Recent Developments in Statistical Requirements for Financial Stability, and in their Use

Paul Van den Bergh
Bank for International Settlements, Monetary and Economic Department
Centralbahnplatz 2
Basel, Switzerland
paul.van-den-bergh@bis.org

Charles Enoch
International Monetary Fund, Statistics Department
Washington, USA
CENOCH@imf.org

1. The perspective of the Bank for International Settlements

Recent episodes of financial turmoil in international financial markets have underlined the importance of adequate information on key elements of domestic and international financial markets that allow financial market authorities and market participants to assess the potential vulnerabilities of the environment they oversee or operate in. The central banking community working through the BIS has been active in collecting and publishing statistics on international financial markets for a number of decades. Though the development of a comprehensive set of statistics on cross-border banking activities was originally driven by concerns related to monetary stability, the joint central bank exercise was subsequently adapted to shed light on the vulnerability of the international banking system. Moreover, over time, additional data were collected on international securities markets as well as foreign exchange and derivatives markets. Continuous efforts are being made to improve these statistics by extending their coverage, reliability and timeliness. The BIS provides a forum for ongoing international cooperation to improve the transparency of the international financial system. Central bank statistical cooperation is an important element in this context and is closely related to the activities of the various Basel-based groups with respect to financial stability.

From monetary stability to financial stability indicators

The origin of BIS activities in the field of international financial statistics goes back to the mid-sixties and the emergence of the so-called euro-currency markets that had sprung up to circumvent domestic regulations. The key policy concern which gave rise to the joint data collection exercise by the central banks of the Group of Ten under the aegis of the BIS was the need to monitor the rapid growth of these markets and its possible monetary implications. In the context of deregulation of domestic financial systems and capital flows in the seventies and eighties this concern abated, but in its place came others, notably the rise in the indebtedness of many developing countries to international banks in the early eighties. While this build-up was visible in the existing banking statistics collected and published by the BIS, as far as individual borrowing countries were concerned, it was not possible to evaluate the exposures of national lending banking systems to those countries. The need for such information therefore led to the reporting of banking data on a fully consolidated basis.[1]

As a result of the increasing role of the international securities markets in global financial intermediation, the BIS was mandated in the mid-eighties to collect and publish statistics on these markets on the basis of commercial databases and information available to individual central banks. In the nineties the BIS also became increasingly involved in the coordination of the joint surveys which central banks carried out on a regular basis of activities in global foreign exchange markets.

[1] A maturity breakdown of cross-border banking claims was also introduced at that time.

Moreover, as derivatives markets expanded in the wake of financial innovation in this period, central banks asked the BIS to become active in the collection and publication of international data on exchange-traded and over-the-counter derivative transactions.

The evolution of BIS activities with respect to international financial statistics can thus be seen to reflect the evolving central bank concerns relating to monetary and financial stability in the context of world-wide financial market deregulation, innovation and globalisation. Experience of particular periods of monetary and financial instability have led central banks, other financial market authorities and international organisations to reassess the usefulness of the BIS international financial statistics and to make recommendations for further improvements and extensions. It should also be noted that BIS data have, in a number of cases, proven to be useful for other purposes, for instance with respect to improving domestic monetary and balance of payment statistics[2] and to measuring and monitoring developing countries' foreign debt.[3] This has also at times led to specific proposals for enhancing the BIS statistics.

Ongoing international cooperation to improve transparency of international financial markets

In the context of ongoing efforts to improve the transparency of international financial markets various efforts are being made to improve to the BIS statistics and to promote their use. One project currently underway relates to the expansion of the consolidated banking statistics to identify banks' country exposure on a so-called ultimate risk basis by reallocating risk to the country in which the ultimate guarantor of a financial claim resides. A more comprehensive reporting of risk exposures, including off-balance sheet positions relating, for instance, to banks' derivatives transactions, is also being envisaged.[4] With respect to securities markets, the possibility is being explored to create a global database on individual securities. A study is also being carried out to explain gaps between the external debt statistics of emerging markets on an international creditor basis and those published by the emerging market countries themselves on the basis of domestic debtor data. Finally, continuous efforts are being made to improving the dissemination and use of the BIS statistics by financial market authorities and market participants.[5]

All these activities are closely related to, and guided by, the work of the various international committees and expert groups working at the BIS. For instance, the Committee on the Global Financial System of the G10 central banks plays a key role in reaching consensus on priorities to improve the BIS statistics. With respect to international banking data, the Basel Committee on Banking Supervision is regularly consulted on analytical issues and ensures the support from banking supervisors in major financial centres to collect adequate and up-to-date statistical information from internationally active banks. The recently established Financial Stability Forum has also formulated a number of recommendations to enhance statistics on international financial markets and capital flows which are being taken into account by the BIS and other international institutions, particularly the IMF, in their statistical work.

One of the major underlying objectives of the various Basel-based groups is to strengthen financial stability through transparency and market discipline. Increased public disclosure plays a key role in this and should, over time, lead to better quantitative and qualitative information on the activities and risk profiles of individual institutions as well as market infrastructures such as payment, settlement and trading systems. With respect to the functioning of domestic and international financial markets, it can be expected that the BIS statistics on banking, securities,

---

2 In the eighties an exercise took place to explain and correct the errors and omissions in the global balance of payments statistics. Given the consistency of the BIS banking data, these data played a key role in this exercise. Various countries have also used the data to improve their national balance of payment statistics.

3 Following the Asian Debt crisis the IMF, OECD, World Bank and BIS pooled their respective statistics to collectively publish data on country's foreign indebtedness. In most cases debt to foreign banks, as captured in the BIS statistics, is the largest component. Moreover, given that the BIS banking data provide a maturity breakdown for bank claims, it has been possible to estimate the short-term component of a country's foreign debt (i.e. with a residual maturity of less than one year).

4 Methodologies for data collection and compilation are being developed. The plan is to have these statistics available by 2004.

5 Guidelines on BIS international financial statistics are regularly updated and published. Efforts are also made to make the data available in user-friendly form through the BIS website.

foreign exchange and derivatives markets will be complemented over time by improved aggregate information on liquidity, leverage and position taking in these markets.

2. The development of macroprudential indicators

Following the financial crises of the 1990s, there was considerable interest in a new "international financial architecture" to contain the risks of such crises in the future. A major component of this new architecture was heightened emphasis on better disclosure of information about the financial sector, and about the economy more generally. Within this component, a central element has been the development of a new set of data: that on macroprudential indicators (MPIs). It has been the focus of a major project conducted jointly by the Monetary and Exchange Affairs (MAE) and the Statistics (STA) Departments of the Fund to identify and provide guidance on the compilation of a set of MPIs.

In summer 2000 the IMF conducted an extensive survey of its member countries on their views on the usefulness of particular MPIs, and the extent to which MPIs were being compiled and disseminated. Around 60 MPIs, identified in earlier work.[6], were explicitly listed in the survey. The survey was sent to the member's central bank, with a request that the central bank pass it on as appropriate to regulatory authorities and to MPI users.

The response to the survey far exceeded expectations, with around 130 members providing answers[7]. The material in these responses will provide a mine for researchers in this area to analyze for some time to come. Interestingly, responses were received from all but two of the subscribers to the IMF's Special Data Dissemination Standard (SDDS) — the data standard established in 1996 following the 1994 Mexican crisis and designed to enhance data transparency for those countries participating, or intending shortly to participate, in international financial markets.[8]

Respondents were asked in the survey to assess how useful they considered the identified indicators. They rated many "very useful" or "useful". Those most considered "very useful" or "useful" included bank capitalization and profitability, and the level of nonperforming loans. There was in general little difference between industrial and developing countries in identifying particular indicators as important, although developed countries identified asset prices, including property prices, as important, while developing countries focused more on foreign exchange market factors, such as banks' net open positions.

One way to take the work forward is to identify those indicators considered "very useful" or "useful" by the highest number of respondents, and to denote them as "core" MPIs, i.e. those which countries should make the greatest efforts to compile and on which further work should have the highest priority. On this basis a "core" group of around 30 indicators may be identified — they are listed in Table One.

This of course is not the only possible methodology. The early warning indicators literature has sought analytically or econometrically to link developments in particular indicators to subsequent crises. Unfortunately, results have not been consistent, but seem to have been largely dependent on the models adopted by the various authors. The approach of using the results of the survey makes no pretensions as to analytic originality, but aims to reflect the revealed preferences of the actual practitioners of financial sector supervision.

There remain numerous issues before much of this list can be deemed fully operational. Table One shows also the extent to which the selected MPIs are at present compiled or disseminated[9]. Clearly there are still many gaps. For some of these indicators no primary data are even compiled by the official sector in most countries: the issue arises whether official sectors should branch out

[6] This work is reported in "Macroprudential Indicators of Financial System Soundness" by a team led by Owen Evans, Alfredo Leone, Mahinder Gill and Paul Hilbers, (2000) IMF Occasional Paper no. 192.

[7] Those from the CFA franc zone were submitted on behalf of their member countries by the regional central banks.

[8] By April 2001, 48 countries had subscribed to the SDDS.

[9] This table reflects the outcome of the survey; it is not a set of Fund-recommended indicators. Other work under way is likely to complement the survey results to generate a "core" set of recommended indicators.

into these areas, or should rely on identifying private sector sources, if indeed such exist, to provide the information. Moreover, where an indicator exists, there may be wide cross country heterogeneity in how it is measured. Bank profitability, for instance, depends critically on treatment of nonperforming loans, which varies widely as a concept across countries. One conclusion is that renewed efforts are needed to achieve international standards to make the development of MPIs more meaningful.

Additional issues arise with regard to aggregation. It is not clear that simple aggregation will generate the information that is needed. Thus measures of dispersion—which are likely to involve choices between multiple presentations —may be necessary elements for making MPIs useful. And there has been as yet little work on identifying "trigger points" that should prompt concern and remedial action.

In short, it is clear that policy-makers in most countries view MPIs as an important tool for the management of their financial systems. One can identify a set of around 30 of these indicators on which most attention should probably focus. Much work remains before all these 30 indicators can be produced to any degree of international comparability, and before one can be confident as to the optimal way of measuring them or analyzing developments in them. Nevertheless, compilation and dissemination of those indicators that are available, together with clear explanations as to how they are derived, can be an important next step in bringing MPIs to bear in assisting the understanding and management of financial sector vulnerabilities.

Table 1. Compilation of High-Priority MPIs, All Countries and SDDS Subscribers

MPI	All Countries		SDDS Subscribers	
	Number compiling components of MPIs	Percentage compiling components of MPIs	Percentage compiling components of MPIs	Percentage compiling components of MPIs
Group I MPIs (Average usefulness ratings of 3.5 to 4.0)				
1.1 Basle Capital Adequacy Ratio	67	81%	81%	81%
2.4 Distribution of loans, by sector	54	65%	65%	65%
2.5 Distribution of credit extended, by sector	49	59%	59%	59%
2.8 Ratio of total large loans to own funds	47	57%	57%	57%
2.9 Ratio of gross nonperforming loans to total assets	67	81%	81%	81%
2.10 Ratio of nonperforming loans net of provisions to total assets	60	72%	72%	72%
3.2 Ratios of profits to period-average assets (ROA)	66	80%	80%	80%
3.3 Ratios of profits to period-average equity (ROE)	64	77%	77%	77%
3.4 Ratio of net interest income to total income	68	82%	82%	82%
3.8 Spread between reference lending and deposit rates	43	52%	52%	52%
4.3 Ratio of liquid assets to total assets	59	71%	71%	71%
4.4 Ratio of liquid assets to liquid liabilities	58	70%	70%	70%
Group II MPIs (Average usefulness ratings of 3.0 to 3.4)				

MPI	All Countries: Number compiling components of MPIs	All Countries: Percentage compiling components of MPIs	SDDS Subscribers: Percentage compiling components of MPIs	SDDS Subscribers: Percentage compiling components of MPIs
1.2 Distribution of capital adequacy ratios (Number of institutions within specified capital adequacy ratio ranges)	19	23%	23%	23%
1.3 Leverage Ratio (Ratio of on-balance sheet assets to own funds)	65	78%	78%	78%
2.1 Distribution of on-balance sheet assets, by Basle risk-weight category	62	75%	75%	75%
2.4a Loans for investment in commercial real estate	36	43%	43%	43%
2.4b Loans for investment in residential real estate	46	55%	55%	55%
2.6 Distribution of credit extended, by country or region	37	47%	47%	47%
2.11 Ratio of corporate debt to own funds ("debt-equity ratio")	25	30%	30%	30%
2.12 Ratio of corporate profits to equity	29	35%	35%	35%
2.14 Corporate net foreign currency exposure	14	17%	17%	17%
2.15 Ratio of household total debt to GDP	29	35%	35%	35%
3.5 Ratio of trading and foreign exchange gains/losses to total income	35	65%	65%	65%
3.6 Ratio of operating costs to net interest income	66	80%	80%	80%
3.9 Share of assets of the three largest depository corporations in total assets of depository corporations	57	69%	69%	69%
4.10 Ratio of customer deposits to total (noninterbank) loans	65	78%	78%	78%
4.11 Ratio of customer foreign currency deposits to total (noninterbank) foreign currency loans	57	69%	69%	69%
5.1 Ratio of gross foreign currency assets to own funds	51	61%	61%	61%
5.2 Ratio of net foreign currency position to own funds	37	45%	45%	45%