

Boomerang Effect of Quality Control on the Compilation of Financial Accounts and Flow of Funds: the Experience of Banco de Portugal

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Abstract

Financial Accounts are fundamental to monitor financial stability by quantifying the impact of financial decisions of a host of economic agents. In Portugal, the compilation of these statistics is a responsibility of Banco de Portugal. One of the main purposes of the Statistics Department of Banco de Portugal is to ensure this statistical production with high quality standards, aiming at fully meeting user's needs, by developing a wide set of quality control procedures. In this context, Banco de Portugal developed a multidisciplinary team with experts from financial accounts and from the different underlying primary statistics. Within this format, that can be viewed as a "boomerang effect", all team members are co-responsible for producing national financial accounts, on a bottom-up approach, thus improving both the quality of these statistics, as well as the quality of primary statistics. This is the result of a systematic iterative process of data cross-check and reconciliation which may represent an opportunity to validate the soundness of microdata, on a top-down approach.³

Keywords

Quality control, financial accounts, multidisciplinary team, data cross-check, flow of funds

JEL code

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INTRODUCTION

In a context of an increasingly complex economic and financial reality, the National Financial Accounts (hereinafter referred as "financial accounts") are fundamental to monitor financial stability by quantifying the impact of financial decisions of the economic agents. National financial accounts provide an overall

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view of the financial interlinkages between institutional sectors helping in the identification of sector vulnerabilities, imbalances and potential over-exposures to certain financial instruments.

The statistical function of central banks is changing and it is important to develop solutions that contribute to enhance the effectiveness and efficiency of its statistical system. In this context, the quality of the financial accounts statistics is a priority for Banco de Portugal, which is the competent statistical authority in this domain. To follow this purpose, the Statistics Department developed a multidisciplinary team with experts from financial accounts and from the different underlying primary statistics. This new approach established a cooperative work, with a positive impact on the quality and consistency among the various statistics produced in Banco de Portugal, and it can be viewed as a “boomerang effect”.

1 METHODOLOGICAL FRAMEWORK

Financial accounts are one of the components of the national accounts that records two kinds of information, flows and stocks, between the different institutional sectors of the economy and between these sectors and the “rest of the world”.

These statistics are prepared in accordance with the guidelines set out in the European System of National and Regional Accounts (ESA 2010) – Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013.

Accordingly to ESA 2010, “flows refer to actions and effects of events that take place within a given period of time, while stocks refer to positions at a point of time”. Stocks (also referred as positions or outstanding amounts) are the holdings of assets and/or liabilities at a given point of time, recorded at the end of each accounting period.

Institutional sectors are economic agents, or “institutional units”, with the same economic role, grouped according to the sectorial classification rules of ESA 2010, based on the type of producer, function and main activity: non-financial corporations, financial corporations, general government, households and non-profit institutions serving households and, rest of the world.

Financial accounts are broken down by financial instruments, such as: monetary gold and special drawing rights; currency and deposits; debt securities; loans; equity and investment fund shares or units; insurance, pensions and standardised guarantee schemes; financial derivatives and employee stock options; and other accounts receivable and payable.

The accounting principle underlying the national accounts is a quadruple-entry principle, i.e. each operation must be entered twice by the two parties involved.

The financial accounts are considered derived statistics as they are based on a vast array of other primary statistics, including, in the case of Portugal, balance of payments and international investment position statistics, monetary and financial statistics, central balance sheet statistics, securities statistics and central credit register statistics.

Although the main data sources are internal to Banco de Portugal, external data sources are also used, such as the information provided by the Portuguese Insurance and Pension Funds Supervisory Authority, the Portuguese Treasury and Debt Management Agency and, the Portuguese National Statistical Institute (Instituto Nacional de Estatística – INE). Actually, INE is responsible for compiling the national non-financial account, while Banco de Portugal takes the responsibility for the compilation of the national financial account (Banco de Portugal already produced a cluster of statistics that is necessary for compiling financial accounts), following a protocol signed in 1998 between Banco de Portugal and INE. This protocol provides for the establishment of mechanisms of cooperation, mutual consultation and methodological discussion on the compilation of national accounts, in particular regarding the harmonised implementation of the European System of National and Regional Accounts. This interaction leads to better quality in the two types of accounts.

Due to this aggregation of multiple sources of information, financial accounts provide a picture of the impact of financial decisions among the different economic agents. These statistics provide an overall view of the financial interlinkages between institutional sectors, helping in the identification of sector vulnerabilities, imbalances and potential over-exposures to certain financial instruments. In Portugal, this kind of analysis turned out to be very useful in a context of the global financial crisis, because it enables an overview of the degree of intermediation of the financial sector and of the structure of private sector wealth. With these statistics it is possible to measure the relationships and interconnections between the different institutional sectors of the economy and to monitor their exposure to different risks.

To better understand economic sectors' interlinkages and to assess how intersectoral financial linkages have changed, flow of funds is a powerful analytical tool. This type of analysis allows to detail the data by counterpart sector and type of financial instrument, identifying specific economic behaviours. It enables to analyse intersectoral relationships among the resident sectors of an economy and between these and the rest of the world.

At this point, flow of funds are a subset of the financial accounts, as it allows to establish the net transactions between the different institutional sectors. This data gives the user an overall picture of the whole economy, since financial accounts, by being at the end of the cycle, is the only system where all sectors of the economy are put together in an integrated system.

2 A MULTIDISCIPLINARY TEAM

One of the main purposes of the Statistics Department of Banco de Portugal is to ensure the production of high quality statistics and to provide a more efficient data quality management in statistical systems, developing a wide set of quality control procedures.

Following this purpose of high quality standards, the Portuguese solution to compile national financial accounts was to develop a multidisciplinary team, with experts from financial accounts and from the different underlying primary statistics.

This multidisciplinary team, that involves the different statistical domains, was created by the end of 2009, with national financial accounts experts, permanently allocated to financial accounts' tasks, and two experts of each underlying primary statistics (one effective and one substitute). It is chaired by the National Financial Accounts Head of Division of Statistics Department.

This new organizational model of compiling financial accounts can be easily transposed to any kind of organization where the final goal is to improve quality and consistency. This can be seen as a project organisation where management structures coexist in the form of a matrix management structure, instead of a traditionally hierarchy management organisation. Despite all its advantages, this kind of organisational model is nevertheless more demanding in terms of coordination.

This multidisciplinary team turns out to be very efficient as all members are actively engaged in collectively contributing to the end-product, producing a high quality output. It is a collective effort that benefits from the expertise of the technicians of each primary statistics in analysing the specific data of their domain. For instance, experts from the Central Balance Sheet Statistics Unit provide not only primary data but are also specifically responsible for the compilation of the non-financial corporations sector account, and are more generally co-responsible for national financial accounts (Matos, 2016).

The responsibility of the compilation of financial accounts is shared by all team members and distributed as follows:

- The compilation of each institutional sector is provided by the statistical area that is responsible for the majority of primary data. For instance, the compilation of financial accounts of general government is allocated to the General Government Statistics Unit; and the compilation regarding the financial sector is a responsibility of the Monetary and Financial Statistics Division;

- The securities statistics data is provided by the Securities Statistics Unit, which has detailed information concerning the issues, issuers and holdings of the securities in the resident country (this information can be easily compared with the one sent by monetary institutions to the Monetary and Financial Statistics Division);
- Methodological definitions and procedures are a responsibility of the Methodological Statistics Unit in cooperation with the Financial Accounts Unit;
- The final management of financial accounts, namely the aggregation of all statistical institutional sectors data and the disclosure of national financial accounts outputs to final users, is a responsibility of the Financial Account Statistics Unit.

Since managing such a multidisciplinary team is not an easy task, Banco de Portugal has been adopting a stepwise approach, since 2009. It has been a “work in progress” system, as it turned out to be very useful in developing new ways of improving quality, not only for the final statistics output of financial accounts, but also for primary statistics.

For instance, when ESA 2010 was implemented, financial accounts faced the need of implementing a new information system compliant with the new recommendations. This was also the opportunity for improving the financial accounts compilation system. Instead of developing a new system within the Unit, all the members of this multidisciplinary team were involved. The benefits were clear: the system was defined with a minuteness detail because each team member developed their procedures in the new system attending the needs of the new guidelines. On another hand, the consistency between primary statistics and this ones, as well as with the previous and the final output of financial accounts was preserved and guaranteed. In this case, all the details of the primary data are analyzed and checked with information of another statistical domains.

This multidisciplinary team has faced, during the later years, several improvements, not only concerning the system underlying the compilation procedures, but also in the management of resources. The final goal is always to improve quality and increase process efficiency.

Besides the quality improvements, there are also several costs due to the complexity involved with the coordination and management of such a team. First of all, this kind of work organisation must have a very good planning calendar, and hierarchic managers and multidisciplinary team managers must agree over the allocation of resources. One of the main problems that this kind of organisation structure may face is the risk that the team members receive conflicting tasks. To avoid this kind of conflicts, priorities must be agreed and all team members must be aware of their roles. Their activities must be settled in each team member annual planning, for both matrix management and hierarchy management, and should be captured and reflected in their performance evaluation. Managing people with more than one reporting line is a big challenge and it is very important to clarify who has the responsibility to evaluate the performance of each team member for which task.

3 BOOMERANG EFFECT

This new method of compiling financial accounts, which can be easily described as a bottom-up and top-down approach, can generate many benefits, ensuring a high quality of the financial accounts outputs, as well as a better quality of primary statistics. Thus, experts gain a global insight of how their data affect other statistics and are able to take interrelated and synergic combined final decisions.

The main result of this boomerang effect is to take advantage of the interaction and cooperation between the different statistical areas, to ensure the quality and establish different levels of responsibility in the compilation of financial accounts. This is achieved by separating the data processing activities from the activities of analysing and exploring the information. However, this multidisciplinary team shares the responsibility for the entire production cycle of the compilation of financial accounts.

This approach encourages the cooperative work between the different areas of the statistics department, and promotes a more efficient contribution of the primary data to the financial accounts compilation. It also avoids duplicating the tasks of compiling data for the primary statistics in one moment, and after that compiling the same information for the compilation of financial accounts purpose. On another hand, the primary statistics benefit from the concerted data produced by the compilation process of financial accounts. This boomerang effect is an opportunity to implement not only internal quality control procedures, but also to ensure consistency between statistics produced.

This results on a systematic iterative process of data cross-check and reconciliation which may represent an opportunity to validate the soundness of micro data, on a top-down approach. It promotes the consistency of the financial accounts between the institutional sectors, because, for all instruments, the assets of one sector must be equal to the liabilities of the counterpart sector. Thus, the validation of the final output of financial accounts must fulfil horizontal and vertical consistency.

Horizontal consistency is an internal validation that ensures inter-sector consistency for the different types of information, while vertical consistency certifies that financial accounts outputs are consistent with final data of the primary statistics, despite the discrepancies that may exist due to different methodological processes.

The multidisciplinary team can serve the purpose of different statistical domains. First of all, primary statistics feed the system with data that is an output of their own compilation process, which have already met the first level of quality control tests within their respective production cycle.

It is important to refer that primary statistics are the owners of granular information concerning the institutional sector that they are responsible for. This granular data is often stored into different micro databases, which are a powerful tool with a high statistical potential. For instance, Monetary and Financial Statistics comprise the Balance Sheet Information on Financial Corporations that has granular information on assets and liabilities of the sector; the Balance of Payments and International Investments Position system has micro data on the assets and liabilities of the rest of the world sector; the Central Credit Register contains granular information on credit exposure and loans to all sectors of the economy; the Securities Statistics Integrated System is a security-by-security and investor-by-investor database of securities holdings and issues; the Central Balance Sheet Database contains accounting and financial information of non-financial corporations.

On the other hand, the Financial Account Unit can input into the system the information they need with a high quality standard, as the information is already confirmed and validated by the respective primary statistic's owners. This process provides more complete and detailed statistics, aiming at fully meeting user's needs, with high quality standards of the final output.

Additionally, the potential problems and inconsistencies among primary statistics are analysed before the final compilation of the financial accounts and all the institutional sectors take combined decisions aiming at the internal and external consistency of the final results.

Ultimately, this joint coordination effort requires also an alignment of the revisions policy for statistical domains involved.

CONCLUSION

“Good statistics are a precondition to good policy-making” (Matos and Nunes, 2017), and the way Banco de Portugal achieved this goal in National Financial Accounts was through the creation of a multidisciplinary team that has been a success in the compilation of these statistics.

Although demanding in terms of management, this new method has proved to improve the consistency between statistics as well as the quality of primary and final financial accounts statistics disseminated. Users' needs are thus more easily met, allowing for greater integration and consistency between the different statistical products.

The success of this multidisciplinary team work is confirmed by a more efficient production process and a higher quality output.

It can be viewed as a boomerang effect, as the final output of financial accounts is also likely to provoke a number of second-order consequences, namely the better quality and coherence of primary statistics, and raise awareness of primary statistics compilers (also part of the financial accounts compilation team) to what needs to be done as preparatory work for producing consistent statistics.

The other side of the coin of this matrix organisational structure relates to the challenges in terms of planning and management. However, the Portuguese experience provides evidence that such costs are clearly outweighed by the benefits.

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