Providing comparable information to assess global financial stability risks

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Preface

The 2016 Conference of European Statistics Stakeholders

The 2016 Conference of European Statistics Stakeholders (CESS 2016) was held in Budapest at the seat of the Hungarian Academy of Sciences on 20 and 21 October 2016 (http://www.ksh.hu/cess2016). Bringing together around 400 European stakeholders, such as official statisticians, methodologists, private data producers/providers and data users, the two-day event was organised in collaboration between Eurostat, the Hungarian Central Statistical Office, the European Central Bank, the European Statistical Advisory Committee and the Federation of European National Statistical Societies, with the involvement of the Hungarian Statistical Association and the United Nations Economic Commission for Europe.

The conference provided participants with an opportunity to discuss user needs, to exchange good practices in statistical production and outreach , and to illustrate innovative ways of visualising and communicating statistics, and to promote new methodological ideas in data conception, collection and analysis.

One of the papers presented at CESS 2016 was the paper *Providing comparable information to assess global financial stability risks*; the full-length version of that paper is presented in this Statistical Report.

Abstract

Efforts to enhance international statistical comparability so as to support financial stability analysis should focus on three main areas. The first goal is to develop the 'traditional' national accounts framework. Ongoing efforts have already led to better and more comparable information across countries. For instance, the monitoring of post-crisis deleveraging patterns has been facilitated by the provision of new balance sheet data. The identification of non-bank financial intermediation services provided by so-called 'shadow bank' entities has been enhanced. And the propagation of liquidity conditions across countries can be more easily assessed. Yet more is needed to improve cross-country comparability at the macro level. A number of related actions have been taken by the international community in the context of the Data Gaps Initiative endorsed by the G20.

The second area of focus is micro information. The crisis showed that financial stress experienced at the level of individual entities can quickly reverberate into the entire financial system. Recent statistical efforts have helped to provide more information on the distribution of macro aggregates; in parallel, important datasets have been set up to monitor entities of systemic importance. Ensuring that such granular data is comparable across countries is thus a key objective, not only to detect vulnerabilities, but also to support monetary, regulatory and financial stability policies.

Yet a third goal is to be able to assess risk exposures from a global perspective, ie independently of the

residency of economic units. Nationality-based consolidated data are needed to better understand who makes underlying economic decisions, who takes on the final risk and who needs to hold sufficient buffers to cover global potential losses. Such information is crucial to make meaningful comparisons across economies and adequately support financial stability analysis.

Overview

Chapter 1 reviews a number of data issues highlighted by the last global financial crisis. Chapter 2 describes the post-crisis efforts undertaken to improve the international comparability of statistics. Chapter 3 presents the progress achieved so far, and Chapter 4 argues that much more remains to be done. Chapter 5 shows that there is a general consensus to focus on three levels of information to ensure better international statistical comparability: macro-aggregates, distribution indicators and institution-level data. Chapter 6 concludes by highlighting that these efforts may not be sufficient, since a more fundamental paradigm shift is required to better assess the impact of globalisation.

1 Data issues and the Great Financial Crisis

Many observers will agree that data issues were not the sole, nor even a major cause of the Great Financial Crisis (GFC) of 2007–09. Yet this crisis highlighted important statistical shortcomings (Borio (2013)). Four areas were particularly obvious as regards financial stability:

The first data issue related to leverage. The degree to which economic agents had borrowed was not correctly appreciated before the crisis; this was particularly the case for banks but also for a wide range of economic agents, especially households.

The second area was financial intermediation. Countries' statistical apparatus was relatively well-equipped to measure the 'traditional' activities of 'traditional' players in financial markets. Yet some activities were more difficult to capture than others – e.g. investment banking activities, asset-backed securitisation, insurers' role in derivatives markets, etc. And some of the new kids in the block – ie the 'non-traditional' financial providers – were also less well covered by available statistics. With the GFC, one realised that there was a much larger range of firms acting de facto as 'shadow banks' – a category comprising all the entities outside the regulated banking system that perform core banking functions and are therefore very active in providing leverage-based maturity and liquidity transformation (FSB, 2015).

The third area was data on cross-sector and cross-border linkages. Such interconnections proved particularly important in propagating financial stress that originated in a specific sector and in a specific country (ie, the US mortgage industry) to the entire globe. A key example was the inability of observers to spot the vulnerabilities of non-US banks resulting from the operations of their own affiliates in the United States.

A fourth, related area was data to monitor the situation of individual firms that proved 'too big to fail' when the crisis occurred. To be fair, this was the case in many sectors, and governments all around the globe had to save, or at least ensure the provision of funding to, a number of firms – say, in the automobile sector. But the key shortcomings were related to the supervision of financial institutions, in particular banks, whose capital positions suddenly proved much weaker compared to the numbers reported prior to the GFC.

For all these four main data areas that proved to be particularly important for financial stability – balance sheet data, new financial intermediaries, cross-border linkages, and financial supervision – a key aspect was the limited degree of international comparability. The measurement of debt liabilities differed across sectors and countries. Statistics on financial services were highly influenced by country-specific situations. Cross-border relationships were difficult to assess with the traditional national accounts framework, which de facto tends to group all foreign counterparts in the 'rest of the world' aggregate. And of course the monitoring of global financial institutions proved difficult because of the need to consolidate all the activities of their affiliates across the world, and the interactions between them.

2 Post-crisis efforts to promote international comparability

From the previous chapter, one should not be surprised that a key priority of post-crisis financial stability efforts has been to promote the international comparability of statistics. As soon as in 2009, the International Monetary Fund (IMF) and the Financial Stability Board (FSB) issued *The Financial Crisis and Information Gaps* report to explore information gaps and provide appropriate proposals for strengthening data collection (International Monetary Fund and Financial Stability Board, 2009). The general introduction of this initial Data Gaps Initiative (DGI–I) endorsed by the G20 clearly stated that '*the integration of economies and markets, as evidenced by the financial crisis spreading worldwide, highlights the critical importance of relevant statistics that are **timely and internally consistent as well as comparable** across countries*'. In addition, the DGI comprised 20 recommendations focussing on various statistical domains and aiming at better international comparability. To name a few, the recommendation related to government finance (no 17) asked for '*timely and cross-country standardized and comparable government finance data based on the accepted international standard*'; similarly, the recommendation on property prices (no 19) called for completing a handbook on real estate price indices as a key first step to ensure the collection of comparable data across countries.

This initial phase of the DGI underlined the imperfect international harmonisation of the statistics that are needed for financial stability analysis. To address these challenges, the international community launched in 2016 the second phase of the DGI (DGI–II) with the main objective to implement '*the regular collection and dissemination of **comparable**, timely, integrated, high quality, and standardized statistics for policy use*' (International Monetary Fund and Financial Stability Board, 2015). Again, the focus on international comparability was present in each of the new recommendations put forward in this second phase.

A key support for these global statistical initiatives was, in addition to its endorsement by the G20 economies, the underlying cooperation among various international organisations. To ensure that, the Inter-Agency Group on Economic and Financial Statistics (IAG) was tasked to coordinate and monitor the implementation of the DGI recommendations – as formally stated in the DGI–II recommendation devoted to the mandate of the DGI (no 1).

The IAG, established in 2008 to coordinate statistical issues and data gaps highlighted by the global crisis and to strengthen data collection, comprises the Bank for International Settlements (BIS), the European Central Bank (ECB), Eurostat, the International Monetary Fund (IMF, Chair), the Organisation for Economic Co-operation and Development (OECD), the United Nations (UN) and the World Bank (WB). This means that international statistical comparability has become the mantra of all the main international bodies involved in financial stability work.

3 Significant progress already achieved

All the various efforts listed in Chapter 2 have been clearly successful. Almost ten years after the GFC, we now have much better, more comparable information across countries to support financial stability. This is particularly evident when one looks as the main four data areas highlighted above that played an important role during the GFC.

As regards first the measurement of debt, remarkable progress has been already achieved in setting up methodologies and collecting more comparable data. The analysis of pre- and post-crisis debt patterns, both across sectors and countries, has been greatly facilitated by the availability of sectoral financial accounts in a large number of both advanced and emerging economies (OECD (2014)). One particular example is the new credit database set up by the BIS which allows for analysing sectoral debt patterns in a way that is as consistent as possible across countries and sectors (see www.bis.org/statistics/). This in turn has provided a rich source of information to monitor the post-GFC debt-adjustment process that is still very much underway today. For instance, one can easily compare leverage patterns between those advanced economies hit by the crisis and emerging market economies; and, within these groups, the relative positions of the main sectors, such as government, households and corporates.

Turning now to the second area, i.e. financial intermediation, the implementation of the 2008 SNA has facilitated the identification and analysis of the '*Other Financial Institutions*' sector (European Commission et al (2009)). With more detailed subsectors, it has been easier to identify shadow banks and assess their importance relative to 'traditional' banking intermediation channels. In particular, key institutions have emerged such as investment funds, broker dealers, structured finance vehicles, finance companies and money market funds. These new data have allowed the FSB to conduct a regular review of shadow banking, estimated to represent around 55 to 60% of GDP in major advanced and emerging economies, and about 10% of all financial assets (compared to about 50% for 'traditional' banks; FSB, 2015).

As regards the third area, there is a greater availability of data on financial positions and flows both across sectors and across countries. This is key to capture the impact of financial globalisation, with the trend expansion in international bank lending and bond issuance. For instance, the BIS has been able to compute 'global liquidity indicators' allowing the assessment of the respective importance of cross-border and domestic bank credit in various regions (BIS, 2016)). One important input for analysis is the degree to which monetary conditions in one country influence other domestic conditions via their spillover effects through foreign borrowers. A telling example is the recent estimate that banks and bond investors have increased outstanding US dollar credit to non-bank borrowers outside the United States – including affiliates of US residents – to almost USD 10 trillion today, underscoring the importance of the links between US monetary policy and credit extended globally (McCauley et al, 2015).

Lastly, the GFC has triggered a swift and ambitious set of reforms to strengthen the global financial system and improve the monitoring of individual financial institutions. Financial supervisors have been at the forefront of these initiatives in particular to collect internationally comparable institution-level data, with two key objectives. One is to monitor the situation of a specific institution (e.g. a large bank) considered as having systemic importance (BCBS. 2013). At the international level, the collection of micro data for such global systemic institutions is now being conducted regularly with the operational support of the International Data Hub (IDH) set up by the BIS in the context of an FSB global initiative. A second key objective is to support financial policymaking, by tracking individual responses to public policy decisions and, in turn, the overall impact of these

policies especially for financial markets. This second objective has become particularly relevant with the stricter supervisory requirements set up in response to the GFC. This is particularly true for banks: the Basel Committee on Banking Supervision (BCBS), which is hosted by the BIS and represents national banking supervisors, has developed the comprehensive Basel III Framework. A number of quantitative impact studies (QIS) are now regularly performed at the global level to monitor the implementation of this Framework, based on the collection of internationally comparable institution-level data (BCBS, 2015). The other financial stability groups hosted by the BIS in Basel have engaged in similar initiatives.

4 Important data gaps remain, hampering international comparability

The global community is still in the middle of the road as regards the international comparability of the statistics needed for financial stability purposes. Looking again at the four categories mentioned above, approaches for computing balance sheet data continue to vary significantly across countries. This is particularly obvious for the public sector. Due to national fiscal specificities and accounting systems, statistical practices differ to, in particular, define the government sector's perimeter and consolidate it as well as to identify and value the related debt instruments. This greatly complicates the task of making cross-country fiscal comparisons, as government debt estimates for a given country can change substantially depending on the approach followed. For example, depending on the data sets, estimates for government debt-to-GDP ratios differ by more than 10 percentage points of GDP on average across a selected panel of countries identified in a recent BIS study (Dembiermont et al., 2015).

Turning to financial intermediation, the identification of shadow banks remains challenging. For instance, it is still uneasy to capture hedge funds in some large jurisdictions, a sub-sector of new financial intermediaries that is not formally specified in the 2008 SNA Framework. Substantial work is indeed under way under the lead of the FSB and the OECD to address these issues so as to better capture shadow banking in the SNA (OECD, 2016).

Progress in the third area, cross-border linkages, is still hampered by the difficulty of countries to report in a consistent and harmonised way the information collected by international organisations such as the IMF. As regards specifically the statistics on international banking activities produced by the BIS, a key milestone was in September 2015 the expansion of their public dissemination with more detailed breakdowns (BIS, 2015b). But, to date, parts of the new dataset remain unpublished due to the lack of comprehensive underlying country-level information. In addition, a number of major G20 countries (e.g. Argentina, China, Russia) have just started to participate in these international data collections.

Turning to institution-level information, a particular effort has been made to coordinate banks' compliance with reporting guidelines so as to achieve international comparability (for instance for the new data on global systemic banks). Supervisory requirements are also progressively developed for other types of financial institutions, such as insurance companies. One problem however is that accounting standards continue to differ across regions; while some convergence is being called for by the international community, the concrete application of these standards in each domestic jurisdiction is often judgement-based and may still leave substantial room for differences across countries (e.g. for assessing off-balance sheet exposures). Another difficulty is to develop a 'common' approach for dealing with institutions that belong to different sectors and which have different business models and risk profiles, e.g. commercial banks, asset managers, insurance companies, central counterparties etc. A third issue is how to collect consistent group-level information when the group is made of various entities located in different countries, acting in different sectors, and using various legal structures.

5 How to improve international comparability? Three main levels of information to focus on

1. Better macro statistics

An obvious starting point for better international comparability is to continue to implement the SNA standards across the globe. From a financial stability perspective, attention should be specifically paid to the development of 'integrated sectoral financial accounts' which complete the 'traditional' SNA framework by presenting information on financial flows and positions and on a sectoral basis (Tissot, 2016b).

In practice, this can raise a wide range of comparability issues. The reason is that the compilation of financial accounts often rely on the mobilising of very large micro data sources (Cadete de Matos, 2015), especially derived from 'administrative' datasets. Those are typically databases maintained by financial institutions or public authorities, including public credit registries on individual loans data, security-by-security databases, central balance sheet databases etc. But, almost by definition, these data sources are highly country-specific, especially when they are a by-product of (national) administrative operations. Their characteristics – statistical quality, coverage of the population, concept measured – may thus vary across country. For instance, credit registers will typically collect information for transactions above a certain threshold defined in each country; the identification of a non-performing loan would depend on local practices; etc. The implication is that, even if there is greater harmonisation as regards the definition of macro aggregates – a very important goal in itself – some kind of harmonisation would still be necessary at a more granular level to ensure that the building blocks forming these aggregates are at least relatively comparable. The experience of the European Union, where the European Central Bank is leading substantial work to harmonise the various micro datasets collected in member countries (e.g. credit registers, loan-by-loan databases, debt securities statistics), suggest that such efforts can be very demanding and time consuming; but they are obviously essential.

2. Distribution information

The GFC showed the importance of looking at how average macro indicators reflect the 'micro' situation of individual entities, and hence at the distribution of these indicators for the population being considered. The aim is to be able to explore the heterogeneity hidden behind aggregate numbers and in particular to analyse the tails of distributions. A number of recommendations of the DGI–I have been indeed focussing on the development of distribution information. This work is clearly important for policy purposes. Distributional data have for long been a useful input to help to better calibrate policies. For instance, the allocation of debt and wealth among households can affect the monetary transmission mechanism. Moreover, the need for distribution information is likely to become even more pressing in the post-GFC era. Cases in point are monetary policy issues related to the impact of the newly-developed unconventional tools as well as the greater impetus put on financial stability analyses. In particular, the increased use of macro prudential tools, which are often targeted at specific groups of economic agents (e.g. 'speculative' investors), markets/sectors (e.g. housing) and instruments (e.g. mortgages), will in itself call for more distribution information.

All these considerations suggest that the comparison of national indicators can be meaningless if it is not complemented by distribution information. For instance, aggregate numbers could suggest that the impact of a

given policy would be the same in two countries; yet in reality this impact could differ because of differences in distributions. The appearance of international comparability provided by aggregate statistics could then be quite misleading.

3.   Macro-relevant, 'pure' micro information

As analysed above, the GFC underlined the need to take due consideration of 'pure' micro information that is relevant from a macro perspective. Fragilities can arise at the level of specific institutions (e.g. Lehman Brothers) or financial market segments or instruments (e.g. US subprime mortgages) that will have implications for the financial system as a whole. Such micro-level information can have a systemic importance but be masked by 'traditional' macro, aggregated indicators. For instance, a country-wide indicator can reflect the homogeneous situation of a group of economic agents or, in contrary, the combination of idiosyncratic positions. Non-linearity effects mean that, on average, the implication of an aggregate number will differ from the picture that one can derive from the sum of individual situations.

The corollary is that assessing financial stability risks requires to understand what lies behind aggregated numbers and dig into the data in a granular way (IFC, 2016). As seen before, national financial supervisors are the first in line to require access to institution-level information in their own jurisdictions. But more general progress would require better cross-border and cross-sector cooperation so as to monitor properly large corporates operating at the global level. It also puts a premium on developing some kind of identifier to avoid double counting – a challenge that is indeed common for all global data collections involving institution-level data. A particular initiative endorsed by public authorities since the GFC has been the requirement that market participants be identified by the recently introduced Legal Entity Identifier (LEI); but this is still (important) work in progress.

6 International comparisons also require a change in statisticians' mindset

The increased focus on the global financial system as a whole requires a different type of information compared to the aggregated, country-based statistics that are usually available. From that perspective, having statistics that are comparable across countries – an important goal in itself as argued above – cannot be sufficient and may even be misleading in a number of cases. To support financial stability analysis, one needs worldwide information for properly assessing firms' group-level exposures and identifying sources of financial stress (IAG, 2015). A key reason is that a growing part of corporates' domestic activities is now governed by parent companies located abroad, rather than by the (resident) reporting institutional units. Symmetrically, residents' actions are increasingly influencing the actions of other 'controlled' agents located in other sectors and/or countries.

Today's business model of global corporates relies to an important extent on the establishment/acquisition of entities located outside the domestic area. But operations through their foreign affiliates can only be captured by the respective residency-based statistics of the 'host' countries, and not by those of the 'home' country. Hence, if one looks only at residency-based statistics, even if internationally harmonised, the information collected will not be comparable. It will not adequately capture the situation of global groups and its 'real' impact for the respective economies. From this perspective, there must be a paradigm shift in the statistical community (Tissot, 2016a): statisticians need to complement their analysis with nationality-based, consolidated group data. This is necessary to understand, for instance, who makes underlying economic decisions, who takes on the final risk and who needs to hold sufficient buffers to cover global potential losses. Such information can also provide more meaningful international comparisons, as highlighted below.

The BIS has been at the forefront of statisticians' efforts to complement residency-based statistics with nationality-based information. First in line are the international banking statistics (IBS), which provide information on cross-border banking positions and are collected both on a 'locational' and a 'consolidated' basis (BIS (2013)). A second key dataset is the international debt securities (IDS) statistics. It is compiled from a granular, security-by-security database that enables unique identification of each security. This allows all bonds issued to be identified by the specific residency of the issuer and by its nationality defined as the residency of the parent company controlling it. One can thus compare debt issuance activity from both a residency- and a nationality-based perspective. A number of examples can be highlighted that show that these various consolidated datasets can prove useful when making international comparisons.

First, IBS data can be used to provide information on the exposures of the main lending banking systems to a specific country. The BIS *Quarterly Review* did perform such an analysis in 2014 in the case of Russia, in a context marked by falling oil prices and economic sanctions (BIS (2015a)). IBS consolidated data allowed for analysing separately 'pure' cross-border claims and the claims that were booked locally by foreign banks' affiliates, ie, by their offices resident in Russia. These locally-booked claims would typically not be captured as claims by non-residents on Russia in the SNA framework, although they represented almost half of the claims of foreign banks on a consolidated basis. Moreover, the data allowed for a more meaningful comparison of foreign banking systems' exposures on Russia. For instance, local claims accounted for the vast majority of Italian banks' foreign claims: the Italian banking system was thus little exposed to Russian borrowers when looking at residency-based data, but it proved much more exposed when using consolidated data. In contrast, UK banks were mainly exposed through their cross-border claims, having little local claims. Hence, considering only cross-border positions, Italy appeared

much less exposed compared to the United Kingdom. But the situation was the opposite when looking at consolidated data.

Another example relates to the situation of China, which was until recently not reporting the IBS statistics but which can nevertheless be captured by using counterparty information provided by reporting banking systems (BIS (2014)). China has dominated banking inflows to EMEs in recent years and has become by far the largest EME borrower for BIS reporting banks. The residency-based IBS allow to capture the cross-border claims reported by international banks on residents of China, representing somewhat less than USD 1 trillion at the beginning of 2016. This is well above the amounts registered for other large EMEs. Yet a factor behind this evolution has been the large transactions between Chinese mainland offices and overseas offices of Chinese banks, as well as between foreign groups and their local affiliates in China: all these intra-groups transactions are captured by residency-based statistics. In contrast, consolidated data allow for excluding inter-office transactions (for reporting banks) and taking account of their foreign claims that are booked via their affiliates located in China. Using this metric, BIS reporting banks' exposure to China was still almost twice as large as that to any other emerging market economy, but this was a more modest position in relative terms than the one suggested by the locational data. By 2016, China accounted for roughly 20% of cross-border claims on all EMEs and 45% of those on emerging Asia on a residency basis. On a consolidated basis, China's relative weight was significantly lower (at around 15% and 35%, respectively) because of the importance of inter-office positions in channelling foreign bank credit to Chinese (resident) borrowers.

A third example shows the usefulness for financial stability analysis of comparing residency- and nationality-based data on securities issuance – for instance, when assessing the international issuance of emerging market borrowers through the foreign entities controlled by them (Gruić and Wooldridge (2015)). While the second half of the 20th century saw a marked expansion of cross-border operations of internationally active commercial banks, the following 'second phase' of global liquidity (Shin (2013)) has entailed a shift from bank lending to market finance, with the sharp expansion of international debt securities issued by financial and non-financial corporations. International debt issuance now represents more than USD 20 trillion, compared to just 5 trillion at the beginning of the 2000s. This has reflected in particular the increased issuance by emerging market borrowers in advanced markets and / or offshore centres, either directly or through their controlled affiliates (that is, operations that are not measured by EMEs' residency-based statistics but can be captured on a consolidated basis).

The BIS debt securities show that a large and growing part of outstanding international debt securities of non-financial corporations headquartered in major EMEs has been issued through subsidiaries abroad (Gruić et al., 2014). This debt does not show up in the residence-based external debt statistics, which therefore paint an overly benign picture of the related exposures. Moreover, the risk profile of offshore debt is likely to be very different depending on whether the issuing affiliate is a fully-fledged firm with significant operations in the country of residence or if it is merely a conduit channelling funds to the parent. The reasoning is that 'pure' financial affiliates of non-financial corporations that are mainly engaged in providing funding for their parents can entail significant risks. The data show, for instance, that issuance by Chinese borrowers is almost exclusively done by their affiliates resident abroad of China (not captured by residency-based IDS, but included in the consolidated dataset). In contrast, international debt issuance by Turkish companies is almost exclusively done by Turkish resident units (implying that residency-based statistics almost fully capture the consolidated exposures of these Turkish firms). Using residency-based data like Balance of Payments statistics would thus significantly alter any comparison between the situations of China and Turkey as regards potential financial vulnerabilities.

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The Conference of European Statistics Stakeholders (CESS) brings together European stakeholders such as official statisticians, methodologists, private data producers/providers and data users. The conference, held biennially, gives participants an opportunity to discuss user needs and exchange good practices in statistical production and outreach. It is also an opportunity to illustrate innovative ways of visualising and communicating statistics and promote new methodological ideas in data conception, collection and analysis.

This Statistical Report contains the full-length version of the paper Providing comparable information to assess global financial stability risks, presented at CESS 2016 (Budapest 20-21 October 2016) by Bruno Tissot (Head of Statistics & Research Support at the Bank for International Settlements).

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