Recent Developments in Statistical Requirements for Financial Stability, and in their Use - The Perspective of a Central Bank of a Developed Country

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The Asian financial crisis of the late 1990s provided a catalyst for central bankers to undertake further, more detailed research on threats to global financial stability. In the field of statistics, the debate has centred on the question of how financial stability can and should be measured, prompting a re-examination of the scope and use of statistics in this area.

At an international level, there have been numerous initiatives both to expand the range of statistics collected and to develop new data frameworks to monitor financial stability; e.g. the initiatives taken by the BIS and IMF described in the previous article.[1] Along with many other central banks, the Bank of England has contributed to this work and welcomes these efforts to create common frameworks for statistics. At the national level, the Bank has applied some of the concepts and measures suggested by this work specifically to assess the risks faced by London as a financial centre. This article describes the experience of the Bank of England in bringing together currently available datasets to produce a framework of statistical measures and indicators aimed at ranking and monitoring some of the potential risks to the stability of the UK financial system.

1. The problem of defining and measuring financial stability

Financial stability is a vast subject area, which is hard to define accurately. It relies on the efficient functioning of many different markets, instruments, institutions and regulations, all of which are constantly evolving. London's role as a leading international financial centre stems from its involvement in these diverse areas and in financial innovation more generally. This central role also means that there are many possible channels through which shocks could affect London, and therefore financial stability in the UK. It is one of the Bank of England's three core purposes to "maintain the stability of the financial system…through monitoring developments in the financial system both at home and abroad, including the links between individual institutions and between financial markets; and through analysing the health of the domestic and international economy."[2]

The complexity of the global financial system means that there is no single indicator that can be used to assess whether a financial system is stable. Instead there is a wide array of concepts that need to be considered to form an overall picture of the health of a financial system. Statistics provide one of the main sources of information to support this task. However, many of the concepts involved in the assessment of financial stability are not clearly defined, which makes compiling easily understandable and relevant statistics problematic. Also, such a potentially broad remit makes it very difficult to decide what to measure, when, and how. There has therefore been a drive to use statistics, not only in the evaluation of specific financial stability issues, but also to provide a broad overview of financial systems. The aim of this latter research is to highlight potential problems, identifying where attention and resources should be focussed, and acting as a trigger for further research into those areas.

2. Macro-prudential indicators (MPIs)

Using the IMF survey as a starting point, the Bank of England has begun to compile time-series of several indicators for use in our own financial stability assessment. Creating these data

[1] Van den Bergh and Enoch (2001 ISI paper).
[2] Bank of England, Annual Report 2000.

series raised a number of issues, which will probably be of relevance to others attempting similar work; some are described below.

The initial set of MPIs developed at the Bank draws on a mixture of the two main types of banking data collected in the UK: statistical data and supervisory data. These two datasets were developed for different purposes, which has implications for both the compilation of MPIs, and their subsequent interpretation.

The statistical returns were initially designed to be aggregated for National Accounts, Balance of Payments and monetary policy purposes.[3] Therefore UK statistical data are generally available on a standardised basis, covering business conducted within the borders of the UK.

Supervisory forms, on the other hand, are collected for use by the FSA (Financial Services Authority), and were developed with the aim of accurately reflecting the business of individual organisations of interest to supervisors, not for aggregation. While a broad range of data is available, there are problems for the statistician in terms of the coverage and completeness of the datasets. Supervisory agreements between European countries mean that not all banks in the UK are required to complete FSA forms. For those that do, the nature of a particular submission is dependent on both the structure of the specific banking group and any bilateral agreements that have been made with supervisors over the years. As a consequence, not all data items are completed by the full banking population, leading to gaps in data coverage for certain instruments. Also, banks are permitted to submit their FSA returns for non-standardised reporting dates. These differing arrangements make it very difficult to compile comprehensive time-series for MPIs. It is possible to aggregate the data at any one point in time, noting the coverage of the series at that point, but to make these aggregations consistent over time, taking into account the various changes which occur from period to period, is a very complex task.

There is no doubt that the initial compilation of MPIs, involving confronting the above issues, was a valuable learning process. The first series released within the Bank contain numerous caveats about the quality and reliability of the aggregated data. It is essential that users are made fully aware of such limitations in the techniques used to compile MPIs. But it is equally important that they realise that these do not prevent MPIs' use as an analytical tool.

MPIs use a long run of data to identify general trends in series that are believed to be key measures of the health of a financial system. They can then be used to highlight any divergence or sudden change in these trends. However, it is the fact that the trend has changed, rather than necessarily the magnitude or direction of the change, which is of interest. MPIs should not be viewed as a proxy for official statistics, and as such a divergence from the trend should not immediately be interpreted as evidence of an emerging risk to financial stability. However, it should be seen as trigger for further thought and investigation. It may indicate a problem with the data aggregation, a general development in the market, or it could be indicative of a genuine source of instability in the system. As long as users are aware of how to interpret the information conveyed, MPIs can be a useful tool for providing early indications of problems or for informing further long-term financial stability analysis.

3. Concepts of Country Risk

The UK financial markets are highly internationalised with almost half of UK registered banks' business being conducted cross-border. This provides many channels by which shocks from other countries could potentially affect the stability of the UK financial system, and leads central bankers and regulators in the UK to be particularly interested in the exposure of the UK financial system to other economies. Country risk data is available from the BIS international banking series, to which the Bank of England contributes along with many other countries. These datasets provide coverage of a banking system's external positions with different countries on a number of different bases. This allows exposure to be calculated in different ways but also raises the important question of exactly what is meant by "exposure" in this context.

[3] Hamilton (1999)

Should the business of branches and subsidiaries of non-resident owned banks be included in the calculation? These institutions are an integral part of the overall UK banking system, and as such any risk they are exposed to will be expected to feed through into the system. However, a major concern for UK financial stability analysis is often the risk faced by UK-owned banks only, particularly from the point of view of a lender of last resort. Table 1 shows the exposure of the UK banking system to a selection of countries based on different definitions of exposure. Column (1) is based on all banks operating in the UK, and column (2) on UK-owned banks operating in the UK. It is clear that the definition chosen has a large effect on the perceived exposure of the system. Neither measure is right or wrong. The difference between the series simply highlights the fact that different nationalities of bank have different lending patterns. Knowing how these patterns vary can in itself be a useful financial stability tool.

Should the activities of non-resident branches and subsidiaries of UK banking groups be included as well? Although this activity is not conducted in the UK, it can still have implications for UK financial stability as it has the potential to affect the health of the UK parent company. This coverage is available from the consolidated dataset, the respective figures being shown in column (3) of table 1. Once again, these figures show the scale by which this coverage change can affect the exposure figure.

What definition of risk should be used? In line with BIS requirements, the Bank of England collects data on risk transfers, which take into account arrangements whereby residents of another country effectively guarantee the repayment of a claim. The Bank of England uses this data to make adjustments to the immediate counterparty data collected to give a measure of exposure by ultimate risk[4], which the Bank of England has published since September 1999 and is shown in column (4). The use of ultimate risk rather than immediate counterparty data can have a significant effect on the UK's exposure to certain countries.

Table 1. – Definitions of UK exposure, 2000 Q3 data - selected countries only[5]

US$ millions	**Locational data**		**Consolidated data**	
Claims vis-à-vis:	**All UK based banks (1)**	**UK-owned banks (2)**	**Immediate counterparty (3)**	**Ultimate risk (4)**
Germany	213 644	24 433	34 335	70 013
Switzerland	125 791	4 299	6 213	21 622
Cayman Islands	70 831	11 243	16 971	2 754
Russia	4 691	458	634	164
Argentina	4 741	1 480	6 868	5 408
Brazil	7 220	4 014	5 288	6 613
South Korea	8 872	2 607	5 007	4 768
All countries	**1 967 392**	**369 413**	**522 598**	**526 389**

Looking at these different measures together can give a very clear picture of the exposure of the UK banking system to other economies, providing not only a quantification of the risk involved, but also an indication of which section of the UK financial system is conducting the business. However, it is not always the absolute value of the exposure to a particular country that is of interest. Instead it is the relative size of the exposure that is important. Research at the Bank of England has created a ranking for the financial stability risk of the UK economy by taking a measure of exposure for each country and linking it with a probability of default.[6] This ranking exercise can be used to focus work on the countries where a potential problem could have the largest effect on the UK financial system.

The initial phase of this work was limited to looking at UK-owned banks on a consolidated, immediate counterparty basis. However, the variation between the measures of exposure used in

[4] Exposure by ultimate risk = total cross border claims and non-UK offices' non-local currency claims on local residents + net non-UK offices' local currency claims on local residents - outward risk transfers + inward risk transfers - portfolio investments.

[5] These countries have been chosen to highlight the differences between the various datasets.

[6] See Buckle et al (2000).

table 1 demonstrates that this ranking could change significantly if the exercise was conducted using a different exposure definition. The use of indicators in an absolute fashion, or in isolation, can provide a distorted and simplified view of the financial system. Therefore, users of financial stability indicators must be aware of the limitations of each indicator, and look at them in conjunction with other available indicators to establish a complete picture of the situation.

4. Further considerations for future work

There are many routes through which risk can be transmitted other than those previously described. As a result, the above analysis does not necessarily represent the full exposure of the UK financial system to any particular shock. This paper does not attempt to cover these potential transmission channels in depth, but they include:

- certain activity in international derivative markets, which is not currently captured in the data, but can be used to transfer risk from one country to another,
- feed through effects arising from the interlinkages of a branch of a crisis country institution operating in the UK market,
- third country effects, whereby a shock in one country will have knock on effects into a second country, which may then default on its debt to the UK as a result.

Currently available data can be used to begin to address some of these issues, but the examples demonstrate that it will never be possible ex ante to produce a fully comprehensive framework for analysing threats to the stability of the UK financial system. They also highlight the fact that, as a major international financial centre, the UK is affected as much by events in the rest of the world and international markets as by domestic events. The Bank is therefore interested in the development of statistics at an international level as well as at the domestic level, which will help improve the quality of analysis possible in this area. This includes the further development of the MPI framework in both the UK and other countries, which could eventually help in analysing the increasing global aspects of financial stability work.

5. Conclusion

Analysis of potential threats to financial stability is a large and rapidly developing area that is placing new demands on the central banks of both developing and developed countries. Risks can arise within domestic or international markets, and be rapidly transmitted globally. Statistics have traditionally been drawn on to address specific issues, but are now increasingly being utilised to develop a structure within which the vast array of financial stability issues can be prioritised according to impact and likelihood. This ensures that the most important are given the most attention at the right time. It is this latter role for statistics that is likely to be called on increasingly in the future, building and developing some of the methodologies outlined in this paper.

REFERENCES

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RESUME

L'analyse des menaces potentielles pour la stabilité financière est un domaine qui se développe de façon très étendue et rapidement qui impose de nouvelles exigences aux banques centrales des pays en voie de développement et industrialisés. Cet article décrit l'expérience de la Banque d'Angleterre dans le regroupement des fichiers actuellement disponibles pour créer un cadre de mesures statistiques et des indicateurs destinés à classer et à surveiller certains des risques potentiels à la stabilité du système financier du Royaume-Uni.