Banking system soundness during the financial crisis

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1. Introduction

Message: With the onset of the financial crisis in the summer of 2007 and with its intensification in September and October of 2008, interest in banking system soundness increased substantially. This paper documents efforts to find data on banking system soundness from publicly available sources. Although quite a lot of information (much, but not all of which is timely) is available for large, publicly traded financial institutions via services such as Bloomberg and Bankscope or directly from company reports, it is much harder to find the same amount of aggregate balance sheet and performance statistics covering the entire banking systems for major countries.

As concerns about U.S. subprime lending increased in the summer of 2007, market indicators of U.S. and European bank health – CDS premiums and stock price indices – began to show signs that investors were increasingly concerned about the health of at least some banks. In addition, some banks had difficulty obtaining U.S. dollar funding, and the spread between interbank funding rates and overnight index swap rates increased significantly. As the performance of U.S. subprime mortgages continued to decline, these concerns and funding difficulties increased.

In light of these developments, there was increased interest in the health of countries' banking systems. Banking system soundness matters because it gives some indication of how likely it is that financial problems would be transmitted to the real economy (by, for example, a reduction in the supply of loans).

Market measures of the health of individual banks – stock price movements and CDS premiums – were readily available for publicly traded banks and for larger banks, which are more likely to have regularly quoted CDS premiums. In addition, for the larger banks, information services such as Bloomberg and Bankscope provided information taken from banks' public disclosures (quarterly and annual reports). Aggregate information for the entire banking systems of major countries, however, was less readily available. This paper discusses the types of information I looked for and what I was able to find.

2. So why look for data on the entire banking system? Why not just concentrate on the largest banks?

Message: It is very useful to have aggregate data on the largest banks, as this informs us about systemic risks, since the largest banks are likely to be the only systemically important institutions. However, when considering the transmission of financial shocks to the real economy, small institutions can also play a significant role, in the aggregate (depending on their share of the banking system). In addition, certain sectors of the real economy – such as small and medium-sized enterprises (SMEs) – are likely to be disproportionately reliant on smaller financial institutions. Finally, if many smaller banking systems are in weak condition, banking system stability can be affected, as illustrated by recent concerns about the cajas in Spain.

3. Overall measures of banking system condition

Message: First, I looked for some basic measures of the overall current health of major banking systems. A number of these measures are core measures in the IMF's Financial Soundness Indicators (FSIs).

- Capitalization: Capital is a bank's cushion against losses, so capital measures are very important for assessing banking system health.

  – Tier 1 capital/risk-weighted assets (RWA). How much of a capital cushion does the banking system have?

  – Tangible common equity/RWA. Tier 1 can contain some debt-like capital instruments (e.g., preferred shares, which have fixed dividends) as well as intangible assets, such as goodwill, which may prove less useful than tangible common equity in absorbing losses.

  – Tier 1 capital. What is the level (in dollars, euros, pounds, etc.) of Tier 1 capital? On the face of it, this might seem like a strange measure, since it is not scaled by anything, such as risk-weighted assets, total assets, or total loans. However, this measure is important because it can be used to scale the size of potential risk exposures, helping us judge whether certain exposures are "large" or "small" (discussed further below).

  – Tangible common equity (TCE). What is the level of TCE? Like the level of Tier 1 capital, this can be used to scale potential risk exposures.

- Profitability: Return on assets (ROA) = Net income/Total assets. Because earnings also help to offset credit losses, it's useful to know a banking system's annual earnings, and perhaps also some breakdowns, such as fee income and net interest income. (Because net income can also be used to absorb future losses, the level of net income may also be a useful measure to have, along with capital levels.)

- Asset quality: Nonperforming loans (NPLs)/Total loans. How healthy is the current loan portfolio?

4. Measures of banking system risk exposures (specific to this crisis)

Message: Next, I looked for measures of the risk exposures of major banking systems that had relevance to this particular crisis, including exposure to real estate, to U.S. borrowers, and liquidity risks.

- Claims on the U.S. nonbank private sector, scaled by Tier 1 capital or TCE. (Ideally, one would like exposure to U.S. real estate or U.S. mortgage lending, but I knew that this would not be available.)

- Claims on own real estate sector, scaled by Tier 1 capital or TCE. This would be especially useful for countries that had their own real estate bubble, e.g., the U.K., Spain, and Ireland.

- Short-term funding needs: Short-term debt securities outstanding or short-term liabilities. Given that funding issues arose early in this crisis, short-term funding needs of a banking system (excluding demand deposits) would indicate vulnerability to a crisis of confidence.

- Currency-maturity mismatch. BIS staff have written at length about the need for better data about the combination of currency and maturity mismatches, so I won't discuss that here.

5. Data sources: the IMF's Financial Soundness Indicators (FSIs) (and the CEBS)

Message: The IMF's FSIs, found at http://fsi.imf.org/, included some of the measures I was looking for – Tier 1 ratio, NPLs, ROA – and short-term funding needs (i.e., short-term liabilities/total assets) could be calculated from two FSIs (liquid assets/total assets and liquid assets/short-term liabilities). Unfortunately, although the IMF recommends that countries disclose the aggregate amount of Tier 1 capital, I could not find it in the FSIs. In addition, the FSI data were not particularly timely.[1]

Timeliness of IMF's FSIs as of August 20, 2010				
	France	**Germany**	**United Kingdom**	**United States**
Tier 1 capital/RWA	Dec. 2008[1]	Mar. 2010	Jun. 2009[1]	Dec. 2009
Return on assets	Dec. 2008	Dec. 2008	Jun. 2009	Dec. 2009
NPLs/total loans	Dec. 2008	Dec. 2008	Jun. 2009	Dec. 2009
Short-term liabilities/total assets	Dec. 2008	Mar. 2010	Jun. 2009	Dec. 2009

[1] Disclosure of total capital/RWA and Tier 1 capital as a percentage of total capital (which can be used to derive Tier 1 capital/RWA) is mandated by the Committee of European Banking Supervisors (CEBS). The Banque de France and the U.K. Financial Services Authority publish these data as of Dec. 2009.[2]

6. Data sources (continued): the BIS consolidated banking statistics

Message: The BIS consolidated banking statistics, found at bis.org/statistics/consstats.htm, give information on banking system exposure to foreign residents. For each reporting country, one can obtain total consolidated exposure to all U.S. residents on an ultimate risk basis, which provides an upper bound for what I was trying to get – exposure to the U.S. nonbank private sector. However, for many countries, data on the sectoral breakdowns by country (which would enable us to get exposure to the U.S. nonbank private sector) are not

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[1] On a minor note, the FSI link for "latest available data" showed German asset and liability data as of end-2009, rather than as of end-March 2010. However, the Bundesbank also posted Germany's FSIs, at http://www.bundesbank.de/statistik/statistik_iwf_fsibasisdaten.en.php, and showed end-March 2010 FSI data for the capital and liquidity measures.

[2] On a minor note, the CEBS table on national banking sectors (see http://www.c-ebs.org/Supervisory-Disclosure/Statistical-Data.aspx) for 2009 does not show data for France or Germany, although the Banque de France (http://www.banque-france.fr/gb/supervi/disclosure/statistical/statistical.htm) and the Bundesbank (http://www.bundesbank.de/sdtf/index4.htm) publish their 2009 tables. Also, there may be a problem with the U.K. data: the "total capital adequacy ratio" for U.K. banks is listed as 185%.

publicly available. In some cases (e.g., Germany), these data are confidential to the BIS, while in other cases (e.g., France), they are confidential to central banks that contribute to the consolidated statistics. The United States publishes its consolidated country exposure statistics at http://www.ffiec.gov/E16.htm, although these data do not provide data on exposure to U.S. residents. That must be obtained from the U.S. call reports.

7.   Data sources (continued): ECB data for national aggregated balance sheets

Message: The European Central Bank (ECB) data for national aggregated balance sheets, found at http://www.ecb.int/stats/money/aggregates/bsheets/html/index.en.html, had country aggregates of bank balance sheet data for E.U. countries. These data were very timely (by August 9, the data were as of end-June 2010), and had several pieces of what I was looking for: "lending for house purchase" (but not commercial real estate lending). But they didn't have all that I was searching for, such as Tier 1 capital (instead, they had capital and reserves). Also, they had short-term debt securities issues that were held by euro area (for euro countries) or domestic (for non-euro countries) residents. Short-term debt securities issued that were held by foreign residents were not broken out from other external liabilities.

8.   Data sources (continued): national sources (central banks and bank supervisors)

Message: I looked at national data sources, particularly central banks and financial supervisors. I also had a look at financial stability reports, although these tended to use data on only large banks (presumably so that data could be comparable across countries).

- Bank of England (BoE) data on monetary and financial institutions' balance sheets, income and expenditure statistics, found at: http://www.bankofengland.co.uk/statistics/bankstats/current/index.htm#2, has timely balance sheet and income data for banks, including income and breakdowns, home mortgage lending, construction and real estate lending, sterling liabilities, including short-term and repos, and write-offs. (The BoE's Financial Stability Report presents data for "major UK banks," – i.e., large and complex financial institutions.)

- Banque de France data (http://www.banque-france.fr/gb/statistiques/telechar/activite/france-tableaux-bilan-aifm.pdf) have debt securities with maturities of less than 2 years and capital + reserves, the same data found in the ECB statistics.

- Bundesbank statistics (http://www.bundesbank.de/statistik/statistik_iwf_fsibasisdaten.en.php) had data on the sectoral distribution of loans for end-2009 that included construction and real estate as sectors. FSIs on capital ratios (total and Tier 1) and liquidity were also as of end-2009. Regional distribution of loans includes only all advanced economies lumped together. Underlying data on capital ratios and liquidity, such as total Tier 1 capital and short-term liabilities, were "compiled for supervisory purposes only". As with the ECB statistics, the data showed short-term debt securities issued that were held by euro area residents. Short-term debt securities issued that were held by foreign residents were not broken out from other external liabilities.

- The U.S. Federal Deposit Insurance Corporation (FDIC) publishes large amounts of aggregate statistics on the U.S. banking system at: http://www2.fdic.gov/SDI/SOB and http://www2.fdic.gov/qbp/qbpSelect.asp?menuItem=QBP. The U.S. data include the level of Tier 1 capital, as well as capital ratios, and data that can be used to calculate most of the ratios in which I was interested.

9. Conclusion

Message: Summary of what was missing from the measures I hoped to find, and my own priorities (aggregate level of Tier 1 capital!).