

**Problem Set #1—Balance Sheets
(due Wednesday Sept 18, in class)**

The purpose of this problem set is to investigate the natural hierarchy in balance sheets, a hierarchy that extends from dealers to banks to central banks to the IMF. The issues of liquidity (liquid resources relative to demand claims) and solvency (net worth relative to total assets) arise in each case, though in different guises and under different terminology.

1. Central Bank Balance Sheet: <http://www.federalreserve.gov/releases/h41/20120920/>

a) Look at the Federal Reserve balance sheet for September 2012. Use the information in Table 1 (last column) to produce a consolidated balance sheet that distinguishes between the bank's various counterparties. Thus for Assets, distinguish between government securities, loans to households (MBS), loans to banks, loans to other financial institutions, and loans to foreigners. And for Liabilities, distinguish between government, household, banks, other financial institutions, and foreigners.

b) The big numbers on the balance sheet are government securities (and MBS) as assets and currency as a liability. Why is currency a liability? What is the difference between currency and reserve balances?

c) Last year, on 13 Sept 2012, the Fed announced its intention to re-enter the market for Mortgage Backed Securities, buying \$40 billion a month, in an effort to put downward pressure on long term interest rates:
http://www.newyorkfed.org/markets/opolicy/operating_policy_120913.html. As a result of this announcement, what changes would you have expected to see in the Fed's balance sheet 10 months later (relative to the Sept 2012 balance sheet)?

2. Large Commercial Bank Balance Sheet (pages 10 and 11):

<http://www.federalreserve.gov/releases/h8/20130830/>

a) Cash Assets can be thought of as liquidity Reserves (see footnote 15). Note the small size of reserves relative to total liabilities. What fraction of demand liabilities can banks meet from their reserves, before they have to sell assets or borrow, from other banks or from the Fed?

b) Compare Total Assets and Total Liabilities and comment on the solvency of the banks. Calculate the "leverage" of the banking sector as the ratio of Total Assets to Bank Capital.

c) Observe how derivatives are booked, as assets when they have positive fair value and as liabilities when they have negative fair value. Why do they book positive and negative value positions separately, rather than simply reporting the net? (Obviously they do it because they are required to by FASB, so the real question is why are they required to?)

3. IMF Balance Sheet: <http://www.imf.org/External/Pubs/FT/quart/2012fy/043012.pdf>

To understand this balance sheet think of "currencies" as deposits at member central banks, "investments" as securities, and "quotas" as deposit accounts held by member central banks.

a) The General Department Account (p. 5) can be understood largely as a swap of IOUs between the IMF and individual central banks (abstracting from the small amount of gold). The IMF says “IOU SDRs”, and the central banks say “IOU domestic currency”. Explain, using balance sheets.

b) Much attention is paid in the accounts to “credit outstanding”, as observe Greece, Ireland, Portugal (p. 22-23). Unlike classic central banking, such loans do not involve any increase of IMF liabilities, but rather just a swap of one asset (usable currency or SDR holdings) for another (unusable currency). (Thus the discipline principle, not the elasticity principle.) Explain, using balance sheets.

c) The SDR account (p. 29) concerns itself mainly with which countries are holding more than their allocation (with the difference booked as a liability) and which countries are holding less than their allocation (with the difference booked as an asset). On Sept. 9, 2009, as part of its response to the global financial crisis, the IMF increased SDR allocations (and hence also immediate holdings) by 21.5 billion SDRs, in effect expanding the world supply of liquidity by expanding its own balance sheet. (Thus the elasticity principle, not the discipline principle.) Suppose that all those countries who had holdings less than allocations used the additional allocation to make payments to countries who had holdings greater than allocations, the effect would be to expand the balance sheet of the SDR account as well. Explain, using balance sheets.

4. Security Dealers (p. 84 L.127):

<http://www.federalreserve.gov/releases/z1/Current/z1r-4.pdf>

a) Which item on the balance sheet best captures our concept of liquidity Reserves?

b) Observe that dealer balance sheets shrunk dramatically during the financial crisis of 2007-2009. In this context, how can we interpret the entry for 2008 under the heading Depository Institution Loans Not Elsewhere Counted (line 17)?

c) Are Dealers more highly leveraged (higher debt/equity) than banks, or less?