Non-core Liabilities as an Indicator of Systemic Risk and a Liquidity Stress Test Application on Turkish Banking System

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• capital flows to emerging markets

Note: Advanced countries include Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Malta, Singapore, Spain, Switzerland, UK and USA. Emerging markets include Brazil, Chile, Croatia, Czech Republic, Hungary, Mexico, Poland, Russia, South Africa, Thailand and Turkey.

Source: Central banks and/or government statistical agencies
source of funding?

• banks play an *active* role in the *amplification* of financial shocks (Shin, 2011)

• procyclicality
  – booms and busts
  – credit growth *exceeds* deposit growth
  – alternative sources of funding!
    • wholesale funding
    • foreign borrowing
    • interbank borrowing
classification of liabilities

• core liabilities \((e.g. \textit{household deposits})\)
  • reliable
  • relatively cheaper
  • move with the aggregate wealth of the household

• non-core liabilities \((e.g. \textit{borrowing from other banks})\)
  • sensitive to market conditions
  • relatively more expensive
  • procyclical
  • short-term nature
## Core and Non-core Liabilities

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<th>Core Liabilities</th>
<th>Intermediate</th>
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<td>Demand deposits</td>
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non-core liabilities: US

non-core liabilities and constituents as a fraction of M2

Source: FED NY and Board of Governors

- a tax of 15 b.p. on non-core liabilities is proposed by Obama gov’t.
- this works as a tool for macro-prudential regulation as well! (Shin, 2010)
non-core liabilities: Korea

non-core liabilities and constituents as a fraction of M2

Source: Bank of Korea
non-core liabilities: Turkey

non-core liabilities and constituents as a fraction of M2

Source: CBRT
Turkey: decomposition of non-core liabilities
non-core liabilities and total credit

(change, 3-months average, adjusted for the exchange rate, millions of TL)

Source: CBRT and BRSA.
non-core liabilities and cost of credit

left axis: noncore liabilities, change, 3-months average, adj. for the exchange rate, millions of TL
right axis: TL business loan rate-TL deposit rate, per cent

Source: CBRT
liquidity stress test

- liquidity and/or solvency
- contagion
- funding liquidity vs. market liquidity
- Basel III
  - liquidity coverage ratio (LCR)
  - net stable funding ratio (NSFR)
- BRSA
  - liquidity requirement ratio (LRR)
funding liquidity measures

• \( LCR = \frac{stock \ of \ high \ quality \ liquid \ assets}{total \ cash \ net \ outflow \ (30 \ days)} \)

• \( NSFR = \frac{available \ amount \ of \ stable \ funding}{required \ amount \ of \ stable \ funding} \)

• \( LRR = \frac{stock \ assets+\ cash \ inflows \ (30 \ days)}{total \ cash \ outflows \ (30 \ days)} \)
simulations

• haircut ratios and run-off rates
• cash inflows and outflows
• BRSA’s liquidity template
• RAS algorithm

\[ E = \begin{bmatrix}
0 & \cdots & e_{1j} & \cdots & e_{1N} \\
\vdots & \ddots & \vdots & \ddots & \vdots \\
e_{i1} & \cdots & 0 & \cdots & e_{iN} \\
\vdots & \vdots & \vdots & \ddots & \vdots \\
e_{N1} & \cdots & e_{Nj} & \cdots & 0
\end{bmatrix} \]
actual exposures
a more connected and more concentrated structure

Gai et al. (2011), Nier et al. (2008)
complete structure (more connected but less concentrated)
conclusions

• non-core liabilities
  – a good indicator of systemic risk
  – procyclical

• robust funding conditions for the Turkish banking sector