Public Sector Balance Sheet Strength and the Macro Economy

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Outline

I. Measures of Public Sector Balance Sheet (PSBS) Strength:
   • Size of Balance Sheet, Solvency, Risk-adjusted Assets and Liabilities, Net Liquidity, Forex Exposure, Natural Hedge

II. Macroeconomic Implications:
   • Sovereign Bond Yields
   • Recovery and Fiscal Policy

III. Policy Implications: Evolution of PSBS in Kazakhstan

IV. Summary
I. Measures of PSBS Strength
Better Assessment of Exposures to Risk

Total Assets and Liabilities (percent of GDP)

Forex Assets and Liabilities (percent of GDP)

Liquid Assets and Liabilities (percent of GDP)
I. Measures of PSBS Strength
Better Assessment of Exposures to Risk

Risk Adjusted Assets and Liabilities (percent of GDP)

Natural Hedge within the Balance Sheet
II. Macro Implications: Sovereign Bond Yields

Fixed Effects Model

\[ y_{it} = \beta x_{it} + \gamma z_{it} + c_i + \lambda_t + \epsilon_{it} \]

- **\( y_{it} \):** Long-term government bond yield of country \( i \) in year \( t \)
- **\( x_{it} \):** Balance sheet variable: general government gross debt, total assets, financial assets, net worth, and net financial worth
- **\( z_{it} \):** Controls variables: real per capita GDP growth, US 10-year bond yield, average inflation rate, short-term interest rate, and general government primary balance.
- **\( c_i \) and \( \lambda_t \):** country and time fixed effects
II. Macro Implications: Sovereign Bond Yields
Stronger balance sheet $\rightarrow$ lower interest

Impact of 10 ppt of GDP change on yields in Advanced Economies (in bps)
II. Macro Implications: Recovery and Fiscal Policy
Local Projections Model

\[ y_{i,p+h} - y_{i,p} = \theta_S d_{i,p}^S + \theta_W d_{i,p}^W \]

\[ + \beta_{S,Pr}^h (d_{i,p}^S x_{i,p}^{Pr}) + \beta_{W,Pr}^h (d_{i,p}^W x_{i,p}^{Pr}) + \beta_{S,Pu}^h (d_{i,p}^S x_{i,p}^{Pu}) + \beta_{W,Pu}^h (d_{i,p}^W x_{i,p}^{Pu}) \]

\[ + \beta_{S,PrPu}^h (d_{i,p}^S x_{i,p}^{Pr} x_{i,p}^{Pu}) + \beta_{W,PrPu}^h (d_{i,p}^W x_{i,p}^{Pr} x_{i,p}^{Pu}) \]

\[ + \sum_{l=1}^L \gamma_{h,l} Y_{i,p-l} + \alpha_{i,h} + \epsilon_{i,p+h} \]

- \( y_{i,p+h} - y_{i,p} \): Cumulative growth rate in GDP or real government spending in country \( i \), \( h \) years after the business cycle peak.

- \( d_{i,p}^S, d_{i,p}^W \): Dummy variables for strong and weak balance sheets.

- \( x_{i,p}^{Pr}, x_{i,p}^{Pu} \): Average annual change in five years before the peak of private debt, and the level of public debt as a percent of GDP at the peak.

- \( Y_{i,p-l} \): Set of lagged control variables: two lags of real per capita GDP growth rates, government expenditures, public debt and private debt.

- \( \alpha_{i,h} \): are country-year fixed effects such that \( \sum_{i=1}^N \alpha_{i,h} = 0 \)
II. Macro Implications: Recovery and Fiscal Policy

Stronger balance sheet → Greater resilience

### Real GDP per Capita Following Recessions (in percent)

- **Strong Balance Sheets**
- **Weak Balance Sheets**

### Real Government Expenditure per Capita Following Recessions (in percent)

- **Strong Balance Sheets**
- **Weak Balance Sheets**

Note: Shaded area represents 90 percent confidence interval.
III. Policy Implications:
Evolution of PSBS in Kazakhstan

Kazakhstan: Evolution of Net Worth
(percent of 2016 GDP)
IV. Summary

• Assessment of government fiscal position should pay attention to assets as well as liabilities:
  • Measures of PSBS Strength

• Balance Sheets are macro-relevant:
  • Financial markets consider governments’ asset positions in addition to debt levels in determining borrowing costs
  • Countries with stronger balance sheets experience shallower and shorter recessions

• Fiscal policy debate could be enriched by enhancing transparency and deepening our knowledge of the overall balance sheet
  • Importance of building resilience and buffers to counter the adverse effects of economic downturns