Using the BSA approach for financial stability surveillance by Y. Haim and R. Levy

Michel DIETSCH

Université Robert Schuman

de Strasbourg

The BSA : need for closer attention to vulnerabilities in sectors' BS

- Distinguishing feature of recent emerging markets crises was a sudden disruption in the capital accounts of major sectors of the economy
- Financial integration reveals the vulnerability of a national economy to volatility of global financial market for credit, currencies, and other assets
- In line with academic literature that recently highlights micro foundations of macroeconomic and financial crises in emerging countries

The BSA : new analytical framework to identify major vulnerabilities in BS

- Focus on “Stock” variables rather than conventional “Flow” variables
  - Financial crisis occurs when there is a plunge in demand for financial assets of one or more sectors
  - Focus on shocks to stocks of assets and liabilities
- Includes currency denomination of all asset and liabilities
- Divides the economy in “key” sectors
  - 6 to 7 main sectors if possible, including the “rest of the world”
- Build intersectoral matrixes that measure :
  - Interconnection of sectors’ portfolios of assets and liabilities
  - Net position of one sector against another
- Provides information that is netted out in the consolidated balance sheet of the country

BSA : identifies three types of financial mismatches in sectors' BS

- **Maturity mismatches** between short-term liabilities and long-term assets :
  - Exposure to rollover risk (inability to refinance maturing debts)
  - And to interest rate risk (impact of interest rate changes differs on assets and liabilities)
- **Currency mismatches** :
  - When borrowers' liabilities are denominated in a foreign currency while assets are in domestic currency
  - If a sharp depreciation occurs, troubles to pay creditors
  - Common anticipations of currency appreciation induces a frequent underestimation of this risk
  - ***Almost recent crises were marked by currency mismatch exposures in several sectors (government, corporate sector, households, banks)***
- **Capital structure mismatches :**
  - Too heavy reliance on debt financing
  - ***Absence of capital buffer***

BSA : translating sectors’ vulnerabilities in key indicators

- Sector’s net financial position
  - Measures the ‘distance’ to solvency problems
- Net foreign currency position
  - Measures vulnerability to exchange rate depreciation or appreciation
- Net short-term position (liquid assets – liabilities)
  - Measures the distance to liquidity problems and exposure to rollover and interest rate risks

BSA and public policy

- BSA allows to assess the likelihood of a crisis or of a “twin” crisis
- BSA allows to manage crises when they emerge
- BSA allows to quantify the potential needs of financing to avoid a crisis

BSA : allows the analysis of transmission mechanisms of vulnerabilities

- These mismatches create the opportunity :
  - Of liquidity problems : inadequate resources to cover short-term payment requirements
  - Of solvency problems : assets or NPV of future income streams < liabilities, what means sharp decreases of sectors' net wealth
- Banking sector as main channel of transmission of financial difficulties
  - Solvency risk to the debtor is credit risk to the creditors
  - Non financial sectors imbalances expose commercial banks to credit (default) risk and to "bank runs" of depositors or confidence crisis of theirs other creditors

Haim and Levy BSA (1)

- **Remarkable application** :
  - Six sectors and intersectoral matrixes
  - Complete currency denomination of assets and liabilities
  - Up-to-date information
- Limited scope : focus on non financial sectors exposure to currency risk and subsequent sectors' vulnerabilities and evaluate the exposure of sectors to solvency risk in case of a sharp exchange rate change
- Quantification of the impact of non financial sectors' currency risk exposures on the solvency of the banking system
- **Sensitivity analysis**

Haim and Levy BSA (2)

- **Six stages analysis** :
  - Identifying sectors with large exposure to currency risk
  - Quantifying direct impact of exchange rate changes on these sectors
  - Quantifying the relationships between sectors
  - Especially the impact on banking sector safety and soundness
  - Overall assessment on potential shocks on the sectors and on the economy as a whole
  - Sensitivity analysis of the results

Haim and Levy BSA (3)

- **Clear conclusions** :
  - Resilience of Israel’s economy to exchange rate risk in 1997 and 2005
  - Explanation of the improvement of this resilience over time : Improvement of the sectors’ financial strength
  - Independence of banks’ exposure to problem loans’ increase in case of exceptional appreciation or depreciation
  - Effect of public policy on markets actors behavior : flexible exchange rate regime, liberalization of capital markets capital adequacy reform

Issues about BSA (1)

- **Great confidence in the data**
  - Huge requirements of data by the BSA
  - Are delays acceptable ?
  - Is frequency sufficiently high ?
  - Are the matrixes of intrasectoral balance sheets complete ?
  - Is it possible to denominate all assets and liabilities in their currency, or to know their effective maturities ?

Issues about BSA (2)

- **Calibration is what matters**
  – Calibration of the exchange rate shock
  – Estimation of assets and liabilities prices changes after the sudden shock
    - Direct effect of exchange rate change
    - Indirect effect ?
  – Credit risk channel
  – Static approach is a limit : do balance sheets stay stable in case of a sudden shock

Issues about BSA (3)

- **Relevance of credit risk channels**
  - Bank loans are less and less the main source of businesses' financing
  - Deposits are less and less the main form of savings, even in emerging countries
- **Role of Basel II reform in that perspective**
  - Capital buffer requirements increase in phase with the increase of credit risk
  - Complete intrasectoral balance sheets
- **Other (hidden) channels** ?
  - Hedge funds specialized in emerging markets
  - Non balance sheet sectors' activities

Issues about BSA (4)

- **Too pessimistic view** ?
  - Why imbalances could growth is there is a market discipline or/and public surveillance

- **Or too optimistic ?**
  - No full immunity