

IFC Workshop on the use of financial accounts, co-organised with the Central Bank of the Republic of Turkey
18-20 March 2019, Istanbul, Turkey

The use of financial accounts for financial stability analysis¹

Márcio Mateus,
Bank of Portugal

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.

The use of financial accounts for financial stability analysis

Workshop on the Use of Financial Accounts
(Istanbul, Turkey)

Márcio Mateus
(Financial Stability Department)



BANCO DE
PORTUGAL
EUROSYSTEM

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

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

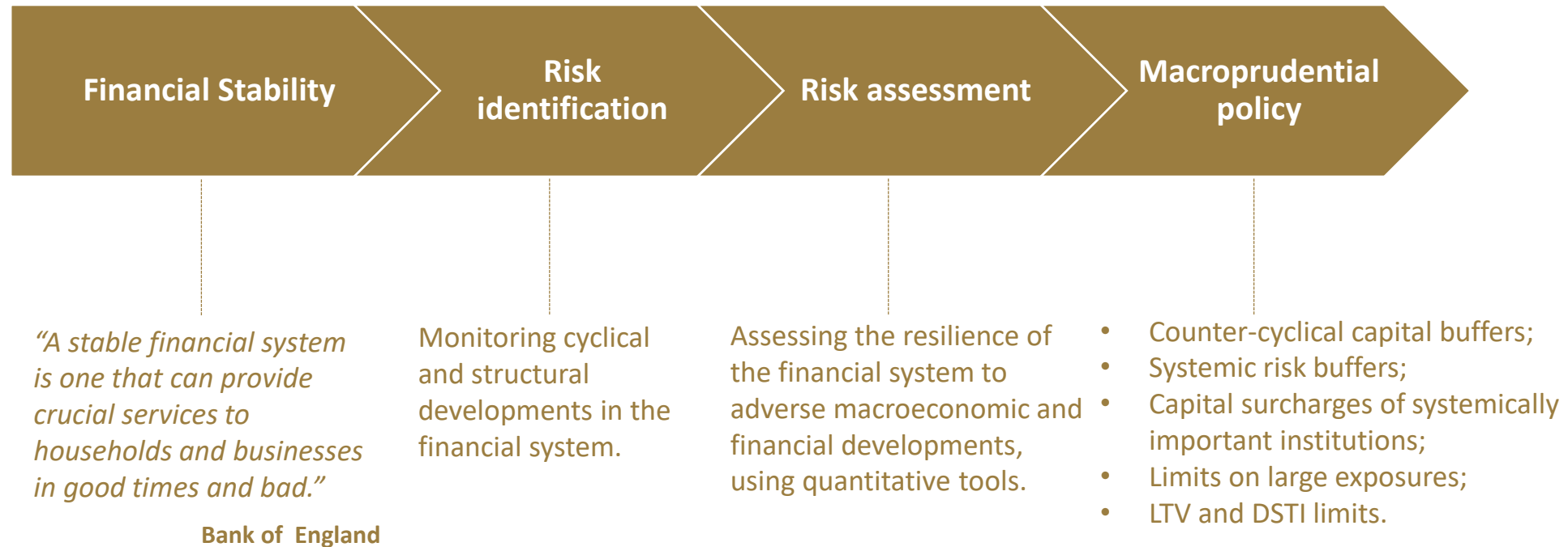
- Motivation
- Methodology
- Results

III. Wrap-up and additional needs



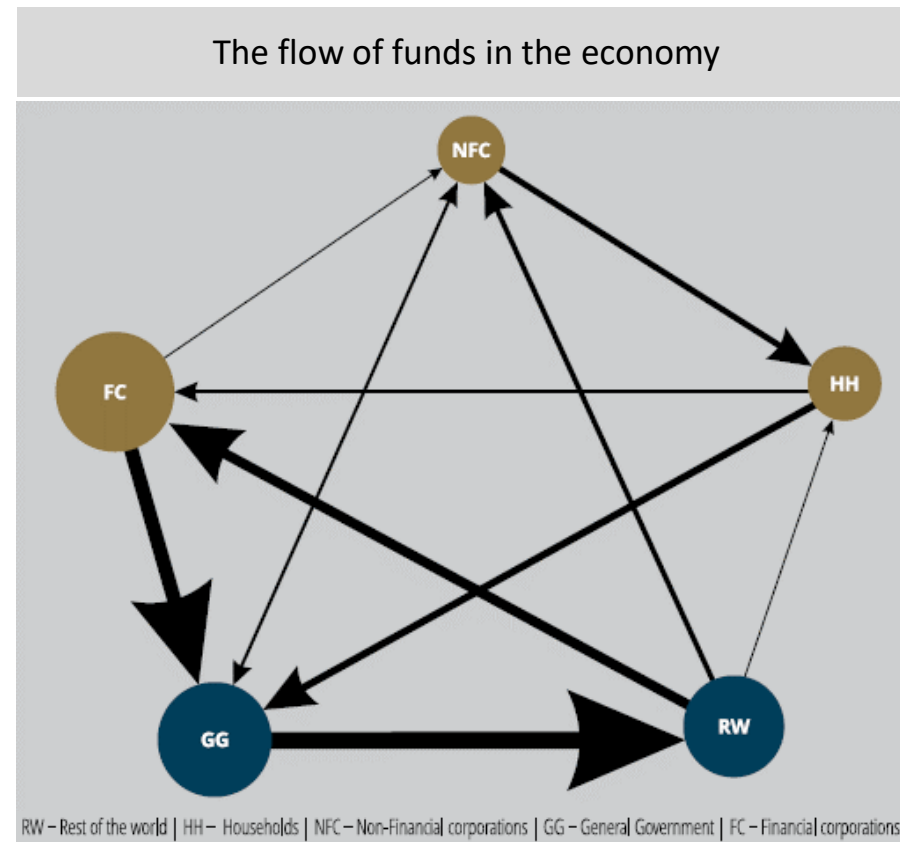
I. The use of financial accounts for financial stability analysis

➤ Financial stability (our work cycle)



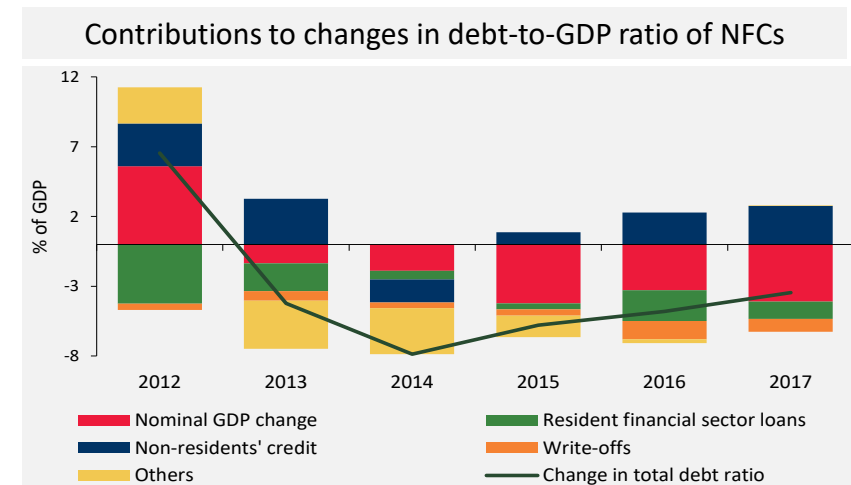
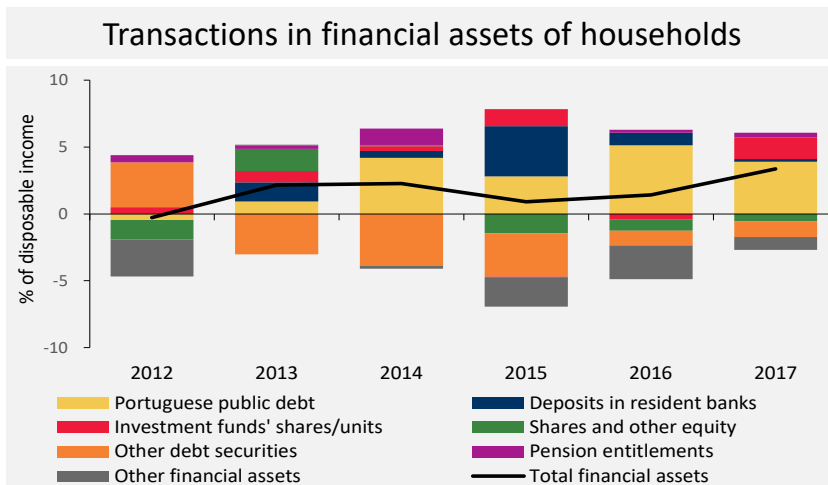
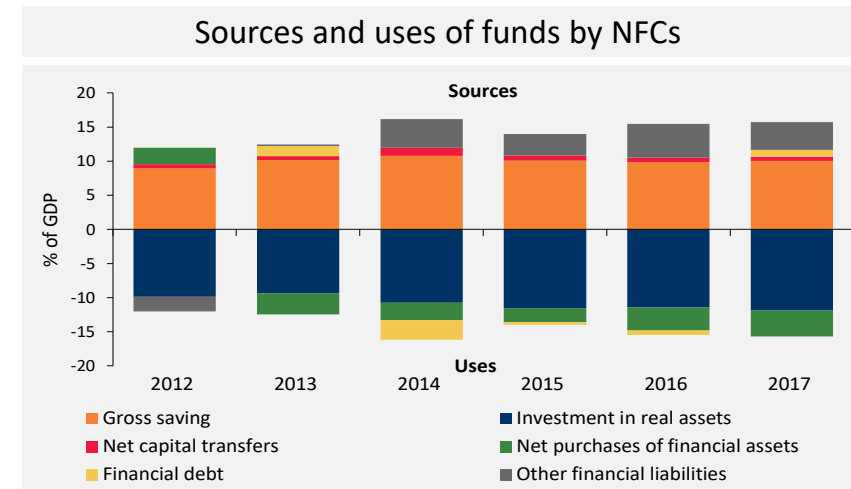
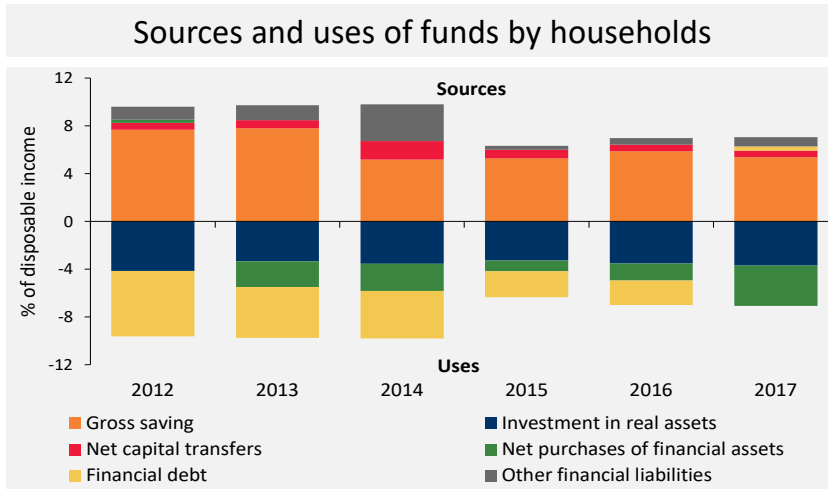
I. The use of financial accounts for financial stability analysis: Risk identification

➤ Financial accounts (FA) as the starting point for risk identification



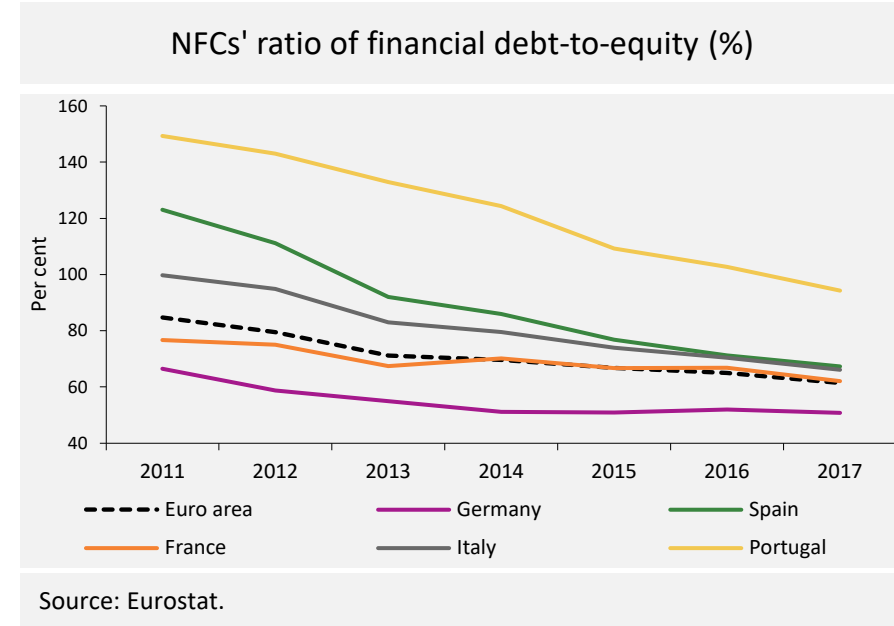
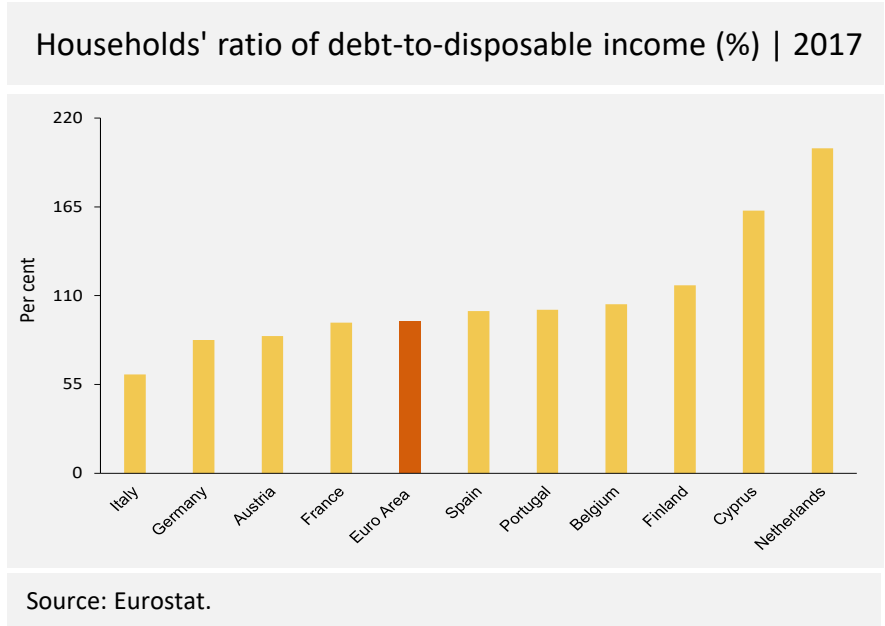
I. The use of financial accounts for financial stability analysis: Risk identification

➤ Sources and uses of funds by institutional sector



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

➤ International comparisons

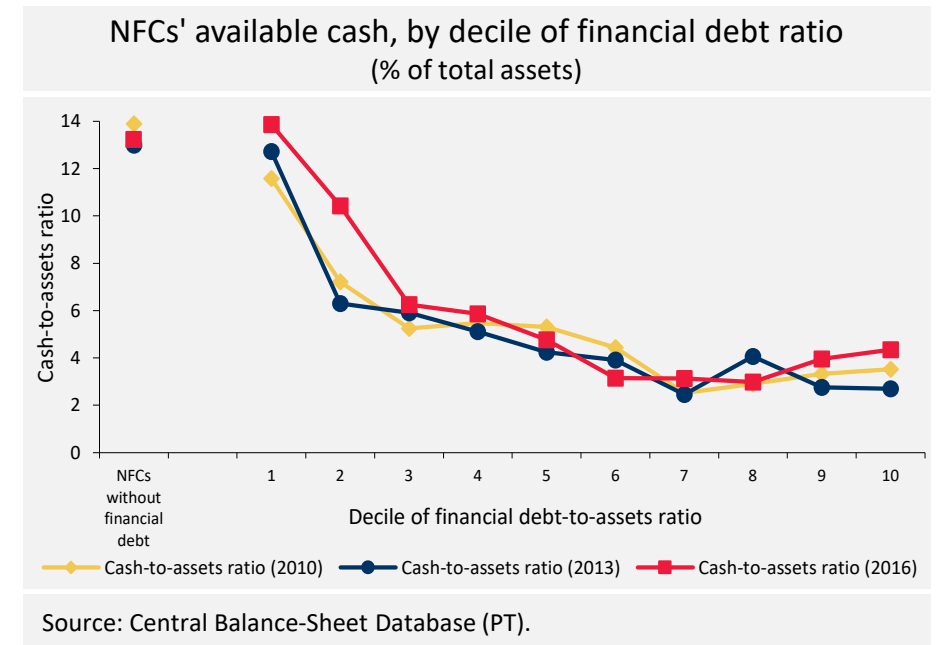
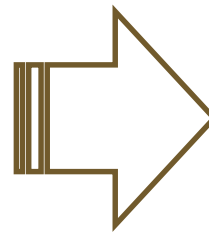
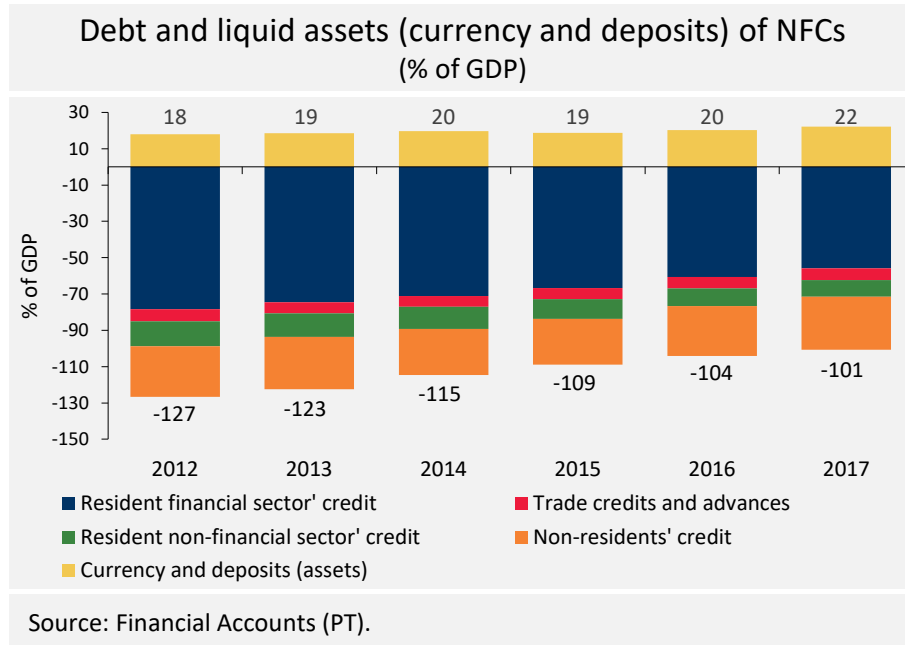


Based on common concepts, definitions, classifications and accounting rules, FA data allows consistent and reliable comparisons across countries.



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.



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

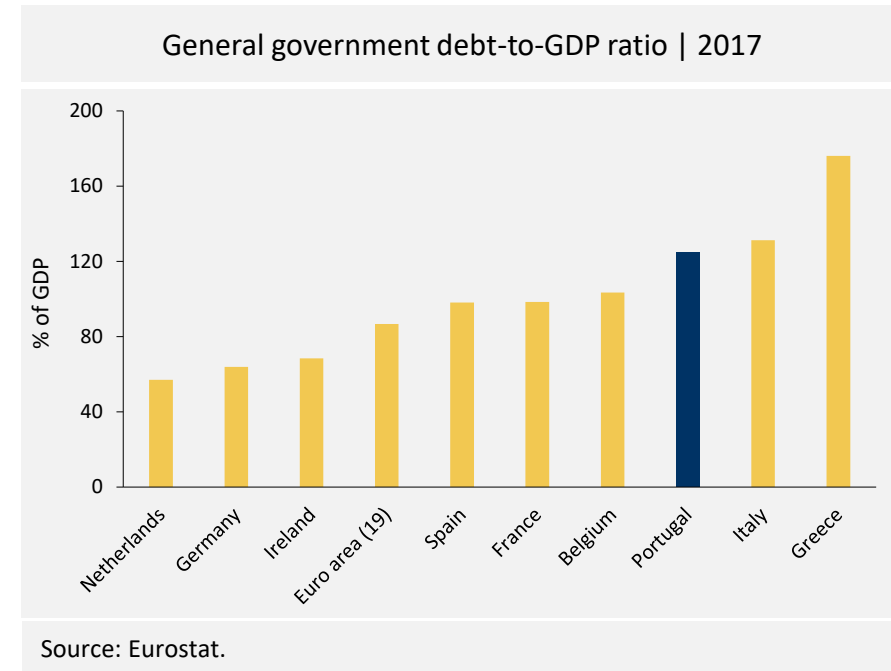
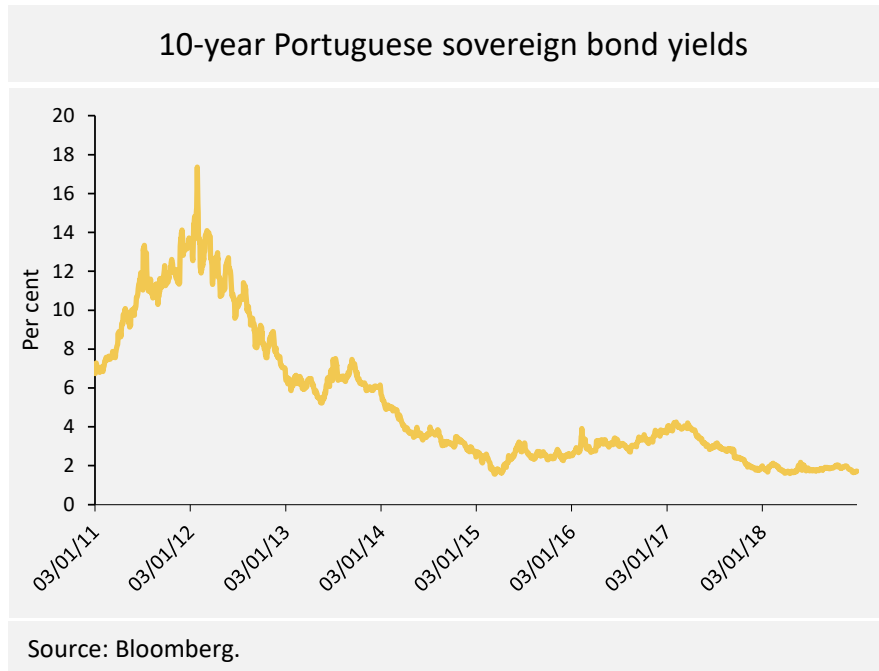
- Motivation
- Methodology
- Results

III. Wrap-up and additional needs



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

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

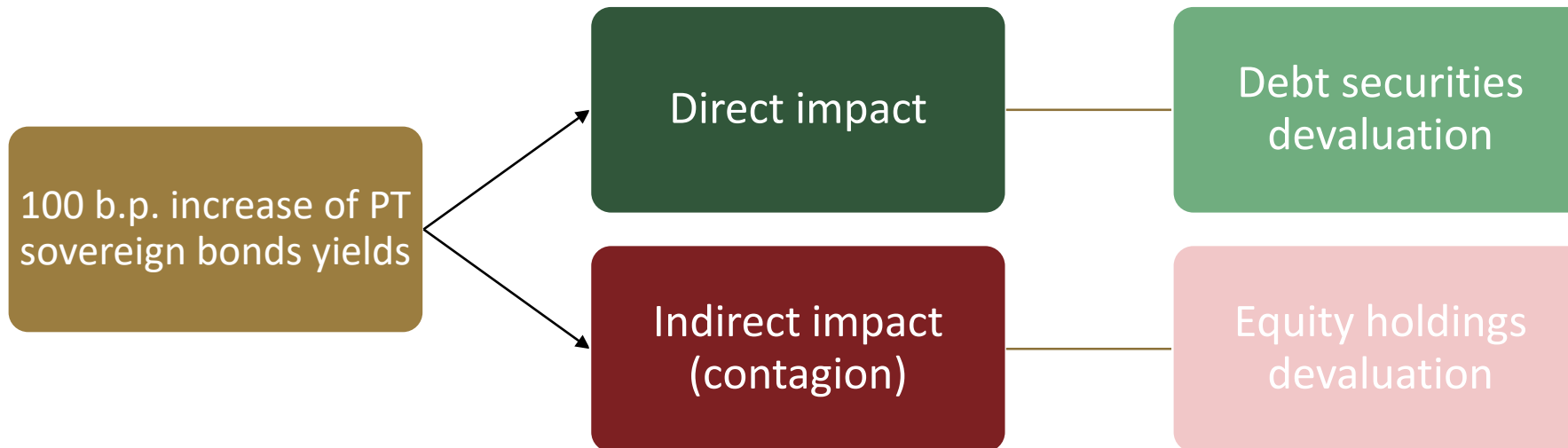


- ✓ Portugal was one of the European countries most affected by the (European) sovereign debt crisis;
- ✓ Portuguese sovereign bond yields are currently at historically low levels;
- ✓ The still high public debt-to-GDP ratio makes Portugal vulnerable to changes in economic and financing conditions.



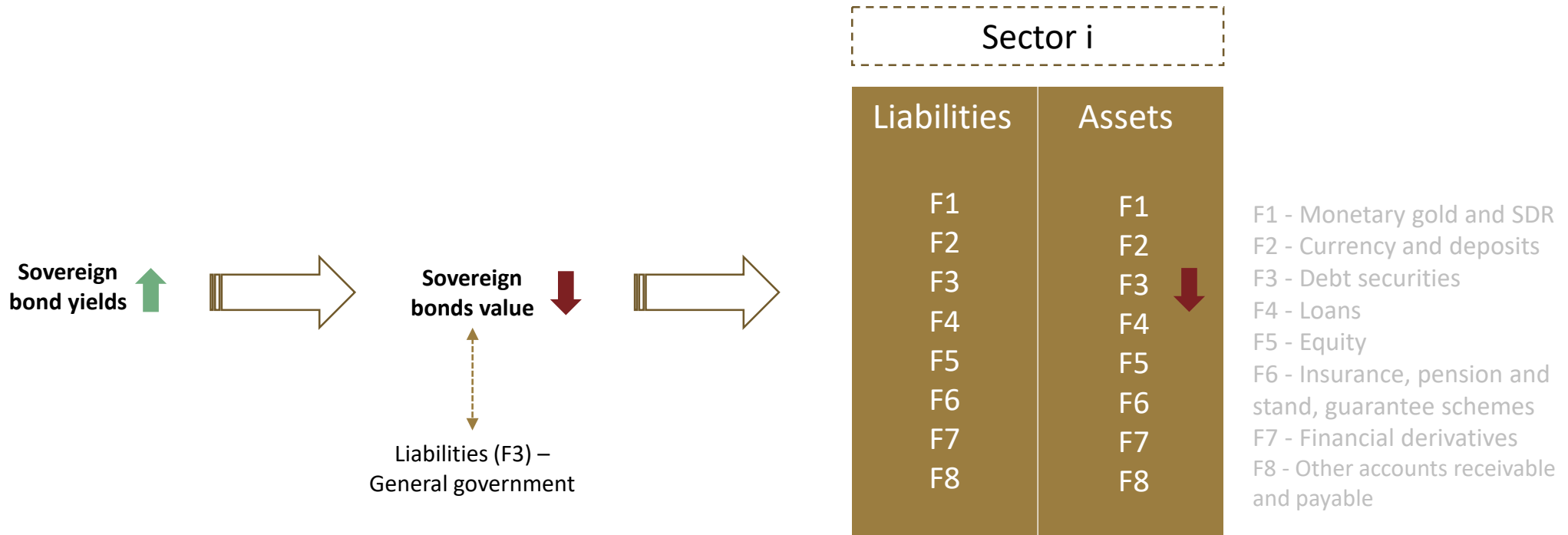
II. The use of FA for financial stability analysis: A practical exemple on risk assessment - Methodology

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



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**



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.

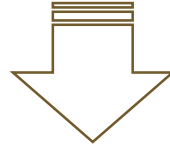


II. The use of FA for financial stability analysis: A practical exemple on risk assessment - Methodology

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

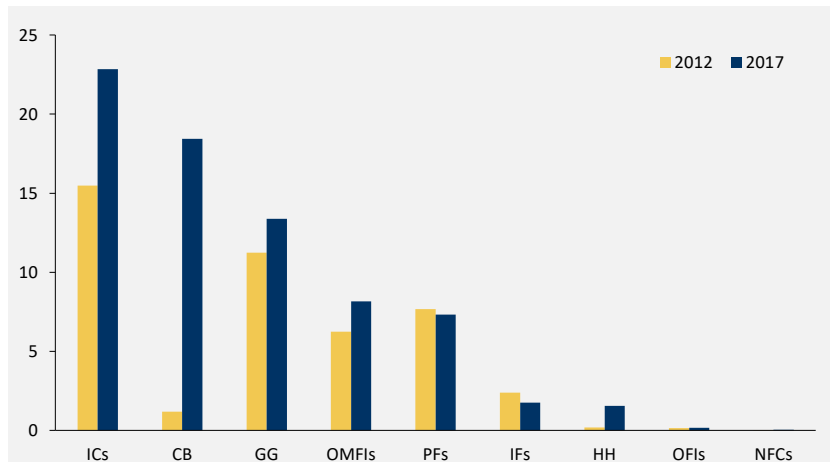
The devaluation recorded by sector (i) in period (t) is given by:

$$DV_t^i = MV_{securities}_t^i * \underbrace{modified\ duration_t^i}_{100\ b.p.\ increase} * \Delta yield$$



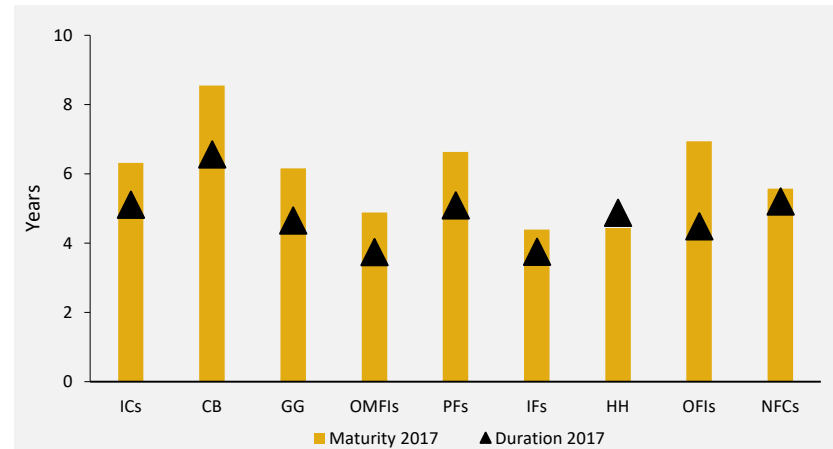
100 b.p. increase

Portuguese sovereign debt | Exposure by institutional sector



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

Duration and maturity | Weighted average values, by institutional sector

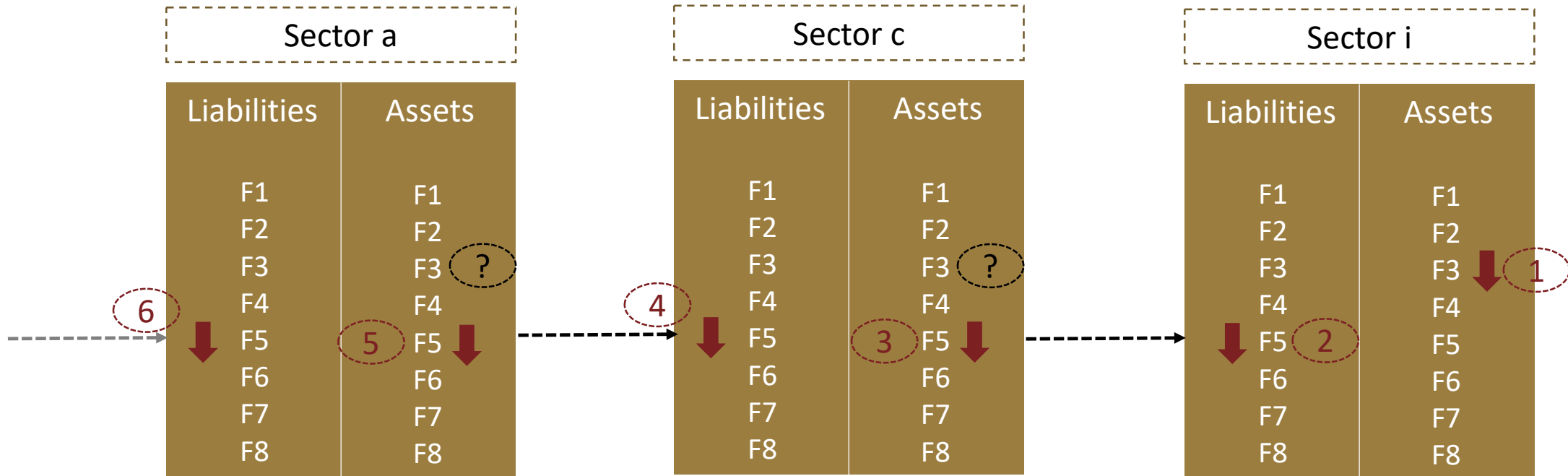


Source: Thomson Reuters Eikon.



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)**



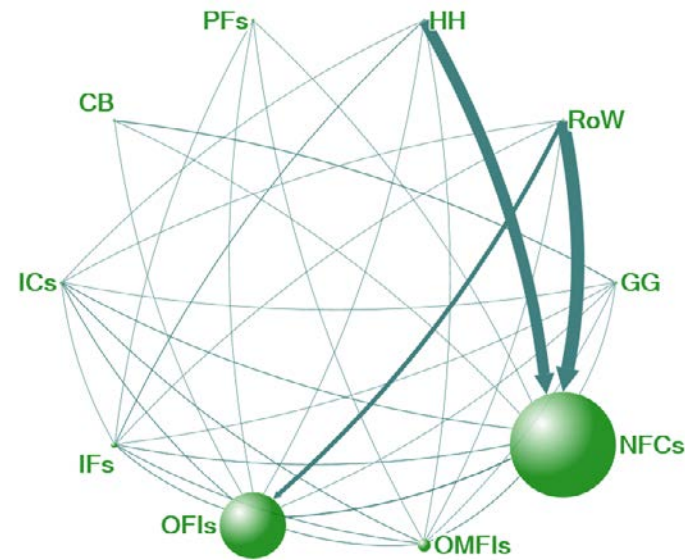
The devaluation of the debt securities held by **Sector i** will directly reduce **Sector i's** assets (1) and equity (2) and, indirectly, via cross-sector equity holdings, **Sectors a and c's** assets and equity (3)(4)(5)(6).



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

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

Network of cross-sector equity holdings | 2017



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

- ✓ 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.



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**

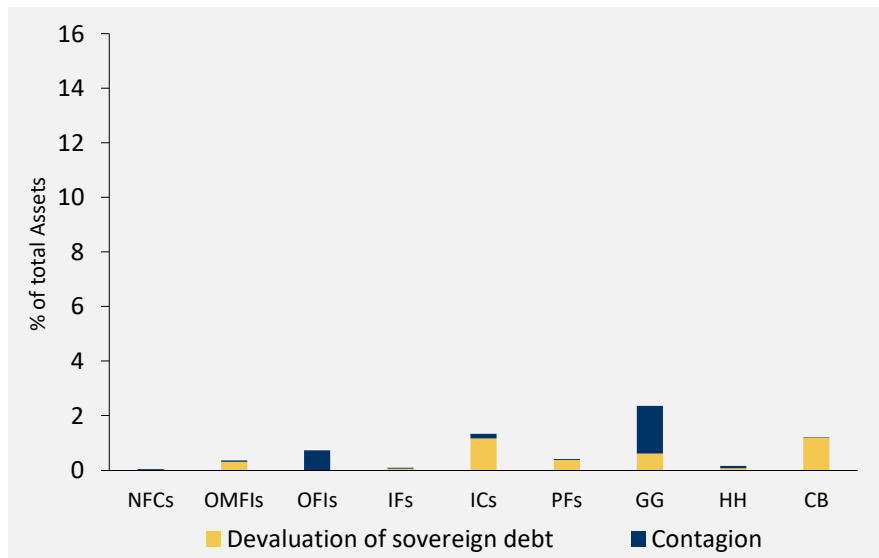
- ✓ Sectors' assets (bonds and equity) are mark-to-market;
- ✓ No mitigation factors, such as hedging derivatives or the agents' response to the shock, are taken into account;
- ✓ Potential contagion effects on private debt and on funding conditions are also ignored.



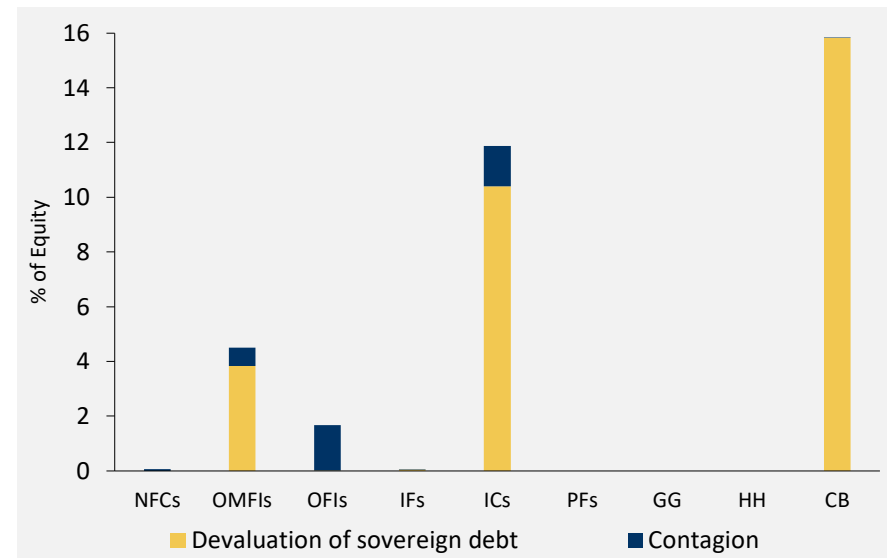
II. The use of FA for financial stability analysis: A practical example on risk assessment - Results

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

Asset devaluation (as a % of each sector' total assets) | 2017



Equity devaluation (as a % of each sector' total equity) | 2017



- ✓ 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);



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



III. Wrap-up and additional needs

➤ 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!

