4. Bosnia and Herzegovina: Monetary Statistics

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Setting

Institutional Setting (Capacity, Statistical Outputs, Shortcomings, and Challenges)

4.1 Four months after the signing of the Dayton Peace Accord in December 1995, the first of a series of monetary and financial statistics missions from the IMF’s Statistics Department began work in Bosnia and Herzegovina (BiH). Countrywide monetary and financial statistics were urgently sought by the BiH authorities and the IMF to support efforts to establish a new central bank and a countrywide currency, as called for in BiH’s constitution.1

4.2 BiH presented a particularly challenging environment for delivering TA in macroeconomic statistics, not least because the conflict had severely affected data collection and processing systems and the organization structures established under the former Socialist Federal Republic of Yugoslavia (SFRY). For instance, computer equipment at official institutions and commercial banks was generally inoperative or severely outdated; thus, many commercial banks were relying on manual methods for recording transactions. In addition, banks’ balance sheet data, typically used to compile monetary and financial statistics, were drawn up according to plans of accounts and accounting rules that had evolved differently in the three regions of BiH (see Map 4.1). Several currencies were being used for transactions and savings purposes—one private currency issued by commercial banks, and three other currencies issued by foreign central banks—thereby adding an element of so-called currency co-circulation to the local economy.2

4.3 Added to these difficulties and reflecting the post-conflict regional/political boundaries was the fact that three institutions undertook monetary authority functions in BiH (see Table 4.1): the Federation Ministry of Finance (FMoF) in the city of Mostar; the National Bank of Bosnia and Herzegovina (NBBH) in Sarajevo; and the National Bank of Republika Srpska (NBRS) in the city of Banja Luka, Republika Srpska (RS). Payment bureaus in each region of BiH also undertook some monetary authority functions, such as releasing currency into the local economy.2 As with the commercial banks, the payment bureaus’ charts of accounts had evolved differently in each region of BiH. Finally, responsibility for compiling statistics on the banking system was shared by the NBBH, the FMoF, and the NBRS; each of them was collecting balance sheet data from the commercial banks under their respective control. The key elements of BiH’s banking system as of 1996 are summarized in Table 4.1

The Plan of Action and Outcomes

Plans for Improving Statistical Capacity, Technical Aspects, and Institutional and Systemic Issues

4.4 The first step in defining a plan of action was to establish what data were being collected by which agencies. Extensive consultations were undertaken with national/regional authorities and agencies, as well as with IMF departments and bilateral and other international agencies engaged in BiH. Meeting national/regional officials was not straightforward, however—not least because they were generally reluctant to travel outside their jurisdictions, and key agencies were dispersed around the country. Also, initial technical discussions were complicated by the need for translation between languages and differences in financial terminology. Nevertheless, with the help of patient

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1 In addition to the IMF’s Statistics Department, the European, Monetary and Financial Systems, and Fiscal Affairs Departments of the Fund were closely engaged in providing policy advice and technical assistance to BiH.

2 Payment bureaus controlled the electronic payment system in BiH.

*The author was senior economist in the IMF Statistics Department during the period of this study. He is grateful to Keith Dublin, Gérard Raymond, Xiuzhen Zhao, and Silvano Spencer—fellow members of the IMF monetary and financial statistics missions to BiH—for comments on this case study.
4.5 The mission reviewed available source data and assessed whether they could be used to compile reliable countrywide monetary and financial statistics. A key decision was whether a “top-down” or “bottom-up” approach should be followed for compiling countrywide monetary statistics. Under a top-down approach, data compilers use aggregate balance sheet data as the primary source together with supplementary information to allow certain groups of accounts to be allocated to sector and instrument classifications. This approach can yield monetary statistics quite quickly but often at the price of transparency and long-term reliability, not least because it is approximate and over time generates unallocated residual balances. Under the bottom-up approach, accounting balances at the most disaggregated level (e.g., at the five-digit level in a five-digit plan of accounts) are classified, account-by-account, according to their attributes (such as holding sector and type of institution, currency, etc.).
of instrument). This approach requires intensive work, especially if these attributes cannot be discerned from the account coding structure or from the text descriptors.4

4.6 Although application of the bottom-up approach was further complicated by the various plans of accounts that existed in BiH, this approach was adopted because it provided a transparent and reliable framework and facilitated transfer to the authorities and future development work. In view of policymakers’ demand for countrywide monetary statistics in the near term, however, it was clear that an intensive period of work would be needed to put in place the compilation system, and that IMF staff would meanwhile need to be the principal compilers of BiH’s monetary statistics. Because of the lack of functioning database systems, it was also clear that a spreadsheet system for compiling monetary statistics would have to be developed. Given the multiple data sources and the different charts of accounts under which the data were reported, careful design of the spreadsheet architecture and thorough documentation were essential in transferring the compilation system to the authorities.

Implementation

4.7 Implementing the plan of action required a series of TA missions. As shown in Table 4.2, an initial phase of intense TA occurred during 1996 to establish the system for compiling monetary statistics. This was followed by a consolidation phase during 1997 and 1998 aimed at improving the system and enabling the national authorities to compile countrywide monetary statistics. The third phase was aimed at developing the authorities’ capacity to further improve the system and to develop related statistics, such as rep-

### Table 4.1. Overview of Key Aspects of the Banking System in BiH in 1996

<table>
<thead>
<tr>
<th>Banking System</th>
<th>Region</th>
<th>Entities</th>
<th>Currency</th>
<th>Monetary Authority Composition</th>
<th>Monetary Authority Functions</th>
<th>Commercial Banks</th>
<th>Plan of Accounts</th>
</tr>
</thead>
</table>

1 Issued by the NBBH.
2 Including one bank that had its license revoked in March 1996.
3 Issued by the National Bank of Croatia.
4 Through banks’ required reserves.
5 Through overdraft facilities at the Payment Bureau.
6 Issued by the NBFRY.
7 Private currency issued by commercial banks between May 1995 and February 1996.
8 Through selective interest rate controls, credit ceilings, and banks’ required reserves (prior to April 1996).
Statistical Capacity Building

representative interest rate statistics. Hands-on and formal training was provided throughout the three phases of TA.

To provide context for describing in more detail the three phases of TA in BiH, selected methodological issues are first described below, followed by an overview of the tools used to deliver the TA.

Selected Methodological Issues

Reliability of Source Data

A key check on the reliability of the source data used to compile monetary statistics is to determine whether reported bilateral positions among banks (interbank positions) are broadly consistent. Once the first set of countrywide monetary statistics was compiled, the focus was put on identifying the causes of inconsistencies in the bilateral positions. Some of the key factors identified included the following:

- After the creation of BiH as an independent country in 1992, the NBBH assumed a liability to local commercial banks for frozen deposits held at the National Bank of the Federal Republic of Yugoslavia (NBFRY) and entered a matching claim on the NBFRY in its balance sheet. A review of relevant accounts showed that the liability recorded in the NBBH balance sheet was not equal to the sum of the commercial banks’ claims on the NBBH. In addition, in the commercial banks’ balance sheets, liabilities to citizens for frozen deposits were not always equal to the counterpart claims on the NBBH. Resolving these inconsistencies formed a key part of the work plan drawn up for the authorities.

- Locating the source of interbank discrepancies in the monetary statistics for RS was complicated because no distinction was made in the plan of accounts between commercial banks’ transactions with the NBRS and with the other commercial banks.

- Parts of one bank’s branch network declared themselves independent banks and ceased to recognize liabilities to the former parent bank, which continued to recognize in its balance sheet claims and liabilities relating to the branches. Also, some banks’ branch operations located outside of BiH were included in the source data used to compile monetary statistics.

Table 4.2. Time Line of IMF Monetary Statistics Missions and Key Outcomes

<table>
<thead>
<tr>
<th>Mission Dates</th>
<th>Key Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>Compilation procedures refined. Plans developed for authorities to compile countrywide monetary statistics.</td>
</tr>
<tr>
<td>1999</td>
<td>Draft country page prepared for BiH for inclusion in IFS. Timeliness of monetary data improved.</td>
</tr>
<tr>
<td>2000</td>
<td>Ongoing improvements to the monetary statistics and agreement on IFS country page for BiH.</td>
</tr>
<tr>
<td>2001</td>
<td>Improvements in dissemination of monetary and financial statistics, further methodological improvements, and development of capacity to analyze monetary statistics.</td>
</tr>
</tbody>
</table>

Note: Part of a multitopic mission covering balance of payments, government finance, and national accounts statistics, as well as monetary statistics.

5 This description is somewhat stylized for illustrative purposes. In practice there was some overlap of tasks and outcomes across the three phases of technical assistance.

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4.9 An important contribution of monetary statistics to formulating and monitoring economic policy is the timely and frequent information it provides on the government’s recourse to net financing from the domestic banking system. This facet of monetary statistics was especially valuable in BiH in the absence of complete and reliable fiscal statistics. As fiscal statistics steadily improved, the 1998 multisector statistics mission to BiH assisted in reconciling the two data sets on domestic bank financing. The mission’s work led to modification of the monetary and fiscal statistics to promote closer consistency among the two data sets.

4.10 Although operating under different plans of accounts, the payment bureaus in each of the three main regions of BiH undertook similar functions: (i) effecting cashless payments among legal entities, (ii) releasing local currency into the economy on the instruction of the central bank, and (iii) acting as accountant for the payment system (thereby generating data used in monitoring bank system liquidity and financial statements for all legal entities). A key task of the initial missions was delineating these functions and identifying which accounts in each of the three payment bureaus’ plans of accounts were mirror images of accounts recorded by the banks themselves. The exercise was immensely time consuming because a detailed understanding of the unique accounting codes and structure was needed.

4.11 Following the Federal Republic of Yugoslavia’s imposition of sanctions on RS in 1994, the supply of Yugoslav dinars (YUDs) from the NBFRY to RS declined sharply. In the absence of sufficient YUD cash balances to service deposit withdrawals, RS commercial banks issued transferable cashier’s checks through 1996, representing a form of private currency issue. These checks were transferable and used widely in everyday transactions and were therefore included in the countrywide measure of currency in circulation.

4.12 As noted earlier, BiH used several foreign currencies for transactions and savings purposes. While the balance sheets of the banking system and payment bureaus captured foreign currencies deposited with these institutions that were therefore included in source data used to compile monetary statistics, the source data did not capture corporate and household foreign currency cash held outside of the banking system. In the absence of reliable information on the amount of foreign currency in circulation in BiH, estimates had to be made.6

4.13 The currency board that was introduced in 1997 under the auspices of the Central Bank of Bosnia and Herzegovina (CBBH) required some modifications to the analytical presentation of BiH’s monetary statistics. In particular, to facilitate analysis of the currency board within the context of broader monetary developments in BiH, the analytical accounts of the monetary authorities needed to separately identify issuances of local currency and the Deutsche Mark (subsequently, euro) reserves that backed the currency.

4.14 At its conclusion, each mission to BiH prepared a summary technical assistance report (translated into the local languages) and discussed it in detail with the relevant authorities. The mission discussed issues at various levels of seniority, discussing detailed technical issues at the working level and broader policy and strategic issues at meetings with senior officials. Shortly after returning to IMF headquarters, the mission finalized comprehensive mission reports, complete with detailed appendixes and technical notes, and sent translated versions to counterparts in BiH. The reports presented a step-by-step discussion of recommendations and time-lined actions to be taken by the authorities, set within an overall medium-term work plan agreed with the authorities.

4.15 Hands-on training was the initial method used to enable a core group of officials to produce monetary statistics in BiH. This training consisted of their informally discussing issues as they arose and sitting down...
with staff in front of computer spreadsheets for guidance on the mechanics of the data compilation processes. Officials involved in compiling monetary statistics also took advantage of various formal courses offered by the IMF, both at its regional training centers and in Washington, DC.

IMF Statistical Advisor and Resident Representative

4.16 The work of the missions was greatly facilitated by the appointment of an IMF resident statistical advisor and an IMF resident representative to BiH. Not only did they facilitate meetings with senior country officials, but their active involvement in the mission’s work reinforced to the authorities the importance of a sound statistical base for policy work. Also, the statistical advisor followed up between missions on progress made by the authorities in implementing recommendations, provided general day-to-day TA to the authorities, and relayed to IMF headquarters technical difficulties that required expert advice.

Multisector Mission

4.17 The IMF multisector mission in 1998 provided a valuable opportunity to check consistency among the monetary statistics and other macroeconomic sectors (i.e., government finance, balance of payments, and national accounts statistics). In particular, reconciliation between monetary and fiscal statistics was undertaken during this mission.

Phases of Technical Assistance

Implementation Phase (1996–97)

4.18 The bottom-up approach to compiling monetary statistics required close collaboration with the accounting and operational departments of the central and commercial banks and other institutions. Discussions were initially held with the staff of the largest commercial banks and a sample of other banks to provide an overview of the scope of their banking activities, accounting systems, and database capabilities. Importantly, this approach also provided an opportunity to explain the context of the statistical work that was being undertaken and its relevance to the broader economic and financial issues facing BiH as well as an opportunity to listen to the concerns and suggestions of these key data providers.

4.19 Several rounds of review and discussion were necessary to identify economic attributes (e.g., type of financial instrument, sector of holder, maturity, currency of denomination) of each account specified in the various charts of accounts used by the commercial banks and in the trial balances of the monetary authorities. A useful tool in this process was to assign alphanumeric codes to each account identifying its economic attributes and thereby its classification in the analytic presentation. This systematic approach facilitated not only explaining the compilation system to the BiH officials charged with preparing and analyzing the monetary statistics but also automating the compilation process.

4.20 The process of consultation was especially important in designing and implementing a standard set of balance sheet report forms (so-called call reports) for the commercial banks. These call reports were necessary to enable the compilation of meaningful country-wide monetary statistics. IMF staff conducted a seminar to explain the motivation for introducing the report forms and the broad macroeconomic concepts they embodied and to provide a line-by-line review of how the forms should be completed. The seminar was followed up with bilateral discussions to assist the banks map their accounting balances onto the report forms.

4.21 The commercial banks began using the new report forms in July 1996. Their willingness to adopt these new report forms was facilitated when the national/regional authorities agreed to review the overall reporting burden on the banks. In particular, they had concerns that many of the existing data requests were no longer relevant and were wasteful of resources. Reducing the banks’ reporting burden was also important in the context of improving the accuracy and reliability of data reported on the core statistics required close collaboration with the accountants and national/regional authorities agreed to review these new report forms was facilitated when the appointment of an IMF resident statistical advisor and an IMF resident representative to BiH. Not only did they facilitate meetings with senior country officials, but their active involvement in the mission’s work reinforced to the authorities the importance of a sound statistical base for policy work. Also, the statistical advisor followed up between missions on progress made by the authorities in implementing recommendations, provided general day-to-day TA to the authorities, and relayed to IMF headquarters technical difficulties that required expert advice.

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4.22 A particularly sensitive issue to be addressed was the designation of an official agency to be responsible for compiling countrywide monetary statistics. Not wanting to risk upsetting the reporting and compilation procedures that were by now in place, IMF staff initially took on the responsibility of preparing countrywide monetary statistics by consolidating the regional monetary data compiled by the NBBH, FMoF, and NBRS.\(^{11}\)

Consolidation Phase (1997–98)

4.23 Aside from the organizational and technical aspects, training of BiH officials on the concepts and principles used in macroeconomic statistics was also needed. The initial objective was to enable officials to advise commercial banks on the appropriate classification of accounting balances on the new report forms, with more general training in macroeconomic statistics coming later.

4.24 Regional monetary statistics for the Federation and RS continued to be compiled by the NBBH\(^{12}\) and NBRS, respectively, and countrywide statistics continued to be assembled by the IMF, until the CBBH was established in August 1997. The Research and Development Department (RDD) of the CBBH was charged with compiling and analyzing countrywide monetary and balance of payments statistics.\(^{13}\)

4.25 Establishing the CBBH involved equitably distributing key functions across the Federation and RS. Under the regional decentralization plan for CBBH departments, the RDD was located outside of Sarajevo, in the town of Pale in RS. The RDD enabled the authorities in BiH to assume responsibility for compiling countrywide monetary statistics, but because the staff of the NBBH\(^{14}\) was reluctant to travel to RS, and the staff of the NBRS was reluctant to relocate from Banja Luka to Pale, a further round of training was required. The staffs of the NBRS and NBBH were extremely helpful in this regard and met with RDD staff to discuss methodology and compilation issues. Data flow and compilation arrangements nevertheless continued to be rather complicated (see Figures 4.1 and 4.2), reflecting the decentralized nature of official institutions in BiH. These arrangements were simplified somewhat when the RDD was eventually transferred to the CBBH's main unit in Sarajevo.

Facilitating Phase (1998 to Date)

4.26 Under the supervision of an expert group headed by USAID staff, work was also underway to develop and implement a unified chart of accounts for the commercial banks. Important in this regard was the close involvement of CBBH staff to ensure that the new chart contained sufficient detail to compile monetary statistics. In view of the privatization program that was underway in BiH, separate identification of banks’ financial relations with public and private entities was an important consideration for the new plan. The involvement of the monetary statistics compilers in reviewing the CBBH’s new chart of accounts proved to be similarly useful in ensuring that it met the needs of monetary statistics.

10 USAID provided considerable on-site technical assistance aimed at improving the reliability of data reporting by the commercial banks.

11 The technical details of the consolidation process involved in compiling monetary statistics are described in the MFSM 2000, paragraphs 242–44.

12 The NBBH emerged as the lead agency for compiling monetary statistics. This phase was aided by the day-to-day assistance of an IMF resident statistical advisor appointed to BiH in 1999. With the development of countrywide interest rate statistics and data on BiH’s international liquidity position, a country page for BiH was published in the July 2001 issue of the IMF's International Financial Statistics (IFS). Assistance also extended to developing official statistical publications of the CBBH.

13 Most of the NBBH staff were employed by the CBBH.
Conclusions and Lessons Learned

- **Prerequisites:** Statistical legislation and adequate resources are generally thought of as necessary prerequisites to deliver reliable statistics. In the immediate postconflict setting of BiH, however, a culture of data reporting among the commercial banks and goodwill among the banks and statisticians substituted for a legalistic approach to data reporting.

Similarly, careful staff selection, planning of workloads, and dedicated officials compensated for shortages in staff numbers and technology that might otherwise have impeded the development of the monetary statistics. Thus, while statistical legislation and adequate resources in particular are needed to support sustainable improvements in statistical output, shortcomings in these areas in the early years of development of a statistical system need not pre-
Figure 4.2. Spreadsheet Architecture for Data Compilation

**MONETARY STATISTICS COMPILATION FOR BiH**
*(beginning July 2001)*

**Current IFS Terminology**
- Monetary Authorities (MA)
- Deposit Money Banks (DMB)
- Monetary Survey

**New Terminology**
- Central Bank Survey (CBS)
- Other Depository Corporations Survey (ODCS)
- Depository Corporations Survey (DCS)

**ANALYTICAL PRESENTATIONS**
- MA ANALYTICAL
- DMB ANALYTICAL
- BiH MA
- Depository Corporations Survey

**DATA STORAGE**
- CBBH
- Sarajevo DMB
- Mostar DMB
- RS DMB
- BiH DMB
- Monthly periods (one per sheet)

**SOURCE DATA**
- REPORT FORMS
- BALANCE SHEETS
- CBBH (Central Bank of BiH)

**FEDERATION**
- Sarajevo Area DMBs
- Mostar Area DMBs
- RS DMBs
- Commercial Banks

**REPUBLICA SRPSKA**
- Commercial Banks

**BRČKO DISTRICT**
- Commercial Banks

**BIH**
- Central Bank Survey

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vent production of at least limited reliable statistics in the near term if there is a focus on overcoming more immediate shortcomings.

- **Pace of technical assistance:** The authorities need sufficient time to absorb TA. While intensive TA was initially necessary in BiH and ran ahead of the authorities’ capacities to absorb it, the consolidation phase and training that followed allowed the authorities to catch up before additional TA was provided. Also, while having a medium-term framework for delivering TA is important, the framework should evolve over time and be flexible enough to allow the intensity and frequency of the TA to respond to changing local circumstances. The extended period and changing pace of TA to BiH, with each mission building on the previous mission, greatly facilitated the gradual enhancement of the authorities’ capacity for compiling reliable and timely monetary statistics. An environment that encourages candid post-mission assessment by the mission team of the authorities’ capacity to absorb TA and the success or failure of a particular mission is clearly important to adjusting the pace of TA to suit local circumstances.

- **Balance in technical assistance:** Describing to the authorities what needs to be done, how to do it, and actually implementing the advice are important elements of TA. Finding the right balance is not easy, but it is important for developing country ownership of the project. In BiH, the initial balance was weighted heavily toward getting the compilation system up and running, with the IMF taking the lead in setting up and running the system (a hands-on approach). Thereafter, the balance shifted toward identifying tasks that needed to be done, making recommendations about how to do them, and leaving the authorities to implement them (a hands-off approach), with support provided via e-mail and the IMF resident statistical advisor and resident representative, as needed. An important link between these two approaches was having mission representatives sit down with the data compilers in front of computer spreadsheets and walk through the nitty-gritty of how the statistics were put together.

- **Comprehensive documentation:** Essential to the hands-off approach is comprehensive and timely documentation that not only sets out clearly the technical aspects of the recommendations but also provides a comprehensive and time-lined work plan geared toward senior- to mid-level country officials. In short, the plan should summarize in nontechnical terms what needs to be done, by which department(s), by when, and why it is important. Translation of the mission reports into the local language(s) is essential in this regard.

- **One size does not fit all:** While experience from other country settings is valuable in developing recommendations, a formula approach is unlikely to yield successful results—a flexible approach is necessary. For example, while striving for the best statistical practice, it will often be necessary to settle for second- or third-best alternatives during an interim period to achieve results in the near term. Recommendations should be shaped to fit local conditions, and a prioritized action plan should be agreed to with the authorities, taking into account local constraints.

- **Coordination with other donors:** Having an overview of the activities of other donors can generate synergies with the statistical project at hand. For example, the timely USAID work on upgrading the commercial bank accounting and data reporting systems rapidly improved the accuracy and reliability of the sources used to compile monetary statistics.