

The central banking contribution to international statistics: A Basel perspective

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Abstract. A key goal of the Bank for International Settlements is to produce in-depth economic analysis drawing on its position at the intersection of research and policy, its financial markets savvy, and its unique statistical chest. Since the interwar financial crisis in the 1930s, the traditional objective of assessing international linkages has continuously guided BIS statistical offering. Important micro-level data sets have been collected to support global financial regulation in parallel. In addition, the BIS hosts the Irving Fisher Committee on Central Bank Statistics, a global network of central bank statisticians, economists and policymakers who discuss statistical issues of interest to central banks and develop related methodological work. It also actively supports various global statistical initiatives, especially to close economic and financial data gaps. These activities have proved instrumental for tracking and understanding developments in international finance, as was evident again on the occasion of the recent COVID-19 pandemic. Looking ahead, the BIS and the IFC can continue to contribute actively to the international statistical cooperation framework.

Keywords: BIS, IFC, policymaking, data gaps, global finance, international cooperation

1. The Bank for International Settlements – A bird eye’s view

The Bank for International Settlements (BIS) was established in 1930 and is the oldest international financial institution, owned by 63 central banks. Its mission is to support central banks’ pursuit of monetary and financial stability through international cooperation, and to act as a bank for central banks. It is based in Basel, Switzerland, and has a number of offices around the world.²

The fulfilling of the BIS mission is done in four main ways [1]. First, the BIS offers financial services like a

“normal” bank, although exclusively to central banks, monetary authorities and international organisations. The primary goal is to assist these institutions in the management of their foreign exchange assets. A side effect of these activities is to provide the BIS with first-hand insights into the functioning of financial markets. Second, the BIS is a forum for dialogue and broad international cooperation especially among central banks and financial supervisory authorities. This dialogue helps to identify issues of strategic importance for policy and in particular support the work of those global standard setters for the international financial system that are based in Basel (eg the Basel Committee on Banking Supervision (BCBS)). Third, the BIS provides a platform for responsible innovation and knowledge-sharing, with the aim of leveraging technology to explore new public goods for central banks and allow them to collaborate in the context of dedicated Innovation Hub Centres located in various regions. Last, and not least, the BIS produces in-depth economic analysis drawing on its position at the intersection of research and policy, its financial markets savvy, and, of course its unique statistical chest.

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²See The BIS – Promoting global monetary and financial stability through international cooperation.

The importance of compiling international statistics was emphasised right at the start of the establishment of the BIS. In its second Annual Report, published in 1932, the institution noted that “In May 1931 (...) so large a gathering of central bank officials (...) had never before assembled. The need for increased cooperation in studying currency and credit questions and in collecting and exchanging statistical data was especially emphasized” [2]. Two years later, a subsequent report recognised the issues posed by the lack of available data and the need to conduct statistical compilation exercises, noting that “It was then felt that measures might have been taken to moderate the increasing indebtedness if the stupendous growth of liabilities had been known in time. During the years which have passed since 1931 Central Banks and other authorities have proceeded to collect regular information regarding the short-term assets and liabilities of their respective markets, and although the material thus gathered together has not all been made available for examination, the broad facts of the situation are much better known” [3].

2. The BIS statistical offering

Since the interwar financial crisis in the 1930s, *the traditional “niche” of assessing “international linkages” has continuously guided BIS statistical collection efforts*, not least to address the “statistical fog” caused by the growing importance of international gross capital flows observed over the twentieth century. A major factor was that cross-border lending enabled the credit booms at the heart of several international financial crises, notably the Latin American debt crisis in the early 1980s and the Asian financial crisis in the late 1990s [4]. Moreover, the BIS overall statistical offering further expanded in response to the Great Financial Crisis (GFC) of 2007–09, with the aim of facilitating a deeper analysis of the global financial system [5]. Lastly, BIS work to compile, disseminate and analyse data was further strengthened in the context of the more recent *BIS 2025 Innovation strategy* [6]. For instance, through the development of capabilities in advanced analytics to make better sense of the information collected, and the leveraging of new techniques to go beyond the “standard” offering of official statistics and fully exploit the alternative data sources available.

The BIS flagship statistical output is commonly referred to as the “BIS international banking and financial statistics” [7,8]. These statistics are compiled in

cooperation with central banks, other national authorities and international organisations and are continuously refined and/or expanded. They inform and support analysis of financial stability, international monetary spillovers and global financial conditions. Key elements include the data compiled on international banking, the issuance of debt securities and derivatives markets, and indicators on “global liquidity” that try to capture the degree of ease of financing in global financial markets [9]. A main point of focus is on credit to non-bank borrowers, covering both loans extended by banks and funding from global bond markets through the issuance of international debt securities, particularly on its foreign currency part – that is, the credit denominated in major reserve currencies (eg US dollars, euros and Japanese yen) provided to non-residents, ie borrowers outside the respective currency areas. This information is complemented by statistics on payments and financial market infrastructures compiled for the member jurisdictions of the Committee on Payments and Market Infrastructures (CPMI), widely known as the *Red Book statistics* [10].

One important, and rather unique characteristic of the BIS international banking and financial statistics is the fact that a number of them are presented not only on a residency basis – in line with the traditional apparatus of official statistics, especially the System of National Accounts (SNA), which relies on the criterion of residency to capture statistical information within countries’ boundaries – *but also on a so-called “nationality-basis”, that is, at a globally consolidated level*. This second perspective reflects the importance of having a comprehensive approach for financial stability analyses and of assessing risk exposures on a consolidated basis especially for multinational financial institutions and corporate groups [11]. Accordingly, the BIS presents statistics on international banking claims and liabilities and on the issuance of international debt securities with both a residency and a nationality perspectives [12].

In addition to its banking and financial statistics, the BIS collects through an in house “Data Bank” *key economic indicators shared among member central banks*. Part of these macroeconomic series are disseminated to the public, allowing for cross-country comparisons based on data that are harmonised to the extent possible. Important efforts have been made in recent years to expand this offering, especially to cover areas for which BIS statistics are almost unique. One example has been the development of residential [13] and commercial [14] property prices, especially in the context

of the Data Gaps Initiative (DGI) (cf below). A second area has been the establishment of four main sets of credit metrics [15,16]. The first three – credit to the non-financial sector, credit-to-GDP gaps and debt service ratios – are published solely by the BIS; the fourth set, on external debt, is jointly produced by the BIS, the IMF, the OECD and the World Bank. A third area comprises longer-term, “experimental” series of major macroeconomic indicators with the view to support economic research on macroeconomics and financial stability, for instance to capture the sheer specificities of the so-called financial cycle [17]. Such indicators include consumer prices, policy rates and exchange rates (ie US dollar exchange rates and countries’ effective exchange rates on both a nominal and real effective basis; cf [18]).

The BIS has also expanded its micro-level statistical offering in parallel. In particular, it collects on behalf of various Basel-based groups granular data to monitor the behaviour of individual financial institutions in response to global regulatory initiatives. These micro-level statistics have also been increasingly used to support the design of evidence-based policy [19]. In particular, bank-level data are compiled to underpin the Quantitative Impact Studies organised by the BCBS to monitor the impact of Basel III, assess ongoing policy initiatives and track the progress of Basel III adoption by jurisdiction. Another source of valuable information is managed by the Bank’s International Data Hub, where balance sheet data for systemically important banks are stored and analysed on behalf of participating supervisory authorities [20].

3. The IFC, a BIS-hosted committee of central banks devoted to statistical issues

The Irving Fisher Committee on Central Bank Statistics (IFC) is a global network of central bank statisticians, economists and policymakers who discuss statistical issues of interest to central banks and develop related methodological work set up under the BIS umbrella [21]. IFC institutional members comprise central banks and international and regional organisations formally involved in central banking issues. The Committee now has 97 members, including all BIS shareholder central banks, and its activities are overseen by the BIS’s All Governors’ Meeting. It is in addition associated with the International Statistical Institute (ISI) under a memorandum of understanding with the BIS and is a member of the International Association for

Official Statistics (IAOS). Moreover, a significant number of IFC central banks have become ISI corporate members in recent years. This has proved a useful opportunity for deepening the dialogue between central bank statisticians, their counterparts in national statistical offices (NSOs) and international organisations, the private sector, and academia.

An important *raison d’être* for the IFC is to provide opportunities for its members to network and exchange experience, through different ways: organisation of meetings to present case studies and analyse best practices (physical events complemented by virtual opportunities for promoting the Committee’s outreach); set up of surveys on specific issues of interest to central banks’ statisticians (and a key source of information-gathering); dedicated publications; and provision of statistical resources.

These activities have led the IFC to develop statistical guidance for the benefit of central banks and the public at large. First, IFC publications have been addressing various topics of interest to central banks’ statisticians such as derivatives statistics, financial inclusion, composite indicators etc. In particular, the current focus is on big data – including data science but also big data sources as well as technology in statistics, IT infrastructure and cyber risks;³ international standards and official statistics, including aspects related to data governance and management; fintech and payment systems data; “traditional” statistical areas of interest to central banks, eg external sector statistics, debt securities and financial accounts, as well as more generally the data supporting the whole range of their monetary and financial stability policies; data communication/visualisation issues and the dissemination of official statistics; and sustainable finance statistics.

Moreover, the Committee has set up a dedicated access-restricted platform on statistical methodological issues to support the development of in-house central banks’ statistical expertise. The aim is to address its members’ requests for guidance, by applying the experience of central banks in pursuing statistical production work in specific domains. The topics addressed in this context cover a wide range of areas, including: the development of security-by-security databases; legislation enabling central banks to collect source data; the identification and measurement of financial auxiliaries; en-

³With recurrent workshops on “Data science in central banking” targeted to a broad audience of practitioners and technicians to review the ongoing adoption of data analytics and business intelligence techniques and developments in the big data ecosystem (cf also [22]).

terprise survey best-practice methodology; data-sharing practices; the treatment of captive financial institutions and money lenders; money supply calculations; the implementation of a data strategy; and the identification and treatment of outliers in survey-based data sets.

Lastly, *the IFC has promoted various initiatives to foster general statistical and economic literacy*. One relates to financial accounts, an essential element of the SNA, which central banks are responsible for compiling in many countries. In view of the strong demand from central bank staff for learning opportunities in this area, the Committee has been supporting the development by the OECD/Sapienza University of Rome of an *online course on macroeconomic financial accounts* with the US-based massive open online course (MOOC) provider, Coursera, drawing on the OECD “Understanding financial accounts” manual, to which several IFC members had contributed [23]. The BIS/IFC is acting both as funding sponsor of the project and as members of its scientific committee, together with a number of central banks. The three-part course comprises (i) a general introduction on financial accounts and balance sheets within the SNA (launched in January 2022); (ii) the understanding of financial markets and institutional sectors; and (iii) the use of financial accounts as a toolbox for economic analysis.

The Committee is also sponsoring, together with a number of central banks, the *postgraduate programme in Statistical Systems with a specialisation in Central Banks’ Statistics*, as developed by the NOVA Information Management School (NOVA IMS) of Universidade Nova de Lisboa in collaboration with Banco de Portugal. Moreover, the IFC has taken steps to make more widely available to central banks the training material developed in the context of the *European Master in Official Statistics* (EMOS). Lastly, several IFC members together with the IFC Secretariat have been supporting the activities of the *Centre for International Research on Economic Tendency Surveys* (CIRET), with the sharing of central banks’ experience in the area of globalisation and economic statistics.

4. Contributions to statistical international cooperation

In complement, *the IFC is, with the support of the BIS, contributing to three main global statistical initiatives*. A first area relates to the *international statistical cooperation to close economic and financial data gaps*, with the active involvement of the IFC/BIS in

the Inter-Agency Group on Economic and Financial Statistics (IAG). The IAG comprises the BIS, the ECB, Eurostat, the IMF (Chair), the OECD, the United Nations and the World Bank and was established in 2008 to coordinate statistical issues, address the data gaps highlighted by the GFC and strengthen data collection. In particular, the IAG, with the support of the Secretariat of the Financial Stability Board (FSB), was tasked with coordinating and monitoring the implementation of the recommendations of the G20-endorsed DGI to enhance existing core official statistics in terms of timeliness, frequency and international comparability. Several factors contributed to the success of the first two phases of the DGI that spanned over the period 2011–2022 [24,25]: structured collaboration between international organisations and national statistical systems; close connection with current official priorities, with effective reporting to policymakers; and an effective peer pressure mechanism for spurring the active involvement of G20 national authorities as well as other interested jurisdictions.

A second key initiative relates to *SDMX*, the Statistical Data and Metadata eXchange standard to foster international data-sharing and cooperation. This ISO standard, sponsored by the members of the IAG, is now widely used by international organisations, NSOs, and other data-producing agencies to streamline the transmission of data and strengthen their dissemination through the design of appropriate Data Structure Definitions (DSDs) [26] – as an example, the BIS itself is using an SDMX web service to facilitate the dissemination of its statistics. An important milestone was the public release in 2021 of a new version of the standard (SDMX 3.0) developed by the sponsors, which facilitates the handling of large micro-data sets and new, “alternative” types of data. In future, the focus will be on the development of open-source/public good software for implementing this new standard.

A third initiative is the group of 13 central banks involved (as members or observers), together with a number of NSOs and international organisations, in *INEXDA*, the International Network for Exchanging Experience on Statistical Handling of Granular Data to address micro-data issues [27]. The IFC has been actively supportive of INEXDA work, which comprises the development of a metadata schema to describe granular data sets from different countries, the review of best practices for granting access to open software solutions and data (eg record linkage, micro-data access through virtual/physical research centres), and the identification of common features across jurisdictions with a view

to a potential harmonisation of data access procedures (through eg virtual portals, physical research data centres). The BIS also promotes the activities of INEXDA by organising sessions in IFC events and providing a dedicated access-restricted platform for internal communication.

5. The value of Basel statistical work in assessing the impact of the COVID-19 pandemic

As mentioned above, *BIS statistics have proved to be an essential tool for tracking developments in international credit flows* for many decades. This was again the case more recently when the COVID-19 pandemic spread in 2020–22. In the following period, internationally active banks, flush with greater deposits on the back of fiscal support programmes in major advanced economies, markedly expanded their holdings of government bonds and reserves at central banks. At the same time, non-bank borrowers of foreign currency – mainly US dollar – credit increasingly turned to bond markets for financing. For instance, financing through the bond market now accounts for as much dollar credit to emerging market and developing economies as do loans from internationally active banks.

Other macroeconomic series compiled at the BIS also helped to document various global phenomena observed since the onset of the pandemic. These include the major increase in public debt, as documented in a new data set on long-term debt securities issued by central and general governments in domestic and foreign currencies published by the BIS in 2021 [28]. The new data reveal that worldwide issuance of government bonds accelerated over the past decade and has surged more recently. The foreign currency share of government bonds issued by emerging market economies (EMEs) has continued to decline as major EMEs have been tapping bond markets in their domestic currencies. Another notable development has been the further acceleration in global house prices, mainly in advanced economies. The BIS residential property price data set, which includes time series for some 60 countries including all G20 economies, shows that global house prices now exceed their immediate post-GFC average levels by more than 25% in real terms.

Turning to the micro-level data compiled by the BIS, *this information helped supervisors track the impact of global macroeconomic and market developments on the largest institutions' credit exposures and funding profiles*. For instance, to analyse the challenges faced by

commercial banks when assessing the credit quality of borrowers [29] and the losses triggered by the pandemic as well as the consequences of the regulatory measures taken by some jurisdictions to temporarily reduce current capital requirements at the height of the crisis [30]. Similarly, the Financial Stability Board (FSB) was able to draw on data for the global banking system (representing a sample of more than 4,000 banks from 33 economies) to analyse post-pandemic debt overhang issues [31]. Turning to the International Association of Insurance Supervisors (IAIS), its data collected on insurance companies have helped assessing the impact of COVID-19 on the global insurance sector and detecting the possible build-up of related systemic risks [32].

In addition, the IFC, supported by the BIS, has stepped up its efforts to *develop statistical methodological guidance in response to the challenges posed by the impact of COVID-19* for central bank statisticians. First, the Committee actively supported the joint initiative of the international organisations federated in the inter-agency Committee for the Coordination of Statistical Activities (CCSA) to present a dedicated and updated snapshot of the latest information available on the pandemic's impact [33]. Second, a specific COVID-19 statistical resources IFC web page highlighting relevant official initiatives, with a focus on the experience of central banks, was developed and could be shared with IFC members as well as with the global statistical community in general. Other various initiatives by the BIS and related Basel-based groups have also analysed the statistical implications of the pandemic – see for instance the FSB assessment that “*access to timely and comprehensive data and effective analytical tools are key to assess and address financial risks from the COVID-19 pandemic*” [34].

This stocktaking exercise, documented by De Beer and Tissot, *underscored the importance of the COVID-19 pandemic's impact on official statistics for central banks* [35]. As data producers, they have been confronted with the statistical gaps that have arisen, as well as involved in methodological interventions to address related challenges. As statistics users, they needed information to pursue their monetary and financial stability policy objectives in the face of major disruptions caused by the pandemic. The experience of statisticians at various central banks weathering this storm highlighted three main lessons. A first and somewhat reassuring one is the importance of international efforts made since the GFC to develop higher-quality statistics that are more comprehensive, granular, flexible and integrated. A second lesson is that, despite re-

cent progress, official statistics still present significant shortcomings. In particular, the pandemic highlighted a number of data gaps that have yet to be addressed, as became clear for instance on the occasion of the market turmoil in March 2020. Third, the pandemic also underscored the need to go beyond the “standard” offering of official statistics, especially in times of crisis. Having more timely, frequent and well documented indicators to guide policy is key. Addressing these needs calls for fully exploiting available data sources, promoting greater data sharing among official statistics producers and considering alternative, big data sources as a complement to official statistics [36].

This is particularly important because *the response to new policy needs is not always requiring new data collections to be set up*. It may be sufficient to better use the information already collected in various places and for different purposes. Hence, a major challenge from this perspective is that new crises tend to generate demands for new data although often they already exist but are not looked at [37]. Another important point is that once the data sets are collected, the ensuing steps are to enable easy and effective access of this information (overcoming the challenges related to size and complexity) and to make sense of it. In other words, it is not sufficient to ‘collect’ the dots but, more essentially, to ‘connect’ them. This calls for developing intelligence activities by taking advantage of new methods and information sources [38].

How to deal with these issues is not straightforward and may require *balancing the information needs depending on circumstances*. In “benign” times, one may want to be alert and avoid a false sense of complacency provided by the collection of a large number of very detailed data. Rough aggregates will often provide sufficient information to detect whether things are worsening, and fragilities are building up. Research at the BIS suggests, for instance, that periods of sharp increase in private debt, especially when associated with large cross-border flows, can provide this kind of alarm signals and call for greater vigilance [39]. In contrast, resolution work after a financial crisis will request more timely and precise information, raising the need for much more granular data on the financial system [40].

6. Looking forward

Looking ahead, an important area for future IFC work will be *to provide input, drawing on central banks’ experience, to further strengthen the role of official statis-*

tics. This will require a continuous involvement in ongoing international initiatives related to close data gaps as well as in the ongoing revisions of internationally agreed statistical standards, especially for the UN-level ISIC (International Standard Industrial Classification of All Economic Activities) classification and the SNA and Balance of Payments (BoP) manuals.

A key area of focus for the IFC is how to *best address central banks’ policy needs*, specifically in the monetary and financial sectors. The goal is to further enhance statistical systems preparedness, especially in the face of unexpected events such as COVID-19, and their role as providers of timely and reliable information to policymakers and the public in general. This, however, requires careful and effective prioritisation of the related implications for official statistics, so that they are tailored to actual policy needs. It also puts a premium on building upon the infrastructure already put in place by the DGI initiative and strengthen the link between statistical work and policy-level discussions.

More precisely, *the IFC can contribute to the international statistical cooperation framework in two important ways*. The first is by facilitating the efforts undertaken since the GFC to *enhance existing core official statistics information*, especially as regards timeliness, frequency and international comparability. The focus would be on those recommendations that have not been completely implemented, by supporting the lead international organisations (especially the BIS) in the context of their related work programmes and monitoring exercises, as documented on the DGI webpage updated by the IMF with the support of IAG members. Of particular interest to the central banking statistical community in this context is the potential follow-up work on sectoral/financial accounts, property prices, banking and debt securities statistics, cross-border exposures, securities financing transactions and derivatives, as well as on the more general aspects related to the global statistical infrastructure (eg registers, identifiers and statistical standards).

A second way is to actively *support the new DGI currently considered by the G20 to improve data availability and provision*, including on environmental issues, harnessing the wealth of data produced by digitalisation so as to better inform policy decisions [41]. Needless to say, the contribution of IFC member central banks would be instrumental in supporting the identified four main statistical and data priorities to be covered in this context, namely (i) climate change; (ii) household distributional information; (iii) fintech and financial in-

clusion data; and (iv) access to private sources of data and administrative data. An important objective would be to organise the related data collections by taking stock of central banks' experience in these areas, for instance through the organisation of specific membership surveys and thematic workshops, for the benefit of the global statistical community.

In the area of *fintech*, in particular, IFC members' expertise could be leveraged to cover topics such as the monitoring of fintech activities, the analysis of the development of central bank digital currencies (CBDCs) and different types of cryptoassets, and the assessment of financial inclusion and access through new digital instruments and services. Another example is the area of *climate change*, for which central banks can be usefully involved in the planned set-up of forward-looking physical and transition risk indicators as well as in the development of methodological guidance and more comparable indicators of green bond and equity finance – especially in the context of the international Working Group on Securities Databases (WGSD) which has been tasked to improve information on securities markets in response to various international initiatives and recommendations after the GFC (including in the context of the various phases of the DGI).

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