The use of financial accounts for financial stability analysis

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1 This presentation was prepared for the meeting. The views expressed are those of the author and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.
Outline

I. The use of financial accounts (FA) for financial stability analysis: Risk identification

II. The use of FA for financial stability analysis: A practical example on risk assessment
   ➢ Motivation
   ➢ Methodology
   ➢ Results

III. Wrap-up and additional needs
Outline

I. The use of financial accounts (FA) for financial stability analysis: Risk identification

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I. The use of financial accounts for financial stability analysis

➤ Financial stability (our work cycle)

"A stable financial system is one that can provide crucial services to households and businesses in good times and bad."

Bank of England

Financial Stability

Risk identification

Risk assessment

Macroeprudential policy

Monitoring cyclical and structural developments in the financial system.

Assessing the resilience of the financial system to adverse macroeconomic and financial developments, using quantitative tools.

• Counter-cyclical capital buffers;
• Systemic risk buffers;
• Capital surcharges of systemically important institutions;
• Limits on large exposures;
• LTV and DSTI limits.
I. The use of financial accounts for financial stability analysis: Risk identification

- Financial accounts (FA) as the starting point for risk identification
I. The use of financial accounts for financial stability analysis: Risk identification

Sources and uses of funds by institutional sector

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Transactions in financial assets of households

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Contributions to changes in debt-to-GDP ratio of NFCs

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Source: Financial and non-financial accounts (PT).
I. The use of financial accounts for financial stability analysis: Risk identification

- International comparisons

Households' ratio of debt-to-disposable income (%) | 2017

![Graph showing household debt-to-income ratio across countries in 2017.]

Source: Eurostat.

NFCs' ratio of financial debt-to-equity (%)

![Graph showing NFC debt-to-equity ratio across countries from 2011 to 2017.]

Source: Eurostat.

Based on common concepts, definitions, classifications and accounting rules, FA data allows consistent and reliable comparisons across countries.
I. The use of financial accounts for financial stability analysis: Risk identification

However, FA data sometimes is not sufficiently detailed for risk identification

FA provides us aggregated figures we can drill down to further levels of detail by using microdata. A considerable heterogeneity across agents is (sometimes) behind the evolution of aggregated figures.
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II. The use of FA for financial stability analysis: A practical exemple on risk assessment - Motivation

- Risk identified: **High exposure of the PT financial system to sovereign risk**

- Portugal was one of the European countries most affected by the (European) sovereign debt crisis;
- Portuguese sovereign bond yields are currently at historically low levels;
- The still high public debt-to-GDP ratio makes Portugal vulnerable to changes in economic and financing conditions.
II. The use of FA for financial stability analysis: A practical exemple on risk assessment - Methodology

- Purpose of the exercise: To estimate the impact of an increase in PT sovereign bond yields (shock) on the various institutional sectors.

Diagram:

100 b.p. increase of PT sovereign bonds yields

- Direct impact
  - Debt securities devaluation
- Indirect impact (contagion)
  - Equity holdings devaluation
II. The use of FA for financial stability analysis: A practical example on risk assessment - Methodology

The impact in each sector of a 100 b.p. increase of sovereign bonds yields: **Direct impact**

If **Sector i** is exposed to sovereign bonds and bond yields increase, all other things being equal, the value of **Sector i's** assets will go down.
II. The use of FA for financial stability analysis: A practical exemple on risk assessment - Methodology

- The impact in each sector of a 100 b.p. increase of sovereign bonds yields: **Direct impact**

The devaluation recorded by sector \((i)\) in period \((t)\) is given by:

\[
DV_{ti} = MV_{securities_{ti}} \times \text{modified duration}_{ti} \times \Delta \text{yield}
\]

### Portuguese sovereign debt | Exposure by institutional sector

Source: Financial accounts (Who-to-whom detail).

### Duration and maturity | Weighted average values, by institutional sector

Source: Thomson Reuters Eikon.
The impact in each sector of a 100 b.p. increase of sovereign bonds yields: **Indirect impact (contagion)**

The devaluation of the debt securities held by **Sector i** will directly reduce **Sector i's** assets (1) and equity (2) and, indirectly, via cross-sector equity holdings, **Sectors a and c's** assets and equity (3)(4)(5)(6).
II. The use of FA for financial stability analysis: A practical exemple on risk assessment - Methodology

- The impact in each sector of a 100 b.p. increase of sovereign bonds yields: **Indirect impact (contagion)**

Losses are deducted from each sector’s own funds and are swiftly passed through to other sectors via cross-holdings. The iterative algorithm underlying this mechanism calculates the loss distribution in the economy over several rounds and this process continues until:

(i) the shock impacts a sector that does not issue capital, or

(ii) the affected sector’s own funds are depleted.

Source: Financial accounts (Who-to-whom detail).
II. The use of FA for financial stability analysis: A practical exemple on risk assessment - Methodology

- The impact in each sector of a 100 b.p. increase of sovereign bonds yields: **Assumptions**

- Sectors’ assets (bonds and equity) are mark-to-market;
- No mitigation factors, such as hedging derivatives or the agents’ response to the shock, are taken into account;
- Potential contagion effects on private debt and on funding conditions are also ignored.
The impact in each sector of a 100 b.p. increase of sovereign bonds yields: **Results**

- **In terms of assets**, General Government (GG), Insurance companies (ICs) and the Central Bank (CB) would be the most affected institutional sectors;
- **In terms of equity**, the CB and ICs would be hit hardest (remember that some sectors do not issue capital);
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- FA are a valuable source of information for financial stability

  ✓ They provide a picture of the interactions between the different sectors in the economy;

  ✓ Allow us to make consistent and reliable comparisons across countries;

  ✓ They are a privileged starting point to explore micro data;

  ✓ The who-to-whom detail is a very useful piece of information on both risk identification and risk assessment.
III. Wrap-up and additional needs

- **Additional needs**

  - Additional detail for who-to-whom breakdowns (RoW sector by counterpart country/sector);
  - Further detail on the original maturity of debt instruments;
  - Some detail on the residual maturity of debt instruments;
  - More detail on some FA instruments and sectors.
Thank you for your attention!