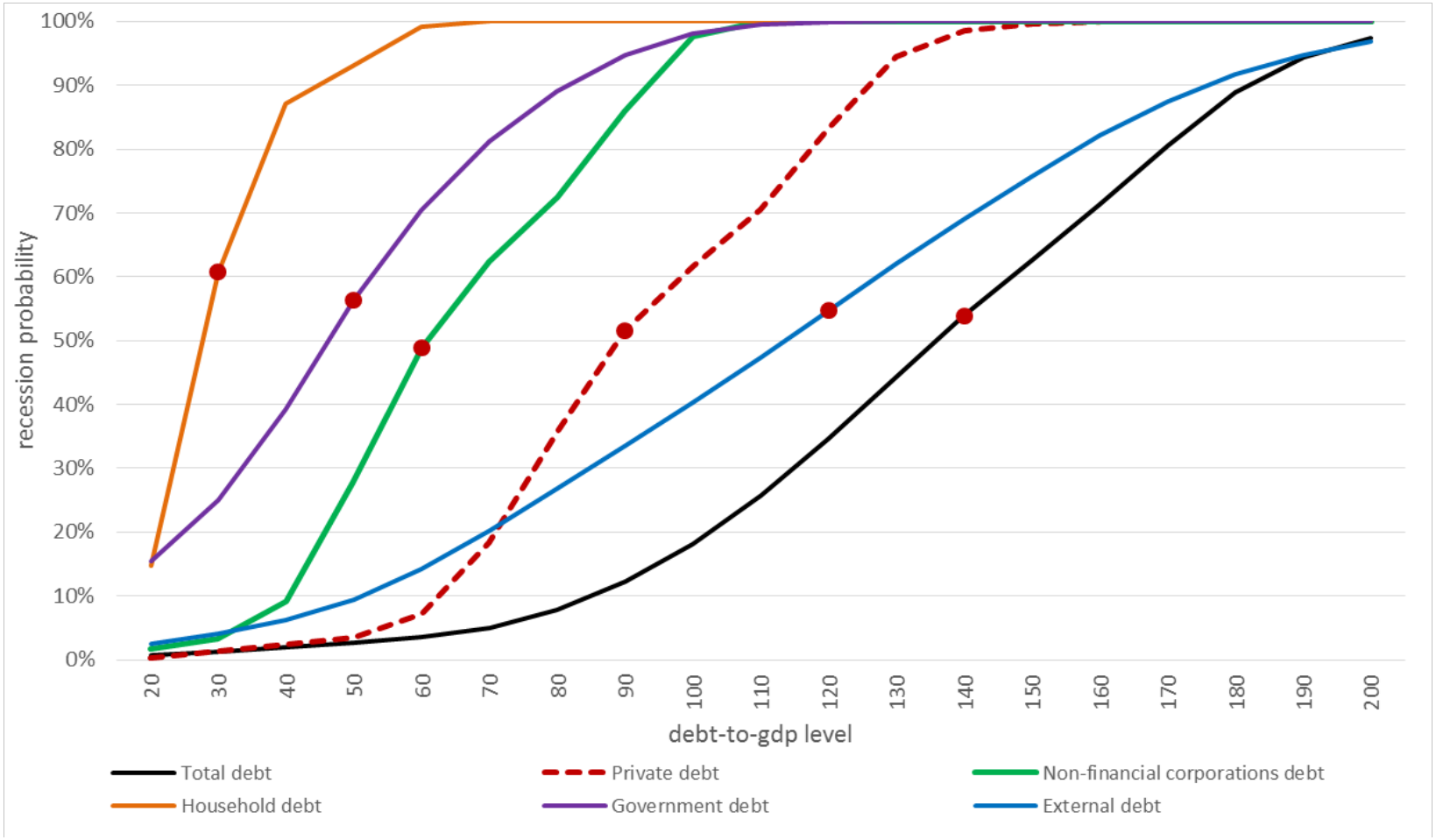
Using a series of standard budgetary constraints and the general equilibrium conditions:

$$E[D_t] = \frac{-\mu}{\rho(1+\bar{r})-\bar{r}}$$

Developed initially for public debt => recalibrated to account for the specifities in the other debt categories

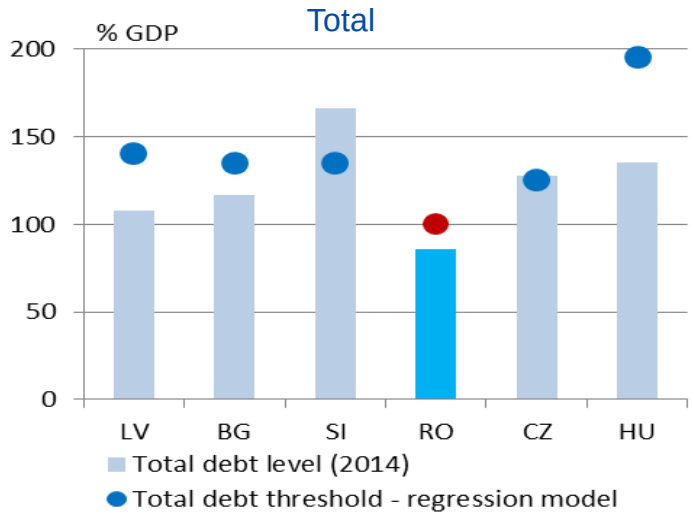
Results

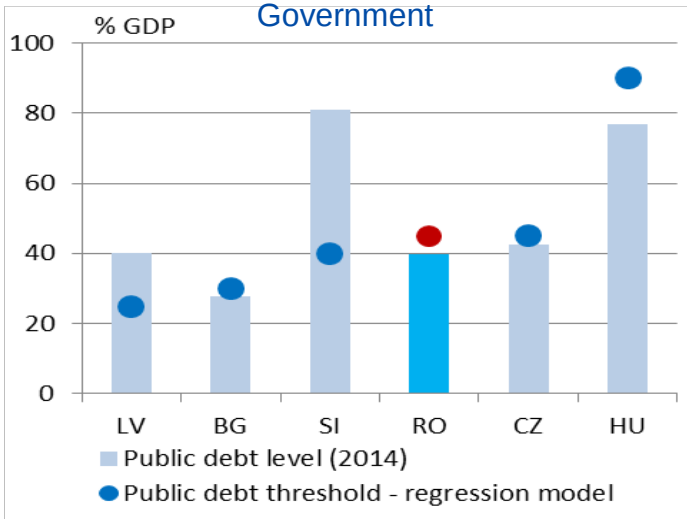
Panel logit model (1)

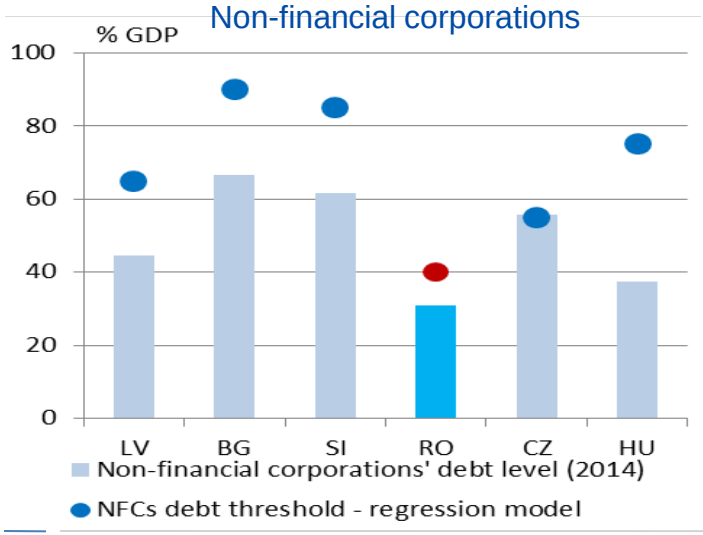


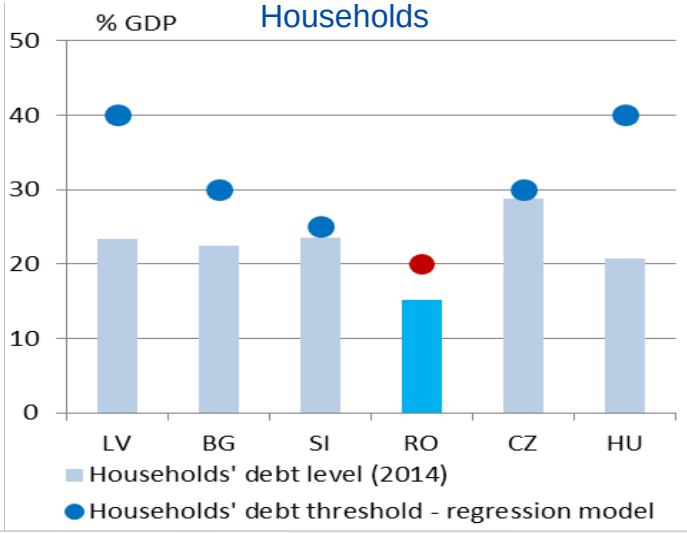
Results

Panel logit model (2)





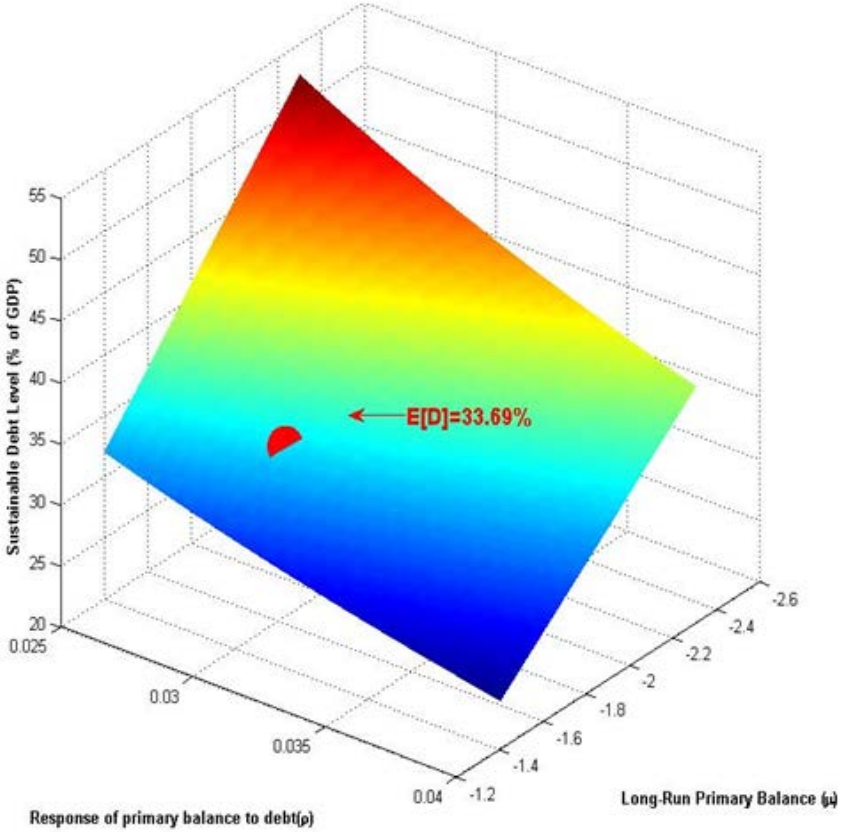




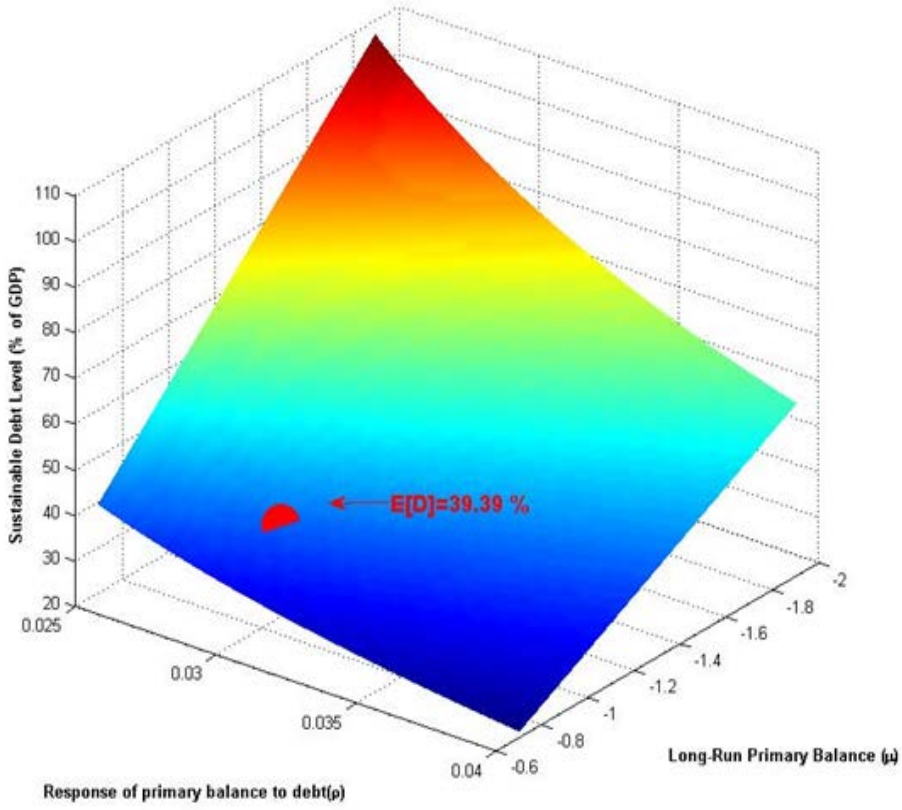
Results

Asset pricing model – government debt

Czech Republic



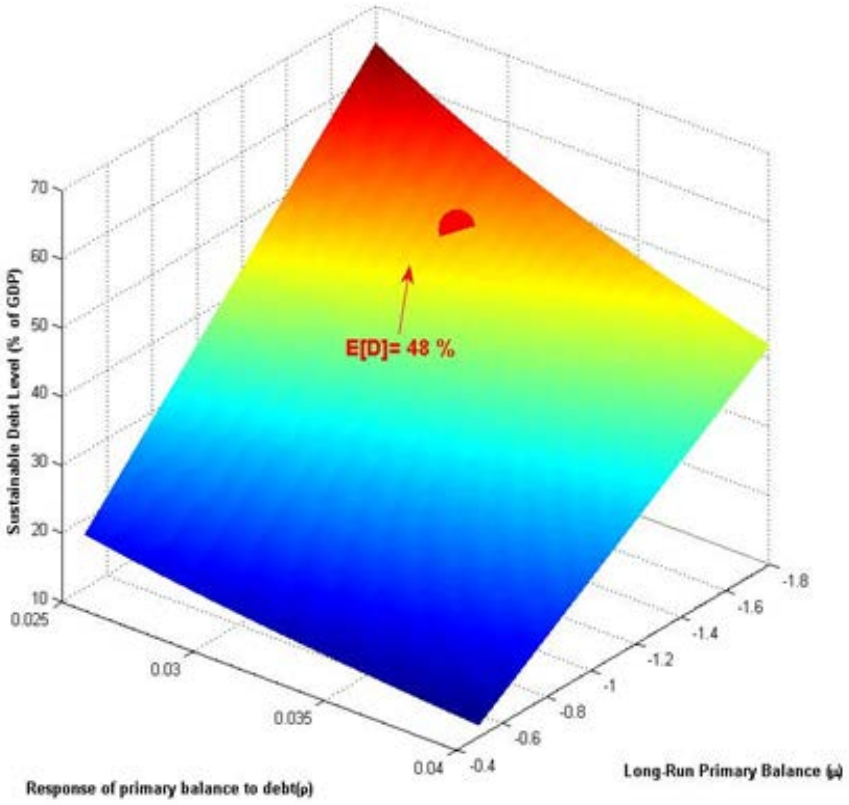
Romania



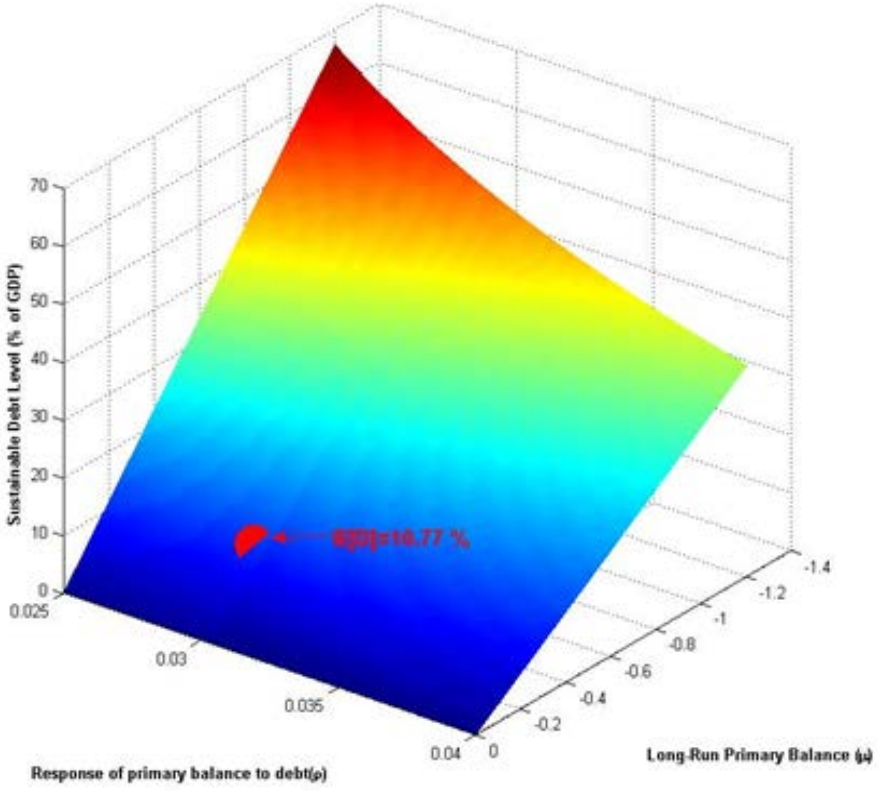
Results

Asset pricing model – households' debt

Hungary



Romania



Conclusions

- "*one size fits all*" type of measures or thresholds might not be the most indicated solution as countries can bear various debt levels
- higher capacity of the private sector to absorb debt compared to government
- public debt thresholds are in most countries close to the current level of indebtedness
- institutional sectors proved to have a contrasting resilience to different debt levels

Thank you!