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INFORMATION**

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To: Members of the Evaluation Committee

From: Alessandro Zanello, Committee Secretary

Subject: **Behind the Scenes with Data at the IMF—An IEO Evaluation**

Committee Action: Committee Members' **information**

Additional Information: In keeping with the standard rules the IEO has adopted in consultation with the Evaluation Committee and other Executive Directors, this report, and its companion documents, consisting of one background document and six background papers are being simultaneously sent to management. They will not be changed before they are circulated to the Board, except for purely factual corrections which will be clearly identified. Any written comments submitted by management and staff will be part of the official record and will be circulated to Executive Directors, together with any IEO response, as part of the documentation for the Executive Board discussion, which is tentatively scheduled for Friday, March 18, 2016. Any management and/or staff response would be circulated at least two weeks prior to the Board discussion.

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## **BEHIND THE SCENES WITH DATA AT THE IMF: AN IEO EVALUATION**

January 21, 2016

This report was prepared by an IEO team led by Nancy Wagner. The IEO team included Miguel de Las Casas, Chris Monasterski, Roxana Pedraglio, and Thomas Reichmann. The evaluation was informed by background studies prepared by Carlos de Resende, Morten Jerven, Franz Loyola, Tam Nguyen, and members of the evaluation team. The evaluation benefited from discussions with participants—William Alexander, Jack Boorman, Eduard Brau, Carol Carson, Philip Cross, Donal Donovan, John Hicklin, Russell Kincaid, Anne Krueger, Jin Liquin, Meg Lundsager, David Robinson, Marko Skreb, Hector Torres, Edwin Truman, and Onno Wijnholds—at two workshops that took place in Washington, D.C., and at a workshop in Berlin organized jointly with the Federal Ministry for Economic Cooperation and Development (BMZ) and the German Institute for Development Evaluation (DEval). It also benefited from comments by IMF staff. However, the final judgments are the responsibility of the IEO alone. Arun Bhatnagar, Annette Canizares, and Amy Gamulo provided administrative assistance. Rachel Weaving provided editorial assistance. The report was approved by Moises Schwartz.



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**ABBREVIATIONS**

ADV	Advanced economy
AFR	African Department (IMF)
APD	Asia and Pacific Department (IMF)
BIS	Bank for International Settlements
BSA	Balance sheet analysis
CDIS	Coordinated Direct Investment Survey
CDS	Credit default swap
COFER	Currency Composition of Official Foreign Exchange Reserves
CPIS	Coordinated Portfolio Investment Survey
CPI	Consumer Price Index
CSD	Common Surveillance Database
DGI	Data Gaps Initiative (G20)
DMX	Data Management for Excel
DQAF	Data Quality Assessment Framework
DSBB	Dissemination Standards Bulletin Board
EBA	External Balance Assessment
ECB	European Central Bank
EcOS	Economic Outlook Suite
EDGG	Economic Data Governance Group
EDMI	Economic Data Management Initiative
EDSC	Economic Data Steering Committee
EDT	Economic Data Team
E-GDDS	Enhanced General Data Dissemination System
EIU	Economist Intelligence Unit
ELSTAT	Hellenic Statistical Authority
EME	Emerging market economy
EU	European Union
EUR	European Department (IMF)
EWE	Early Warning Exercise
FAD	Fiscal Affairs Department (IMF)
FIN	Finance Department (IMF)
FSA	Financial Stability Assessment
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSI	Financial Soundness Indicator
FSSA	Financial Sector Stability Assessment
FTE	Fiscal Transparency Evaluation
G20	A grouping composed of major advanced economies and systemically important emerging market and developing countries
GDDS	General Data Dissemination System
GDP	Gross Domestic Product

<i>GFSR</i>	<i>Global Financial Stability Report</i>
HRD	Human Resources Department (IMF)
LAG	Inter-Agency Group on Economic and Financial Statistics
IFI	International financial institution
<i>IFS</i>	<i>International Financial Statistics</i>
IIP	International Investment Position
IT	Information technology
LIC	low-income country
MCD	Middle East and Central Asia Department (IMF)
MCM	Monetary and Capital Markets Department (IMF)
OECD	Organisation for Economic Co-operation and Development
OIA	Office of Internal Audit and Inspection (IMF)
PRGF	Poverty Reduction and Growth Facility
<i>REO</i>	<i>Regional Economic Outlook</i>
RES	Research Department (IMF)
ROSC	Report on the Observance of Standards and Codes
SDDS	Special Data Dissemination Standard
SDMX	Statistical Data and Metadata Exchange
SIA	Statistical Issues Appendix
SNA	System of National Accounts
SPR	Strategy Policy and Review Department (IMF)
SRFs	Standardized report forms
STA	Statistics Department (IMF)
TA	technical assistance
TGS	Technology and General Services Department (IMF)
TMU	Technical Memorandum of Understanding
TSR	Triennial Surveillance Review
UFR	Use of Fund resources
UN	United Nations
<i>WEO</i>	<i>World Economic Outlook</i>
WHD	Western Hemisphere Department (IMF)

## EXECUTIVE SUMMARY

In the 70 years since the IMF's founding, the global economy and the IMF's role have evolved markedly. So too has the IMF's need for data, but what has not changed is the fundamental role that data play in supporting the IMF in its efforts to foster global economic and financial stability. This evaluation examines whether the IMF has effectively leveraged this important asset.

In general, the IMF has been able to rely on a large amount of data of acceptable quality. Data provision from member countries has improved markedly over time, allowing the institution, to a large extent, to keep abreast of the growing complexity and interconnectedness of the world economy. Nonetheless, problems with data or data practices have, at times, adversely affected the IMF's surveillance and lending activities. In the aftermath of crises, data have often been put at the forefront, prompting important changes in global initiatives and in the Fund's approach to data. Yet, once these crises subside, data issues are usually viewed as mere support activities to the Fund's strategic operations.

The roots of data problems are diverse, ranging from problems due to member countries' capacity constraints or reluctance to share sensitive data to internal issues such as lack of appropriate staff incentives, institutional rigidities, and long-standing work practices. While most of these problems have been recognized for decades, they have recently been cast in a different light by the proliferation of data sources and rapid technological change and, in particular, by the surge in demand for multilateral and financial surveillance and cross-country analysis. These latter activities require data with greater comparability and granularity.

Tackling these data problems would better enable the Fund to deliver on this evolving and more challenging role. Efforts are under way in this regard (e.g., a new data management governance structure, initiatives to fill data gaps revealed by the global crisis), but these efforts are, as previous attempts, piecemeal without a clear comprehensive strategy which recognizes data as an institutional strategic asset, not just a consumption good for economists. The current conjuncture may provide an opportunity for greater progress.

The evaluation thus recommends, that the IMF, first and foremost, (i) develops a long-term strategy for data and statistics at the Fund that goes well beyond just data management. This is followed by four recommendations—on some key elements of the overarching strategy—aimed at addressing the most salient problems: (ii) define and prioritize the IMF's data needs and support data provision by member countries accordingly; (iii) reconsider the role and mandate of the IMF's Statistics Department; (iv) re-examine the staff's structure of incentives in the area of data management; and (v) make clear the limits of IMF responsibility regarding the quality of the data it disseminates, and the distinction between "IMF data" and "official data."



## I. INTRODUCTION

*“There is hardly any greater service the Fund can do than provide up-to-date barometers of the monetary problems of the world. We hope that the very greatest importance will be given to the statistical branch of the Fund and that they will be encouraged to make reports [for] the instruction and benefit [of] all of us on a scale that has never been possible heretofore.”*

John Maynard Keynes, Bretton Woods Conference

1. At the very inception of the IMF, the institution’s intellectual “founding fathers” recognized the important role that data and statistics would play in its effective functioning, as evidenced by the above quote and by H.D. White’s early emphasis on collecting and compiling statistical information at the Fund (IMF, 1946). Over the years, as the IMF developed its surveillance and lending activities, its ability to provide useful and properly tailored policy advice to its members and to lend its resources on solid grounds came to depend crucially on the availability of timely and accurate data.<sup>1</sup>
2. In general, the IMF has been able to count on its member countries to provide a large amount of data of acceptable quality. Furthermore, data provision has improved markedly over time—in part owing to the IMF’s capacity-building activities—allowing the institution to keep abreast of the growing complexity and interconnectedness of the world economy. Nonetheless, problems with data that are missing or misleading, or with internal data practices—such as overlooking available data or mismanaging data—have, at times, adversely affected the Fund’s ability to deliver on its core surveillance and lending operations.
3. The factors behind such data problems are diverse, ranging from the quality of the data at their point of production in member countries, through the handling and use of these data internally in the IMF, to the dissemination of such data through the Fund’s publications. Questions have been raised regarding the accuracy, availability, and timeliness of the data provided by countries; about the role the IMF plays in assisting its members in improving their statistics; and about the quality assurances the institution can provide to the users for the data it disseminates. Moreover, despite the considerable efforts made over the years to improve the internal data management process—and the important initiatives to this end that are currently under way—questions persist about the extent to which flows of data within the Fund continue to be hampered by internal flaws.
4. While most of these data problems have been recognized for decades, they have been cast in a different light by the proliferation of data sources and rapid technological change of recent years, and, in particular, by the surge in demand for multilateral and financial surveillance and cross-country analysis, activities that require data with greater comparability and granularity. If the Fund is to be able to deliver on its evolving—and much more

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<sup>1</sup> See Annex 1 for a brief description of the major IMF databases, data dissemination standards, and recent data-related initiatives mentioned in this report.

challenging—task of surveillance, the Fund must adapt its approach to data. The current conjuncture provides a window of opportunity for change to occur. The increased awareness of data-related problems in the aftermath of the global crisis and the much greater data challenges arising from the Fund’s reorientation toward multilateral and financial surveillance provide substantive rationale for improving data and statistics. At the same time, the new data management initiatives that are under way in the Fund, together with the renewed impetus in the Statistics Department (STA) towards increased cooperation within the Fund and greater internal service orientation, offer a solid institutional foundation for transformation.

## II. EVALUATION FRAMEWORK

5. This evaluation focuses on the broad spectrum of data activities associated with the IMF’s core strategic operations—surveillance and lending<sup>2</sup>—and also on the role of the IMF as a key provider of a public good, namely economic and financial statistics for the use of the international community.<sup>3</sup> It emphasizes data practices and developments during the past five years and addresses the following questions:

- (a) Do the IMF’s practices/policies with respect to data and statistics provide effective support for the conduct of Fund operations? Is the present set of mandates/policies/practices sufficient to meet the Fund’s evolving needs?
- (b) Are data and statistics managed efficiently within the Fund?
- (c) Are the Fund’s relationships with its members and other stakeholders conducive to effectively meeting the IMF’s needs on data and statistics? Are the IMF’s statistical activities oriented appropriately to meet the needs of the international community?

6. To answer the above, the evaluation team gathered evidence from interviews of IMF staff and Management, Board members, country authorities, academics, think tanks, and staff from organizations in the Inter-Agency Group on Economic and Financial Statistics (IAG);<sup>4</sup> surveys of IMF staff, country authorities, and external users of economic statistics;<sup>5</sup> review of

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<sup>2</sup> Capacity development/technical assistance is regarded as the third type of core operation of the Fund.

<sup>3</sup> This evaluation therefore does not assess the data practices associated with administrative/financial data used by the Fund (e.g., data used by the Human Resources and Finance Departments, etc.).

<sup>4</sup> The IAG was established in 2008 to coordinate work on the improvement of economic and financial statistics (methodologies and data collection) among international agencies. Members of the IAG include staff from the Bank for International Settlements (BIS), the European Central Bank (ECB), Eurostat, the IMF (chair), the Organisation for Economic Co-operation and Development (OECD), the United Nations (UN), and the World Bank.

<sup>5</sup> de Las Casas and Monasterski (2016) discuss and present the results from the three surveys conducted for this evaluation.

IMF documents, including the many Board papers issued during the past several decades on IMF data provision and management; reviews of the recent academic literature on data issues; and findings from past IEO evaluations and reports prepared by external consultants.<sup>6</sup>

7. The rest of the report is organized as follows: Section III provides a brief review of the evolution of the Fund’s statistical architecture and data activities, much of it in reaction to crises. Section IV describes the current state of play, while Section V summarizes the evaluation’s main findings. The concluding section provides recommendations and suggestions.

### III. EVOLUTION OF DATA ACTIVITIES AT THE IMF: PROGRESS THROUGH CRISES

8. The provision of data by member countries to the IMF is rooted in the IMF’s Articles of Agreement.<sup>7</sup> Specifically, Article VIII, Section 5(a) describes the obligations of member countries to furnish the IMF with “the minimum [information] necessary for the effective discharge of the Fund’s duties....” The provision of data by member countries has remained under review since the IMF’s early years, and the information that is now expected to be provided by member countries has grown significantly beyond what is mandated by the Articles (de Las Casas, 2016).

9. While the evolution of data activities at the IMF has followed the changing needs of the institution, the process has been neither smooth nor continuous. Innovation has largely come in irregular spurts, often prompted by a crisis that laid bare some inadequacy in the existing statistical toolkit (Reichmann, 2016). Indeed, data deficiencies were identified among the contributing factors for failing to foresee and/or mitigate the severity of the major economic crises of recent times. Thus, concerted efforts at improving the Fund’s statistical arrangements over the last three plus decades often sprang out of crises that had global systemic relevance:

- The **Latin American debt crisis** of the early 1980s prompted a sharp increase in the Fund’s pre-occupation with statistical issues, in particular with the coverage and timeliness of external debt statistics, a forward-looking assessment of medium-term external debt sustainability for emerging markets, and the need to keep the Executive Board apprised of the state of the provision of statistics to the Fund.
- The **Mexican crisis** in 1994 revealed the importance for the prevention of crises of timely provision of key information—on international reserves and central bank balance sheets in this case—to both the IMF and financial markets. This led to the establishment of the Data Standards Initiatives to which countries voluntarily

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<sup>6</sup> Annex 2 summarizes the background papers and documents prepared for this evaluation.

<sup>7</sup> See Annex 3 for a more detailed discussion of the history and evolution of the Fund’s statistical activities.

subscribe to disseminate an agreed set of data (and associated metadata<sup>8</sup>): the Special Data Dissemination Standard (SDDS) for countries participating in international financial markets, and the less demanding General Data Dissemination System (GDDS) for countries in need of building up their statistical systems.

- Deficiencies in the quality and integrity of data—centered on reserves and external borrowing—were seen to be a factor behind the **Asian crisis** of the late 1990s. This recognition led to the inclusion, as prescribed components of the SDDS, of a data template on reserves and a separate data category for external debt (a forerunner for statistics on a country’s entire International Investment Position). The post-crisis discussions on statistics also led to the introduction of a data module in the Reports on the Observance of Standards and Codes (ROSC) and the development of a Data Quality Assessment Framework (DQAF), while the perceived urgency of strengthening the capability for early detection of crises resulted in the creation of the very data-intensive Financial Sector Assessment Program (FSAP) and the Vulnerability Exercise for Emerging Markets. With a greater focus on financial sector vulnerabilities, the IMF’s Executive Board endorsed lists of required and encouraged Financial Soundness Indicators (FSIs). And public pressure during and after the Asian crisis contributed to a revolution in the Fund’s approach to disclosing country information, with the Fund introducing its transparency policy.<sup>9</sup>
- The **global financial crisis** that began in 2007 gave renewed impetus to the efforts to strengthen the IMF’s statistical arsenal. While lack of data was not a fundamental reason for failure to foresee the crisis (IEO, 2011a), the crisis nevertheless highlighted that financial innovation had far outpaced financial disclosure and revealed a number of key areas where statistical information was not available. This led the IMF to take a leading role in the G20 Data Gaps Initiative and to expand anew the scope of the SDDS through the creation of the SDDS Plus, a higher tier of the standard aimed at systemically-important countries. The global crisis also prompted the IMF to undertake a wide-ranging series of reforms to strengthen the assessment of risks and vulnerabilities—for example, introducing the Early Warning Exercise; the Vulnerability Exercise for Advanced and Low-Income Countries; and the Spillover and External Sector Reports—each of which is heavily data dependent.

10. Although crises put data (at least temporarily) at the forefront, prompting the Fund to make important changes in its approach to data, data issues have more typically been viewed as somewhat peripheral to the Fund’s strategic operations. This does not mean the Fund has

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<sup>8</sup> Metadata refers to data that provides information about other data. It includes aspects such as the methodology used to create the data, date of creation, or sources.

<sup>9</sup> This eventually evolved into the publication of most country reports, opening up a major avenue of additional dissemination of data, in particular, the Fund’s “operational” data (i.e., the data upon which the Board bases its decisions).

failed in the past to pay attention to data problems apart from crisis situations. Indeed, since the 1980s alone, the Fund has issued well over 150 papers on data topics—for example, data quality and availability, management, and dissemination.<sup>10</sup> These papers, many discussed at the IMF’s Executive Board, have highlighted, among others, the difficulties of obtaining sufficient data of adequate quality; the decentralized approach to data management (and the associated efficiency costs); and the potential reputational risks of the IMF disseminating data that are inconsistent or of questionable quality.<sup>11</sup>

#### IV. THE CURRENT STATE OF PLAY

11. The Fund has taken steps to address some of the challenges regarding data, with significant recent efforts in this regard. But will these be sufficiently holistic and well-funded to be sustainable? Will they support the organization in being proactive, not just reactive, in the realm of data?

12. To address such questions, the following sections present the evidence gathered for this evaluation on: (i) data issues pertaining to the Fund’s core strategic functions of surveillance and lending; (ii) efforts to address information gaps; (iii) the quality of data; (iv) internal data management practices; and (v) data dissemination and international cooperation. The key theme throughout is how data support the Fund’s strategic operations, and the sections are prioritized accordingly; for example, good data management is a means, not an end in itself, to better enable data to play its role in surveillance and lending.

##### A. Meeting the Fund’s Core Operational Needs

*The global financial crisis changed the Fund’s approach to surveillance ... and created a surge in demand for more data in new areas.*

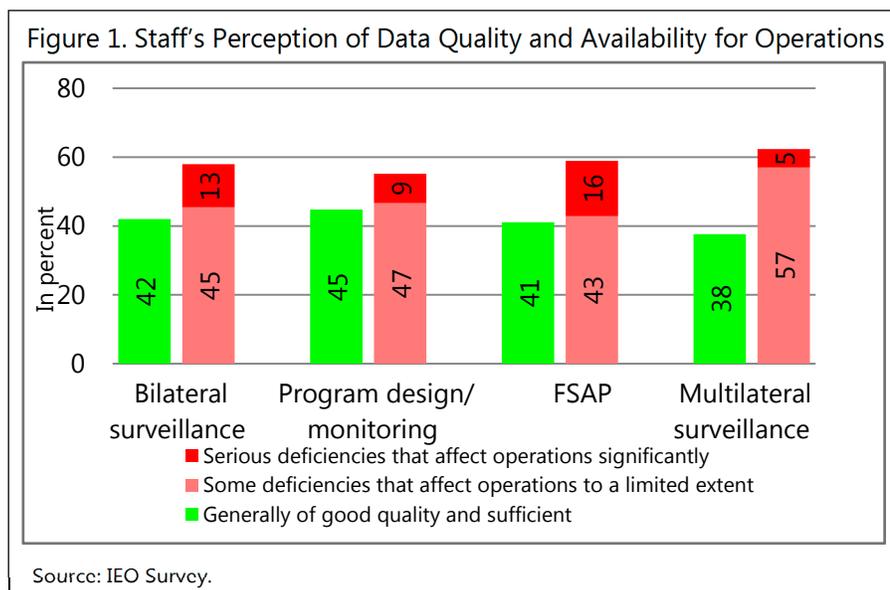
13. The crisis underscored the importance of mainstreaming macrofinancial analysis into bilateral surveillance and better integrating bilateral with multilateral surveillance. It thus provided considerable motivation for revamping the IMF’s toolkit for detecting macrofinancial risks and risks associated with global interconnectedness.

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<sup>10</sup> “Review of Fund Statistics” (IMF, 1985) was to be the first “annual” report on Fund statistics. In that paper—30 years ago—many of the key problems that currently adversely affect Fund statistics were already recognized, with plans to address and resolve them. For example, the report notes that Directors “expressed interest in the development of an integrated data management system within the Fund” and proposed that “a reference to the quality of a country’s statistics ... be included in staff reports on Article IV consultations.”

<sup>11</sup> Annex 4 illustrates that persistent problems related to data have also been raised in Board papers and IEO evaluations that were *not* specifically focused on data, but rather on the Fund’s broader operations. The most prominent data issue in these papers has been the adverse impact of data deficiencies on the Fund’s surveillance.

14. The resulting, more integrated conceptual frameworks all depend heavily on data, making it increasingly difficult to disentangle the data issues related to the three main branches of surveillance—bilateral, multilateral, and financial<sup>12</sup>—and to lending. Each of them, to varying degrees, face the fundamental data dilemmas of trade-offs between: accuracy versus timeliness, granularity versus aggregation, international comparability versus country specificity, and confidentiality versus transparency. And according to the IEO’s survey of IMF staff, each of these core operations is adversely affected by data deficiencies (Figure 1).<sup>13</sup> Despite considerable overlap, the following discussion considers separately the three types of surveillance and also lending, as each poses some unique data issues.



### (i) Bilateral Surveillance

*The fundamental question is whether data are adequate for surveillance ...*

15. Bilateral surveillance<sup>14</sup> is the cornerstone of the Fund’s operational work. The workhorse accounting structure underlying this surveillance is the financial programming framework, an integrated macroeconomic framework that demonstrates how the data for a country’s various economic sectors—real, monetary, fiscal, external—are interlinked,

<sup>12</sup> The Articles of Agreement only recognize two forms of surveillance—bilateral and multilateral. Thus, financial surveillance is technically not an independent, third “branch” of surveillance, but rather, as articulated under the Integrated Surveillance Decision, an integral part of both bilateral and multilateral surveillance. Nevertheless, in practice, the IMF has often treated financial surveillance as a separate entity. See, for example, IMF (2012c).

<sup>13</sup> Although this report focuses on surveillance and lending, data deficiencies also can have a bearing on other important areas of Fund work, such as calculating quota shares to guide decisions regarding relative size and distribution of members’ actual quotas.

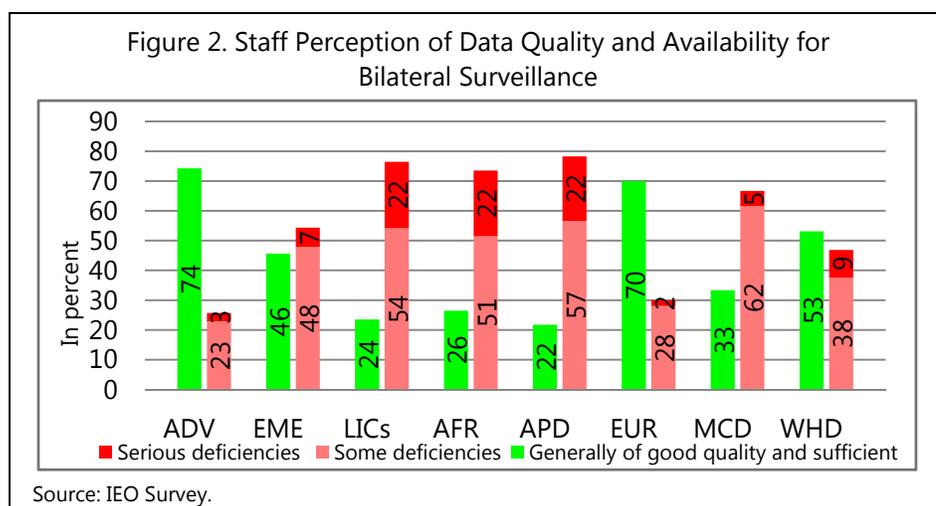
<sup>14</sup> Most notably, the Article IV consultations that the IMF conducts (typically) on an annual basis with each of its member countries.

allowing the Fund to construct a picture of the overall economy.<sup>15</sup> But any analysis based on this framework can only be as good as the data supporting it, which will also reflect the approaches used by IMF staff to address data gaps and inconsistencies.

16. The Greek crisis provides a compelling illustration of the importance of high-quality data for IMF surveillance—and for global economic stability. Greece’s debt crisis erupted in late 2009, when a new government revealed that the projected fiscal deficit and government debt had been grossly understated by the previous government. This disclosure alarmed financial markets, ultimately precipitating a “sudden stop” of financial inflows and the need for a bailout. But this was not the first time that Greece’s data had been found wanting: a 2004 Eurostat report showed that Greek government deficit and debt figures had been misreported as far back as 1997, and that the deficit had not been below the Maastricht limit of 3 percent in any of these years (Eurostat, 2004). How did the Fund miss the warning signals of problematic data?

*... and the IMF staff’s answer is a qualified “maybe.”*

17. Greece has not been alone with respect to flawed data. Data deficiencies have adversely affected the bilateral surveillance of all categories of countries—advanced,



emerging, and low-income countries (LICs), albeit to different degrees (Figure 2)—with almost 60 percent of IMF staff survey respondents noting such deficiencies regarding their primary country assignment. Lack of data or inadequate quality were each cited by about 90 percent of these survey respondents. These findings on data deficiencies and the adverse impact on surveillance reinforces those of the Fund’s 2014 and 2011 Triennial Surveillance Reviews and various past IEO evaluations (Annex 4).

18. A number of cases have been documented in which problematic data reporting hampered the Fund’s conduct of surveillance and led to faulty analysis. Reichmann and Monasterski (2016) discuss about a dozen such country cases that have arisen since the

<sup>15</sup> A shortcoming of the financial programming framework is that the financial sector is still not fully integrated into the framework.

1990s.<sup>16</sup> It is also highly likely that many data-induced shortcomings have left no traces in Fund documentation, and that in most such cases, the Fund could not have detected data problems that might affect its analysis, absent the explicit admission of the member country. As one such example, Australia's Bureau of Statistics, generally considered among the best, admitted to an error in its 2010 and 2011 official employment figures, overstating the strength and the weakness, respectively, in the labor market, supporting the Reserve Bank's decision to push up rates in 2010 and to reverse course the following year.<sup>17</sup>

19. The most common reason for data deficiencies, according to the survey of staff, is a country's limited capacity (including cost constraints), but a more troubling reason, cited by close to 20 percent of staff survey respondents, is the authorities' unwillingness to provide the data. While in some cases non-provision was due to cost considerations, more than half of such instances were due to confidentiality concerns about how the IMF would handle the data. The survey of data providers also indicated a strong regional component, with about 40 percent of respondents from Asia and from Middle Eastern oil-exporting countries expressing concerns about confidentiality. Worse still, 10 percent of IMF staff (with higher numbers for those working on emerging markets) claimed that intentional manipulation of data was responsible for data inadequacies.<sup>18</sup>

***The IMF has a broad-ranging toolkit to address data deficiencies ...***

20. What instruments does the IMF have at its disposal to question official statistics and to address data deficiencies during the conduct of bilateral surveillance? In addition to staff judgment and experience, data inconsistencies are often discovered through the use of the IMF's financial programming framework.<sup>19</sup> Problems can also be detected by checking flow data against stock data. In about half of country cases with data deficiencies, staff survey respondents said that they had to come up with their own estimates for the problematic data.

21. In the context of Article IV consultations, IMF staff are expected to candidly assess the adequacy of member countries' statistics for surveillance (IMF, 1995a), with major deficiencies discussed in the main text of the Article IV staff report, along with a more detailed review in a Statistical Issues Appendix (SIA). This guidance is aimed at raising the

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<sup>16</sup> Most cases where the Fund has documented data that have undermined analysis have occurred in the context of Fund-supported programs, reflecting the much greater attention the Fund gives to data when its own financial resources are at risk.

<sup>17</sup> *Sydney Morning Herald*, July 3, 2012.

<sup>18</sup> Intentional manipulation is often a case of Goodhart's Law, the popular formulation of which is "When a measure becomes a target, it ceases to be a good measure." Goodhart's Law (named after an economist who was a member of the Bank of England's Monetary Policy Committee) refers to the vulnerability of a statistical indicator to manipulation once it is used to define a policy target.

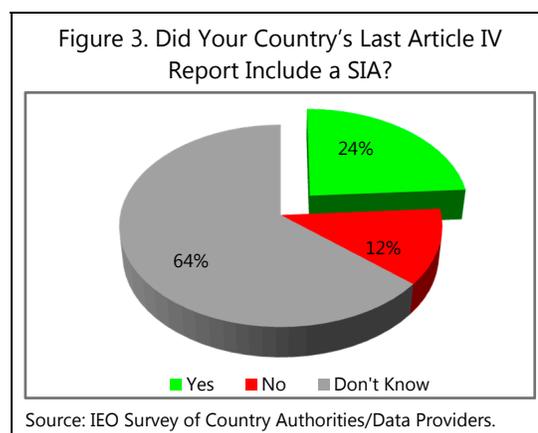
<sup>19</sup> Until recently, financial programming was typically not applied to advanced economies, a factor which may have contributed to the undetected buildup of the large imbalances prior to the financial crisis.

profile of data issues in surveillance and to prompt corrective action if warranted, with staff proposing remedial measures or technical assistance, if needed.

*... but doesn't always deploy it effectively.*

22. The Fund's regular reviews of data provision had identified a number of problems with the SIA arrangement (Box 1):<sup>20</sup> (i) lack of candor in staff's discussion of data deficiencies, with an "upward bias in the characterization of data adequacy;" (ii) excessive workload on staff, deriving from the requirement to document and propose remedial measures to address data issues; (iii) poorly focused SIAs, with limited coverage; and (iv) lack of attention by the Executive Board.<sup>21</sup> These problems were confirmed by the evaluation's survey and interviews; for example, according to the staff survey, formal data adequacy assessments are softened, as only 46 percent of cases in which data are perceived as inadequate are reported as such in SIAs. In response to the 2012 Review of Data Provision to the Fund (IMF, 2012b), the Fund issued a guidance note (IMF, 2013a), updating and clarifying how staff are to address any data shortcomings in the Article IV report. The updated guidance note aimed, in part, at improving compliance with the intent of the SIA, but—as discussed in Annex 5—little appears to have changed since it was issued.

23. Perhaps the most serious indictment of the SIA is its relative obscurity. Neither the Board nor IMF staff pays much heed to the SIA,<sup>22</sup> with more than half of staff survey respondents noting that country teams lacked the resources and time to make thorough assessments. More worrisome, though, are the survey results of country authorities (i.e., data providers), fewer than one-quarter of whom were familiar with the SIA for their own country (Figure 3). This implies that the SIA does not provide the intended incentive for countries to improve their data.<sup>23</sup>



<sup>20</sup> The system currently in place was approved and reviewed, respectively, during the 2008 and 2012 reviews of data provision to the Fund for surveillance (IMF, 2008 and 2012b).

<sup>21</sup> As senior IMF staff members pointed out to the evaluation team, the Board's "lack of attention" to data quality issues at times reflected peer protection and political considerations.

<sup>22</sup> As an example, for the 2007 United States Article IV consultation, the SIA noted that "Coverage of international capital flows in external sector statistics has been improved, with the June 2007 releases of BOP and IIP data on financial derivatives." This identical statement, highlighting 2007 data, appeared in the SIAs from 2008 until 2014, when an attentive staff member finally changed the date to June 2014. Of course, the U.S. SIA was not alone in conveying incorrect information. This evaluation found errors in a number of SIAs, as confirmed by country authorities during interviews.

<sup>23</sup> Interviews with country authorities showed that a major reason for their lack of familiarity with the SIA was its issuance in a separate supplemental document for the Board meeting. Most of the authorities only read the main section of the Article IV report.

### BOX 1. A, B, OR C? GRADING A COUNTRY'S DATA ADEQUACY FOR SURVEILLANCE

The IMF's current framework for data provision for surveillance was first defined in 1995 (IMF, 1995b), with some amendments since then. One of the elements that was added to Article IV consultations was a Statistical Issues Appendix (SIA), which includes an overall judgment on the adequacy of data provision for surveillance and, where relevant, a discussion of the implications of data deficiencies and recommendations for improvement. How candid have these judgments been?

Initially, assessments in SIAs included only two categories: adequate or inadequate. In 1995, 59 percent of a sample of 50 member countries were deemed to have "adequate" data provision.<sup>1</sup> This number climbed to 70 percent by 2003. In 2005, an intermediate category was added, allowing the following options for assessing data provision:

- Adequate for surveillance (A)
- Broadly adequate for surveillance, but with some shortcomings (B)
- Inadequate for surveillance (C).

By 2007, the sample percentage judged as either category A or B jumped to 90 percent, with only 4 percent given a category C rating (another 6 percent were unclear as to rating). Yet in a survey of mission chiefs that was conducted at the time, more than half of the respondents noted problems with data provision that hampered surveillance, with 40 percent reporting that their teams routinely had to prepare estimates for key data. Why this discrepancy between SIA assessments and mission chief responses?

The IMF's 2008 Review of Data Provision (IMF, 2008) concluded that the relatively rare use of Category C may have stemmed, in part, from concerns that it would undermine the relationship with country authorities or would raise questions about how surveillance can be conducted at all if data are "inadequate." This led to more changes in the framework, including elimination of the term "inadequate" from category C, recasting it as "Data provision has serious shortcomings that significantly hamper surveillance."

Did this change improve candor? By the time of the 2012 Review of Data Provision (IMF, 2012b), the percentage of countries classified as C had increased three-fold to 12 percent. But a supporting survey of mission chiefs still indicated a huge discrepancy, with 59 percent of the respondents stating that important data deficiencies had hampered surveillance, thus suggesting continued reluctance to use the lowest rating. In response, new guidelines were issued in 2013 (IMF, 2013a) to encourage staff to use more candor and to provide clearer instructions to staff on the classifications.

<sup>1</sup> Note that the Article IV consultations for those deemed to have inadequate data provision were still completed.

24. The IMF has some legal scope to question countries on issues of data accuracy and availability, as embodied in the policies on misreporting and breaches of obligations under Article VIII. Potential breaches of obligations in the context of surveillance have occurred with some frequency; the 2012 Review (IMF, 2012b) noted that, in the preceding four years, "sustained concerns were raised with eight members about their willingness to share data required for Fund surveillance to the best of their ability." Seven of those cases referred to non-provision of data and were resolved within a year, while one related to provision of inaccurate data and resulted in the Board issuing a decision of censure, calling on the member to adopt remedial measures. This case—Argentina—remains unresolved (Box 2).<sup>24</sup>

<sup>24</sup> The most recent Board meeting on this breach of obligations was held in May 2015, with no change in the stance adopted by the Fund.

### BOX 2. ARGENTINA AND THE BREACH OF OBLIGATIONS

In January 2007, the Argentine government changed the personnel in charge of producing the consumer price index (CPI) at the National Statistics and Census Institute (INDEC). Concerns about the integrity of the CPI started to be voiced soon thereafter.

These concerns led several private sector entities and provincial governments to compute their own indices that showed consumer prices growing at significantly higher rates than those reported by INDEC. For example, Cavallo (2013), using data collected by the Billion Prices Project at MIT—such as prices in major supermarkets available on line between October 2007 and March 2011—replicated the components and weights of the CPIs in five Latin American countries (Argentina, Brazil, Chile, Colombia, and Venezuela). He found that, while the online price indices for the other four countries tracked well both the level and dynamic behavior of inflation, in Argentina they exceeded the official index by a factor of about three.

The apparent underreporting of CPI has implications for other key variables of significant importance for economic analysis. Inasmuch as the official CPI enters their calculation, measures of poverty or of the real effective exchange rate would be underestimated while the real growth of the economy would be overestimated. Underreporting would also have notable financial implications given Argentina's issuance of inflation-linked peso bonds.

Failure to provide information to the Fund (i.e., a breach of obligation under Article VIII, Section 5) is defined to cover both non-provision of information and provision of inaccurate information (IMF, 2004b). The latter failure is considerably more difficult to substantiate than non-provision of required information. This caused the Fund to take a measured approach to Argentina's case. Eventually, in July 2011, Argentina was found in breach of its obligation due to inaccurate reporting of official data for the CPI and GDP. Technical assistance was offered, which resulted in several recommendations to correct the known deficiencies. However, delays in the implementation of key remedial measures led the Executive Board in September 2012 to issue a Statement of Concern, followed by a Declaration of Censure in February 2013. The latter established a timeframe for the adoption of the remedial measures, noting that failure to follow this timeframe could result in a declaration of ineligibility to use the general resources of the Fund.

Over the following two years, Argentina took some measures to address the difficulties, for example, introducing a new *national* CPI (the previous one was limited just to Buenos Aires) and revised GDP data (now with base year in 2004) in early 2014. These actions, however, did not fully assuage the Fund's concerns, and further actions—related to the transparency of the process—were required before the Executive Board could withdraw the Declaration of Censure.

Argentina was an early subscriber to the SDDS and never lost that status. While the SDDS is a dissemination standard, not a quality standard, the Fund does issue an annual observance report as a form of monitoring, covering, among other metadata dimensions, the integrity and quality of the data. Argentina's reports for 2012 through 2014 still indicated that Argentina met the integrity dimension, while the discussion of quality relegated the information on the Declaration of Censure to a footnote.

25. Greece is a timely case study as to how well (or how poorly) the IMF used its toolkit to deal with data deficiencies. In its assessment of Greek statistics in the run-up to the disclosures of false data, the Fund had been rather sanguine, with only occasional expressions of mild concern (“... data are adequate for surveillance but should be strengthened” was a common refrain). Not only was surveillance inadequate in this regard, but Greece had engaged in several important statistical milestones with the Fund: Fiscal Transparency ROSCs in 1999 and 2006, an SDDS subscription in 2002, and a full data ROSC in 2003—none of which brought to light the seriousness of the data problems. In 2010, in conjunction with Board approval of the Fund's initial IMF-supported financial program with Greece, the Managing Director issued a report to the Board (IMF, 2010) on a breach of obligations under Article VIII, Section 5. The Board determined that Greece had

taken sufficient remedial actions, including enacting a new law granting independence to the national statistical agency (ELSTAT). Yet—as discussed in Box 3—the independence of ELSTAT remains a concern five years later.

## **(ii) Multilateral Surveillance**

### ***The perennial dilemma for multilateral surveillance data is international comparability versus country specificity ...***

26. Multilateral surveillance, always an important component of the Fund’s operations, took on an even larger role with the Fund’s adoption of the Integrated Surveillance Decision in 2012. This decision made the Article IV consultations a vehicle for both bilateral and multilateral surveillance, and helped to push forward work on policy spillovers and interconnectedness. In the context of this wider scope, data needs have grown markedly.

27. Multilateral surveillance (and cross-country analysis even more so) poses a special challenge for data, as it is predicated on comparability across countries<sup>25</sup>—that is, on the same concept being defined and measured in the same way everywhere. But global standards do not necessarily suit local conditions. Particular country circumstances unavoidably result in different definitions, measurements, or coverage of economic variables, implying that concepts can be homogeneous across countries only to a certain degree. How can the IMF ensure that it is not “comparing apples and oranges” in its multilateral and cross-country work? And what does the analysis mean if the data are not fully comparable?

28. The IMF’s work on methodology and capacity development in the area of statistics has gone a long way to strengthen comparability. This is particularly true for the databases maintained by STA, which emphasize data that meet methodological standards. But the main sources of data for much of multilateral surveillance are area departments, where data are more likely to conform to country specificities or be based on staff estimates.

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<sup>25</sup> In contrast to cross-country analysis, multilateral surveillance, which often focuses on spillovers and interconnections, does not always necessitate perfectly standardized cross-country datasets.

### BOX 3. GREECE: POLICY-BASED EVIDENCE-MAKING AND THE PERILS OF STATISTICS

In October 2009, the Greek authorities disclosed to Eurostat that government deficit and debt data for 2005–09 needed to be revised. The revisions, completed in November 2010, were of an exceptional scale and resulted in the forecast deficit for 2009 moving from 3.7 percent of GDP to 15.4 percent of GDP, while the government debt moved from 99.6 percent of GDP to 126.8 percent of GDP.

The revisions reflected methodological weaknesses and unsatisfactory technical procedures in the Greek statistical system, but also inappropriate governance as exemplified by lack of clear responsibilities between institutions, diffuse personal responsibilities, and opaque empowerment of officials “which left the quality of fiscal statistics subject to political pressures and electoral cycles” (European Commission, January 2010). The contemporaneous Fund report on Breach of Obligations under Article VIII, Section 5 (IMF, 2010) stated that “the institutional setting at the time failed to ensure the independence and accountability of the National Statistical Service of Greece and other services involved in the production of fiscal data and public debt data.”

The problems reported in October 2009 were not new; in fact, both Eurostat and (to a far lesser degree) IMF staff had repeatedly indicated that Greek statistics were notoriously weak and plagued with problems. A 2004 report by Eurostat triggered “the first Greek data crisis” by showing that Greek government deficit and debt figures had been misreported since as far back as 1997, and that in none of these years had the deficit been below the Maastricht limit of 3 percent per year. Subsequently, as noted in Eurostat’s 2010 report, Greek government deficit and debt statistics were the subject of “continuous and unique attention for several years.”

On its part, Fund staff took a generally approving stance with only occasional expressions of mild concern. Congratulations were offered on the occasion of Greece completing the Fiscal Transparency ROSC in 1999, subscribing to the SDDS in 2002, and completing a data ROSC in 2003. On the latter, staff observed (IMF, 2003a) that: “... Statistics-producing agencies in the main have a legal and institutional environment that supports statistical quality... All agencies demonstrate professionalism and are transparent in their practices and policies. In particular, the strong laws protecting confidentiality, rules for civil servants, and internal regulations of the central bank provide a clear set of ethical standards for staff...” By 2006, in the Fiscal Transparency ROSC that was specifically prepared after the 2004 data crisis, staff was still maintaining a positive line: “Greek budget processes give assurances of integrity about fiscal data through independent audit and recently strengthened statistical reporting.” In most consultation reports, staff took the general line of “... data are adequate for surveillance but should be strengthened” (e.g., the 2006 and 2007 Article IV consultations). Notwithstanding staff’s generally accommodating attitude, muted concerns about data weaknesses and calls for “further improvements” were an almost constant feature of consultation reports. Only by 2009, on the eve of the government’s acknowledgment of data deficiencies, did staff take a more forceful line, with the Article IV consultation for that year including a quite specific and detailed list of failings in Greek statistics.

Admittedly, even in the best statistical systems it can be difficult to uncover truth when those in charge are bent on hiding it. Moreover, analyses may be unduly obstructed by insufficient financial sector data—as bemoaned in the 2005 consultation report—by differences across sectors in the coverage or definition of variables, by the complexity of inter-governmental fiscal relations in Greece, or by opaque financing activities—such as the off-market swaps in which Greece frequently engaged—but a more thorough application of the financial programming framework should have allowed staff to get an inkling of the sizable ongoing irregularities.

IMF staff had on several occasions (viz., the 2005 and 2006 consultations) called for granting independence to Greece’s national statistical service. This finally came about when the creation of an independent new office, ELSTAT, was made a condition of the 2010 program and part of the remedial action proposed by the authorities subsequent to the May 2010 report on breach of obligations. Under a new chief statistician, Greek government finance statistics were accepted by Eurostat without reservation in 2011–15, in contrast to the repeated reservations of the previous years—indicating a marked improvement in the quality of Greek statistics. However, ELSTAT’s independence continued to be challenged by vested interests (e.g., a criminal investigation was launched in 2013 against the chief statistician regarding revisions to historic data on public finances and debt), raising doubts about the underlying commitment of the country to truly independent statistics and pointing to risks of re-politicization in the future. Five years after being set up, ELSTAT’s independence was still not assured, as suggested by the Euro Summit of July 12, 2015 when “... Given the need to rebuild trust with Greece... safeguarding of the legal independence of ELSTAT ...” needed to be included among the required measures.

29. IMF staff recognize the challenge posed by lack of comparability. According to the IEO's survey of staff, almost two-thirds of those engaged in multilateral surveillance claim that data deficiencies hamper surveillance to some degree, with lack of comparability across countries overwhelmingly cited as the main reason.<sup>26</sup> In sharp contrast to IMF staff views, the IEO survey of external data users indicated that almost 90 percent believed IMF data are comparable across countries,<sup>27</sup> a misperception that could pose a reputational risk to the Fund.

30. Problems with non-comparability have been highlighted in some IMF work. A notable example is Dippelsman, Dziobek, and Gutiérrez Mangas (2012), which underscores how failure to follow international guidelines for reporting of public sector debt (arguably one of the most important macroeconomic indicators) or inadequate documentation of data definitions “can lead to major misunderstandings in the fiscal policy debate.”<sup>28</sup>

31. The present evaluation also considered comparability of data by examining the definitions of government deficit that were used for performance criteria in the 48 IMF-supported programs approved from January 2011 to April 2015 (Annex 6). The combination of different components resulted in nine different definitions in terms of coverage, a heterogeneity that was further magnified by measuring the criterion on a cash or accrual basis, and in above- or below-the-line terms. This wide variety of concepts often carried over to the data reported in the *WEO*, thus putting paid to the notion that the numbers included in *WEO* are strictly comparable.<sup>29, 30</sup>

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<sup>26</sup> The importance of comparability was confirmed by the 2014 Triennial Surveillance Review (TSR) survey of IMF mission chiefs; when asked to check those factors most important for increasing the use of cross-country studies in surveillance, 85 percent chose greater availability of *comparable* cross-country data.

<sup>27</sup> By a slight margin, *World Economic Outlook (WEO)* data are (wrongly) believed to be more comparable than those of *International Financial Statistics (IFS)*.

<sup>28</sup> The authors use Canada as an example to illustrate how different definitions of the public sector give rise to very different debt levels, with debt-to-GDP ranging from 38 percent on a narrow budgetary definition to 104 percent, using the consolidated general government.

<sup>29</sup> Nominal GDP provides another example of comparability issues in *WEO* data. While most countries still measure GDP using the 1993 System of National Accounts (SNA), some, including most of the advanced economies, have now moved to the 2008 SNA. Typically, GDP, as measured under the 2008 SNA, is larger than that under the older system (e.g., U.S. nominal GDP was almost 4 percent larger, while it is estimated that, were China to move to the newer system, its economic size could be as much as 16 percent larger).

<sup>30</sup> The *WEO* makes adjustments to some data to improve comparability. For example, the *WEO* has migrated balance of payments data to the methodology used in the sixth edition of the Balance of Payments and International Investment Position Manual (BPM6), even though many countries still submit data under the previous BPM5 methodology. The *WEO* also converts data on a fiscal-year basis to a calendar-year basis.

*... highlighting the importance of having countries adopt standard data templates and—in the meantime—providing clear metadata.*

32. These findings underscore the importance of providing clear metadata for all IMF-disseminated data. However, notwithstanding the IMF’s guidelines to staff to this effect, an examination of a large sample of Article IV consultation reports showed that none of them complied with this requirement (Annex 5). An inattentive or impatient economist could simply download the desired data, compare apples and oranges, and draw the wrong policy conclusions.<sup>31</sup> Nevertheless, even with excellent metadata, the diversity of definitions can greatly impair the ability to do cross-country work.

### **(iii) Financial Surveillance**

*Data issues for financial surveillance are among the most challenging ...*

33. Financial sector surveillance, in the aftermath of the global financial crisis, has become even more central to the Fund’s core operations. However, data issues are particularly challenging here, given the sensitive (and often confidential) nature of the data, the need for granularity and comprehensiveness (e.g., “off-balance-sheet” exposures), and lack of consistency. Data are often nonexistent or opaque in some critical areas, particularly on cross-border linkages and the shadow banking sector.

*... due, in large part, to the often market-sensitive nature and need for granularity of data.*

34. Financial surveillance is constantly struggling with the tension between granularity and aggregation. Aggregate data can mask critical vulnerabilities—that granular data might reveal—and may not be usable with some of the Fund’s new analytical tools. For example, network analysis (used to examine issues of interconnectedness) needs quite granular data. But the Fund’s hands are essentially tied by its Articles of Agreement, as it cannot require countries to provide institution-specific data.

35. The Financial Stability Assessment (FSA), a component of the FSAP and a key instrument of the IMF’s surveillance, illustrates the data challenges facing the IMF. According to this evaluation’s survey of staff, the data collected for FSAPs are perceived as the most problematic.<sup>32</sup> Just under a third of the survey respondents from the Monetary and Capital Markets Department (MCM) believed data were sufficient for conducting an FSAP exercise. Notably, almost 90 percent said data problems had hindered the conduct of stress

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<sup>31</sup> In interviews with external data users, many admitted that they use multiple (noncomparable) IMF data sources (*IFS*, *WEO*, country reports, Working Papers) to fill in missing data for cross-country studies.

<sup>32</sup> Also, compared with staff working on the *WEO*, staff involved with the *Global Financial Stability Report* were much more likely to note problems with lack of data, comparability, and uncertain quality.

tests, while about three-quarters said the analysis of potential cross-border spillovers was hampered by data problems. Poor quality data was cited by 40 percent of respondents.

36. A 2014 review of the FSAP (IMF, 2014d) made clear the role of data—in particular, availability and quality for stress testing—in underpinning (or undermining) the program’s effectiveness. While many countries voluntarily provide these data to the FSAP team—subject to strict confidentiality protocols—the FSAP review noted that this practice is not universal (as confirmed by this evaluation’s survey results), with advanced countries the least likely to share supervisory data. And even when the needed data are available, FSAP teams are typically not equipped to assess their accuracy or the quality of underlying assets.

*... underscoring the importance of building trust, yet being candid about data limitations.*

37. Considering the reasons why country authorities are loath to share data, about a third of MCM survey respondents cited legal constraints,<sup>33</sup> but another third cited issues of trust. Data providers who were interviewed regarding access to market-sensitive financial data noted that banking supervisors tend to trust, in order, other supervisors, central banks, the Bank for International Settlements, and only then the IMF.<sup>34</sup> Further, as noted by the 2014 Triennial Surveillance Review, “some of the Fund’s counterparts have become less willing to share data as the crisis has subsided.” This is clearly problematic for the Fund’s FSAP, which in such cases must rely on publicly available data and/or on stress tests conducted by supervisors and the banks themselves. According to some interviewees, the results from the FSAP team’s stress tests differed at times from those of the stress tests conducted by the authorities or the banks, largely because of differing access to data.

38. These findings highlight two issues: (i) there is a tension between the mandatory character of FSAs and the voluntary provision of the data they require,<sup>35</sup> and (ii) the limitations of the associated risk assessment need to be clearly communicated by the FSAP team. The evaluation survey of MCM staff is revealing in this regard, with 40 percent of respondents advocating mandatory data provision to help address data deficiencies, and only half agreeing that the Financial System Stability Assessment (FSSA) report had clearly noted the problems with data quality or access. To help address the first issue, the Fund could clarify its confidentiality protocols to the membership to encourage the voluntary provision

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<sup>33</sup> Some countries with legal constraints find ways to allow the FSAP team to “access” the data without actually violating the law (e.g., letting the FSAP team into the room to watch the conduct of supervisory stress tests).

<sup>34</sup> The 2013 IEO evaluation, *The Role of the IMF as Trusted Advisor*, also found that country authorities placed more trust in the BIS than the Fund in the handling of confidential data (IEO, 2013).

<sup>35</sup> In September 2010, the Executive Board decided to make the Financial Stability Assessment (FSA) mandatory for systemically important financial sectors in response to the shortcomings revealed by the financial crisis. Previously, all FSAs, as part of an FSAP exercise, were conducted on a strictly voluntary basis.

of the needed information.<sup>36</sup> On the second issue, the 2014 FSAP review noted that the standard disclaimer on all FSSA reports should be expanded to highlight any data limitations. But this evaluation found no change in the standard disclaimer in the most recent FSSA reports, including some with serious data access and quality issues.

39. The Fund has made notable strides, nonetheless, with respect to data needed for financial surveillance. Substantive progress has been made since the global crisis on collecting data on Globally Systemically Important Financial Institutions (G-SIFIs), the nonbank financial institutions (NBFIs), shadow banking, and Financial Soundness Indicators (FSIs).<sup>37, 38</sup> The Fund's efforts to collect data on NBFIs and shadow banking is particularly important to allow the Fund to expand its coverage of stress tests to the nonbank sector (an increasingly important player in many countries' financial sectors), and to help member countries limit regulatory arbitrage, a potential precursor for a future crisis. The Fund has also developed new analytical tools that benefit from the expanded set of financial data.

#### **(iv) Use of Fund Resources**

##### ***Data deficiencies can affect program design and monitoring ...***

40. Data quality and availability are also extremely relevant for IMF lending. Staff must be able to count on information adequate to allow the design of a program fit for the intended purpose. This has usually been the case, but in some instances, staff has indicated that policy programs would have been formulated differently if more accurate information had been available (Reichmann and Monasterski, 2016) (Box 4). From 2000 through March 2015, there were 62 cases of misreporting vis-a-vis data in the context of Fund-supported programs,<sup>39</sup> up sharply from the nine cases in the previous 15-year period from 1985 to 2000. Occasionally, inaccurate or incomplete information about a member country's observance of a program performance criterion may give rise to a "noncomplying purchase" and the issuance of a misreporting notification to the Executive Board.

41. Even when data allow for adequate diagnosis and formulation of policies, the specific design of performance criteria is influenced by considerations of data accuracy, availability, and timeliness. Trade-offs are unavoidable among these factors, and the resulting criteria will

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<sup>36</sup> See *Confidentiality Protocol—Protection of Sensitive Information in the Financial Sector Assessment Program, Selected Decisions*, Thirty-Second Issue, p. 108.

<sup>37</sup> These datasets are part of the Data Gaps Initiative.

<sup>38</sup> The improvement in the collection of FSIs is especially noteworthy, with 101 countries currently providing at least the core indicators as of mid-2015, compared with 57 in 2007. Nonetheless, FSIs notably suffer from lack of comparability across countries, as they are based on very heterogeneous definitions of capital, non-performing loans, etc.

<sup>39</sup> Of these 62 cases of provision of incorrect data, 11 were considered "de minimis," 38 received waivers, and only 13 required corrective actions, usually involving early repurchase or repayment.

seldom be totally homogeneous across time or countries. Usually, the wider the coverage of a performance criterion, the better it reflects policy aspects that have a bearing on the program's objectives. But wider coverage may run afoul of the availability and timeliness of the required data, forcing an inevitable narrowing of the criterion's scope.<sup>40</sup> Over 60 percent of staff acknowledged the influence of data conditions in the formulation of performance criteria.<sup>41</sup>

#### **BOX 4. FAULTY DATA AND FAULTY ANALYSIS: PAST EXAMPLES**

Instances of data that subsequently prove to be wrong or incomplete are probably frequent, but are usually of little consequence and therefore go unreported. However, a number of cases of data-induced faulty analysis were documented in reports on breaches of obligations under Article VIII, Section V or misreporting in programs (Reichmann and Monasterski, 2016). The following are examples of the type of cases that can occur:

##### **Hungary (1982–89)**

In November 1989, the government revealed that both domestic and external debt had been underreported since the mid-1970s. The misreporting involved a misspecification of the net credit to the government and the consequent misreporting of monetary and balance of payments statistics as well as the public debt. In the February 2000 review of misreporting cases (IMF, 2000), staff stated that "...Hungary's widespread, systematic and substantial misreporting of data clearly resulted in a fundamentally distorted view of the program by the staff... Had the staff been aware of actual [developments] the program would not have been submitted for Board approval with the same quantified criteria. Had correct data been known, it would have at least affected the staff's assessment of the size of corrective actions needed...."

##### **Jordan (1996–97)**

Under an extended Fund arrangement, the authorities provided staff with erroneous information on national accounts and fiscal data. Revisions provided in mid-1998 indicated that GDP growth had been substantially lower than first reported—around 1 percent per year instead of 5 percent—and, consequently, fiscal revenues had been substantially lower than reported. As a result, Jordan's budget deficit had been higher and had to be financed by recourse to non-bank sources. In the 1999 Article IV consultation report, staff indicated that "...the data set that [had been] available had portrayed a fundamentally distorted picture of the state of the Jordanian economy and performance under the extended arrangement...." and "...staff [had been] working on the basis of a wrong view of economic developments in Jordan, which had a major impact on the assessment of performance...."

##### **Ukraine (1996–98)**

Ukraine misreported the level of its international reserves continuously during 1996-98 and in the negotiations on a follow-up extended arrangement. The misreporting involved multiple transactions that impaired the liquidity of the foreign assets involved and, more egregiously, two "round-tripping operations" which artificially inflated the reserves. Days before the Board meeting on the requested arrangement, it was revealed that almost \$700 million of reserves was illiquid, leaving usable reserves of less than \$300 million—forcing an impromptu redesign of the program. The corresponding staff paper stated "...With the new information on Ukraine's external reserve position, and the pressure in the market, the authorities have had little choice but to move the exchange rate band...the staff has reluctantly accepted the reimposition of the export surrender requirements...[and] further modifications of the program might be unavoidable...."

<sup>40</sup> This narrowing of the scope can have a critical impact on policy implications. For example, based on interviews with the relevant country authorities, the Fund missed about 25 percent of GDP in public debt, in a recent financial program, by failing to include data on public-private partnerships and state-owned enterprises.

<sup>41</sup> The same percentage of staff noted that the program included undertakings to improve data provision or quality.

*... and performance criteria must often be tailored to fit the availability of data ...*

42. Even the variables that data are intended to measure may differ across countries, reflecting the particular historical and political developments that determine a country's institutional organization and hence the definition and scope of a given economic sector or instrument. This is particularly the case in regard to the concept of government or the public sector (Annex 6). The resulting differences in definition mean that a balance must be struck between the Fund's need to treat members evenhandedly in the application of conditionality and its need to tailor performance criteria to fit the circumstances of each case.

*... but an IMF-supported program can also help improve data quality and availability.*

43. Often the existence of a program can have a reciprocal effect on the quality, timeliness, and availability of data. The due diligence that staff is required to do before including data in a performance criterion can result in the correction of data that are found wanting or in efforts to develop and provide the data needed. Such positive effects, plus the intersectoral consistency checks provided by the financial programming framework, have been felt more by developing and emerging economies than advanced economies,<sup>42</sup> as the former have been more frequent users of Fund resources.

## **B. Addressing Information Gaps**

*The IMF's efforts to address data gaps have resulted in a significant expansion in data ...*

44. By and large, the collaborative arrangements in place for data provision have served the Fund well, with most member countries providing data that far exceed those required under Article VIII. Even more so, since the global crisis, there has been a notable rise in the amount and breadth of data (much of which is in the financial realm) that member countries provide to the Fund. For example, 138 economies currently report monetary and financial statistics according to the IMF's Standardized Reporting Form (SRF),<sup>43</sup> up from 83 as of end-2007.<sup>44</sup>

45. Much of this strengthening of data provision is due to concerted efforts—on the part of the IMF (especially STA), other members of the IAG, and member countries—to address

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<sup>42</sup> In fact, until the global economic and financial crisis with its origin in advanced countries, many desks on such countries did not use the financial programming or other macroeconomic framework to check for intersectoral data consistency. This became particularly evident when some member countries of the European Union (EU) came to the Fund for financial programs in the aftermath of the crisis.

<sup>43</sup> Among STA's many databases, the SRF data are the most used by area department staff.

<sup>44</sup> Notwithstanding this impressive progress, several G20 countries and other economies with systemically important financial centers still do not report with the SRF.

data gaps identified by the global crisis.<sup>45</sup> In particular, significant progress has been made in implementing the recommendations of the G20 Data Gaps Initiative (DGI); all G20 members and many non-G20 economies have enhanced their data provision to the IMF (IMF, 2014e), and efforts to collect a broader array of financial data (including FSIs) are also proceeding apace. Most of the associated conceptual work for the DGI has been completed, and more generally, the number and types of data-based analytical tools have expanded significantly.

*... but do the benefits outweigh the costs?*

46. After a crisis, data suddenly become a forethought, rather than an afterthought. This raises the question: were data gaps a core reason or a scapegoat for missing the recent global economic and financial crisis? The answer to this question is an important one, as it can help determine the direction for future surveillance. In fact, the failure to foresee the impending crisis cannot be attributed to lack of data (Box 5). With hindsight, it became clear that a substantial amount of existing data had pointed to growing vulnerabilities in several key areas.<sup>46</sup> Failure to foresee the crisis stemmed more from ignoring or misinterpreting these warning signals than from the absence of signals, a view shared by many of this evaluation's interviewees.

47. Nevertheless, filling in key data gaps could substantially strengthen surveillance. But this also comes with costs, particularly for those responsible for collecting or providing the new data. Almost three-quarters of the respondents to our survey of data providers believe that the benefits of the Fund's new data initiatives outweigh their costs, yet 40 percent felt the IMF was asking for too many data and almost half said the initiatives would pose a very heavy burden on reporters. This was particularly the case with the respondents from advanced countries, who are most affected by the new demands under the DGI. Among the respondents from low-income countries, only one in five indicated concern in this regard.

48. The proliferation of data and analytical tools also risks the possibility of the Fund failing to strike the right balance between collecting information and being able to process it efficiently and analyze the results. Indeed, while two-thirds of staff respondents to the survey indicated that the additional data from the new initiatives would help their work at the Fund, half of the respondents believed that the Fund currently lacks the capacity to effectively use all the data that ideally would be gathered under these initiatives. Prioritization is thus key to ensure that the Fund has the data needed to strengthen its surveillance of an increasingly complex global economy, yet avoids placing an excessive burden on member countries and on its own ability to absorb the information.

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<sup>45</sup> The Managing Director's Global Policy Agenda (IMF, 2015d) noted that closing data gaps should be a key area targeted by the Fund's capacity development activities.

<sup>46</sup> IEO (2011a) notes, for example, that had the IMF conducted the Vulnerability Exercise for Advanced Countries prior to the crisis, using data that were available in 2006 would have pointed to the United States, United Kingdom, and Iceland as being at high risk of financial crisis.

### BOX 5. YOU DON'T SEE WHAT YOU'RE NOT LOOKING FOR

The global economic and financial crisis generated a surge in the demand for new and better data. Yet were lack of data or inadequate data key factors behind the Fund's and others' failure to foresee the crisis? The answer would seem to be "no," based on the following:

- The Fund largely ignored some core data in the key financial centers that could have helped to signal a forthcoming crisis, including such traditional mainstays as broad measures of credit growth, leverage (household, government, corporate), and the growth of high-risk financial instruments.<sup>1</sup>
- Despite lack of data supporting such a view, the Fund was overly enthusiastic about the soundness of U.S./U.K. financial systems and the risk-dispersing properties of financial innovation (including "exotic" mortgage products).
- The Fund believed it was sufficiently well-equipped with data to highlight the risks and vulnerabilities in emerging markets and developing countries, but did not use similar data trends to see similar risks in advanced countries.
- The very nature of financial innovation is to stay ahead of the regulators and hence their data collection efforts as well. For this reason, the Fund would always be "behind the curve" if the Fund could only see the risks when the data are finally available.
- "You don't see what you're not looking for." Neither the U.S. nor the U.K. authorities, despite presumably having much greater access to data, saw the crisis coming. Indeed, the Fund's views on financial sector soundness were very much in line with those of country authorities. Furthermore, once the crisis was evident, the Spring 2008 *GFSR* was able to provide a remarkable estimate of expected financial sector losses, without any additional access to data. But now they knew what to look for!
- To quote from the *Economist* (January 15, 2010), "In the run-up to the crisis, policymakers and supervisors, like most other people, managed to rationalize bad things that were plain for all to see, such as inflated house prices and some banks' rock-bottom capital levels." As Claudio Borio of the Bank for International Settlements put it, "The main reason why crises occur is not lack of statistics but the failure to interpret them correctly and to take remedial action" (Borio, 2012).

In sum, gathering more and more data is not a substitute for the effective use of available data or for willingness to challenge mainstream thinking.

Source: This box is based on the findings in IEO (2011a).

<sup>1</sup> In the U.S. staff reports, the standard table on "Indicators of External and Financial Vulnerability" did not include market-sensitive and publicly available data such as an ABX index, a composite index of CDS spreads for key financial institutions, the TED spread, leverage ratios of the largest commercial and investment banks, aggregate and sectoral credit expansion, debt trends across major sectors (government, corporate, household), and pertinent information (as available) of shadow banking assets as a share of total assets, the maturity structure of shadow banking liabilities, and financial institution exposure to credit derivatives.

### *A growing body of work helps to point the way forward.*

49. Some of the recent literature has been critical of focusing primarily on ever more financial and/or market data to sound early warning of crises.<sup>47</sup> Several authors argue that some macroeconomic indicators are better at crisis prediction than are financial sector and market indicators, concluding that using available data in a different way may be at least as fruitful than the never-ending quest for more data (Borio and Drehmann, 2009; Eichner, Kohn, and Palumbo, 2010; Borio, 2012; Drehmann and Juselius, 2013; and Alessi and

<sup>47</sup> For example, a number of FSIs often continue to suggest soundness even as conditions are deteriorating. Even more timely data may perform poorly as early warning indicators. For example, market indicators might fail to indicate problems on the horizon—risk and volatility indicators were at historic lows just prior to the recent global crisis. This does not imply that collecting these data serves little purpose. Some of these data may not serve well as early warning indicators, but could prove extremely useful in responding to crises.

Detken, 2014). Indeed, Haldane (2012), in a speech at the 2012 Jackson Hole conference, stressed that the more complex the system, the greater the need to keep it simple, echoing findings of the BIS, U.S. Federal Reserve, and others that sometimes “less is more.”

50. On the Fund’s part, some recent work on balance sheet analysis (BSA) provides a good example of how collaboration between Fund statisticians and economists can shed light on the way forward for more effectively identifying and using data to support the Fund’s strategic work (IMF, 2015b). Both the global financial and euro crises might have been better foreseen through rigorously applying BSA.<sup>48</sup> A full set of balance sheet matrices is also a primary starting point for understanding macrofinancial linkages, and complemented with a global flow of funds,<sup>49</sup> forms the basis for the analysis of interconnectedness and spillovers. The use of BSA to strengthen surveillance was a running theme throughout the 2014 TSR and IEO (2011a).

51. But the recent global crisis was not the first to shed light on the usefulness of this approach.<sup>50</sup> The Asian crisis was the catalyst for work on the BSA at the IMF (Allen and others, 2002), and the 2004 “Review of Data Provision for Fund Surveillance Purposes” (IMF, 2004a) was already pushing for its use in Article IV Consultation staff reports. Yet BSA was used only sporadically pre-crisis and typically for emerging markets. It was rarely employed for low-income countries (largely due to lack of data) or for advanced economies (where at least partial, and in some cases, like the United States, fairly complete data were available).

52. Why was BSA used so sparingly pre-crisis? Lack of analytical tools (and staff training on those available) hindered its use in bilateral surveillance. But the primary reason was that very few countries, even today, provide the full set of sectoral balance sheets. The IMF, particularly in the context of the DGI, has become more proactive in encouraging the compilation of balance sheet data by its member countries, and now there is reason to expect that data availability will not be as significant a hindrance as it had been in the past (Box 6).

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<sup>48</sup> A study on the United States using balance sheet analysis concluded: “Detailed analysis of aggregate sectoral balance sheets could have been helpful in identifying pressure points for the U.S. economy pre-crisis .... Balance sheet data for [households] and [other financial centers] were indicating a build-up of vulnerabilities, while standard vulnerability (financial soundness) indicators for the U.S. were not recording ‘red flags’ pre-crisis.” (IMF, 2015c).

<sup>49</sup> In addition to its work on balance sheets, STA is also pushing forward with cutting edge work on a framework for the global flow of funds.

<sup>50</sup> A key difficulty is that statistics are often produced with considerable delay. Ideally, forward-looking indicators would be the preferred means of detecting emerging risks, but these are difficult to come by. In their absence, macroeconomic stocks data (e.g., balance sheet data) could better indicate a build up of pressures due to their “sticky” nature (the slow rate of change of stocks).

53. Much more remains to be done, however, especially on data for the corporate, household, and shadow banking sectors.<sup>51-52</sup> Against a background of fiscal austerity in many countries, the demand for more complete balance sheet data might run up against other, perhaps more urgent, needs. Nevertheless, a compelling case could now clearly be made that the benefits, not only to the IMF but to the member countries themselves, outweigh the costs.

**BOX 6. DOES LACK OF DATA STILL PREVENT THE USE OF BALANCE SHEET ANALYSIS?**

In October 2015, to encourage Fund economists to utilize balance sheet analysis (BSA) more frequently, the IMF posted an Intranet article entitled, “Five Things You Need to Know About Balance Sheet Analysis.” The following excerpts from three of those “five things to know” indicate that the authors of the article believe that lack of data is no longer the inhibiting factor that it once was:<sup>1</sup>

*“1. **Balance sheets matter a lot.** Balance sheet analysis captures the role played by financial frictions and mismatches in creating fragility, amplifying shocks, and generating spillovers. The boom, bust, and recovery associated with the global financial crisis can all be viewed through the prism of balance sheets. The boom was associated with increased private sector debt, and the bust created a decline in wealth that was propagated across the world through balance sheet linkages, even as debt remained elevated. Recovery has featured deleveraging, as the private sector restructures its balance sheets by increasing savings, cutting spending, and repaying debt. In turn, governments have responded by expanding the fiscal or central bank balance sheets to buttress demand.*

*2. **Data no longer pose major constraints to analyzing balance sheets.** While balance sheet data were hard to come by in the past, country coverage and granularity of data have improved. This is in part due to Fund-supported initiatives such as the collection of data on financial sector balance sheets through standardized report forms (SRFs), and information on cross-border financial interlinkages through international investment positions (IIP) and coordinated surveys on direct and portfolio investments (CDIS and CPIS). Such initiatives have helped to better capture the state of the balance sheets of key sectors of the economy and how they are linked to each other as well as to the rest of the world. Even where balance sheet data are not fully available for some sectors, it is possible to make pragmatic assumptions or use supplementary information—including national sources, micro data, and surveys—as a workaround.*

*3. **A lot of the data can be exploited using off-the-shelf techniques.** Successive waves of crises have driven innovation in the Fund’s analytical toolkit, including macro models, techniques for macrofinancial stress testing, the balance sheet approach (BSA), and debt sustainability analyses. The new Board paper and note also develop some new empirical tools, including: illustrations of how to construct balance sheet matrices using Fund-collected data, and analyze them to get an aggregate sense of the key vulnerabilities in the economy; tools to dig deeper into these identified vulnerabilities using micro data; and general equilibrium and reduced form approaches to improve macro forecasting by incorporating balance sheet variables.”*

<sup>1</sup> This conclusion may be too sanguine, in light of the fact that fewer than two dozen Fund members were able to provide complete annual and quarterly sectoral balance sheets as of mid-2015.

<sup>51</sup> In many countries, the shadow banking sector is the fastest growing segment of the financial sector, and in some cases, is larger than the banking sector.

<sup>52</sup> Latin American Shadow Financial Regulatory Committee (2015) and Reinhart (2015) raise concerns, in the context of the expansion of shadow banking, about data on the extent of leverage in emerging markets and whether international-reserve positions may overstate available resources. For example, reserve availability may be overstated when (i) central banks intervene by issuing dollar-linked debt, (ii) third parties (e.g., sovereign wealth funds, special status banks, state-owned enterprises) intervene in forex markets on behalf of the central bank, (iii) swap arrangements are not adequately captured in reserves data, and (iv) lines of credit extended by Chinese development banks to emerging markets are not included in external debt data. In general, recent Article IV reports for the affected EMEs have not covered these potential data shortcomings or have done so very tangentially. On occasion, issues such as the treatment of certain types of interventions have been raised, but have not been viewed as key areas for concern.

### C. Data Quality

***The Fund is not just a passive recipient of data; it runs some validation checks and promotes data quality.***

54. The Fund has a number of mechanisms to obtain some assurances about the quality of the data it uses. With STA playing the pivotal role, it has developed methodologies for the proper compilation of economic and financial statistics, and works to support high-quality data through capacity-building—technical assistance and training. The Fund also performs some validation checks in the course of its operational work and prior to dissemination, with these checks varying by department and purpose of the data.

55. STA relies mostly on official data reported directly by countries. It checks these data for their compliance with established formats, examines them for outliers, and performs some routine consistency checks to capture large discrepancies across data sets. STA is also working on implementing some intersectoral consistency checks,<sup>53</sup> which could prove an important additional tool for quality control.

56. Though many of the Fund’s area department country teams obtain much of their data directly online from national sources or from commercial databases (such as Haver Analytics), many staff missions, particularly in low-income countries, still spend considerable time collecting data in the field, with Fund staff often “getting their hands dirty” working on data with their counterparts during missions.<sup>54</sup> The policy discussions between mission teams and country authorities often reveal data inadequacies, potentially prompting corrective action and improvements in data quality. Staff estimates, which are often discussed first with country authorities, are frequently used to fill in the blanks from missing or problematic data.<sup>55</sup>

57. Implicit in IMF country teams’ collection of data are validation activities that involve some verification of data at the primary source, checking the accuracy of basic calculations, and assessing overall consistency within a macroeconomic framework. According to staff interviews, country teams have traditionally been more active in checking and validating data in emerging markets and low-income countries, while tending to accept without question the data from advanced economies. The IMF’s flagship publications use a combination of the data collected by area departments and those from commercial databases as inputs. At this

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<sup>53</sup> Official data are typically sourced from several agencies within the same country (e.g., national statistics office, central bank, ministry of finance) and are thus often inconsistent on an intersectoral basis, as these agencies often do not cross-check their respective data.

<sup>54</sup> While this is often among the most appreciated contributions of IMF staff during missions, staff often consider it among the least rewarding parts of mission work.

<sup>55</sup> Jerven (2016) uses the example of Ethiopia to illustrate the lack of clear procedures as to the use of staff estimates in place of official data that are questioned by staff.

stage, additional validation checks are performed, attending, to some degree, to issues of global cross-country consistency.

58. Nonetheless, all these validation activities still fall short of fully addressing deficiencies in source data and disparities in definitions and coverage. Errors can be, and have been, missed by the standard validation checks. This can have real consequences for member countries, as exemplified by an incident with the April 2009 *GFSR*. The IMF presented the external debt refinancing needs, as a ratio to foreign exchange reserves, of the central and eastern European countries, but the figures presented were, in some cases, more than twice the real ratios. The IMF corrected the errors, but not before they had (according to authorities) adversely affected market confidence. This incident prompted MCM to tighten its validation procedures, including by assigning a dedicated “fact checker,” sending the data to area departments for review,<sup>56</sup> and improving country desk inputs to the *WEO* database.

***Ultimately, though, the quality of data depends on the member country ...***

59. Inevitably, there are limits to what the IMF can do to correct the shortcomings of data provided by member countries. Member countries show a wide disparity in the degree of development and independence of their national statistical compiling agencies, in their institutional structure, and in the resources allocated to statistical activities. While there is still room for the IMF to strengthen its work on quality assurances, ultimately, the quality of data depends on the attention and resources that member countries devote to it. Indeed, the accuracy of the information disseminated by the Fund is the sole responsibility of countries.<sup>57</sup>

60. Concerns about quality are particularly relevant for the more resource-constrained statistical compiling agencies in low-income countries, which face greater difficulties in collecting primary source data, tend to employ outdated methods, and struggle to retain qualified personnel.<sup>58</sup> In response to a survey question, IMF staff, particularly those working on emerging market and low-income economies, overwhelmingly pointed at the limited capacity of countries as a main reason for data deficiencies that hamper surveillance.<sup>59</sup> But limited capacity was also mentioned for almost a quarter of advanced countries with data deficiencies.

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<sup>56</sup> According to some interviewees, this step is very time-consuming (and at times, impossible) for area department country desks, as the *GFSR* heavily uses data from commercial sources (including for some macroeconomic data) which might diverge from those used by the country desks.

<sup>57</sup> Article VII, Section 5 notes that it is the member’s obligation to provide accurate data to the Fund, to the extent of its ability.

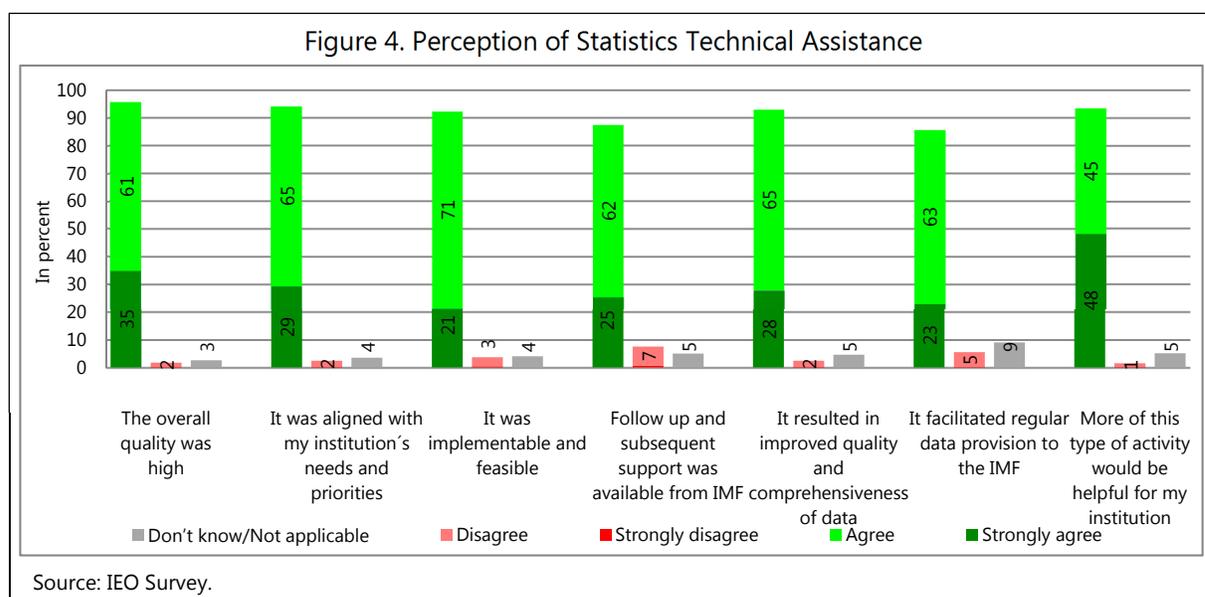
<sup>58</sup> The binding nature of resource constraints was clearly evident in recent years when, in many LICs, the emphasis on the Millennium Development Goals forced authorities to give precedence to social indicators to the detriment of data on economic growth or employment (Jerven, 2013).

<sup>59</sup> Jerven (2016) notes, as examples, huge changes in some LICs’ GDP statistics due to rebasing after years of using out-of-date baselines, calling into question the validity of surveillance based on numbers that could

*... but STA has played a major—and much appreciated—role in supporting high-quality data from the membership.*

61. Although the assurances of quality that the IMF can provide in the short run are limited, STA’s initiatives to strengthen data quality over the medium and longer term are significant. The methodological manuals developed by STA have become the world standard that countries seek to adopt and implement,<sup>60</sup> while the technical assistance (TA) and training provided by STA are effective forces for the improvement of data.<sup>61</sup>

62. Training in statistics is highly appreciated by recipients, with 90 percent or more of survey respondents agreeing that the training is of high quality, aligned with the recipients’ priorities, feasible to implement, and has helped improve the quality of data. Appreciation for TA is even stronger than that for training (Figure 4), with views on its quality, relevance and feasibility almost unanimously positive. Some reservations were expressed, though, on follow-up and support subsequent to TA—partly in response to STA’s revised approach to committing follow-up assistance, which involves setting specific benchmark actions for implementation, together with evidence of compliance.<sup>62</sup>



change so markedly. Nigeria’s GDP, for example, increased by 89 percent in 2014 after the base year was changed from 1990 to 2010, instantly vaulting Nigeria to the top of the GDP chart in Africa.

<sup>60</sup> Data providers in member countries, both in interviews and surveys, expressed highly favorable views on the associated manuals and guides, with respondents agreeing that they are both practical and helpful (almost unanimous), as well as easy to understand and feasible to implement (85 percent).

<sup>61</sup> IMF staff, nonetheless, noted that the effectiveness of TA is sometimes undermined by the fundamental tension between weak governance and transparency, as opacity and lack of data preclude accountability.

<sup>62</sup> This change in approach includes a move to a Results-Based Monitoring Framework and is due, in part, to the demand from the donor community to ensure effective allocation of resources. See also IEO (2014c).

63. A significant development in recent years has been an increase in the share of TA financed by donors. This doubled between FY2011 and FY2015 to 60 percent (35 percent excluding Regional Technical Assistance Centers). The increasing reliance on donor financing has led, at times, to a less than optimal allocation of resources, when donors' priorities have not been fully aligned with those of the Fund.<sup>63</sup>

64. In general, the IMF explicitly avoids providing assessments of the quality of member countries' statistics.<sup>64</sup> However, the data modules of ROSCs come closest to a comprehensive assessment of data quality. The Data Quality Assessment Framework (DQAF), which lies at the core of the data ROSC, provides a structure for assessing the extent to which countries meet the prerequisites of data quality—such as independence of, and adequacy of financing for, the compiling agency—or follow international best practices in regard to established standards.<sup>65</sup> However, the DQAF is more focused on statistical processes than on passing judgment on the quality of the statistical output itself.<sup>66</sup>

65. This evaluation's interviews and survey of data producers suggested that almost all of those who had been involved in their countries' data ROSCs considered them very useful for improving data quality and implementing best practices. Some authorities indicated in interviews that data ROSCs had the additional effect of strengthening the hand of national statistical offices in their quest for more resources. More than three-quarters of respondents believe that conducting these exercises on a periodic basis would be helpful. However, in recent years, due to their high cost, data ROSCs have become ever fewer and far apart and have now been (at least temporarily) suspended.

66. Recent problems with the reporting of fiscal and debt statistics in some countries, together with the phasing out of data ROSCs, have led the Fund to revamp its Fiscal Transparency Evaluation (FTE), including the addition of an important data pillar. This pillar replicates for the fiscal realm the categories of the data ROSC, including those of data quality and integrity. In contrast to the data ROSCs, the revamp of the FTE focuses on outputs rather

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<sup>63</sup> In this regard, STA has recently developed statistical scorecards for a large share of the Fund's membership. The scorecards provide country-specific snapshots of data methodology and provision in a heat map format, so as to provide country teams and reviewers a quick reference tool to help determine capacity development needs and underpin surveillance dialogue on data issues. These scorecards seem a promising approach to better prioritization of TA needs and could also promote more candid assessments of data adequacy for surveillance.

<sup>64</sup> When the dissemination initiatives were first discussed at the Executive Board, "... Directors emphasized that the Fund should avoid making direct public assessments of data quality...to avoid the implication that...the Fund was certifying good practice with respect to quality and other characteristics of the data." (IMF, 1996b).

<sup>65</sup> That is, integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility.

<sup>66</sup> Of course, it might be expected that a well-functioning statistical system is more likely to produce quality data.

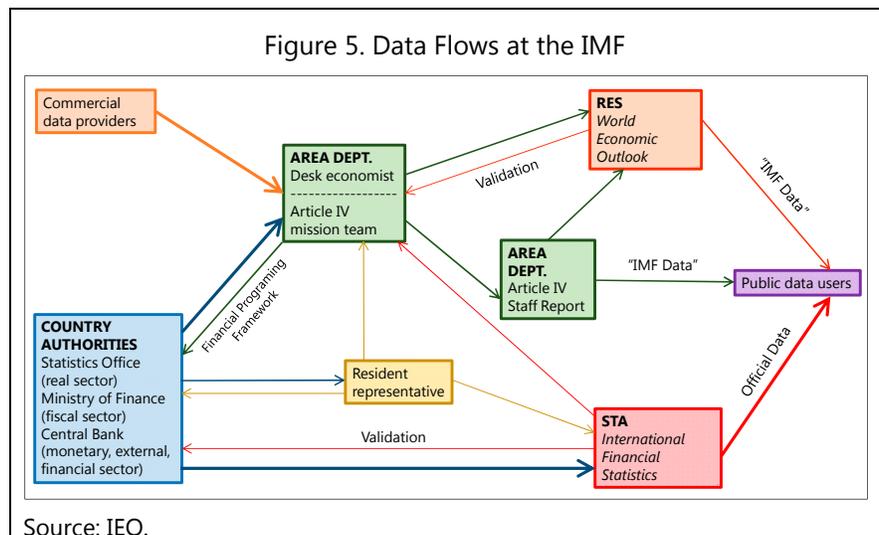
than processes, thereby placing greater emphasis on the quality of published information.<sup>67</sup> It clearly presents strengths, weaknesses, and reform priorities through summary heat maps, making the FTE more accessible to policymakers, civil society, and other stakeholders (in contrast to the relatively impenetrable data ROSCs, largely accessible only to statisticians).

67. The IMF is also cautious about explicitly assessing the prerequisites of quality, perhaps most importantly, that of a well-funded and autonomous national statistical office. That is, the IMF does not typically emphasize the need for member countries to better equip their national statistical offices, notwithstanding the evident benefits this would bring to the countries' own policymaking. In particular, weak statistical offices can fall prey to political pressures and inadequate funding, undermining the reliability, accuracy, and unbiasedness of their output. The Fund seldom places a priority on establishing an active dialogue on data issues with country authorities at the policymaking level, such as their needs for capacity-building or, when relevant, on including such issues in Fund conditionality.

#### D. Internal Data Management

##### *Data management problems are deep-rooted ...*

68. The usefulness of data for IMF operational purposes also depends on the Fund's internal data management practices and, in particular, on the staff's ability to access a wide range of good quality, consistent data on a timely basis. The evolution of the Fund's data requirements and



activities has led to a highly decentralized approach to data collection, management, and dissemination (Figure 5 is a stylized representation of data flows to, within, and from the IMF). As a result, there are now about 180 *cross-country* databases in the IMF, of which about half are internally produced and the remainder externally provided, and more than 180 country-specific area department databases. At the same time, databases have become commensurately larger and more complex, implying a greater premium on efficient

<sup>67</sup> STA has noted that it plans to revise the data ROSC to increase its efficiency and effectiveness, including by covering statistical outputs.

management and documentation. Departments have long been expected to adopt guidelines for data management.<sup>68</sup>

69. Decentralization and the associated proliferation of databases have created a number of deep-rooted problems, all of them closely intertwined.<sup>69</sup> First, the Fund’s fragmented and uncoordinated approaches to data collection, validation, and management have contributed to data inconsistencies. Second, internal data sharing has been burdensome and inefficient, a problem aggravated by lack of incentives for proper data management and transfer of knowledge. Third, many of the Fund’s databases have been poorly structured and documented, without sufficient metadata for proper use outside the specific unit managing each database.

70. Decentralized data collection and management has also indirectly resulted in isolating STA from the rest of the Fund, increasingly leading STA to focus its efforts on data dissemination outside the Fund and on the external provision of statistical services—with its outputs largely disconnected from the Fund’s core operational work. One reason for this disconnect is that economists and statisticians have different approaches to data, with the former emphasizing pragmatism, usability, and timeliness, while the latter focus more on accuracy and methodological purity. Timeliness versus accuracy remains an unresolved question.<sup>70</sup>

71. These problems have been amply documented in the past. Annex 7 lists 17 of the many studies on the Fund’s data management problems over the past 50 years, most of which highlighted these same recurrent themes.<sup>71</sup> In the wake of an Office of Internal Audit report on data management (IMF, 2007), the Fund launched in April 2010 the Economic Data Management Initiative (EDMI), the third in a series of attempts within the last decade to strengthen data management. The EDM I concluded that: (i) the Fund was at the earliest stages of data management maturity,<sup>72</sup> with technology driving the approach rather than analytical needs; (ii) there were no clear guidance strategies; (iii) the Fund data arrangements

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<sup>68</sup> For example, a November 1995 memo from the then-First Deputy Managing Director stated, “All departments that maintain economic databases will be expected to establish and implement data management guidelines in accord with the Fund-wide guidelines.”

<sup>69</sup> In addition to the proliferation of databases, there has also been a proliferation of interfaces for accessing data—Economic Data Sharing System (EDSS), Economic Data Warehouse, Joint Library (which manages commercial databases), Data Management for Excel (DMX) Data Navigator, Economic Outlook Suite (EcOS), etc., adding to the complexity and confusion for the user in finding data.

<sup>70</sup> The trade-off between timeliness and quality was well expressed at the IMF’s Second Statistical Forum, with speakers’ views ranging from “speedy rubbish is of no value” to “put the data users first.”

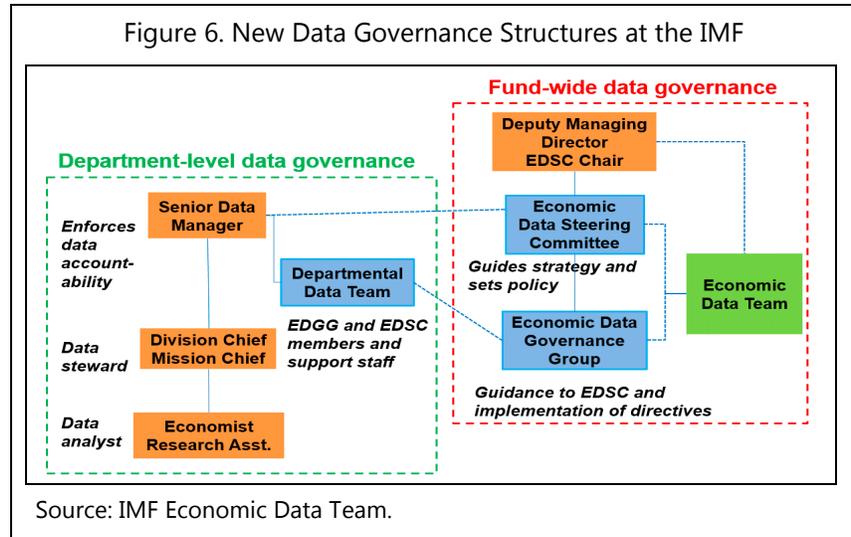
<sup>71</sup> See also de Las Casas and Pedraglio (2016).

<sup>72</sup> Gartner Consulting, hired as part of the EDM I, determines data management maturity levels by grading six dimensions (vision and strategy, metrics, governance, organization, processes, and technology infrastructure) and comparing practices with industry standards. The Fund scored particularly low on vision and strategy.

were characterized by weak governance bodies; (iv) data procedures were poorly executed; and (v) there was no holistic view, with the approach to data management being excessively “bottom up.” More specifically, the EDMI highlighted the existence of two parallel paths for data compilation at the Fund, reflecting the differences in the mandate and priorities of area departments and STA. The report recommended extensive changes, including in the data governance structure and a move to a Fund-wide structured database.

*... and although progress has been made in several areas...*

72. In response to the starkly-stated EDMI findings, IMF Management created a new economic data management governance structure. This began operations in May 2012, with three key bodies: the Economic Data Steering Committee (EDSC), the Economic Data Governance Group (EDGG), and the Economic Data Team (EDT)<sup>73</sup> (Figure 6).



73. Substantial progress has been achieved over the last few years. The creation of the new governance structure—while still on a temporary basis—is a milestone and could contribute to overcoming organizational resistance and breaking down silos and associated data fiefdoms. Area departments’ data have been moved from Excel spreadsheets to structured databases, with associated gains in organizational clarity, use of metadata, more consistent processes, data sharing, and ease of transfer of knowledge. The Economic Data Registry—a single access point for all IMF internal databases and some external ones—is being developed, and the Common Surveillance Databases (CSD) are already in use (Box 7). These achievements address some of the problems described in the paragraphs above and provide a stepping stone for future and more ambitious actions.

*... some of the adopted measures have been subject to criticism ...*

74. Staff’s assessment of the new data governance structure is mixed. Among those surveyed staff familiar with it, a majority believe it has been helpful in improving data

<sup>73</sup> The EDSC is supposed to be comprised of “Senior Data Managers” at the Deputy Director level from 15 departments, while the EDGG consists of mid-level managers, with the chair of the EDGG heading up the EDT.

management practices, but many think it “just adds another layer of bureaucracy.” In interviews, members of the EDSC and EDGG expressed concerns regarding the new governance structure, including an excessive focus on technical and budget issues, rather than strategy, and the dominance of the EDT, together with its organizational location and that of the CSD.

75. While it might seem that STA would be the logical home for the EDT,<sup>74</sup> interviewees felt that long-standing concerns regarding STA’s ability to manage data for operational purposes would have undercut support for the EDT, had it been initially located there. Nevertheless, many interviewees admitted that STA should be the natural long-term location, provided that STA undertakes the necessary reforms—particularly in the area of timeliness.

76. Concerns were also raised by interviewees regarding the location of the CSD in the Fund’s Research Department,<sup>75</sup> arguing that STA might be better suited for this task, given its core expertise.<sup>76</sup> Another line of argument is that the CSD should be managed by dedicated staff outside any department, for example, the EDT. While the CSD’s potential to improve data flows in the Fund is generally recognized, some interviewees questioned the lack of strategic thinking behind the development of the CSD and the consideration of data sharing as a goal in itself, rather than as a means to strengthen the Fund’s economic analysis. It was highlighted that the CSD perpetuates some of the data management problems by adding an additional platform, when a unified system for all data management at the Fund is what the institution needs.

77. More broadly, the problems with the new governance structure stem from a lack of engagement by Management and insufficient interest on the part of EDSC/EDGG members.<sup>77</sup> Management involvement in statistical matters has also been hindered by the split in responsibilities between two Deputy Managing Directors—one of them chairing the EDSC and another one in charge of STA.

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<sup>74</sup> The EDMI’s recommendation was that the EDT be located in the Office of the Managing Director (OMD), but at first it was placed in an area department. More recently, it has been relocated to the OMD.

<sup>75</sup> Minutes of the relevant EDSC meeting indicated that all but one of the EDSC members preferred RES as the CSD location. However, in interviews of EDSC members, a number of them thought that STA could be an appropriate location.

<sup>76</sup> The CSD, together with the Economic Data Registry, have a clear precedent in the Economic Data Warehouse (EDW), a STA-led initiative to create a single point of access to all data available at the Fund. However, under its current configuration, the CSD would not contain STA’s databases. While the development of the EDW is now suspended, the experience illustrates the complexity of data management issues at the Fund (see IMF (2007), which supported the EDW and its management by STA).

<sup>77</sup> Indeed, many of the EDSC and EDGG members stressed that they did not volunteer for this position and had no deep interest in data issues. In fact, many of the members were reluctant to be interviewed, noting that they knew very little about such issues.

**BOX 7. THE COMMON SURVEILLANCE DATABASES AND  
THE QUEST FOR BETTER DATA SHARING AT THE FUND<sup>1</sup>**

Arguably the number one problem in the area of data management at the IMF is the lack of proper systems and procedures for efficient and consistent data sharing within the Fund. Data sharing has traditionally been done manually and on an ad hoc basis, with virtually nonexistent consistency controls. These issues are increasingly worrisome as cross-country analysis and multilateral surveillance gain relative weight among the Fund's operations.

In the post-EDMI context, with the migration to structured databases completed, the EDT has turned to the creation of the Common Surveillance Databases (CSD)—with the explicit aims of facilitating data sharing, integrating data used for bilateral and multilateral surveillance exercises into one common database, reducing reputational risk associated with data inconsistencies by improving metadata documentation, and avoiding excessive proliferation of databases. The CSD is composed of two Fund-wide accessible databases: (i) the Forecast CSD, which will contain all variables included in desks' macro-frameworks and all data required for desk-based cross-country exercises, and (ii) the Historical CSD, made up of all historical desk data and all data required for desk-based cross-country historical databases.

The success of the CSD is based on the systematic collection and storage of data and metadata, together with the implementation of new processes for data flows, revisions to historical series, and validation checks. Therefore, responsibility is shared among country teams and their departments' data manager, cross-country database managers, and the Fund's Data Management Governance Structure. The operational work of the CSD has been assigned to RES, building on existing processes and expertise associated with the *WEO*. The October 2015 *WEO* is the first for which all country teams submitted their data via the CSD.

<sup>1</sup> Based on EDT 2014, "Proposal for the Establishment of Common Surveillance Databases."

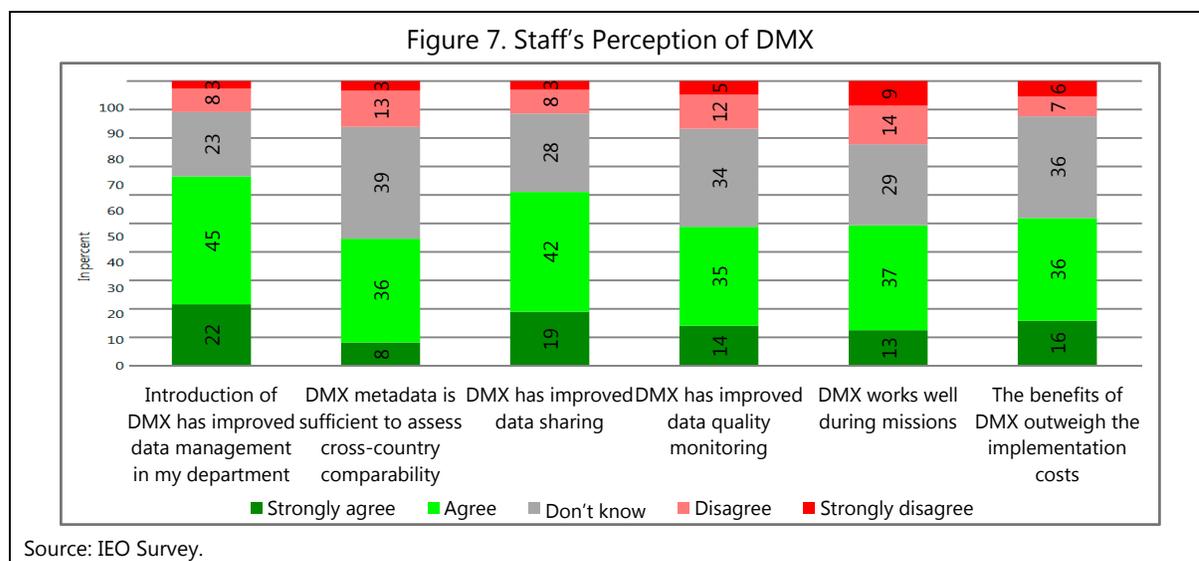
78. Staff regard the move to structured databases fairly positively (although one-third declined to provide an opinion), believing it has improved data management and sharing. But the assessment of other dimensions is more nuanced (Figure 7),<sup>78</sup> particularly on the technical front, as they see deficiencies in DMX (Data Management for Excel) as its chosen platform. A significant number of respondents raised concerns regarding its "black box" nature, its operational complexity, the quality of metadata, and the coding system. Moreover, DMX, as an internally developed tool, might prove less adaptable, state-of-the-art, and cost-effective than commercial solutions in the long run. Furthermore, some departments use alternative, externally developed platforms (e.g., EcOS in FAD, RES, and STA), complicating the information technology environment for effective institution-wide data management.

***... and some fundamental issues remain unaddressed ...***

79. A clear data strategy is the crucial missing element in the efforts underway. The EDT has provided a set of intermediate targets, some tools, and a roadmap but, according to interviews with EDSC/EDGG members, a holistic strategy—that clearly sets medium-to-long term goals, defines the business case, and establishes the value attached to data as an

<sup>78</sup> An important caveat regarding the survey results is that the Fund's data management system has been evolving rapidly since the survey was conducted in February-March 2015 (e.g., the CSD became operational after the survey was completed).

institutional asset—is still lacking. Arguably, this may be a consequence of the continuation of an excessively bottom-up approach to data management. This consensus-based, process-oriented style slows progress and hampers the adoption of broader, more innovative solutions with the potential to yield more sustainable outcomes over time.



### ... not least the role of STA.

80. The issue of STA's disconnect from other departments, with its outputs not integrated with the Fund's core operations, has been largely dropped from the broader agenda. STA's data are perceived by IMF staff as primarily useful for research and historical analysis, but not for policy-oriented and operational work, mainly for lack of timeliness and coverage.<sup>79</sup> Adding to the lack of integration of STA's outputs, some departmental data management guidelines explicitly favor the use of other sources over STA and raise questions regarding the usability of STA's data.<sup>80,81</sup>

<sup>79</sup> On coverage, Jerven (2016) notes that the February 2015 *IFS* was missing 2011 data on real GDP growth for almost 40 percent of countries. By comparison, the October 2014 *WEO* database was missing the same data for only 8 percent of countries.

<sup>80</sup> From the data management guidelines of an area department: "Country teams should maximize electronic data collection from national statistical bureaus and central banks, as well as from commercial sources . . . Use of STA economic and monetary data, where relevant and feasible, including the Integrated Monetary Databases (IMDs), is encouraged in cases where country data are not available from commercial sources. . . . However, delays in STA data processing, and the limited scope of data available may make this not possible."

<sup>81</sup> Staff working on advanced and emerging market countries strongly prefer Haver Analytics over STA (the number of IMF staff using Haver exceeds 1,000), on the grounds that data are easier to find and better access tools are provided, and despite the fact that Haver Analytics feeds intensively on official data sources (largely the same sources used for STA's macroeconomic data) and draws directly on some STA data series.

81. Moreover, it could be argued that the new CSD, together with Management’s decision to assign responsibility for oversight of data management and of STA to different Deputy Managing Directors, institutionalizes the existence of two parallel data collection and management systems in the Fund and isolates STA further.<sup>82</sup> During interviews, EDSC and EDGG members expressed doubts about the current and future role of STA regarding internal data management in general and managing the CSDs in particular.

82. Yet the survey results show staff’s clear desire for a centralized provision of statistical services (seemingly an obvious role for STA), in line with the practices in most peer institutions (Box 8). For example, three-quarters of staff think a centralized data unit should be in charge of managing a common database for IMF staff to access all data. And about two-thirds of respondents think this unit should monitor the consistency of internal databases and collect and provide the bulk of the data for surveillance operations in a timely manner. At the same time, however, the survey reveals staff’s dissatisfaction—and lack of knowledge—regarding the current performance of STA in providing internal services (Figure 8).

#### **BOX 8. DATA MANAGEMENT PRACTICES IN COMPARABLE INSTITUTIONS**

While models differ across institutions, and data management frameworks must adapt to the needs of each organization, the 2005 Towe Report and the interviews conducted for this evaluation identified a number of successful practices in organizations comparable to the Fund.<sup>1</sup> These practices imply higher levels of centralization and coordination than those currently in place in the IMF:

- A single unit is responsible for the institution’s database that provides inputs to all or most publications.
- This unit is responsible for collecting, validating, and documenting the data, and providing tools to access data for official publications.
- This unit also ensures that (preliminary) data are available to analysts with minimal delay.
- A common nomenclature is used across all series stored in official databases, and this nomenclature is maintained by the centralized data unit.
- Desk economists use the institution’s database because they are mandated to do so, and—more importantly—because they receive the array of tools and the support to access the data.

The Towe Report also highlighted how, in contrast with the other institutions, data management initiatives in the Fund depend largely on unrewarded work. This, of course, hampers their effectiveness, sustainability, enforcement, and standardization.

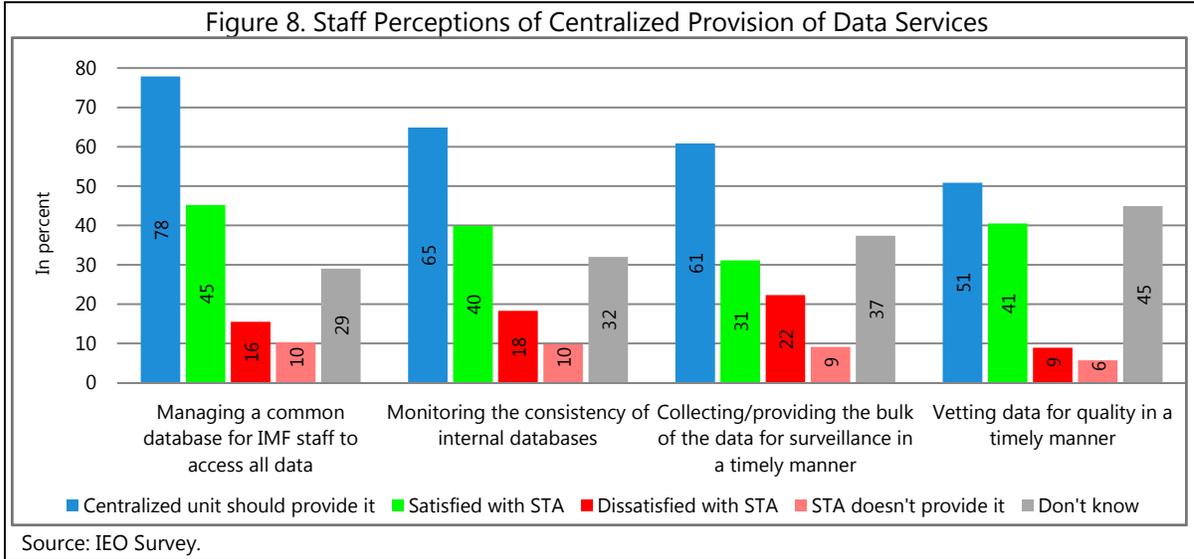
Sources: IMF (2005) and IEO interviews.

<sup>1</sup> The Towe Report studied the ADB, the Federal Reserve, the OECD, and the World Bank. The IEO has extended the analysis to the BIS, ECB, and Eurostat.

83. These problems are well-known among STA management and staff, who indicated during interviews a strong commitment to undertake the necessary reforms to turn the department into a service provider to the rest of the Fund. In fact, STA has already put in place some initiatives that increase collaboration with other departments in support of

<sup>82</sup> While STA is formally represented in the EDSC and EDGG, it is treated like all other represented departments, with no special status, inputs, or additional responsibilities within the governance structure.

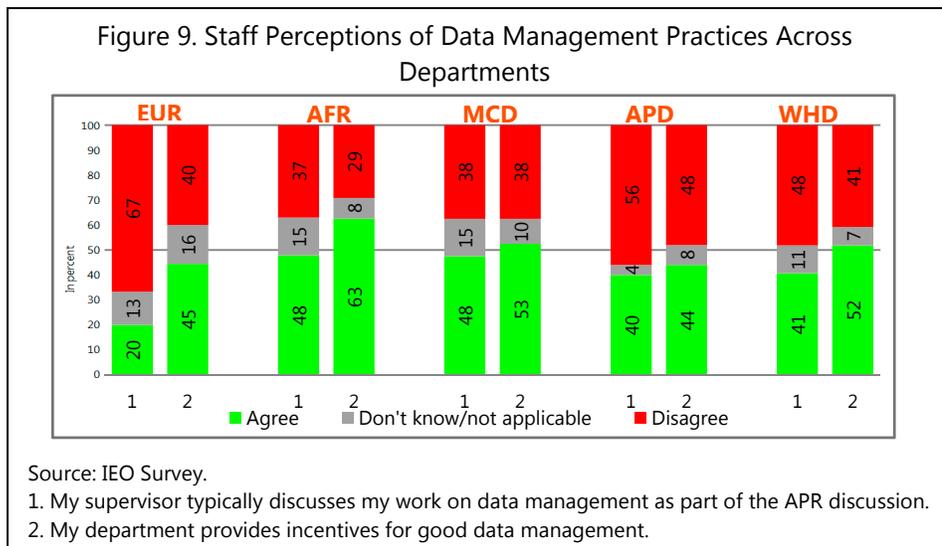
surveillance activities.<sup>83</sup> Successful examples include the recently published joint work on balance sheets, the integrated monetary database, and the work of STA on the DGI.



84. Nevertheless, developing an ability to provide “on time” data would require a major cultural shift—at least on the part of STA staff—from a focus on methodology to that of timeliness. Peer statistical units in the IAG disseminate data (at least internally) as they are produced by member countries—recognizing that analysts need to have immediate access to data that move the markets or affect the countries’ policymaking—and subsequently to clean and adjust them to methodological standards.

*... and getting the incentives right.*

85. The problem of staff incentives for proper data management remains largely unsolved. During interviews, staff made clear that good data management in



<sup>83</sup> In March 2015, STA established a new division to serve as a focal point for coordinating STA’s activities with area and functional departments.

the Fund relies mostly on personal interests and attitudes towards data, and that the low visibility of such work discourages staff from investing time in it. In fact, only one-third of survey respondents perceive data work as being part of their annual performance review discussions, although data management guidelines claim this should be mandatory (Figure 9). The de facto incentive structure is perceived as not rewarding good data management. Indeed, according to staff interviews, being too closely associated with managing data was seen as potentially harmful to career prospects.<sup>84</sup>

86. Data management guidelines do not provide adequate incentives for staff. Quality audits—reviewing the work of country desks—for data and metadata in the CSDs do not meet this need, at least in the view of some EDSC/EDGG members, who expressed a rather pessimistic opinion on this issue. Nor do departmental guidelines facilitate proper data management: in practice, their complexity and length (in some cases well over a hundred pages) discourage staff from reading them, let alone applying them on a daily basis. The same guidelines call for periodic assessments on compliance to be conducted annually or semiannually, but such reports are not being prepared in the form and with the frequency mandated—in some departments, none have yet been issued—and are not widely accessible within or across departments, eliminating their presumed positive effect on discipline through peer pressure.

87. Ten years ago, the Towe Report (IMF, 2005) identified eight major recommendations present in the Fund’s many previous reports on data management: (i) improving the data of member countries; (ii) improving the tools available; (iii) staff training; (iv) establishing data management guidelines; (v) increasing incentives to follow the guidelines; (vi) shifting responsibility to research assistants; (vii) reconciling STA and country data; and (viii) centralizing the data collection process. Its diagnosis, over the previous fifteen years, was that little progress had been made, except for the first two recommendations.

88. Today the diagnosis would be largely unchanged: while work on improving members’ data continues apace and some improvements have been made regarding available tools, progress with the other recommendations has been limited, at risk of being unraveled, or nonexistent. During interviews, staff repeatedly expressed the view that to address the Fund’s data management problems would require from Management a more forceful and mandatory approach than has been the case so far.

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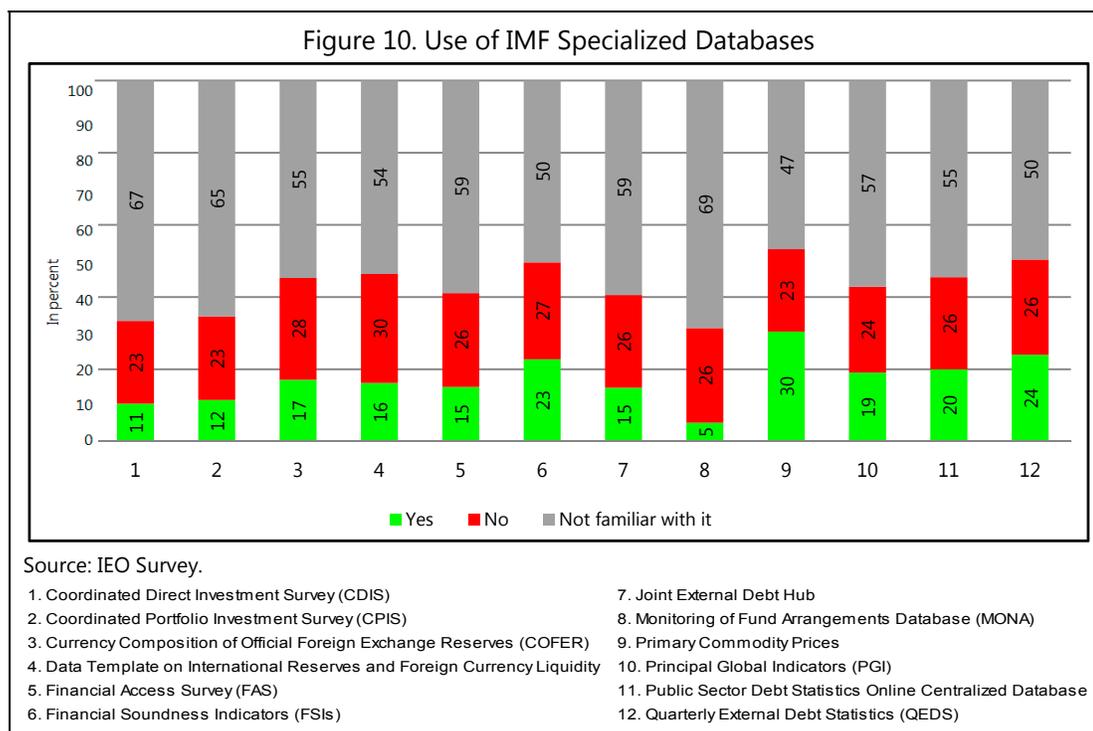
<sup>84</sup> In the words of an interviewed senior manager: “Research papers are valued here ... if the analysis is done right, no one will mark you down for bad data management;” and those of a senior economist: “... excellent data management skills? Not on my annual performance review! That would imply I’m not a strategic thinker.”

## E. Data Dissemination and International Cooperation

### *The IMF disseminates large amounts of data ...*

89. The IMF is not just a collector of information for its own purposes. It also disseminates a vast array of data and statistics through a variety of databases, documents, and publications. The IMF's data dissemination has grown exponentially,<sup>85</sup> propelled not only by the expansion of its membership, but also by technological developments and the relentless growth in the demand for information.

90. In general, the users polled for this evaluation have a positive perception of the data disseminated by the IMF and consider them better than, or at least as good as, those provided by comparable sources<sup>86</sup> in terms of quality, timeliness, and ease of access. There are only a few exceptions: users consider the ECB/Eurostat superior in terms of timeliness and Haver Analytics superior in timeliness and ease-of-access. IMF-provided data are heavily used by external stakeholders, with the *IFS* and the *WEO*, by a wide margin, the most commonly used resources. At the same time, aside from a few of the well-known databases, interviewees noted that it was difficult to find data on the Fund's website, a finding confirmed by the fact that the IMF's specialized databases are largely unknown and rarely used (Figure 10).



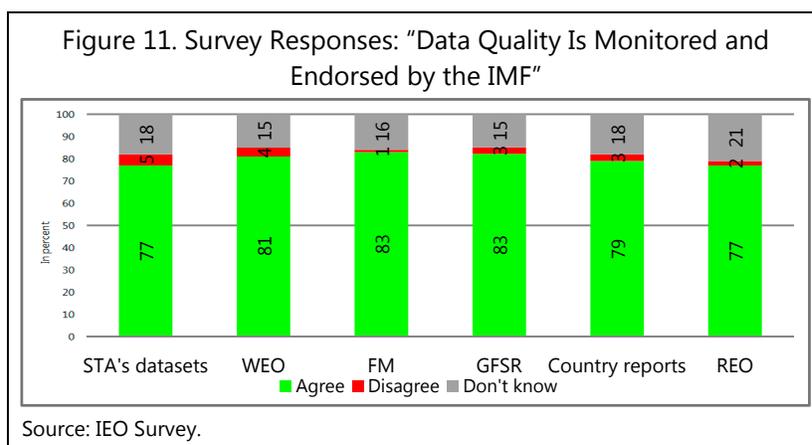
<sup>85</sup> As of 2014, for example, the *IFS* disseminated up to 670 time series for each of 194 countries in the print version, but maintained more than 119,000 time series in its electronic database, up from 36 time series for 56 countries in its first print issue.

<sup>86</sup> BIS, ECB, Eurostat, EIU, Haver Analytics, OECD, UN, and World Bank.

... but the Fund is wrongly perceived as “endorsing” the data.

91. Users widely misperceive the Fund as ensuring the quality of the data it disseminates. Survey respondents consider, almost unanimously, that Fund-provided data are reliable and accurate, with an overwhelming majority believing these data are endorsed by the institution (Figure 11). But the Fund’s data validation capacity is limited, and the perception of the Fund awarding a “seal of approval” could incur reputational risk for the institution.

92. Concerns have also been voiced in the Fund for decades about the reputational risk stemming from data discrepancies and lack of comparability across IMF databases and publications.<sup>87</sup> These discrepancies reflect not only the differences among the inputs provided by countries and the different processes of internal validation, but also the differing goals and frequencies of IMF outputs; for example, the *IFS* disseminates official data that seek to meet international definitions and standards, while country reports need to work with timely data understood by the authorities.



93. In line with the findings of previous internal IMF reports, the evaluation team found significant discrepancies in the data published by the Fund for the same country and year in various datasets. Table 1 summarizes a quantification of these discrepancies for disseminated figures of real GDP growth and the current account balance.<sup>88</sup> While discrepancies are typically wider for low-income countries, they also appear for advanced and emerging market economies.

<sup>87</sup> Initially, these concerns were expressed in terms of the *IFS* and *WEO*, as the *WEO* was the only IMF flagship document. Today, the challenge of data consistency extends across a much broader array of flagship documents, including the *WEO*, *GFSR*, *Fiscal Monitor*, *Spillover Reports*, *External Sector Reports*, and Article IV reports.

<sup>88</sup> See Jerven (2016) for full results and a complete description of data sources and methodology.

	Deviation Threshold (in percent)	Article IV vs. <i>WEO</i>			<i>IFS</i> vs. <i>WEO</i>		
		LICs	ADVs/EMEs	Total	LICs	ADVs/EMEs	Total
Real GDP growth rate	<10	74.6	75.0	74.8	61.3	77.5	70.4
	10-30	12.7	18.8	15.1	19.4	15.0	16.9
	>30	12.7	6.3	10.1	19.4	7.5	12.7
Current account	<10	70.8	83.0	75.6	36.7	83.3	57.4
	10-30	16.7	12.8	15.1	16.7	4.2	11.1
	>30	12.5	4.3	9.2	46.7	12.5	31.5

Source: Jerven (2016).  
<sup>1</sup> Based on data for 74 low-income countries (LICs), and 48 advanced (ADVs) and emerging market (EMEs) economies.

***The Fund’s recent move to providing data free of charge is an important step, but does it go far enough?***

94. The Fund took a major step forward in January 2015, when it began to provide online access to its main databases free of charge.<sup>89</sup> This decision was praised by country authorities, academia, and other external stakeholders, and almost doubled the average number of users of Fund data during the first three months of operation. But a free data policy is not an open data policy, as the latter, despite its public good nature, could prove controversial at the Fund.

95. While often confused, *free data* are different from—and less ambitious than—*open data*. As indicated above, the Fund manages two broad types of country data: (i) *IFS*-style “official” data, which are intended to be internationally comparable and are basically a pass-through from country authorities; and (ii) operational data collected by country teams from the authorities or generally available sources. The former are the focus of the move to providing data free of charge. But it could be argued that, in the Internet era, when most countries’ official data can be found online, there is little value-added in just passing these on. The latter data, which can be more timely and “unique” to the Fund’s interaction with members, are shared only in as much as they are available in the Fund’s flagship and Article IV reports, but data as presented in the country reports are not “user-friendly.”<sup>90</sup>

96. Other comparable organizations and academia have already adopted open data, which has become best practice. At the IMF, an open data policy—implying easy, universal access to most of the Fund’s operational data and the data underlying its research and other

<sup>89</sup> The Fund had lagged behind other international and regional organizations in its move to providing data free of charge.

<sup>90</sup> A common wish of external data users was for the dissemination of country-report data in a downloadable format, for example, allowing the user to click on a table and immediately download the associated data.

publications—would have positive ramifications. It would boost the Fund’s transparency and credibility, as external data users could more easily replicate and double-check the institution’s work. By the same token, it would contribute to the accountability of the Fund and member countries. A number of IMF staff interviewees believed it could also encourage IMF staff to pay greater attention to data if they knew that these data (and estimates to “fill in the blanks”) would be subject to public scrutiny. Moreover, it could foster a move toward greater data comparability and quality in member countries if the staff’s operational data differed from the “official” data.

97. But an open data policy at the IMF would require a careful balancing of the institution’s roles as watchdog and trusted advisor. In its latter capacity, the Fund receives from member countries, as part of its operational data, confidential information that also is often market-sensitive. Such confidentiality must not be compromised, as mistrust could severely impact data provision by members, ultimately impairing the quality of the Fund’s work. Both country authorities and Fund staff raised concerns during interviews regarding these implications of open data.

***The IMF also actively promotes data dissemination by member countries ...***

98. The IMF’s Data Standards Initiatives (e.g., the SDDS, GDDS, and most recently, the SDDS Plus) have played an important role in advancing data dissemination worldwide. However, after a surge of interest at the outset, these initiatives had languished for some years, with few countries graduating from the GDDS to the SDDS.<sup>91</sup> Lately, though, these initiatives have gained some momentum (Box 9). The GDDS has been enhanced with the introduction of active monitoring of the countries’ dissemination practices—thus becoming the e-GDDS. The enhancement aims to foster dialogue during Article IV consultation missions on constraints and capacity-building needs, thereby providing incentives for countries to graduate to the SDDS and drawing policymakers’ attention to the need for statistical development (IMF, 2015a). On its part, the SDDS Plus should help address data gaps identified during the global financial crisis.

99. The dissemination initiatives, as their name indicates, focus on dissemination practices, not on verification of data quality.<sup>92</sup> As indicated above, “quality” is difficult to define or assess, particularly as the IMF is not in a position to examine the production process of each specific statistic and gauge errors and events that may have influenced quality. The IMF thus chooses to leave the assessment of quality to users, prescribing the

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<sup>91</sup> Some GDDS country authorities explained during interviews that, while they wanted to subscribe to the SDDS, their country was unable to graduate because of the Fund’s rigid approach to subscription and failure to understand national peculiarities.

<sup>92</sup> There was debate during early Board discussion of the dissemination standards as to the appropriate focus. Indeed, one Executive Director noted that “... a set of standards that does not deal with the quality of statistics is empty....”

dissemination of information on methodologies and sources—monitorable proxies—to facilitate this assessment. These metadata are published in an IMF-supported bulletin board, the Dissemination Standards Bulletin Board (DSBB), “as provided to the IMF,” leaving the responsibility for their accuracy and reliability with the subscribing country. This setup implies that a country may be in full observance of the standards, and reported as such in the DSBB, while at the same time providing faulty data—potentially in breach of its obligations under Article VIII, Section 5 (see Box 2 above). This could have clear repercussions for the credibility of the dissemination initiatives.

### **BOX 9. CHINA: SUBSCRIBING TO THE SDDS**

China’s statistics have attracted unusual attention in recent years, particularly in the area of national accounts. Given China’s status as the world’s second largest economy, the controversy surrounding the quality of its statistics, particularly in regard to the actual size and rate of growth of the economy, is watched closely by academics, markets, and politicians the world over. The controversy is at its most heated in regard to quarterly real growth figures, where analysts often display a wide range of estimates at variance from the official preliminary figures.

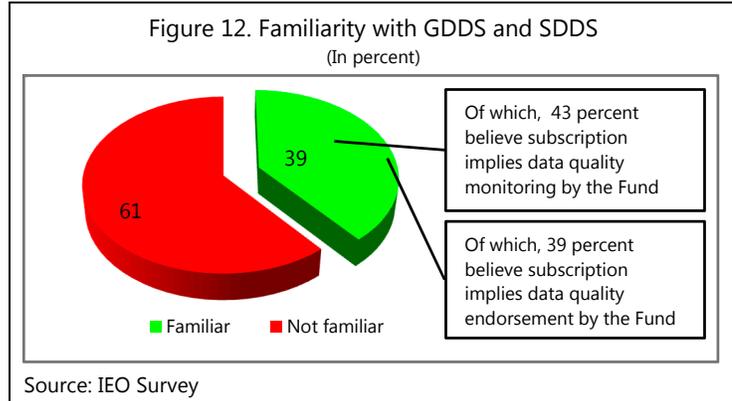
Similarly, in line with the lower growth rates they estimate, some analysts believe China has overestimated the size of its economy. However, a recent study (Rosen and Bao, 2015) delved into the details of the Chinese statistical system, conducted robustness checks, and concluded that “China has made great progress in modernizing GDP statistics” and, if anything, the overall size of China’s economy is underestimated. Indeed, they find that, if China were to switch from using the 1993 SNA to the 2008 version, its economic size could be as much as 13-16 percent larger—not a minor discrepancy for an economy of such global import.

The IMF has not stayed on the sidelines of these developments. Staff missions have discussed perceived data weaknesses with the authorities and included their assessment of the adequacy of the data in their reports. These assessments present a picture of slow but steady improvement over time. Whereas in the 1990s, staff raised major concerns across virtually all sectors of the economy, viz., “...deficiencies in China’s economic statistics are seriously complicating economic policy making and hampering effective surveillance...”<sup>1</sup> by 2005, staff was balancing the discussion of weaknesses with recognition of the efforts at improvement made by the authorities. From 2008 onwards, economic statistics were deemed to be broadly adequate for surveillance (a rating of B in the Statistical Issues Appendix), despite some shortcomings, particularly in the areas of national accounts and government finance.

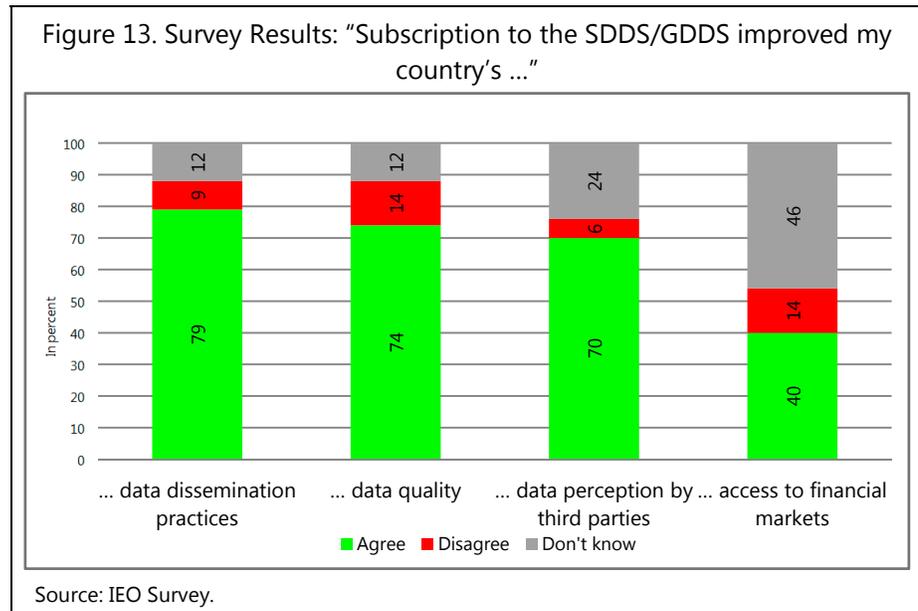
Part of the perceived improvement can be attributed to the technical assistance provided by the IMF and other international organizations. Over the past 25 years, the Fund sent close to 160 TA missions on statistics to China. These missions covered all sectors of the economy, with an initial emphasis on the balance of payments, monetary statistics, and the national accounts. Subsequently, fiscal and financial sector statistics acquired more prominence. As an important step, on September 30, 2015, China for the first time reported the currency composition of its international reserves (COFER) to the IMF on a partial basis, with plans to gradually move to full coverage within two to three years. The progress made in the statistical area enabled China to subscribe to the SDDS on October 7, 2015.

<sup>1</sup> (IMF, 1996a).

100. Data users' misperception regarding the endorsement of data quality by the Fund spreads to the dissemination initiatives. While the evaluation found a remarkable lack of familiarity with and use of the initiatives (Figure 12), more important was the finding that, among those who are familiar, a significant number believe that a country's participation in the GDDS or SDDS implies that the Fund is monitoring and/or endorsing the data quality.



101. Data producers, especially in low-income and emerging market countries, expressed positive opinions regarding the impact of subscription on dissemination practices, data quality, and third parties' perception of national data (Figure 13). Their opinions were more mixed, however, regarding the effect of these initiatives on access to financial markets. Empirical analysis for this evaluation (de Resende and Loyola, 2016) could not find convincing



evidence of the effects of the SDDS on subscribers' gross foreign direct investment inflows, exchange rate volatility, or sovereign borrowing costs, in contrast to the findings in some earlier work by IMF staff.

***... and collaborates with international partners in statistics.***

102. In addition to its work on standards and methodologies, the IMF has a long history of collaboration with other international organizations in the statistical realm, including on allocation of data responsibilities, sharing of data, reduction of overlapping data requests to countries, donor coordination to address data deficiencies at the country level, and achieving data consistency among the various organizations (IMF, 1995c). This collaboration took on

renewed impetus from the increased attention to statistical issues brought by the global financial crisis, and led to the launching of the G20 Data Gaps Initiative in 2009. International partners of the IMF hold, almost unanimously, a high opinion of the IMF's collaboration. Recent examples of collaboration include:

- The Fund's joint work with the Financial Stability Board (FSB) on the Data Gaps Initiative (DGI). While stakeholders' view positively its potential contribution to crisis prevention, the ambitious goals and open-ended nature of the DGI are creating a growing sense of fatigue among participants, with the risk of a loss of momentum.
- The Inter-Agency Group on Economic and Financial Statistics (IAG), chaired by IMF staff, was created in 2008 to address the growing need for coordination on statistical matters, including to help limit duplication of efforts at the international level. According to interviewees, the IAG has made limited progress to date in reducing countries' data reporting burden arising from duplicative data requests from various international organizations.<sup>93</sup> This slow progress is, in part, due to technical challenges with the Statistical Data and Metadata Exchange (SDMX) platform (see below), but also, to a lesser degree, "protecting one's turf" among institutions.
- The Statistical Data and Metadata Exchange (SDMX)—a joint initiative by the BIS, ECB, Eurostat, IMF, OECD, World Bank, and UN—aims to foster the efficient exchange of data and metadata by adopting common standards and guidelines, together with information technology systems that would facilitate a move from the current "push" system for data reporting (i.e., countries must send their data to each institution) to a "pull" system (i.e., countries upload their data to a single web-based repository, and institutions draw on the data as needed). When fully implemented, this could greatly reduce the data reporting burden for member countries and facilitate a much more timely provision of data to analysts.<sup>94</sup>
- The IMF Statistical Forum—created in 2013 and hosted by STA—is intended to become a space where data users, data providers, and policymakers come together to discuss cutting-edge statistical issues. However, so far, these events have been almost exclusively the domain of data providers.<sup>95</sup>

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<sup>93</sup> The survey (and interviews) of data providers indicated that 65 percent (and almost three-quarters among advanced economies) still experienced duplication in the data requests from IAG members.

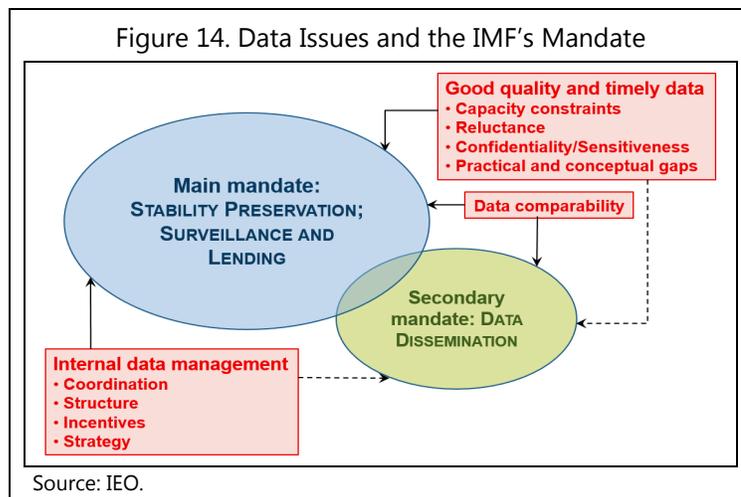
<sup>94</sup> The Open Data Platform for Africa, developed by the IMF in partnership with the African Development Bank is SDMX-based. During interviews, African authorities assessed very positively the impact of this initiative on the standardization and streamlining of data submissions, reducing the reporting burden.

<sup>95</sup> For example, although all Fund staff have been invited to attend, non-STA Fund economists largely have ignored these forums, illustrating their indifference towards statistical issues.

## V. MAIN FINDINGS AND ANALYSIS

### *Data problems are well known...*

103. In general, the Fund has been able to rely on a large amount of data of sufficiently acceptable quality. Nonetheless, this evaluation finds—as have other reports in the past—that data deficiencies still affect the Fund’s strategic operations (Figure 14). In particular, inadequate data and data practices have implied that the Fund has been, at times, not fully equipped to play its critical role of helping to secure global macro-financial stability.<sup>96</sup>



104. These data deficiencies stem from diverse factors. Some have their origin at the very source of the data: member countries. Many of them lack the necessary technical capacity or resources to produce the timely, good quality data essential for economic analysis; others are reluctant to share certain data with the Fund; and all prefer to use the methodology that best suits their own domestic situation, posing difficulties for data comparability. In addition, there will always be data gaps. At times, the data are not produced—by countries or markets—and, in some other instances, the necessary conceptual framework for the “required” data is not even developed. That said, the amount and quality of data available to the Fund have markedly improved over time, in part due to the Fund’s own capacity-building activities.

105. Within the Fund, effective flows of data have been hampered by internal institutional constraints. In general terms, data management in the Fund has lacked coordination and relied on weak structures, resulting in a proliferation of databases and making data sharing cumbersome. Moreover, incentives for staff to pay due attention to data are largely absent. At the same time, STA is disconnected from the rest of the Fund and focused largely on external activities. Finally, the systems in place to identify and address faulty or inadequate data do not work properly.

<sup>96</sup> Securing global macro-financial stability essentially entails two major roles—crisis prevention and crisis response and management (i.e., akin to fire prevention and fire-fighting). This evaluation’s evidence suggests that data issues are more likely to hamper the former than the latter role.

106. In its role as data disseminator, STA adds only marginal value by re-disseminating “official” data that are, for the most part, already in the public domain and easily available given technological advances. Besides, the Fund risks its credibility and reputation due to comparability and consistency issues in the data it disseminates. Relatedly, an open data policy has become best practice in academia and comparable institutions, while the Fund has lagged significantly behind.

*... but a number of closely interrelated factors have prevented the success of past initiatives.*

107. The problems with data in the IMF have long been recognized, and solutions to address them have accordingly been set in motion. Though some noteworthy progress has been made, many of the obstacles to reform have yet to be tackled, owing to a long history of a piecemeal approach to addressing data issues, compounded by institutional inertia, lack of incentives, organizational rigidities, and long-standing work practices.

108. First and foremost, there is *no corporate strategy for economic data* in the Fund. Departments, and sometimes even divisions and country teams, have developed their data practices to suit their own needs, largely in isolation from the rest of the institution. Data are still largely viewed as a consumption good (“owned” by the economists that use the data), rather than as a strategic capital asset for the Fund as a whole. For a knowledge-based institution such as the IMF, this is a critical distinction. The lack of a centralized vision has led to duplication of both data and data systems, driving up costs and contributing to reputational risk.

109. An effective data strategy would, as a starting point, need clear and sustained commitment from Management in implementing a vision of how information can strengthen the Fund’s ability to effectively fulfill its ever more challenging mandate. This would be much more than a process-oriented approach focused on data management.

110. A data strategy would thus entail a much broader array of issues, such as (among others): (i) a clear definition (and prioritization) of the scope of the data the IMF needs; (ii) more regular reviews of the minimum set of data required for surveillance; (iii) a discussion of the IMF’s stance vis-à-vis member countries’ statistical systems (e.g., should it press for strengthening national statistics offices? should it play a stronger watchdog role on provision and quality issues? should data quality shortfalls be flagged more forcefully in Fund documents?); and (iv) an institutional view of how the IMF can stay at the forefront of statistical developments (e.g., the future use of big data;<sup>97</sup> now-casting to detect

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<sup>97</sup> See, for example, the Billion Prices Project @ MIT (<http://bpp.mit.edu/>) and Shapiro and Varian (1999). The IMF also held a conference on Big Data Analytics in November 2015, with the Managing Director issuing a challenge to staff “to step out of your comfort zone and propose bold new ideas” on how to leverage big data to better support the Fund’s work on surveillance and crisis prevention.

macroeconomic turning points, the growth of unstructured datasets, new technological innovations for delivering data from external sources).

111. Thus, a data strategy would be much more than a data management strategy and the associated information technology and budget issues, although these constitute important components. The data management structure recently put in place has spurred important progress, improving the accessibility and sharing of data. However, these are not ends in themselves; they are merely a means to create operational value. Moreover, these efforts to strengthen data management are still of a fragmented, short-term nature, with major changes being put in place before seeing how they fit into a long-term strategy. This progress faces the risk of not being sustained (as with the many previous attempts listed in Annex 7), if a Fund-wide change does not take place (Box 10).

#### BOX 10. PITFALLS IN BUILDING A DATA GOVERNANCE FRAMEWORK

Statistical Analysis System Institute (SAS), a leader in data analytics and management, notes a few of the reasons why data governance fails (see below, where the italicized parenthetical additions translate these into IMF specifics):

- The culture doesn't support centralized decision-making (*data-related decision making in the Fund is—in sharp contrast with the general culture of the organization—extremely decentralized; e.g., the oversight of data management and STA falls under different Deputy Managing Directors*).
- Organization structures are fragmented, with numerous coordination points needed (*each IMF department manages its own data*).
- Business executives (*economists*) and managers consider data to be an “IT issue” (*many of the past IMF papers on data management were from a largely IT perspective*).
- Data governance is viewed as an academic exercise.
- Business units (*area and functional departments*) and “technical units” (*STA and TGS*)<sup>1</sup> do not work together.

Source: SAS website on data governance.

<sup>1</sup> In November 2015, TGS split into two departments, with one of the two—Information Technology Department (ITD)—taking over TGS' responsibility for IT management.

112. The *long-entrenched divisions between STA and other departments* constitute another fundamental problem. STA has become largely isolated from other departments and its outputs detached from the Fund's main operations. This has deprived the Fund of a true service-providing department of statistics such as those that peer international organizations enjoy, and this despite the clear appetite within the staff for this kind of centralized service.<sup>98</sup>

113. *Lack of staff incentives and accountability* constitutes another obstacle for good data management. Fund economists want ever more data to do their analyses, yet data

<sup>98</sup> Of course, a centralized provision of data services would not preclude staff from obtaining data from alternative sources, as needed.

management is seen as a low-visibility task without reward. Much of the work has therefore been devolved to research assistants, who typically are on short-term contracts with little opportunity to go on missions to countries. Yet data literacy hinges crucially on both experience and the ability to engage in discussions with country authorities on data issues.

114. Inadequate incentives have also led to *lack of candor in assessments of data adequacy* for surveillance. This lack of candor stems from several factors, including insufficient attention to data quality, concerns about undermining the relationship with authorities (including fear of “speaking truth to power,” particularly for advanced or systemically important countries),<sup>99</sup> and concerns as to whether surveillance even makes sense if data are termed “inadequate.” Yet candid assessments could induce country authorities to undertake the effort to strengthen the quality and availability of data.

115. In seeming contrast to economists’ apparent lack of interest in data work, the institution as such may be placing *too much emphasis on data alone* as the solution to understanding economic and financial developments. Thus, more data are always seen as better. This considers only one side of the equation—the demand side—while ignoring the supply side and the costs imposed on staff and on data providers in member countries. Data gaps will unavoidably always exist, not least because of the rapidly evolving global economic landscape. Their existence (and the recognition that statistics, by their very nature, are always retrospective and often produced with considerable delay) underscores the dangers of overreliance on either data (or the associated analytical tools) and the importance of judgment and experience in detecting emerging risks. As John Tukey, a renowned statistician, perceptively noted, an approximate answer to the right question can be more powerful than an exact answer to the wrong question (Tukey, 1962).

116. The improvement of both the quality and comparability of data ultimately depends on *the capacity and willingness of member countries*, as the Fund has neither the capacity to systematically monitor data quality nor the leverage to push more forcefully for the adoption of statistical standards. Thus, the resulting discrepancies among the Fund’s different outputs may be unavoidable at present but they highlight the importance for the Fund—especially given the heightened relative weight of multilateral surveillance today—to help and encourage countries to strengthen their statistical apparatus and adopt international standards for all the data they report (not just for data reported to STA). Within the limited role of the Fund in this area, in the short term, the gaps in metadata—clearly explaining the sources and attributes of the different datasets—need to be filled, while, with a long term perspective, the Fund’s capacity-building activities (which are highly appreciated) should continue to contribute to strengthening countries’ statistical systems.

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<sup>99</sup> Indeed, some systemically important countries admitted that they do not fully follow international statistical standards and have no plans to align their methodologies.

117. Finally, *an environment of fiscal austerity*, in both the Fund and member countries, has put any focus on data activities on the back burner—in direct contrast to the fact that an increasingly complex, interlinked global economy should place a premium on data issues.

## VI. RECOMMENDATIONS

118. In today's interconnected world, where local policies and crises can have almost instantaneous global spillovers, it is critical that the IMF has access to the high-quality and timely data it needs to fulfill its mandate. In fixing inherited data problems, and trying to get ahead of the coming ones, it will be important to take into account the interaction among the Fund's various data-related activities to sustain the needed transformation.

119. That is why, first and foremost, this evaluation recommends the design and implementation of a long-term overarching data strategy for the Fund, one that goes well beyond a data *management* strategy (see ¶110). Indeed, given that data is integral to all of the Fund's core operations, all members of the Management team would have a role to play in advancing the Fund's data strategy.

120. In designing such a strategy, consideration could be given to, among other elements, a redefinition—and regular update—of the Fund's data needs; a discussion of the Fund's role in regard to member countries' statistical systems; and measures to ensure that the Fund keeps abreast of new developments in the statistical area. Building on the progress already made in the area of data dissemination (e.g., increasing transparency and data free of charge), the strategy could also include a roadmap toward the adoption of open data. In preparing such a road map, the Fund would need to ensure that it does not compromise its trusted advisor role; the confidentiality of sensitive data shared by members must be preserved and interference with operations avoided.

121. The evaluation then puts forward four recommendations aimed at addressing the most salient problems. These recommendations concern important elements of the overarching strategy, but their implementation could begin in parallel with the design of the strategy. Some of these will have budgetary implications (a precise estimate of which is beyond the purview and capacity of the IEO). Their costs should, however, be compared with the cost of maintaining the current *modus operandi*.

122. The current conjuncture provides a window of opportunity for change. The broader awareness of data-related problems in the aftermath of the global crisis and the much greater data challenges arising from the Fund's reorientation toward multilateral and financial surveillance provide clear rationale for improving IMF data and statistics. At the same time, the progress made under the Fund's new internal data management structure and the associated initiatives, together with the renewed impetus in STA towards increased cooperation with the rest of the IMF and greater internal-service orientation, offer a solid institutional foundation for transformation. Finally, technological advances provide a strong basis for sustained progress toward a strengthened statistical and data architecture.

***Recommendation 1: Develop a long-term strategy for data and statistics at the Fund.***

This should be based on an overarching vision of how data can best support the IMF’s core operational needs, going beyond just a data *management* strategy. While such a strategy would likely incorporate new elements (e.g., those listed in ¶110 above), one of its key purposes would be to align and articulate all the initiatives already underway and provide them with a common institutional objective.

The implementation of the strategy would need strong and consistent leadership, making the business case for Fund-wide value-added of data, and should incorporate a stronger top-down component than previous efforts. A starting point would be to integrate Management oversight of STA and of the new data management structure to provide high-level strategic guidance and coordination and draw on the synergies with the ongoing work on knowledge management.

***Recommendation 2: Define and prioritize the Fund’s data needs and support data provision by member countries accordingly.***

The Fund should adopt a proactive approach to identify existing and emerging data issues most relevant from a global stability perspective. Then in close consultation between economists, statisticians, and member countries authorities, the Fund’s data requirements should be prioritized carefully, weighing the benefits and costs—for the Fund and for member countries—of any additional data requests. The minimum data necessary for surveillance should also be kept under more frequent Board review, while the Fund’s confidentiality protocols could be clarified to the membership in order to reassure countries in their voluntary provision of data. At the same time, demands for new data could be rationalized if the Fund were to make full use of the data already available, including through more training for staff in how to effectively use new or underused analytical approaches.

The Fund should continue supporting data provision by members, including by (i) providing its well-respected capacity building—aligned with the Fund’s overarching data strategy—particularly to the more resource-constrained low-income countries; (ii) encouraging the adoption of international standards and reporting templates for all data provision to the Fund; (iii) considering a less costly alternative to the now-suspended data ROSCs; and (iv) pushing forward with the work of the Inter-Agency Group to reduce the overall burden of data reporting.

***Recommendation 3: Reconsider the role and mandate of the Statistics Department.***

The work of STA could be refocused toward what is needed to support the Fund’s core operations, making the provision of services to the Fund the nucleus of the department’s activity. This would entail a change in the department’s culture and organization—including increased attention to the timeliness and operational relevance of the data it manages, reallocation of resources toward activities that more directly support the Fund’s main mandate, and inclusion of more staff with Fund operational experience.

Once STA has undergone the necessary reforms, the Fund’s recently introduced data management structure could then be integrated into STA, and the (new) department would assume the role of central provider of data services to the Fund. This role could include running an integrated database, with homogenized access to all data used at the Fund, and with a full set of embedded validation checks. In the absence of a clear role and mandate, STA would be increasingly marginalized—with its efforts just focused on capacity-building and standard-setting activities—while the new governance structure would effectively undertake the provision of the statistical services the Fund needs.

***Recommendation 4: Reexamine the staff’s structure of incentives in the area of data management.***

Improving data management practices will require strengthening staff incentives and accountability, both personal and departmental. Among other possible measures, this could entail: ensuring that periodic, third-party assessments of compliance with guidelines are carried out; holding division/mission chiefs responsible for adherence to these guidelines; and clearly recognizing data management skills among development needs in staff’s annual performance reviews. Incentives for staff to candidly assess and discuss data issues in Article IV and FSAP reports also need to be realigned and reviewed. Rather than as a supplement that is largely ignored by country authorities and the Board, the Statistical Issues Appendix should be more fully integrated into Article IV reports. Given its limited effectiveness, the current practice of shoehorning country data into rigid categories of adequacy for surveillance could be rethought or replaced.

***Recommendation 5: Make clear the limits of IMF responsibility regarding the quality of disseminated data, and clarify the distinction between “IMF data” and “official data.”***

To reduce reputational risk, the IMF should make clear that it does not “endorse” the data that appear in its publications, databases, or the Dissemination Standards Bulletin Board (DSBB) and that there are limits to what it can do about quality. The distinction between “IMF data” and “official data” could be clarified, in part, by providing easy access to metadata for all IMF databases, including full annotation of data in the tables in Article IV consultation reports. While clear, easily accessible metadata would help address problems with data comparability in doing cross-country research, even more important would be the ability to present all “IMF data” in line with international standards, including those in Article IV reports; to achieve this would entail encouraging member countries to move toward adopting common reporting templates for all data they provide to the Fund. The IMF could also more closely review the accuracy of DSBB metadata, together with a willingness to remove violators. Finally, as a first step in moving toward more open data, consideration could be given to facilitating electronic access to the data and metadata included in Article IV consultation reports and IMF Working Papers.

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## ANNEX 1. KEY IMF DATABASES AND DATA INITIATIVES

This annex provides a brief, but non-exhaustive, description of two of the most important IMF databases, IMF data dissemination standards, and recent or revamped IMF data-related initiatives. For more information, see <http://www.imf.org/external/data.htm>.

### IMF DATABASES

#### *International Financial Statistics (IFS)*

The *IFS* is the IMF's flagship statistical publication. Created in 1948 and published monthly and annually, it is a standard source of statistics on all aspects of international and domestic finance. For most countries of the world, the *IFS* reports data on exchange rates, international liquidity, international banking, money and banking, interest rates, prices, production, international transactions (including balance of payments and international investment position), government finance, and national accounts. The data published in the *IFS* are gathered as part of an ongoing data collection effort in which member country statistical agencies provide public statistics to the IMF.

#### *World Economic Outlook (WEO)*

The twice-yearly *WEO* publication presents the IMF staff's analysis and projections of economic developments at the global level, in major country groups, and in many individual countries. Coinciding with the publication of the *WEO*, the *WEO* database is updated. This cross-country database contains macroeconomic data series from the statistical appendix of the *WEO* publication, including data on national accounts, inflation, unemployment rates, balance of payments, fiscal indicators, trade for countries and country groups (aggregates), and commodity prices whose data are reported by the IMF. Data are available from 1980 to the present, and projections are given up to the next five years. Data and projections are based on the information gathered by the IMF country desk officers in the context of their missions to IMF member countries and on ongoing analysis of the evolving situation in each country. IMF staff estimates continue to serve as proxies for historical series when complete information is unavailable.

### DATA DISSEMINATION STANDARDS<sup>1</sup>

#### **Special Data Dissemination Standard (SDDS)**

The SDDS was established by the IMF in 1996 to provide guidance to country members that have, or might seek, access to international capital markets in the provision of their economic and financial data to the public. The SDDS aims to increase the availability of data, thereby contributing to the implementation of sound macroeconomic policies and the functioning of

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<sup>1</sup> The SDDS Plus is also one of the IMF's data dissemination standards, but is not included in this subsection. Rather, it is described in the subsection on Recent Data-Related Initiatives.

financial markets. Participation is voluntary but, once a country has subscribed, it entails certain obligations in terms of data dissemination, including the coverage, frequency, and timeliness of data; public access; integrity; and quality. The SDDS differentiates two types of data categories: (i) prescribed (data considered essential for the economic analysis of a country and mandatory for subscribers); and (ii) encouraged (data that are not considered essential but could increase the transparency of a country's economic performance and policy). To date, there are 64 subscribers to the SDDS.

### **General Data Dissemination System (GDDS) and the Enhanced GDDS (e-GDDS)**

Established by the IMF in 1997, the GDDS is designed to encourage member countries to improve their data quality and provides a framework for evaluating needs for data improvement and setting priorities in this respect. It also provides recommendations on good practice for the production and dissemination of statistics (generally less demanding than the corresponding requirements of the SDDS), with an emphasis on progress, over time, toward higher-quality data that are disseminated more frequently and in a more timely fashion. Participation is voluntary and generates no obligations regarding data provision. However, it requires (i) a commitment to use the GDDS as a framework for the development of national systems for data management; and (ii) preparation of metadata on compilation and dissemination practices and the elaboration of short- and medium-term plans for improvement. In 2015, the IMF Executive Board decided to enhance the system (e-GDDS) to support transparency, encourage statistical development, and help create synergies between data dissemination and surveillance. The e-GDDS has four elements: (i) a revision to the encouraged data categories; (ii) a renewed focus on disseminating data in a standardized format; (iii) annual monitoring of progress and developments; and (iv) leveraging surveillance activities to support statistical improvement. To date, there are 112 participants in the GDDS.<sup>2</sup>

### **Data Quality Assessment Framework (DQAF)**

The DQAF provides a structure for assessing data quality by comparing country statistical practices with best practices, including internationally accepted methodologies. It focuses on the quality-related features of governance of statistical systems, core statistical processes, and statistical products. Under the DQAF, assessments have a six-part structure starting with a review of the legal and institutional environment (prerequisites of quality) and followed by an analysis of five dimensions of quality—assurances of integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility.

### **Reports on the Observance of Standards and Codes (ROSC): Data Modules**

ROSCs, covering 12 areas important for the IMF's operational work, summarize the extent to which countries observe certain internationally recognized standards and codes. One of the

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<sup>2</sup> In November 2015, Botswana became the first IMF member country to implement the recommendations of the e-GDDS.

12 areas is data dissemination. Data ROSCs, now temporarily suspended, were conducted by Fund staff at the request of member countries and were, therefore, voluntary. They provide an in-depth evaluation of members' macroeconomic statistics against the SDDS or the GDDS—to assess dissemination practices—complemented by an assessment of data quality based on the DQAF. Since 1999, 89 member countries' data dissemination practices have been assessed with a data ROSC.

### **Fiscal Transparency Evaluation (FTE)**

The FTE is the IMF's fiscal transparency diagnostic and is carried out at the request of member countries. It is part of the IMF's efforts to strengthen fiscal surveillance, support policymaking, and improve fiscal accountability. The FTE is based on the revamped Fiscal Transparency Code (FTC), which is organized around four pillars, the first of which is on fiscal reporting. It replaces the Fiscal Module of the Reports on Observance of Standards and Codes and provides more rigorous and quantified analyses of the comprehensiveness and quality of published fiscal data and key sources of fiscal vulnerabilities.

## **RECENT DATA-RELATED INITIATIVES**

### **G20 Data Gaps Initiative (DGI)**

The global financial crisis generated a surge in the demand for new and better data from policymakers and supervisors, both national and international, on financial stability, cross-border linkages, and domestic vulnerabilities. As early as April 2009, the G20 asked the IMF and the Financial Stability Board to lead an initiative aimed at addressing the gaps and deficiencies uncovered by the crisis. Twenty recommendations resulted, organized around four areas of work—(i) buildup of risk in the financial sector; (ii) cross-border financial linkages; (iii) vulnerability of domestic economies to shocks; and (iv) improving the communication of official statistics. The initiative identified topics for which the development of a statistical/conceptual framework was needed, and some for which the existing framework needed enhancement.

### **SDDS Plus<sup>3</sup>**

Established in October 2012, the SDDS Plus aims at addressing some of the fissures uncovered by the global financial crisis. As with the SDDS, participation is voluntary, but those economies with systemically important financial sectors, as determined by the IMF Executive Board, are encouraged to join. In addition to the obligations associated with participation in the SDDS, SDDS Plus adherents must observe requirements in nine data categories that are closely related to the twenty recommendations under the G20 Data Gaps Initiative: (i) sectoral balance sheets; (ii) quarterly general government operations;

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<sup>3</sup> While the SDDS Plus is part of the data dissemination standards, it is discussed here under recent data initiatives, because participating countries have until 2019 to meet its requirements.

(iii) general government gross debt; (iv) other financial corporations' survey; (v) financial soundness indicators; (vi) debt securities; (vii) participation in the Currency Composition of Foreign Exchange Reserves (COFER) database; (viii) participation in the Coordinated Portfolio Investment Survey (CPIS); and (ix) participation in the Coordinated Direct Investment Survey (CDIS). In November 2014, the SDDS Plus was officially launched when eight member countries—France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden, and the United States—subscribed.

#### **Financial Sector Assessment Program (FSAP)<sup>4</sup>**

The FSAP was created in 1999 with the aim of promoting the stability and health of domestic financial sectors. While the FSAP is considered a form of technical assistance provided by the Fund on a voluntary basis and upon request of a member, it has nevertheless become an important instrument for Fund surveillance and provides input to the Article IV consultation. In the aftermath of the global financial crisis, the Executive Board decided to make periodic Financial Stability Assessments (FSAs), a component of the FSAP, mandatory for 25 jurisdictions with systemically important financial sectors. The number of jurisdictions was expanded to 29 in December 2013. The mandatory FSAs include three main elements: an evaluation of risks to macro-financial stability, an assessment of the country's financial stability policy framework, and the analysis of the authorities' capacity to manage a financial crisis. Consequently, a large amount of data (much of which could be market-sensitive) and metadata is provided by members in the context of FSA exercises, including those necessary to conduct assessments of financial soundness and perform stress tests (e.g., solvency, liquidity measures).

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<sup>4</sup> While the FSAP is not technically a data initiative, it is data-intensive and discussed here because of the recent changes to its framework.

## ANNEX 2. SUMMARY OF BACKGROUND PAPERS AND DOCUMENT

### ***BP/16/01: THE RULES OF THE GAME***

#### DATA-RELATED MANDATE, OBLIGATIONS, AND PRACTICES AT THE IMF

This paper describes the evolution of and current set of obligations and practices for data provision by IMF members and for data collection and dissemination by the Fund. For member countries, the legal framework stipulates the guiding principles, the minimum set of data to be provided, and the procedures to be followed in case of misreporting. Most of the economic data the Fund collects—in the context of surveillance and for other operations—are provided by countries voluntarily, on the basis of trust and mutual benefit. For the Fund, very few legal obligations exist concerning data. Nonetheless, the Fund contributes to the production and dissemination of good quality data by members, and has mechanisms in place to monitor the quality of the data collected. At the same time, it is subject to a comprehensive transparency policy applicable to its own documents and the data they include.

### ***BP/16/02: PROGRESS THROUGH CRISES***

#### THE EVOLUTION OF THE IMF'S STATISTICAL ARSENAL

Deficiencies in the provision or interpretation of statistical information have been identified as among the contributing factors in several of the major economic crises of recent times. While not a main cause of any particular crisis, these deficiencies acquired enough prominence to trigger formal efforts to correct them, including at the IMF. Thus, the **Latin American debt crises** of the early 1980s prompted a sharp increase in the Fund's preoccupation with statistical issues, in particular with the coverage and timeliness of debt statistics. The **Mexican crisis** in 1994 revealed the importance of timely provision of key information—on international reserves and the central bank's balance sheet in this case—to both the IMF and financial markets. This led to the establishment of the SDDS and GDDS by which countries voluntarily subscribe to disseminate an agreed set of data (and associated metadata). Deficiencies in the quality and integrity of data—again centered on reserves and external borrowing—were in part behind the **Asian crisis** of 1997 and led to additional prescribed components of the SDDS, the inclusion of a data module in the ROSC process, and the development of a Data Quality Assessment Framework. At the same time, the perceived urgency of strengthening the capability for early detection of crises led to the establishment of the very data-intensive FSAP and Vulnerability Exercise. Finally, the recent **global financial crisis** gave renewed impetus to efforts to strengthen the IMF's statistical arsenal, with the Fund participating actively in the G20 Data Gaps Initiative and expanding anew the scope of the SDDS through the creation of the SDDS Plus, a higher tier aimed at systemically important countries.

***BP/16/03: OLD ACQUAINTANCES*****PAST VIEWS ON DATA PROBLEMS IN THE IMF**

Problems related to data have been almost a constant throughout the history of the Fund. Whether exogenous (i.e., due to deficiencies in the data provided by third parties or generated by emerging data needs) or endogenous (derived from flawed institutional practices), data issues have been identified and documented on numerous occasions. Likewise, the impact of these problems on the Fund's performance in delivering on its mandate has been long known, yet despite repeated attempts to address some of these concerns, pervasive problems persist. This paper reviews the most prominent data issues in recent years (2007–15), as reflected in both IMF documents and previous IEO evaluations. While these documents focused on different topics, data problems were, at times, explicitly recognized as affecting findings or recommendations.

***BP/16/04: INADEQUATE STATISTICS AND FAULTY ANALYSIS***

The IMF's economic and financial analysis and the quality of its policy advice and economic programs are predicated on the availability of timely, accurate data. By and large, the process of data provision to the Fund works well: within the capabilities of their national statistical systems, countries provide a vast amount of information that is in most cases reliable and available within a reasonable period of time. Nevertheless, there have been instances where data inadequacies have led to a wrong assessment of a country's situation and hence to incomplete or inappropriate policy recommendations. Based on bad data, staff may have provided a more positive assessment of a given economic situation than warranted—misleading both the country's population and the international community—or may have given policy recommendations that unnecessarily postponed needed adjustments. Instances of data that subsequently prove to be wrong or incomplete are probably quite frequent, but usually of little consequence and therefore go unreported. However, this paper discusses several cases where staff documented that their analysis had been adversely affected by faulty data. Most of these cases involved the fiscal deficit and its financing, and the level and liquidity of the central bank's international reserves.

***BP/16/05: ON THE EFFECT OF IMF DATA STANDARDS INITIATIVES: DO THEY AFFECT FOREIGN DIRECT INVESTMENT, EXCHANGE RATE VOLATILITY, AND SOVEREIGN BORROWING COSTS?***

The IMF's Data Standards Initiatives—in particular, the SDDS and GDDS—are designed to help countries improve their data dissemination practices and, in the process, increase transparency about the macroeconomic and financial situation of participating countries, reducing noise-to-signal ratios for investors. IMF research suggests that subscription to these initiatives can have significant positive effects on selected international financial variables, including foreign direct investment inflows, exchange-rate volatility, and sovereign bond spreads or yields. This paper evaluates the robustness of these findings using both the same

raw dataset used by the IMF authors and an updated dataset that incorporates revisions, additional countries, and more recent periods. In both cases, the data were adjusted for potential problems that may have been previously overlooked—nonseasonally adjusted quarterly data and measurement errors. The original econometric models, as well as models with different specifications that controlled for additional factors and/or estimated with different methods, were applied to both datasets. The results indicate that the IMF findings are, in general, not robust. They were often based on potentially problematic transformations of the data that, when removed or corrected, substantially changed the original conclusions. Nor do the results seem robust to changes in the sample. In some instances, this may reflect insufficient consideration of the effect of factors other than IMF data initiatives—such as global developments that may affect all countries, or time dependency. One conclusion—that participating in the SDDS helps reduce exchange rate volatility—may reflect a misinterpretation of the original results. Although the favorable impact of the SDDS on sovereign borrowing costs failed to stand up to some of the robustness checks, it appears to be relatively more immune to tests based on “cleaned” data and alternative econometric specifications.

***BP/16/06: DATA AND STATISTICS AT THE IMF***

QUALITY ASSURANCES FOR LOW-INCOME COUNTRIES

How does the IMF deal with the challenge of obtaining timely, high-quality data for its operational purposes? This paper examines the different ways the IMF performs quality assurances on macroeconomic statistics for internal and external use. It focuses on how the IMF handles data and metadata on countries that are classified as low income because these countries tend to face the greatest resource constraints in producing and disseminating the high-quality macroeconomic statistics and metadata needed to fully support the IMF’s surveillance and financial programs. The paper takes up two issues that have been highlighted in previous IMF reviews on statistics. The first is whether reputational risks derive from the IMF’s dissemination of data that may be of questionable quality, given that data users often cannot distinguish IMF data from official country statistics. The second is whether the IMF incurs a further reputational risk when the data it reports in its various databases and reports are not consistent.

***BD/16/01: HOW WELL IS THE IMF DOING ON DATA?***

EVIDENCE FROM SURVEYS

This background document presents the evidence gathered by the IEO for the evaluation from surveys of three groups of stakeholders: (i) IMF staff, (ii) external users of data that are published by the IMF, and (iii) providers of country data to the Fund (mainly country authorities). External users hold IMF-provided data in high regard, but there is a widespread misconception that the Fund monitors and endorses the quality of the data it disseminates. Data providers are generally satisfied with the reporting process, although there is a significant lack of familiarity with the Fund’s data-related procedures, especially in the area of data quality monitoring. Nearly all data providers assess the Fund’s technical assistance

and training in the statistical domain very positively. According to IMF staff, source-data issues continue to adversely affect the conduct of the Fund's core operations (surveillance and lending), and current quality-monitoring systems are questionable. While there is considerable interest in centralized provision of statistical services, STA's work is largely unknown and far from meeting the expectations of other departments. The positive potential of recent internal data management initiatives—a move to structured databases, implementation of a common surveillance database and economic registry, and new governance structure—is recognized by some IMF staff, but largely unknown to the majority (as of February-March 2015, when the survey was conducted, albeit almost four years after the launching of the initiatives). Overall, IMF staff are reasonably satisfied with the data available for their work, although they highlighted gaps in some areas, most notably for balance sheet analysis and on macro-financial linkages.

**ANNEX 3. A BRIEF HISTORY OF DATA AND STATISTICS AT THE FUND<sup>1</sup>*****IN THE BEGINNING ...<sup>2</sup>*****Data provision**

The provision of data by member countries to the IMF is rooted in the IMF's Articles of Agreement. Specifically, Article VIII, Section 5(a) describes the obligations of members to furnish information—both for surveillance and for the use of the Fund's general resources—and establishes the “minimum necessary” information to be provided by member countries, so that the Fund can discharge its duties.<sup>3</sup> Data requirements laid out in the Articles reflected the needs of the institution at the time of its founding, working under the par value system, and thus they were mainly centered on holdings and flows of gold and foreign exchange, trade, and exchange controls.

Beyond the Articles of Agreement, the *de jure* provision of data by member countries has been under frequent review since the early years of the IMF, in a quasi-continuous effort to keep the institution's statistical activities aligned with its needs. A major step in this process was the 1977 Surveillance Decision. Following the termination of the par value system in 1971, the 1977 Decision significantly expanded the purview of the Fund's surveillance responsibilities, implicitly recognizing the need for a wider range of data.<sup>4</sup> In practice, however, most member countries voluntarily provide much more data to the Fund than is required under the Articles.

The adoption of Decision No. 13183—Strengthening the Effectiveness of Article VIII, Section 5—in 2004 was another major step in redefining the IMF's data provision framework. Several factors drove the Executive Board to take this decision: major crisis episodes had highlighted the criticality of timely and proper provision of information to the Fund; the list of data to be provided to the IMF on a mandatory basis had become clearly insufficient (most notably, some fiscal and monetary aggregates were missing from the list); and the Fund wanted to better equip itself to deal with the growing number of misreporting cases. Thus, the Decision expanded and updated the list of data considered mandatory and

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<sup>1</sup> This is not meant to be a comprehensive history of data and statistics in the Fund, but merely to highlight those areas upon which the evaluation is most focused.

<sup>2</sup> This section draws on de Las Casas (2016).

<sup>3</sup> Article VIII, Section 5(b) also empowers the Fund to request additional information, but it enjoins the Fund to take into account members' capacity and not to require data that would disclose the details of individuals or corporations.

<sup>4</sup> The 1977 Surveillance Decision was replaced by the 2007 and 2012 Surveillance Decisions, which further aligned surveillance with the requirements of the evolving global economy, albeit without imposing new obligations on members, including those of a statistical nature.

outlined the steps to be followed when a country does not meet its obligations or when a member is unable to furnish the required information.

### **Data dissemination**

In addition to collecting data and information for its core operations, Article VIII also states that one of the Fund's functions is to "act as a center for the collection and exchange of information on monetary and financial problems." As a first step to fulfilling this function, the Executive Board agreed in June 1946 that the IMF should publish a "monthly or quarterly Fund bulletin containing statistics of material bearing directly on the problems of the Fund," and the first issue of the *International Financial Statistics (IFS)* appeared in January 1948.

The *IFS* established itself as the principal channel for disseminating to the membership and the public the macroeconomic data collected by the IMF. The Fund also began producing more specialized statistical publications in its early years, with the first *Balance of Payments Statistics Yearbook* appearing in 1949. The *Direction of Trade Statistics (DOTS)* followed closely on its heels, with its first edition in 1950. The *Government Finance Statistics Yearbook* was introduced in 1977, providing internationally comparable data on the finances of over 100 member country governments.

While the above publications are the responsibility of the Fund's Statistics Department (STA), it was the Research Department (RES) that initiated the *World Economic Outlook (WEO)* in 1969, although its external publication only began in 1980. In contrast to the STA publications, the *WEO*'s main purpose is analytical, with data dissemination largely a by-product of the global economic outlook exercise.

### **Data management**

In 1956, the IMF's Bureau of Statistics, the forerunner of today's Statistics Department (STA), was created.<sup>5</sup> Strong initial personalities influenced the development of statistical activities and the culture of the Bureau, with the first Director establishing the Fund's conceptual framework for statistics as well as the mechanism for collecting statistics from member countries. The Bureau of Statistics focused on its monthly publication program, with the aim of having high-quality, internationally comparable data that would not be published unless they were "right."<sup>6</sup> This proved problematic for the area departments, which needed timely data and in a format that would allow them to speak the same language as the policymakers in the relevant countries, and thus sent STA and area departments on diverging statistical paths.

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<sup>5</sup> The Bureau of Statistics was initially in the Research Department, but was separated from RES in 1968.

<sup>6</sup> This discussion is based on interviews, including of Jacques Polak, conducted for a proposed *History of Statistics*, with the project led by John McLenaghan, a former IMF economist and Director of Statistics.

Area departments began compiling their own country databases (often during the course of staff missions), which became the primary data source for the Fund’s operational work. Meanwhile, RES, the Monetary and Capital Markets (MCM), Fiscal Affairs (FAD), and Strategy Policy and Review (SPR) Departments also created specialized cross-country databases suited to their needs, such as for the publication of the various IMF flagships (*WEO*, *GFSR*, and *Fiscal Monitor*). This led to a highly decentralized, uncoordinated approach to data collection and management which persists to this day.

### ***PROGRESS THROUGH CRISES***<sup>7</sup>

While the evolution of statistical activities at the IMF has followed the changing needs and activities of the institution, the process was neither smooth nor continuous. Innovation largely came in irregular spurts, often prompted by a crisis that laid bare some inadequacy in the existing statistical toolkit. Indeed, data deficiencies were identified as among the core reasons for failing to foresee and/or prevent most of the major economic crises of recent times. The following briefly describes four instances where concerted efforts at improving statistical arrangements sprang out of crises that had global systemic relevance.

#### **Latin American debt crisis of the 1980s**

This crisis highlighted the need to collect more extensive data on the **external debt and debt-service obligations** of member countries. The year 1983 thus witnessed an explosion of Fund preoccupation with statistical issues. Concerns with the coverage and timeliness of debt statistics, as well as the mechanisms for controlling foreign borrowing by the public sector, were foremost among the Fund’s preoccupations. The Fund expanded its provision of technical assistance in the external debt field and took steps to strengthen its work on the measurement of debt, including on the coverage of short-term debt and international banking flows. Bilateral surveillance for emerging markets was enhanced within the Article IV consultation process by including a forward-looking analysis assessing the **sustainability of external debt** in the medium-term.

#### **Mexican crisis in 1994**

Lack of timely crucial information<sup>8</sup> had resulted in both the Fund and financial market participants being caught unaware of a looming major crisis. This served as a wakeup call to the IMF, both to intensify its efforts to ensure the timely availability of comprehensive data and to arrange for the wider dissemination of these data into the public domain. An important milestone was the Executive Board agreement, in April 1995, on an “**absolute minimum**” of

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<sup>7</sup> This section draws on Reichmann (2016).

<sup>8</sup> Data on international reserves and the central bank balance sheet had been made available to the Fund, but with a two-to-three-month lag.

**data** that members were expected to provide to the Fund for surveillance purposes. This minimum included the balance sheet of the central bank, plus ten key economic indicators.<sup>9</sup>

Provision of data to the public also became a main strand of the Executive Board's debate. Well-informed markets would not only function more efficiently, but could enhance policy discipline. The Fund, under its Articles, had no authority to require members to publish data and could rely only on their willingness to do so. It thus undertook to design standards for public dissemination and invited members to voluntarily subscribe to them. To this end, the Executive Board established in 1996 the **Special Data Dissemination Standard (SDDS)**, which was followed in 1997 by the less demanding **General Data Dissemination System (GDDS)**. To operationalize the standard, the Fund set up an electronic bulletin board—the **Dissemination Standards Bulletin Board (DSBB)**.<sup>10</sup>

### **Asian crisis of the late 1990s**

Nontransparent information on reserves and external borrowing and shortcomings in the quality and integrity of data, were cited as among the deficiencies behind this crisis. In Thailand—the country where the crisis first appeared—the IMF and international financial markets had not been able to obtain a clear picture of the true situation regarding international reserves until the onset of the crisis revealed existing data to be misleading.

Notwithstanding the reluctance of country authorities to disclose information regarded as sensitive, agreement was reached in 1999 on a **data template on international reserves and foreign currency liquidity** that was incorporated into the SDDS as a prescribed component. On external borrowing, efforts were directed towards obtaining more comprehensive, timely data, especially from the private sector and at shorter maturities. A separate data category for external debt was established in the SDDS, a first step towards the development of data on a country's entire **International Investment Position (IIP)**.

Other major changes in the statistical toolbox included the data modules of the **Reports on the Observance of Standards and Codes (ROSCs)**, in which the IMF was asked to assess countries' observance of international standards in economic and financial statistics. The IMF subsequently developed a **Data Quality Assessment Framework (DQAF)**, which provides a structure for assessing the extent to which countries meet the prerequisites of data quality and follow international best practices in regard to the standards espoused by the SDDS. The DQAF became the basis for conducting the data ROSC.

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<sup>9</sup> Exchange rates, international reserves, reserve or base money, broad money, interest rates, consumer prices, external trade, external current account balance, fiscal balance, and GDP/GNP.

<sup>10</sup> The DSBB contains information about the availability of the data and explanations as to how the statistics are produced (the "metadata").

The Asian crisis (and other capital account crises in the late 1990s) gave renewed impetus to a wider discussion on the early detection of risks. Principal elements were the establishment of the **Financial Sector Assessment Program (FSAP)** in 1999, the **Vulnerability Exercise for Emerging Markets (VEE)** in 2001, and the *Global Financial Stability Report (GFSR)* in 2002. These exercises were very data-intensive and greatly increased the need for more (and more detailed) data from the financial and corporate sectors, areas where data weaknesses are particularly notable. With a greater focus on financial sector vulnerabilities, the IMF's Executive Board endorsed a list of core and encouraged **Financial Soundness Indicators (FSIs)**. Like the *WEO*, the *GFSR* is a flagship analytical publication of the Fund that has also become a public source of financial data.

Finally, public pressure during and after the Asian crisis contributed to a revolution in the Fund's approach to disclosure of country information. The Fund's **transparency policy**, introduced in the late 1990s, evolved into the publication of most of its country reports, opening up a major avenue of additional dissemination of data, in particular, the Fund's "operational" data upon which the Board bases its decisions.

### **Recent global financial crisis**

The crisis revealed a number of areas where statistical information was either insufficient or lacking and highlighted, in particular, that financial innovation had far outpaced financial disclosure.<sup>11</sup> The crisis also exposed fundamental weaknesses in integrating financial sector linkages into the macroeconomic models used for policymaking. The G20 called on the IMF and the FSB to explore and address data gaps revealed by the crisis.<sup>12</sup> This gave rise to the **G20 Data Gaps Initiative (DGI)** in 2009. In general terms, the data gaps fell into three main interrelated areas: (i) the buildup of risk in the financial sector; (ii) cross-border financial linkages;<sup>13</sup> and (iii) the monitoring of the vulnerability of the domestic economy.

The IMF took an active part in addressing these shortcomings. It launched new initiatives to **strengthen data provision for surveillance**, including intensifying efforts to increase the number of countries reporting the IIP, foreign exchange reserves, and financial soundness indicators; publishing new or updated manuals in several areas; enhancing the relevance of IIP data through two coordinated surveys on direct and portfolio investment; and urging more countries to report the currency composition of their foreign exchange reserves. The IMF also sought to **strengthen data dissemination**. Several new data categories were

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<sup>11</sup> Despite the increased use of a growing number of Financial Soundness Indicators (FSIs), these failed to give a proper sense of the degree and location of leverage and risk taking within the system, particularly in the lightly regulated or unregulated areas that constitute the "shadow banking system."

<sup>12</sup> *The Financial Crisis and Information Gaps—Report to the G-20 Finance Ministers and Central Bank Governors*. IMF (2009c).

<sup>13</sup> The rapid growth of large financial institutions with a global reach gave rise to a network of financial links and exposures that was not captured by the information available to domestic regulators or policymakers.

incorporated into the SDDS on either a prescribed or encouraged basis, but the principal modification was the establishment of the **SDDS Plus**, a higher tier of data standards aimed at systemically important countries.

The crisis also prompted the Fund to undertake a wide-ranging series of reforms to strengthen the assessment of risks and vulnerabilities. These have included the development of an **Early Warning Exercise** (EWE), conducted jointly with the FSB; the **expansion of the vulnerability exercise** to advanced countries and low-income countries; and the introduction of **Spillover Reports**,<sup>14</sup> the *Fiscal Monitor*,<sup>15</sup> and the **External Sector Reports**.<sup>16</sup> Each of these new analytical approaches is heavily data dependent.

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<sup>14</sup> Spillover reports aim to assess the impact of outward spillovers from systemic countries, entailing the need for data on macroeconomic and financial interlinkages.

<sup>15</sup> The *Fiscal Monitor* is the third Fund flagship report, with a focus on assessing fiscal sustainability.

<sup>16</sup> In the External Sector Report, the EBA methodology is to gradually replace the CGER approach—“subject to data availability” (IMF, 2014b)—for external sector assessments, as the EBA requires a broader set of indicators.

## ANNEX 4. KEY DATA-RELATED FINDINGS IN SELECTED IEO EVALUATIONS AND IMF POLICY REVIEWS<sup>1</sup>

### IEO EVALUATIONS

#### *IMF Response to the Financial and Economic Crisis, 2014*

While data shortfalls may not have been the main reason the Fund missed the crisis, “the Fund’s analysis of risks and vulnerabilities can, of course, be only as good as the data it is based on” (Robinson, 2014). This notion, put forward by the IEO evaluation on the *Response to the Crisis*, became particularly relevant during the crisis. The crisis revealed substantial data deficiencies in the realm of risk analysis, showing, for example, that the Fund had too little access to granular banking data. The evaluation also identified the dynamic character of data gaps and how new ones will emerge as financial markets continue to develop and risk analysis becomes more sophisticated. The evaluation concluded that the IMF needed to “take a proactive approach in identifying emerging statistical issues, for instance, through a periodic assessment of the state of global statistics and data gaps most relevant from a global stability perspective for discussion at the Executive Board and the IMFC [International Monetary and Financial Committee].”

#### *IMF Forecasts: Process, Quality, and Country Perspectives, 2014*

The IEO evaluation of *Forecasts* studied the Fund’s macroeconomic predictions. In doing so, it emphasized how the Fund’s forecasting exercises hinge on the quality and timeliness of data. In particular, the evaluation found that data availability was the single most important factor in the choice of forecasting methods, ranking substantially higher than other factors such as historically used methodologies, time constraints, relative accuracy of available alternatives, departmental institutional guidance, or country authorities’ preference. The evaluation report also argued that, as a general rule, the more advanced the economy, the better the quality and availability of data and, therefore, the more room for use of more sophisticated, data-intensive techniques. Among the evaluation’s five recommendations was one critically related to data: data used for forecasts and outturns that already exist internally should be made available to the public (In contrast to the full support for the evaluation’s other four recommendations, this recommendation received only qualified support from Management and the Board).

#### *The Role of the IMF as Trusted Advisor, 2013, and IMF Interactions with Member Countries, 2010*

The IEO evaluation of *Interactions* documented how members’ lack of trust affected their data provision to the IMF (a problem raised earlier by the evaluation on *Exchange Rates*, see

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<sup>1</sup> This annex draws on de Las Casas and Pedraglio (2016).

below). According to the evaluation surveys, a significant percentage of country authorities (19 percent in large emerging economies, 17 percent in smaller advanced economies, 15 percent in large advanced economies, 14 percent in PRGF-eligible countries, and 7 percent in smaller emerging economies) admitted to withholding data, fearing their possible dissemination to the Executive Board or others.

Along the same lines, the *Role of the IMF as Trusted Advisor* evaluation analyzed the tension between the roles of the Fund as trusted advisor and ruthless truth-teller or, in other words, between confidentiality and transparency. This trade-off could have a significant impact on the provision of data that authorities consider sensitive. In fact, the evaluation found evidence that authorities in some countries—mainly large emerging markets—were reluctant to have “a candid exchange of views and raising sensitive issues” and noted that “any candor can be used against you.” As the survey to authorities revealed, the ultimate fear was that information shared confidentially may go beyond immediate staff, ranging from other staff and Management to the general public.

### ***Research at the IMF: Relevance and Utilization, 2011***

This evaluation found several instances of IMF publications affected by data limitations: (i) *Regional Economic Outlooks*, where the analysis suffered from the use of data pooled from countries in very diverse circumstances, (ii) Selected Issues Papers, which sometimes did not take into consideration data limitations and used excessively high levels of data aggregation, and (iii) some chapters of the *WEO*, which based their recommendations on “fragile data.”

### ***IMF Performance in the Run-Up to the Financial and Economic Crisis: IMF Surveillance in 2004–07, 2011***

The IEO evaluation of the *IMF Performance in the Run-up to the Crisis* identified three data-related problems. First, a significant amount of potentially useful data was ignored or misinterpreted during the period considered. Second, the impact of data issues was asymmetric, suggesting a lack of evenhandedness in the Fund’s interactions with member countries; data limitations did not prevent the IMF from praising the state of some financial systems in advanced economies—including the benefits of risk-diversification—while raising the alarm in some emerging markets. Third, while surveillance teams in advanced countries typically received the information they requested, it was not clear whether they had the capacity to analyze all the information.

The same evaluation found that staff “felt uncomfortable” challenging advanced countries’ views. This was fueled by the assumption that country officials had better access to banking data and knowledge of their financial markets, and by the excellent reputation of central bank economists in these countries. To address these issues, the evaluation suggested enhanced candor and clarity in openly discussing data limitations and methodological qualifications.

### ***IMF Involvement in International Trade Policy Issues, 2009***

This evaluation detected how weak data on trade hampered surveillance and generated problems in program design and monitoring. The evaluation also noted a link between data problems and staff resources devoted to data gathering. Case studies revealed that data gathering in the trade area—as in others—is resource intensive, with mission members typically too overburdened to pay sufficient attention. The same was later confirmed by (i) the IEO evaluation report of *The Role of the IMF as Trusted Advisor*, which found that around 60 percent of mission chiefs agreed that too much of a mission team’s time was devoted to data gathering, reducing the amount of time available for other activities; and by (ii) the evaluation of the *Response to the Crisis*, which revealed that the effort expended by area department staff to provide, review, and ensure consistency of data across a variety of multilateral surveillance products “seriously impacted their ability to do country work.”

### ***IMF Exchange Rate Policy Advice, 1999–2005, 2007***

This evaluation found that the Fund’s analysis and advice on exchange rate policy was not as effective as it needed to be—due, among other things, to inadequate accuracy, timeliness, and comprehensiveness of data available to staff.<sup>2</sup> While data deficiencies were mentioned in several areas, the evaluation identified as particularly problematic for the Fund the reticence of some “big reserves holders” to disclose the composition of their foreign reserves.<sup>3</sup> This reticence also prevented these countries from participating in the Currency Composition of Foreign Exchange Reserves (COFER) database and the SDDS.

The evaluation also argued that, despite the impact of data deficiencies on the Fund’s operations, evidence suggested that insufficient remedial action had been taken. Staff appeared to have been hesitant to forcefully address identified data problems and prone to certify the adequacy of the data that countries provided. As reasons for this lenience, the evaluation pointed to (i) the convenience of maintaining a smooth relationship with the authorities, and (ii) the absence of sufficient support from Management and the Executive Board for the staff to act more strongly. Moreover, the evaluation raised a possible problem of evenhandedness, since staff seemed to be more reluctant to raise difficult issues with advanced economies, while being more proactive with others. A case in point was the data availability for the 1999 Greek Article IV consultation. The Article IV report itself mentioned that data problems “complicated the assessment of economic conditions.”

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<sup>2</sup> The report noted that “data shortcomings seem to have impaired the surveillance of a significant proportion of IMF members in recent years,” citing staff’s reporting of material problems with data availability and quality in almost half of the two most recent Article IV consultations (through 2005) for 191 economies.

<sup>3</sup> The evaluation, *International Reserves: IMF Concerns and Country Perspectives*, published in 2012, reiterated this point, arguing that substantial country coverage was still lacking, despite the Fund’s initiatives to expand the provision of data on international liquidity and the composition of reserves (mostly incorporated into the SDDS).

However, the extent of these deficiencies and their implications were not revealed until much later and, even when uncovered (2004), only a mild reference was included in that year's Article IV consultation.

## **SELECTED IMF POLICY REVIEWS**

### ***2014 Triennial Surveillance Review***

The 2014 TSR recognized the critical importance of good data for the Fund's surveillance. It found that IMF mission chiefs regarded lack of data as the most important of the factors inside the Fund that made it harder to do effective.<sup>4</sup>

Accordingly, the 2014 TSR attached significant importance to data gaps, making them part of two of its recommendations. Focusing on the Fund's analysis of risks and spillovers, considered central for Fund surveillance, it acknowledged that enough data were available to perform the core of this type of work, but noted that efforts to further integrate and deepen this analysis would take time, partly because data gaps remained a significant impediment. More specifically, it highlighted two areas:

- External Sector Analysis; where limited data availability is preventing the application of the External Balance Assessment to a larger number of countries, and
- National Balance Sheet Analysis; which could help in detecting risks and understanding how shocks are propagated, but is an area in which “much more progress is needed from the membership to enhance data provision.” For example, IMF staff regrets, more than five years after the collapse of Lehman Brothers, the lack of access to data, even in an aggregated manner, on global systemically important banks and cross-border banking.

The 2014 TSR surveys also identified other areas affected by insufficient data: (i) data constraints are the third most important factor impeding the Fund's advice on structural issues (after lack of expertise and resource constraints), and (ii) greater availability of comparable cross-country data would be the second most useful initiative, according to staff, in order to improve cross-country analysis in surveillance.

More broadly, the 2014 TSR revealed that the quality of work done by staff is affected by the lack of a “well organized source of information on countries' experiences,” that goes beyond, but includes, data and statistics (being addressed by the internal work of the Fund on knowledge management). Without such a shared source, knowledge rests with individuals and is often lost. A typical example is the transfer of databases from one country team to the

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<sup>4</sup> Three-quarters of mission chiefs viewed lack of data as a key factor hampering effective surveillance across all country income categories (75 percent, 61 percent, and 94 percent of respondents working on advanced, emerging, and low-income countries, respectively).

next, which is frequently done improperly, leading to accumulation of errors, inefficiencies, and loss of valuable information. The TSR also mentioned problems with data sharing—including in the use of purchased data—comparability, missing metadata, and lack of resources for data management.

Finally, the *2014 TSR* mentions complaints by staff regarding the limited availability of resources for data management. Staff in area departments mentioned during interviews the significant increase in the time absorbed by data and information provision for the production of new multilateral surveillance documents, to be met within the same envelope of resources.

### ***2014 Review of the Financial Sector Assessment Program***

This review explained how the effectiveness of stress tests and other analytical work (e.g., on cross-border spillovers) depended fundamentally on the voluntary provision of high-quality data by country authorities. It noted that the reliability of stress tests and the choice of methodology are adversely affected by lack of data, with implications for the comparability of findings across countries. Three data-related constraints were identified as limiting staff's ability to monitor financial sector risks and to assess financial stability:

- Gaps (both for the IMF and national supervisors) in domestic and cross-border financial data, including data on international interbank markets and the intra-group positions of systemically-important financial institutions.
- Uneven access to supervisory data: the provision of bank-by-bank data to FSAP teams remained voluntary under strict confidentiality protocols and was therefore uneven across countries. When authorities do not share the data, especially in advanced economies, the analysis must rely solely on publicly available information or the authorities' own stress tests, to the detriment of its quality and independence.
- Questions about asset quality: even when authorities share supervisory data, FSAP teams are generally not in a position to assess its accuracy.

After highlighting that data deficiencies were poorly flagged and explained in FSSA reports,<sup>5</sup> the review recommended that a more candid judgment of the quality of available data be included in the reports, along with an assessment of the limitations of the analytical results.

### ***2012 Financial Surveillance Strategy***

The 2012 Financial Surveillance Strategy also highlighted data gaps as a key challenge to the IMF's financial surveillance. The strategy called for (i) closer internal attention to the quality of the data provided by members for financial surveillance and (ii) more data on globally

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<sup>5</sup> A Financial System Stability Assessment is produced by the IMF as the outcome of an FSAP exercise.

systemic financial institutions, to be addressed through participation in a Financial Stability Board group created at the time.

### ***2011 Triennial Surveillance Review***

The 2011 TSR identified lack of data as the most important factor impeding surveillance work,<sup>6</sup> and included data issues in both its recommendations and operational priorities.

In the area of data, the main focus of the 2011 TSR was on how data issues affect the surveillance of financial sectors. On the one hand, the review recognized that better analysis could be done with the data already available. On the other hand, it highlighted that there are gaps, either because data were not made available to staff or because they did not exist (e.g., on the shadow banking sector). For addressing these gaps, the evaluation put some hope on the Fund's collaboration agreements with the FSB, but pinpointed legal limitations on sharing individual data as a continuing challenge.

Finally, the 2011 TSR, despite the staff's concerns regarding data limitations, found that Article IV reports rarely (in five out of fifty cases studied) note financial sector data weaknesses.

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<sup>6</sup> The 2011 TSR documented that more than three quarters of mission chiefs considered that data limitations constitute an impediment, at least to some extent, for the analysis of spillovers and cross-country issues, and 73 percent believed the same was true for the analysis of financial sector and macro-financial issues. To a lesser extent (54 percent), mission chiefs believed that data limitations “posed a challenge for the full treatment of the discussions of exchange rate issues” in staff reports.

## ANNEX 5. DO STAFF FOLLOW THE OPERATIONAL GUIDELINES ON DATA PROVISION FOR FUND SURVEILLANCE?

As part of the *2012 Review of Data Provision to the Fund* (IMF, 2012b), the IMF Statistics Department (STA) and Strategy, Policy, and Review Department (SPR) jointly reviewed a sample of 50 staff reports for Article IV consultations discussed by the Board between January 1, 2011 and March 31, 2012 to determine “whether the 2008 guidance note on data provision has been implemented” and “the extent to which these procedures have been effective in strengthening surveillance.” This evaluation uses the same sample of countries (Table A5.1) to replicate the review for the period between January 1, 2014 and February 18, 2015, to examine now their compliance with the 2013 guidance note on data provision (IMF, 2013a).<sup>1</sup> The analysis compares the reports on a number of dimensions such as the application of the A, B, C rating; identification of data sources in the tables of the staff report; and the inclusion of information on metadata provided by countries in the “Data Standards and Quality” section of each report’s Statistical Issues Appendix (SIA).

Table A5.1. List of 50 Countries in the Sample for the 2012 Review of Staff Reports				
AFR	APD	EUR	MCD	WHD
C.A.R.	Brunei Darussalam	Albania	Afghanistan	Belize
Cameroon	Cambodia	Austria	Azerbaijan	Brazil
Comoros	China, P.R. of	France	Djibouti	Chile
Congo, Rep. of	Fiji	Germany	Libya	Mexico
Equatorial Guinea	Marshall Islands	Hungary	Qatar	Paraguay
Ethiopia	Mongolia	Luxemburg	Tajikistan	Peru
Gambia, The	Papua New Guinea	Macedonia	Turkmenistan	St. Lucia
Guinea	Singapore	Norway	U.A.E.	St. Vincent
Mauritius	Vietnam	Poland		United States
Nigeria		Spain		
Togo		Sweden		
Zimbabwe		Turkey		

Source: IMF (2012b).

- **A, B, C rating.** *Compared to the 2012 review, the A, B, C classifications in the sample group were slightly higher overall.* More than half of the 48 countries reviewed were rated B,<sup>2</sup> while only four were rated C. Since the 2012 review, the ratings improved for five countries (two from C to B and three from B to A), decreased for two countries from B to C, and remained the same for the rest. One

<sup>1</sup> This evaluation reviewed 48 of the 50 countries, as the Article IV reports for two of the original sample were classified as strictly confidential. If a country had two Article IV consultations completed during the period, only the latest one was included.

<sup>2</sup> Of these, seven countries are classified by the OECD as fragile states, a somewhat surprising result given the capacity constraints which such countries typically face. Indeed, one of the fragile states was rated A.

country, previously classified as B, had no SIA. For those countries whose ratings improved, no explanation was given for two, clear descriptions of the improvements were given for two, and the data discussion for one (whose rating moved from B to A) suggested data were of such poor quality that a C rating might have been merited. All staff reports for the C category appropriately included a discussion of data issues in the main body of the staff report. For the A and B countries—where the guidance allows more discretion, encouraging a discussion in the report “whenever considered relevant for surveillance”—the discussion of data issues varied greatly, with no discussion for about a third of the B-rated countries (including a number of fragile states) yet significant discussions for about a third of the A-rated countries. Overall, these results suggest little increase in candor and, given the variety of results, lack of significance of the A, B, C ratings for identifying data deficiencies for surveillance.

- **Selected Economic Indicators tables.** *None of the data tables in the staff reports provided sources of data at the level of detail recommended in the 2013 operational guidance note.* The 2013 guidance note specifies<sup>3</sup> that the “[t]ables and charts reporting statistical data included in the staff report should provide the source of the data, explicitly distinguishing among official statistics, other sources of data, and staff estimates, particularly if data from different sources are presented in the same table/figure.” The example of the table in the guidance note calls for the footnotes to “document the data sources for each data category, structural breaks in data, and the reasons for using staff estimates instead of official data.” This was the least observed dimension in the sample; most often, the source of data was simply described as “authorities and IMF staff estimates.”
- **Metadata provided to the Dissemination Standards Bulletin Board.** *Eight reports in the sample did not note when metadata provided by the countries were out of date.* Staff is expected to provide information on metadata for SDDS Plus adherents, SDDS subscribers, and GDDS participants in the SIA section on “Data Standards and Quality.” This review looked for any discussion on metadata in the SIA for countries whose metadata had not been updated for more than five years. Eight reports, or more than 15 percent of the sample, contained no mention of outdated metadata.

Overall, this evaluation’s review suggests that, by and large, the latest operational guidelines on data provision for Fund surveillance have had little impact on the staff’s treatment of data issues.

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<sup>3</sup> See IMF (2013a), pps. 8 and 33, and Appendix VI.

## ANNEX 6. COMPARABILITY OF DATA ACROSS COUNTRIES

There is a well-established expectation that data presented in IMF documents are broadly comparable across countries, that is, that the same concept is defined and measured the same way everywhere. Economic analysis and research, cross-country comparisons, and considerations of evenhandedness call for the use of data that are meaningfully similar in each of the countries involved. However, country characteristics make full comparability an elusive goal.

Particular country circumstances unavoidably result in different definitions, measurements, or coverage of economic variables. Countries differ in regard to the strength of their national statistical offices, the quality (accuracy and integrity) of their source data, the availability and timeliness of key components of a given variable, and especially, in regard to their institutional organization and hence the coverage given to different aspects of their economies. These differences indicate that concepts can be homogeneous across countries only to a certain degree and that attention needs to be given to understanding and spelling out the actual meaning of the concepts being used (the metadata).<sup>1</sup>

The IMF's work on setting methodological standards for the compilation, definition, and measurement of data has gone a long way to strengthen cross-country comparability. This has also been supported by the Fund's efforts to encourage the dissemination of data and metadata according to common frameworks, and by the Fund's activities on technical assistance and capacity development in the area of statistics. Nonetheless, basic differences among countries as to the meaning of economic variables remain and are likely to persist.

The definitions of a given concept will also depend on the area of the economy to which the concept refers. By way of illustration, the evaluation team examined two economic categories, present in every country, that are likely to be at either extreme of the spectrum in regard to conceptual uniformity: the monetary base and government.

The monetary base is generally understood to comprise currency in circulation plus commercial bank's reserve deposits at the central bank. This relatively simple concept is measured through banking balance sheets that follow near universal accounting practices. Thus, the monetary base should be close to perfectly comparable across countries. Yet even in this case, there may be differences: "Countries have different definitions of the monetary base, and, even within a country, more than one definition may be employed depending on the analytical use."<sup>2</sup> Generally, the definition of monetary base would include all central bank liabilities that are also part of the national definition of broad money. Required reserves from commercial banks and other depository corporations—including securities issued by the

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<sup>1</sup> See IMF (2004a) for a more extensive analysis of these issues.

<sup>2</sup> IMF, *Monetary and Financial Statistics Manual, 2000*, Chapter VI, p. 65.

central bank used to satisfy reserve requirements—are always part of the monetary base. However, there is room for variability in regard to the inclusion or exclusion of central bank liabilities held by banks that do not qualify as required reserves, or of certain deposits at the central bank from other resident sectors. In the end, the treatment of such central bank liabilities will depend on the specific formulation and analytical purpose of the monetary base, and will result in some degree of noncomparability between countries.

While the monetary base provides only limited scope for different definitional interpretations, “government” is likely to be one of the most heterogeneous categories in terms of variety of definitions. The concept of government in different countries reflects the particular historical and political developments that determine the country’s institutional organization, the relative importance of the different components of government, and the power and dependency relations among these components. Countries differ in regard to the overall size of the government, their degree of centralization or federalism, and the corresponding budgetary and regulatory arrangements.

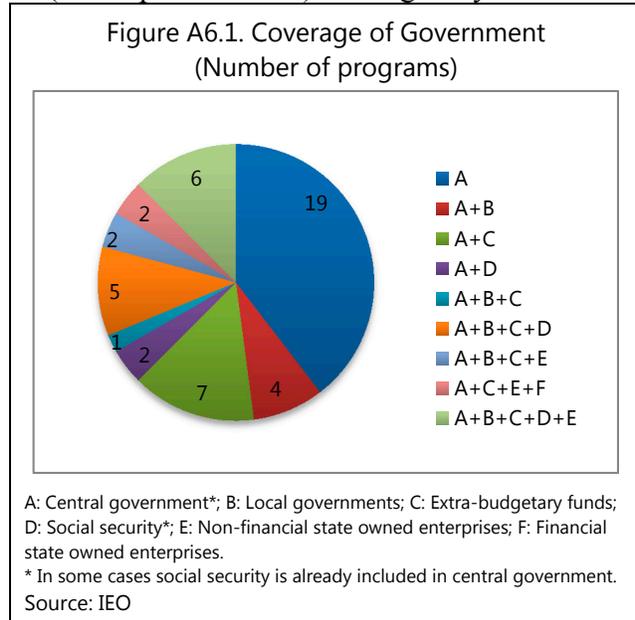
The potential for significant definitional discrepancies is most clearly documented in the case of the economic performance criteria that are set in the context of programs supported by the use of Fund resources. Conditions regarding the conduct of the public finances are part of every Fund-supported program and, given the importance of—and the political sensitivities associated with—the implementation of fiscal policy, a clear definition of “government” acquires particular significance. In this case, considerations of data comparability need to strike a difficult balance between, on the one hand, the Fund’s imperative of evenhandedness in the application of conditionality and, on the other, the need to tailor performance criteria so as to prevent their circumvention and advance the macroeconomic objectives of the program. These features lead definitions to be adapted to fit the circumstances of each case and seldom result in concepts that are fully comparable.

While the choice of performance criteria is largely determined by the objectives of the economic program and the need to ensure and monitor the implementation of agreed policies, the coverage and the definition of these criteria are influenced by considerations of data adequacy, mainly the quality, availability and timeliness of data. There are unavoidable trade-offs among these factors and the resulting performance criteria will seldom be fully homogeneous across time or countries.

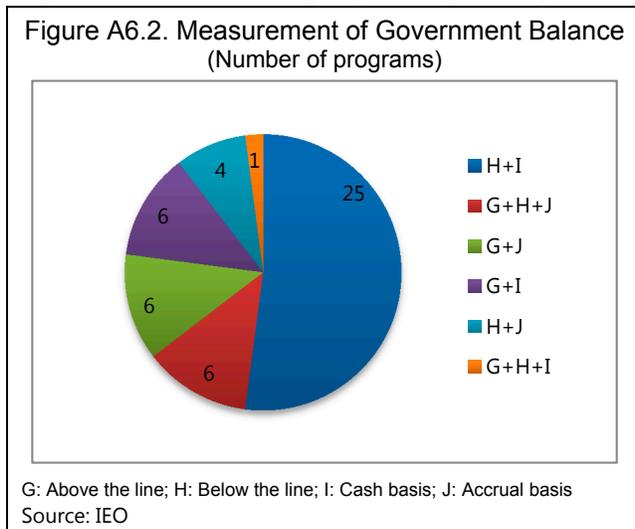
Usually, the wider the coverage of a performance criterion, the better it reflects the policy aspects that have a bearing on the program’s objectives—and would be more difficult to circumvent by recourse to a related policy instrument. However, if suitable data are not available or available on time, a more narrowly based performance criterion may need to be chosen. Similarly, inaccurate data, that is, data that are not measuring what they are supposed to measure, or that can be manipulated when reporting on the performance under the program, are of little use as performance criteria.

An examination of the definitions spelled out in the Technical Memorandum of Understanding (TMU) of 48 programs approved from January 2011 through April 2015 reveals the wide variability that exists in regard to the definition of government, both in terms of coverage and measurement of the concept.

Performance criteria pertaining to government (or the public sector) differ greatly as to their components. All programs in the sample include the budgetary central government. Beyond that, in more than half of the cases, the coverage of what the program understands as government is extended to include a varying array of other components of the public sector, i.e., local governments, some or all of the extra-budgetary funds, social security, non-financial state-owned enterprises, or financial state-owned enterprises. The combination of these different elements resulted, in this sample of 48 cases, in nine different definitions in terms of the sectors covered (Figure A6.1).



The heterogeneous coverage of the concept of government in these programs gets magnified if one considers that in each case the chosen combination of components is measured on either a cash or accrual basis, or in above or below-the-line terms (as result of operations or of their financing). In our sample, combinations among these measurement possibilities resulted in six different ways in which government is measured, which in turn would combine with the nine ways in which the concept is covered (Figure A6.2).



By and large, this wide variety of concepts about the government outcome carries over to the data reported in the *World Economic Outlook (WEO)*, thus putting paid to the notion that the numbers included in *WEO* are strictly comparable. In effect, in about one in four of the cases, the numbers reported in the program documentation match those included in *WEO*. This may well be an underestimate as the published numbers reflect different purposes. *WEO* seeks to conduct its analysis in terms of the general government, which is the generally accepted standard of

reporting,<sup>3</sup> whereas the TMUs are driven by the requirements of program monitoring. Staff may be in possession of additional information, that, while not timely or reliable enough to be included in a performance criterion, can nonetheless be used for other analytical purposes. This is particularly the case of information on sub-national jurisdictions, which often falls into this category but when added to the numbers reported in the TMU, can be used by staff in the estimates of general government they submit to *WEO*.

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<sup>3</sup> See IMF, *Fiscal Transparency, Accountability, and Risk* (<http://www.imf.org/external/np/pp/eng/2012/080712.pdf>, p. 13. August 2012).

## ANNEX 7. PAST WORK ON DATA MANAGEMENT ISSUES AT THE IMF

Studies of the Fund’s data management problems date at least from the 1960s. The following selectively documents the many efforts by the Fund to tackle these problems:

- 1964—Management appointed an Advisory Committee on the Program of the Bureau of Statistics, comprised of outside experts
- 1989—Data Management Survey, by Douglas A. Scott
- 1990—Memorandum on “Enhanced Statistical Collaboration,” by John McLenaghan
- 1994—“Two Information Machines within One Organization: Policy, Statistics, and Information Work at the International Monetary Fund,” by Richard H.R. Harper (Rank Xerox Research Center)
- 1995—Report of the Interdepartmental Working Group on Data Management
- 1996—Issuance of the Model Data Management Guidelines for Economic Databases, by Donogh McDonald
- 1999—“Review of Data Management Initiatives,” by Eduard Brau and Horst Struckmeyer
- 2004—“Report on Information Management in the Fund,” by the Patricia Seybold Group
- 2005—“Data Consistency in IMF Publications: Country Staff Reports Versus *International Financial Statistics*,” IMF Working Paper No. 05/46 (March 2005), by Anthony Pellechio and John Cady
- 2005—Information Technology Spending Review, by taskforce headed by Christopher Towe
- 2007—“Review of Controls over Data and Risk Exposures in Data Management,” prepared by IMF Office of Internal Audit and Inspection
- 2009—Memorandum on “Progress on the Implementation of the Data Management Guidelines and Structured Databases” (May 2009)
- 2009—Report of the Working Group on Data Issues for Multilateral Surveillance (June 2009)
- 2009—“A Fund-Wide Economic Data Management Initiative,” prepared by IMF Statistics Department (December 2009)
- 2010—“Stock Taking of Economic Data Management in the Fund” (August 27, 2010), prepared by the EDM I Task Force
- 2010/2011—“Data Management Framework and Governance,” by Gartner, Inc.
- 2011—EDMI Final Report: “Options to Strengthen Data Management in the Fund,” Volumes I and II (June 10, 2011), prepared by the EDM I Task Force