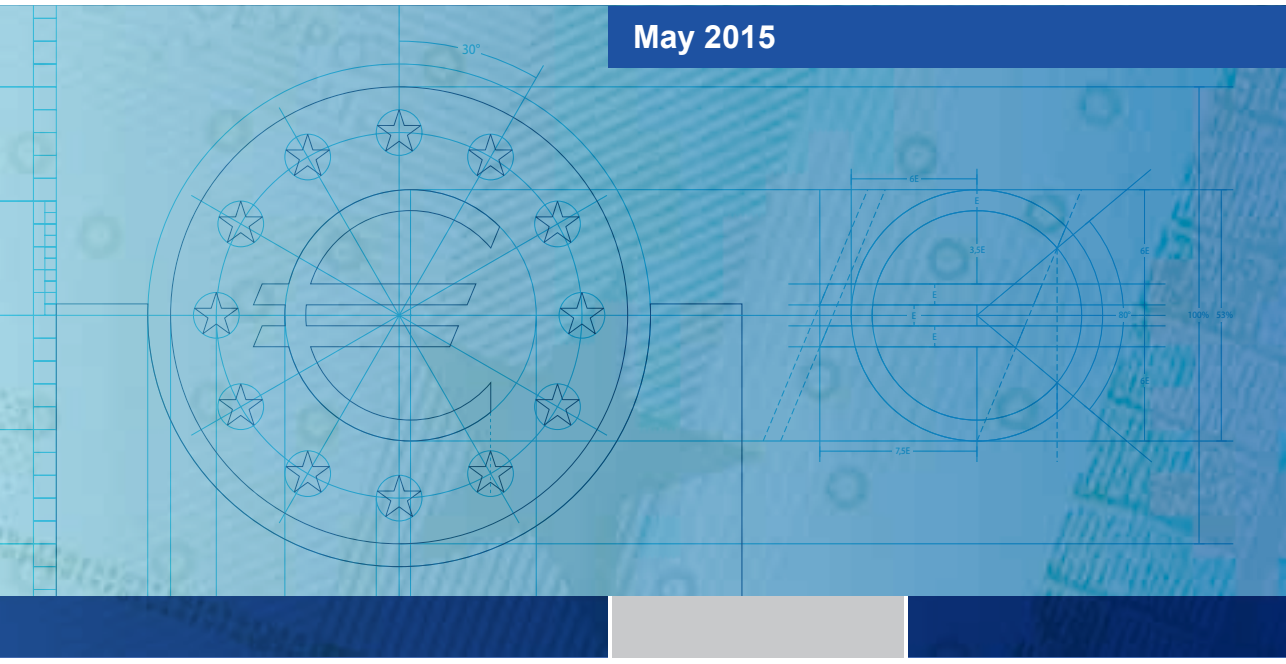
EUROPEAN CENTRAL BANK

EUROSYSTEM

Seventh ECB conference on statistics

Towards the banking union – opportunities and challenges for statistics

15 October 2014



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Postal address
60640 Frankfurt am Main
Germany

Telephone
+49 69 1344 0

Website
http://www.ecb.europa.eu

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FOREWORD

In October 2014 the ECB hosted its seventh biennial conference on statistics, entitled "Towards the banking union: opportunities and challenges for statistics". The conference attracted a wide range of policy-makers, including a number of members of the ECB's Governing Council, as well as users and compilers of statistics from central banks, supervisory authorities, statistical institutes, international institutions, academia, the media and the financial industry.

The conference preceded by less than three weeks the start of the Single Supervisory Mechanism (SSM) on 4 November 2014, when the ECB became responsible for banking supervision in the euro area. Hence, the timing of the conference was perfect to discuss the opportunities that this new task will offer to statistics departments in the national central banks (NCBs) and the ECB, as well as the challenges that it will bring.

It is a tradition of the conference to have three sessions focusing on producing and using statistics and one session on communicating statistics. The topics discussed concerned (i) the data needs of the SSM; (ii) statistics for multipurpose use, and synergies between central banking and supervisory functions; (iii) the micro and macro dimensions of the banking union and the challenges for statistics; and (iv) communicating statistics to meet user requirements and manage market expectations.

I believe that a key issue discussed by conference participants was the recognition that central bank statistics and supervisory information should not continue to be produced, compiled and disseminated according to strictly separate frameworks, as they largely have a common focus. Differences in concepts, methodologies and frameworks can and should be reconciled for the benefit of reporting agents, compilers, users and policy-makers. This is a key challenge for central banks and supervisory authorities.

A further step towards reconciliation is integration of statistical and supervisory data. Integration should be carried out at the origin of the data production process and the data flow, i.e. in the banking sector, which is main reporting sector. This process requires close collaboration with banks, which will, at the end of the integration process, benefit from a reduction in the reporting burden as a result of a reorganisation and simplification of the various reporting frameworks. However, the process involves diverse and multiple challenges, which need to be faced and overcome. These may be cultural, legal, technological or organisational challenges. As discussed by conference participants, various initiatives have already been launched or are being prepared in this respect.

One of the lessons we learned from the economic and financial crisis concerns the risks of having only truncated information sets available for decision-making. It is true that central bank statisticians will need to face and deal with

the challenges brought by the SSM, but they should also take this opportunity to improve the information available for policy-making.

This brings me to the last topic of this conference. As a central banker, I cannot avoid repeating and stressing the importance of communication for central banks. It has been mentioned by conference participants that statistics are a central bank tool and, as such, should be properly communicated to a wide audience. We must not overlook the fact that the production of statistics entails a burden for reporting agents. The process is expensive and paid for by society, and the outcome is a public good which should be shared with the public. Hence, statistics should be communicated in ways that are tailored to the knowledge, skills and needs of the various audiences.

As indicated by the outstanding contributions collected in this book, I believe the Seventh ECB Statistics Conference has made a significant contribution to paving the way for the future of central bank statistics and for the success of banking supervision. Cooperation between central banks, supervisory authorities and the banking industry is crucial in this process.

Aurel Schubert

Director General Statistics, European Central Bank

KEYNOTE SPEECH

SABINE LAUTENSCHLÄGER[1]

Ladies and gentlemen,

I welcome you on behalf of the Executive Board of the European Central Bank (ECB) and also personally to our seventh biennial ECB statistics conference. I am very pleased to see that the conference has once more attracted many distinguished participants from all corners of the world to Frankfurt, to the ECB, and, especially, to the world of statistics.

Tomorrow's conference will focus on the topic "Toward the Banking Union: opportunities and challenges for statistics". The whole day you will have the opportunity to discuss different aspects of statistical services for the new supervisory function of the ECB. You will not only talk about the data the Single Supervisory Mechanism (SSM) needs, but also about the possible synergies statisticians could – and will – create between the two main functions of the ECB – the central banking and the supervisory function. And you will even have a session about the micro and macro dimensions of statistics – even the discussion of this topic will be a challenge, as everybody has a different understanding wherever anything with the word macro in it is concerned.

I would like to use tonight's dinner speech to share with you some initial thoughts on a crucial aspect of this topic – and you will not be surprised: it is about banking supervision and data.

Banking supervision and data often have something of a love-hate relationship – at least for me. Why do I use the word hate? Well, as a banking supervisor, you cannot do without data, without quantitative analysis. But data is a very touchy issue. First of all, you never have enough data! The second problem is that either the data is too aggregate or it is too granular. Then, either it is too old or you do not have enough data for an adequate time series. As soon as you have a good quantitative analysis, either you have to challenge the data by comparing this to the qualitative information you have, or the bank wants you to believe that your assessment of the data is not correct or that the data has nothing to do with its own situation. This process of challenging the data a supervisor has to work with is a fundamental part of his or her profession – knowing the strength and weaknesses of the data pool you have to work with is thus essential for every supervisory judgement. Do I want to convince you that data is not as important as many statisticians think? No, not at all!

On the contrary, I would now like to explain the love part! With the SSM we will have access to many banks with comparable portfolios; we will be able to get different, new and more data at euro area level than we had on a national basis.

1 Member of the Executive Board and Vice-Chair of the Supervisory Board, European Central Bank.

We have an opportunity to harmonise reporting standards and, especially, ad hoc questionnaires. You may have noticed: I am growing very fond of statistics. But, before I immerse myself in the details, let me take a step back and have a look at the upcoming new task and the reasoning behind the new set-up.

In less than three weeks, we will witness and be part of the largest institutional innovation in the European Union since the creation of monetary union: the start of the SSM. From 4 November onwards, in addition to its traditional tasks of conducting the euro area's monetary policy, the ECB will also be in charge of banking supervision in the euro area. We will directly supervise the largest 120 banking groups in the euro area and indirectly the remaining 3,500 "less significant" institutions.

And we want and need to be good supervisors: supervisors who identify relevant risks and trends early and act pre-emptively; supervisors who are intrusive. This is not possible without good banking statistics. I think we can all agree that without good banking statistics there is and will be no good banking supervision.

In that light, it is of utmost importance to build up and draw on all the statistics necessary to provide a comprehensive knowledge of all supervised institutions. This knowledge will be the backbone of a successful SSM and the conduct of efficient banking supervision.

The preparations for the start of the SSM are already very far advanced – we are almost finished. The contribution of the statisticians has been crucial in the preparatory work for the SSM. And it is not only about hiring additional, competent staff or setting up pilot data collections. It is about the setting up euro area-wide committees and working groups and new technical infrastructures to face the new statistical challenges that the SSM brings with it. In doing so, we have also established an excellent collaborative working environment with national supervisors and banking statisticians, newly recruited ECB colleagues and the European Banking Authority in London.

As you know, all great visions need a well-defined, clear-cut organisational set-up. Otherwise it is a vision which never gets implemented. There is no doubt that the vision of fully harmonised, good quality banking statistics also needs such an organisational set-up, especially as the role of the statistics functions of participating national authorities is an important one and many parties need to work together.

To this end, the ECB has established the necessary organisational set-up to manage supervisory reporting and the provision of data services required by the SSM. This set-up involves more than just the new Supervisory Statistics Division in the Directorate General Statistics. We have also established a Statistics Committee in SSM composition which brings together supervisory data experts, whereas our standard Statistics Committee brings together monetary data experts. Also, in contrast to the Statistics Committee in standard composition, these experts do not just come from the euro area national central banks but from all national competent authorities (NCAs) of the Member States participating in the SSM.

In terms of regular data collections necessary for our day-to-day work, we have established a similar "decentralised" approach to the one that has served us very well for the first 15 years of monetary union. The regular supervisory data collections will be channelled through the NCAs to the ECB. The NCAs are the first ports of call for data collection and data quality control. Thus, they are key players in ensuring that the data quality follows the highest international standards. The second layer of quality control will be provided by the ECB. These controls will ensure that the same data quality standards are applied homogeneously across jurisdictions and across all supervised institutions of the SSM. This is a real innovation compared to the status quo and, if done correctly, one of the big advantages of the new banking supervisory function.

We all know that a modern banking supervisor needs more than just individual bank data to assess the business situation and risk profile of an individual bank. He or she needs data from several banks with comparable business activities to assess the risk profile of banks and to identify risky trends. This can only be done if we are successful in harmonising the data coming from banks – one of the big challenges in this area. The EBA's Implementing Technical Standards on Supervisory Reporting already facilitate greater harmonisation in terms of data and validation rules. In the SSM, we need to make further progress in this area. Taken together, the harmonisation of reporting standards and the data quality control provide a European reporting framework, which is a big step towards ensuring uniform supervisory reporting across Europe.

The new reporting requirements are challenging in terms of technical implementation and in terms of content. We are running the first data collections and we already know that the quality of the data that we are collecting still have a lot of room for improvement. Supervised entities, NCAs and the ECB are working closely together and we expect significant improvements in data quality very shortly. In the longer-run, we need to improve the quality of data even further, not only within supervisory reporting itself, but also with associated and connected datasets, such as master data, or qualitative data about supervised entities collected during the supervisory process. These will form an important additional component in the overall collection process.

Developments like the ones I have just outlined are key in ensuring high quality data for the SSM and, as such, provide the basis for successful banking supervision. Does this mean we can sit back carefree and adopt a "wait and see" approach? Definitely not!

While we have come a long way in setting up the SSM and in ensuring that we will be operational on 4 November, we should remain fully committed to enhancing existing data and producing new statistics in order to develop an integrated and complete picture that will help us to improve the overall assessment of supervised institutions.

Ladies and gentlemen,

This brings me to the key challenges for the future. We are already receiving a great amount of data from banks, and data needs are increasing in parallel with the growing complexity of banking activity – a challenging situation, which the ECB in its new role as banking supervisor will need to face.

On one hand, the call to minimise the reporting burden on banks is loud. A bank's business is to do banking, and not just reporting – I fully understand that. But a bank has to provide relevant information, given its special characteristics, its risk profiles and its role within the monetary and financial systems of the European economy. Thus, regulators and supervisors should attempt to take all these aspects into consideration and define balanced reporting requirements that do to not overburden banks with requests but do provide the relevant and necessary information. This is not only a matter of saving costs: an efficient design of reporting requirements will also help to increase the quality of the information. Sometimes, less is more.

On the other hand, statistics departments across the euro area national central banks (NCBs) and the ECB are already collecting, processing and disseminating an enormous amount of data. The situation is becoming increasingly complex with the need for processing supervisory data. At the same time, coordination processes are expanding to also include NCAs. Thus, streamlining the statistical process will also help to improve efficiency in this field, and hopefully raise the quality of the final data.

Finally, users of information also face a big challenge. The availability of data is very important, but combining information from different domains is not easy, given the different coverage and definitions of datasets. We have to invest in standardisation to allow the linking of distinct datasets. This requires considerable investment. But sharing and combining different data sources helps to provide a more holistic view – something that was missing in the run-up to the crisis. We have to learn this lesson.

So, how shall we, the ECB, address these issues?

In my view, there is a clear need for building an integrated picture for statistics where possible. This integrated picture needs to include the following:

First, there should be a holistic approach to defining requirements. In a non-integrated approach, each relevant area asks for the information it needs in an isolated manner, resulting in redundant requests and creating problems for banks, which have to use different definitions. We should avoid this at all costs.

Second, the IT systems designed to process data should also be integrated, with advanced features that help to automate the statistical processes as much as possible. Such an integrated system would help to increase data quality by ensuring that the statistical process is performed properly. It would also help to

reduce costs, as new data requirements would not lead to the development of new applications.

Third, the metadata describing the information should be unique, helping final users to utilise the information jointly, regardless of who the original requester of the information was.

In more concrete and technical terms, there is a need for a *harmonised statistical data dictionary*, which should provide a unique methodology for managing information and unique definitions. While the common methodology would allow the design of a common statistical IT system, the common definitions would help final users to better understand how to combine information from distinct reporting frameworks and how to formulate new requirements in detail. In short, we should try to ask for any piece of information only once and use it to meet the needs of different users. This is a big challenge, *but* the good news is that, here and there, we are already working on it.

Looking from a different perspective, integration will also facilitate data sharing and the use of data collections for different supervisory and central banking purposes. Data sharing will also address the challenge of reducing the reporting burden when the same data are needed by different bodies and/or for different tasks. It will also boost the quality of the datasets, as different users will look at the data from different angles and might therefore spot inconsistencies more easily or prompt improvements in comparability.

The Analytical Credit Database (AnaCredit) is a perfect example of such a database, having the potential to serve many different uses – supervision, financial stability, monetary policy or risk management. As it will contain very granular data, on a loan-by-loan or borrower-by-borrower basis, the data will not only be very useful but also very confidential. Intelligent solutions concerning differentiated access rights on a strict "need-to-know basis" will be necessary. In this context, however, we should avoid extreme positions, as confidentiality is not a "black-and-white issue". There are many ways to anonymise data, e.g. to build different but relevant sub-aggregates, thus making the data useful for analysis without breaching confidentiality. This is a challenge for our statistical experts. I am sure that they will find smart solutions.

Ladies and gentlemen, allow me to summarise.

My intention today has been to provide an overview of some of the challenges ahead when it comes to supervisory statistics for the new SSM, the role of participating countries as producers of these statistics, and key strategies for the future to tackle these challenges jointly. The key messages I would like you to take with you today are the need

1) to do further work on the quality of supervisory data,

2) to balance the reporting burden for banks through the integration of statistical processes,

3) to support the standardisation of methodologies and definitions, and

4) to broaden the possibilities for data sharing.

As providers of supervisory statistics, we all should commit our full efforts to helping final users to efficiently and effectively use the information delivered. Only the exchange of know-how and information creates synergies and leads to better-informed supervisory decisions and outcomes.

If successful, we will all finally be able to "speak the same language" in the area of supervisory reporting: a goal worth pursuing and at the same time an important foundation for the SSM to conduct sound supervision.

Thank you for your attention.

PROGRAMME

WEDNESDAY, 15 OCTOBER 2014

8.30 a.m.	Registration and coffee
9 a.m.	**Introductory speech** Mario Draghi, President, European Central Bank
9.30 a.m.	**Session 1** **Data needs of the Single Supervisory Mechanism** Chair: Mathias Dewatripont, Deputy Governor, Nationale Bank van België/Banque Nationale de Belgique Andreas Ittner, Vice-Governor, Oesterreichische Nationalbank Pedro Duarte Neves, Vice-Governor, Banco de Portugal Discussants: Josef Bonnici, Governor, Central Bank of Malta Nicolas Véron, Senior Fellow, Bruegel
11 a.m.	Coffee break
11.30 a.m.	**Session 2** **Statistics for multi-purpose use: synergies between the central banking and supervisory functions** Chair: Ilmārs Rimšēvičs, Governor, Latvijas Banka Anne Le Lorier, Deputy Governor, Banque de France Fernando Restoy, Deputy Governor, Banco de España Discussants: Piers Haben, Director Oversight, European Banking Authority Luigi Federico Signorini, Member of the Governing Board and Deputy Governor, Banca d'Italia
1 p.m.	Buffet lunch
2 p.m.	**Session 3** **The macro and micro dimensions of the banking union – which are the challenges for statistics?** Chair: Hans Buurmans - Chair of Reporting Requirements Task Force of Banking Supervision Committee, European Banking Federation Micheline Casey, Chief Data Officer, Federal Reserve Board Janez Fabijan, Deputy Governor, Banka Slovenije Martin Spolc, Deputy Head of Unit Banks and financial conglomerates II, European Commission Discussants: Francesco Mazzaferro, Head of Secretariat, European Systemic Risk Board Mr Steffen Kern, Head of Financial Stability, European Securities and Markets Authority
3.30 p.m.	Coffee break

4 p.m. **Session 4**

Communicating statistics to meet user requirements and manage market expectations

Chair: Aurel Schubert, Director General Statistics, European Central Bank

Christine Graeff, Director General Communications & Language Services, European Central Bank
Huw Pill, Chief European Economist, Goldman Sachs
Walter Radermacher, Director General, Eurostat

Discussants:
Brian Blackstone, Wall Street Journal
Hans-Helmut Kotz, Senior Fellow Center for Financial Studies, Goethe University and Center for European Studies, Harvard University

5.30 p.m. **Session 4**

Concluding remarks

Danièle Nouy, Chair of the Supervisory Board of the Single Supervisory Mechanism, European Central Bank


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INTRODUCTORY SPEECH

MARIO DRAGHI[1]

Ladies and Gentlemen,

It is a great pleasure to welcome you to the seventh biennial ECB statistics conference.

At the previous statistics conference, in April 2012, the focus was on the then remarkable expansion of the ECB's functions and their impact on ECB statistics. In addition to its primary function of maintaining price stability, the ECB had taken over new tasks relating to financial stability and supporting the European Systemic Risk Board (ESRB). Statistics departments in the European System of Central Banks (ESCB) and beyond were challenged to respond to the increasing information demands for conducting the monetary policy of the euro area in turbulent times as well as for responding to the data needs for monitoring and mitigating systemic risks.

Two years now seems like such a long time. As of 4 November, the ECB will also be responsible for banking supervision in the euro area and statistics departments have yet another partner to serve.

In these last two years, I have witnessed again the efforts you have made in providing monetary, macro-prudential and now also micro-prudential policy-making with the necessary information. I congratulate all the colleagues involved from statistics, from the IT departments and from supervision for what has been achieved in so little time. In particular, the statistics function of the ESCB has effectively used its solid know-how and well-functioning network to create the necessary data hubs and ensure that the flow of supervisory data within the system is as efficient and timely as it has been for the more traditional functions of the ECB. Well done!

THE NEED FOR INTEGRATING STATISTICAL AND SUPERVISORY DATA

But it should also be clear to everyone that we are now standing only at the start of a long road in terms of data. The big challenge for statistics in the coming years is not only "many more numbers", but, perhaps much more so, the reconciliation of statistical information collected in support of monetary policy and financial stability with the until now rather separate world of supervisory information. It is one thing to have information, which, like blood, flows through the veins of the system, it is another to ensure that everything beats at the same rhythm and all organs in the body get all they need from the same single flow.

1 President, European Central Bank.

Statistics produced by central banks and supervisory data have so far lived in different realms. They capture similar phenomena, but often using somewhat different concepts and different reporting frameworks. This will need to change. We cannot afford to have two, somewhat truncated and somewhat incompatible views of the world. It is detrimental to policy-making, it is costly to the reporting agents and it undermines trust in the financial system. Policy-making and, indeed, decision-making are only as good as the information on which they are based.

An integration of the ECB's statistical and supervisory data world will require painstaking work. One needs to go back to the drawing board and design a common European reporting framework that will serve all ECB functions, an information model and a data dictionary that will allow data for different final uses to be collected and processed in one coherent process, always respecting, of course, the rules of confidentiality. It will also require changes in legal texts, IT infrastructures and, not least, mentality. The sense of narrow "ownership" of the information by the final user may have been entrenched over years of separate existence of the statistical and supervisory data, but should be challenged.

In this ambitious endeavour, smooth collaboration not only within the ESCB and the Single Supervisory Mechanism (SSM) but also with other institutions and bodies is crucial. First and foremost this concerns the ESRB, the European Banking Authority and the European Commission, but also the other European authorities, the Financial Stability Board, the Bank for International Settlements.

Last, but by no means least, statistical and supervisory data integration requires very close collaboration with the banks that are the main reporting institutions. Data integration on the side of the ECB and the other authorities only comes at the end of a data production process, the first input of which is in the internal systems of the banks. The ECB has every interest in facilitating and promoting integration and standardisation also on the "input side" in the internal systems of the banks, for only this will ensure coherent information.

BENEFITS OF DATA INTEGRATION

The benefits of gradually integrating the existing information systems into a harmonised European information system cannot be overstated.

First, it ensures consistency in the information received by different policy-makers for different purposes.

Second, ideally requesting each piece of information only once will help limit the burden on reporting agents.

Third, it allows the exploitation of synergies across information domains and permits further rationalisation of the data production processes both at the reporting banks and at the relevant authorities.

Fourth, it enriches the basis for policy decision-making, respecting the separation of different policy domains.

There are, however, several constraints to data integration, and they will need to be overcome in a stepwise approach because of their sometimes strong historical and cultural nature. Discrepancies due to different accounting standards and legal barriers preventing data sharing among institutions and even within the same institution must be overcome, with proper transition periods. Also, integrating flows of micro-data from many sources across the world and analysing them effectively in a timely fashion must be enabled through the broad adoption, at global level, of data standards such as the global legal entity identifier, which is now operational.

CONCLUSION

The challenges are manifold – legal, cultural, technological, and organisational – but they can be overcome. I am encouraged by the fact that the Statistics Committee of the ESCB is wholeheartedly backing change in this respect and is spearheading a programme that can lead to the desired integration in the world of data and information.

At the start of the economic and financial crisis, the case of Lehman Brothers gave us an important lesson: the risks of having only truncated information sets available for decision-making are huge. I often hear that the coming of the SSM represents a great challenge and a big opportunity to improve the information available for policy-making. I would put it somewhat stronger than this. There is an absolute necessity to reap all the benefits of an integration of the statistical and supervisory data world in order to be able to understand in a timely manner complex economic relationships and developments.

I am looking forward to the contribution of this conference to this common goal.

Thank you for your attention.


Nicolas Véron
Josef Bonnici
Pedro Duarte Neves
Andreas Ittner
Mathias Dewatripont
Chair

1 DATA NEEDS OF THE SINGLE SUPERVISORY MECHANISM

ANDREAS ITTNER[1]

1 INTRODUCTION

On the path towards establishing the Single Supervisory Mechanism (SSM), it is essential to discuss and define meaningful data needs for one of the most significant projects in banking supervision. During the preparatory phase, a separate Workstream (WS4) was mandated to elaborate on the SSM data requirements. The preliminary results were summarised and set out in the SSM Supervisory Reporting Manual.

2 SUPERVISORY REPORTING MANUAL

The Supervisory Reporting Manual (SRM), as the outcome of WS4, describes the reporting framework (data needs) of the SSM and covers the data reporting requirements of both significant and less significant institutions based on Article 10 of the SSM Regulation[2]. According to this article, the ECB may request all information that is necessary to carry out the tasks conferred on it by the Regulation, including information to be provided at recurring intervals and in specified formats for supervisory and related statistical purposes.

When designing the reporting framework, the following principles have to be taken into account (WS4 2014, pp. 11-12):

- *Efficiency*, as the existence of common European reporting templates has to be considered as a prerequisite to avoid an undue burden on the reporters. In terms of data items, this refers to the use of existing data sources (e.g. COREP, FINREP, MFI statistics). On the other hand, it means that national competent authorities (NCAs) are, in principle, the entry point for the data collection phase in order to avoid duplication of effort.

- *Comparability*, to ensure that data across different jurisdictions are as comparable as possible in terms of the definitions used. Owing to the continued existence of different accounting standards (IFRS vs. local GAAP) across different jurisdictions within the SSM that are unlikely to be changed for the time being, the documentation of the main sources of discrepancy in the metadata is crucial. Otherwise, comparability will be hampered by different valuation methods and classification concepts.

1 Vice Governor, Oesterreichische Nationalbank (OeNB).
2 Regulation (EU) No 1024/2013.

- *Coherence* between the data collected and their use, achieved by taking into account the main risk profiles of a credit institution and organising the data requirements accordingly in order for a centralised risk assessment system (RAS) to perform smoothly.

- *Adaptability*, as it is very important to keep a certain degree of flexibility within the reporting framework owing to the ongoing development of new requirements. However, it is crucial to schedule sufficient time for implementing new requirements.

- *Proportionality*, to reflect the different degrees of significance of institutions within the reporting framework.

- *Transparency and traceability*, achieved by complementing the reporting schemes with detailed definitions and instructions for each variable (data dictionary).

According to the SRM, the SSM data requirements are organised into six different modules (WS4 2014, pp. 12-25) by taking into account standardised as well as non-standardised data available at national level only. Data serving purposes other than purely micro-prudential supervisory purposes (for instance, data for monetary analyses) have also been taken into account. When such data are used for supervisory purposes, their characteristics and potential limitations should be considered.

• MODULE 1: EBA ITS ON SUPERVISORY REPORTING

Module 1 represents the European Banking Authority (EBA) Implementing Technical Standard (ITS) on Supervisory Reporting[3] , which lays down uniform requirements (formats, frequencies, remittance dates) in relation to supervisory reporting to competent authorities for the following areas, commonly known as COREP and FINREP: (a) own funds requirements and financial information (Article 99 CRR[4]), (b) losses stemming from lending collateralised by immovable property (Article 101 CRR), (c) large exposures (Article 394 CRR), (d) leverage ratio (Article 430 CRR), (e) liquidity coverage requirements and net stable funding requirements (Article 415 CRR), (f) asset encumbrance (Article 100 CRR), and (g) additional monitoring metrics (Article 415 CRR). This harmonised set of reporting templates forms the core of the SSM reporting framework, respecting the principle of maximum harmonisation. This means that within the domain regulated in the ITS, competent authorities shall not impose additional requirements.

3 Commission Implementing Regulation (EU) No 680/2014.
4 Regulation (EU) No 575/2013 (Capital Requirements Regulation).

• MODULE 2: STATISTICAL DATA

Module 2 is divided into the sub-modules "Monetary financial institution (MFI) statistics" and "Securities holdings statistics (SHS)". The rationale behind this module is that statistical data provide a further source of harmonised information that might be used, with some limitations, for supervisory purposes. Although there are various methodological and conceptual differences between these statistical and supervisory datasets (e.g. in terms of the reporting population and the consolidation scope), statistical data could serve as a complementary basis for constructing early warning indicators in the absence of timely supervisory data (MFI statistics, for example, are collected on a monthly basis) or to enable a further drill-down into some of the activities of the supervised institutions.

• MODULE 3: GRANULAR CREDIT REPORTING

Developing a sound granular credit reporting framework which serves the needs of supervisors and other Eurosystem user groups will be one of the main tasks during the next couple of months. The underlying idea is that granular credit data enable a multitude of usage options in the supervisory process. On one hand, they might permit different options for further analysis not covered by other existing reporting areas. On the other hand, they might complement the information provided by other reporting systems (e.g. off-site banking business analysis, analyses for regular model examinations, and on-site inspections). Furthermore, analyses based on granular credit data might play an important role in the Supervisory Review and Evaluation Process (SREP) to evaluate a bank's capital adequacy or might serve as an input in risk assessment systems (RASs). Furthermore, they could enhance supervisors' understanding of banks' portfolios, thereby allowing supervisors to calibrate, verify and challenge the outcome of rule-based risk assessment systems.

• MODULE 4: AD HOC DATA COLLECTIONS

At this stage, it is difficult to anticipate future SSM ad hoc data requests. However, to conduct top-down stress tests one typically has to rely on ad hoc data (among other data sources) owing to the required granularity that is usually not available in regular supervisory reporting frameworks.

• MODULE 5: OTHER SUPERVISORY NATIONAL DATA

This module comprises data which are typically collected by NCAs but which are not harmonised by the EBA ITS on Supervisory Reporting. For instance, these data include information on Pillar 2 (e.g. interest rate risk within the banking book) and financial information (e.g. balance sheet data) from non-IFRS institutions. For the latter institutions, it is envisaged that FINREP will be extended in order to get "comparable" data across supervised entities under different legislations. The collection of the data in this module is expected to progress towards closer harmonisation in the near future. Once harmonised, these data could become a part of the regular reporting and would be moved from Module 5 to Module 1.

• MODULE 6: DATA REQUIREMENTS FOR PUBLIC DISCLOSURE

This module contains data gathered from the institutions' public disclosures and from market providers in order to complement some specific risk profile analyses in those areas in which information from regular supervisory reporting is less detailed. For instance, the use of different credit risk parameters, like daily and historical credit measures for individual financial and non-financial traded companies, or information on expected default frequencies and distances to default, in particular for financial companies listed in the European Union, might prove valuable.

3 INTEGRATED REPORTING

Tailor-made reports that have evolved over time were designed by a number of different bodies and for a number of different purposes to enable the collection of data for the production of statistics (such as external statistics, monetary statistics, and supervisory statistics). Each body devised its own approach to the data collection, which led to a lack of data consistency as well as a limited overview of the whole process. In addition, reporting institutions introduced their own IT systems for different reporting requirements, which differed across the banks and even deviated from their own internal risk management database.

As the number of reports required has increased substantially over the last few years, especially since the implementation of the ITS on Supervisory Reporting at the beginning of this year, additional ad hoc data requirements should only play a minor role. Instead, we should strive to use the synergies of one reporting system by exploiting existing data to satisfy the supervisors' needs for reliable and consistent data.

The obvious advantages of integrated reporting are manifold as it fosters a consistent interpretation of different statistics, a uniform compilation process and the application of uniform data quality methods. Other major benefits include the avoidance of multiple reporting requirements with the "one stop shop" concept, which means that there is only a single entry point for the reporting institutions for all data requirements, ideally using the same technical infrastructure.

4 SUPERVISORS – CONCENTRATION ON CORE ACTIVITIES

As today's requirements and challenges for supervisors have increased substantially, it is very important that supervisors can concentrate on and devote their scarce resources to their core activities. This means that, in an *ideal process chain*, supervisors should clearly specify their data needs but then rely on statisticians to design and conduct the integration and implementation as well as the collection and compilation of the data.

In general, banking supervision imposes the following requirements on statistical data: completeness, consistency, parsimony, and timeliness. All of these

might sound rather self-evident. Upon closer inspection, however, several of these requirements are currently not adequately addressed or may even, to a certain degree, be mutually exclusive. As a consequence, trade-offs need to be evaluated, preferences stated, and decisions implemented accordingly. The most cumbersome issues relate not to the overall concept but to the details, some of which shall be discussed together with potential options for going forward.

- *Completeness* is relevant for all the areas in which (supervisory reporting) data are used in NCAs. The following examples provide an overview but are by no means exhaustive:

– fulfilment of regulatory standards (e.g. minimum capitalisation and other prudential requirements, minimum reserves, etc.);

– bank analysis as part of the supervision (from analyst reports to statistical models);

– prudential regulation: Pillar 2 requirements/SREP ratio calculation;

– stress testing (for solvency and liquidity);

– macro-prudential analysis (from common exposures to various interbank networks).

Add to these data needs the requirement to integrate external data sources and *completeness* suddenly becomes quite a challenging criterion.

- To achieve *consistency* in the data is demanding because of various discrepancies in the supervisory reporting data. Again, a non-exhaustive list of some of the challenges may be illustrative:

– deviating interests: accounting vs. prudential reports (e.g. FINREP vs. COREP);

– different reporting frameworks: harmonised accounting vs. national accounting (e.g. IFRS vs. local GAAP);

– different concepts, e.g. consolidated vs. solo, immediate borrower vs. ultimate risk, etc.

To address these data needs in a consistent manner, a consistent data model is required. Such a data model needs to map the real financial situation of an institution at such a level of detail that the different data required can be derived from a common source. Otherwise, we follow a patchwork approach, which is indeed common practice, but which ultimately leads to inconsistencies in analyses based on similar (but different) data sources.

Whereas the first two principles are requirements that relate to the data themselves and insure effectiveness, *parsimony* is a user-driven concept aiming at efficiency. Hence, common definitions of the main data items, key indicators, etc. need to be developed jointly with the analysts. While these definitions need to be complete and unique, they should avoid the redundant collection of data as well as the redundant production of secondary statics. At present, there are, for example, still dozens of different definitions of net interest margin.

- *Timeliness* obviously means different things to different users. Indeed, supervisory reporting is in competition with real-time market data and (early) quarterly reporting by the largest banking groups. Supervisors who are asked to comment on/analyse developments within those banks will – if no other data are available – rely on private data providers and/or published accounts. At the other end of the spectrum, research analysts are less time-constrained and willingly accept longer deadlines for the sake of consistent and valid granular data sets. Relevant supervisory reporting therefore has to come up with a means of staggering deadlines in order not to become irrelevant at the shorter end, while allowing for completeness/consistency at the longer end.

To summarise the supervisory data needs: the competent authorities should neither aim for the lowest common denominator (i.e. for the data needs that merely fulfil all previous supervisory reporting requirements), nor for the most comprehensive data requirements. Instead, they should seize the opportunity to aim for a system that best satisfies the data needs specified above. The SSM provides us with an opportunity to rethink some of our ingrained habits, so let us move out of our comfort zones and build the supervisory reporting system of the future.

Regarding supervisory requirements for statisticians in terms of products, we should aim for *quantitative support* to the greatest possible extent. This refers to the whole process of *data dissemination* and *data compilation* as well as the *production of secondary statistics*, which should be carried out by the statisticians themselves in order to enable supervisors to concentrate on their core activities. The same is true in the field of *outlier detection*. As statisticians have already implemented robust systems, it is much more efficient to use the existing know-how and rely on the statisticians' expertise rather than to develop and maintain a duplicate system. Even regarding the initial interpretation of the data, supervisors can benefit from the statisticians when using existing analytical tools. Last, but not least, especially in respect of a *model-driven statistical risk assessment*, supervisors should seek support from the statisticians. This is particularly true with regard to less significant institutions, for which, owing to the application of different national accounting standards, a decentralised model is bound to be far more successful than a centralised one. Given the application of different national accounting standards with their different definitions and classification, measurement and valuation methods, a decentralised model would probably be more suited to the existing national peculiarities, as it would be unsafe to assume that the collection of comparable templates from IFRS and non-IFRS reporters would greatly improve the availability and comparability of financial data. Moreover, credit institutions would face higher costs owing to the necessity

of preparing two different reports – one financial statement in accordance with local GAAP (Bank Accounts Directive oriented[5]) and one financial statement in accordance with FINREP (IFRS oriented).

To summarise, supervisors should rely on the *existing expertise and know-how* of the statisticians, leaving themselves more time to *concentrate on core supervisory activities*.

5 FACING THE CHALLENGE – EUROPEAN REPORTING FRAMEWORK

Fundamental changes in demand call for equally profound changes in the way that statistics and statistical analyses are produced. To meet this challenge, we should strongly rely on the vision of an overall reporting and transformation process called the *European Reporting Framework (ERF)* in order to reduce the reporting burden for both recipients and reporting institutions. The ERF will consist of an *input layer,* an *output layer* (comprising data needs of all stakeholders, i.e. supervisors and statisticians), and a *statistical data dictionary*.

One of the main motivations for the ERF is simply the fact that, at present, supervisory reporting standards require data which are collected in several reports, such as COREP, FINREP, credit registers (which often serve supervisory purposes as well), various reports on banks' individual risk profiles not covered by COREP, and many more. These data are collected at different frequencies and different levels of aggregation. Furthermore, in view of the number of different reports, they are not free of redundancy. Under the ERF, however, it is envisaged that the complexity will be reduced by collecting all the various data required for banking supervision and for the ECB's monetary statistics, which are currently spread across many different individual reports, using an integrated approach which has its roots in one uniform *input layer*.

The *input layer* is derived from *primary data* available in the operating systems of banks (e.g. accounting, risk management, securities deposits). It provides an exact, standardised, unique, and hence unambiguous definition of individual business transactions and their attributes. Consistency, absence of redundancy, and ease of expandability are key features of such an input layer. Harmonised transformation rules defined by banks and competent authorities in close collaboration can be used to fulfil the reporting requirements of banks. The "*input approach*" (i.e. the input layer and the transformation rules) should, however, remain voluntary for the banking industry.

In future, reporting requirements should be organised in the form of a comprehensive and harmonised common primary reporting framework for regular data transmission to European national central banks (NCBs) and NCAs. This reporting framework will be introduced in stages. Harmonised transformations defined by NCBs/NCAs and the ECB in close collaboration will

5 Directive 86/635/EEC.

be applied to produce the required secondary statistics, the reporting templates, and other relevant aggregates. All the information needed in order to understand the secondary statistics and other aggregates will be included in a *statistical data dictionary*.

What are the advantages of the ERF?

First and foremost, the ERF model aims to ensure a precise, simple and unambiguous definition of information relevant for reports by means of the input layer. With consistency between the input and output layers, the quality of reports will improve. This is achieved by using harmonised and unambiguous definitions and a collection method that is free of redundancy, as well as by eliminating the need to cross-check separate reports from one and the same reporting institution. With single *input* and *output layers*, the ERF model is both parsimonious and transparent. Furthermore, the ERF is based on the idea of holding passive data within each reporting institution. This has the following advantages:

- Owing to the fact that the input layer defines data on a very granular, transaction-based level, and that it is developed in cooperation with the institutions, a clear aim is that the institutions should rely on the data from the input layer for internal risk management as well. In other words, the ERF will bring together internal and external reporting in order to ensure that the banks' internal risk managers and the supervisors base their work on the same data. This will both increase quality and break the spiral of ever-rising costs, as there will be only one common database instead of two separate ones.

- As the input layer defines data at an extremely granular level, changes in the level of aggregation may be implemented with greater ease.

- The model is intended to be sustainable. It should be easy (or at least easier) to meet new data requirements not yet covered in the reporting framework by amending the input layer.

Finally, timeliness is also expected to increase in the medium term, as certain quality checks should become redundant after the initial phase and hence be omitted as previously outlined. Moreover, the reporting burden should also decrease, as a vast number of different reporting obligations will be replaced by a limited number of attributes/dimensions.

It should be noted, however, that the above advantages may be limited by the fact that the complexity of the input and output layers increases with the number of attributes/dimensions required for international or national reporting. In other words, the layers will expand to the extent that various international or national regulations are heterogeneous and hence not fully consistent in their definitions. For example, as long as the concept of a simple bank loan is defined differently in supervisory statistics and monetary statistics, at least two attributes are needed instead of one to satisfy both reporting obligations (and to classify the individual transactions correctly). Finally, it is assumed that the number of dimensions in the input layer will range between 150 and a maximum of 200. This number appears

large at a first glance, but that is deceptive, because not all of the dimensions will necessarily have to be reported in the output layer and the aim is to also provide data for the banks' internal risk management from the input layer.

What are the challenges ahead?

Having discussed the expected benefits, let us now turn to the challenges we are facing. Of course, neither the ERF nor any other organisational set-up can provide a solution to the following problems that remain, as yet, unsolved.

Much stronger efforts for intensified international and national *cooperation and communication* will be needed in future. At the *national level*, the different public bodies that are active in the area of statistics, such as various ministries and national statistical institutes, should contribute to these efforts, which should always be guided by the clear goals of avoiding redundancy, harmonising and sharing available information, and thus reducing the burden on all parties involved. At the *international or European level*, this implies even closer cooperation between the ECB and the NCBs, and between the European Systemic Risk Board (ESRB) and the European Supervisory Authorities (ESAs). Here it appears that the focus lies on the following issues:

- We have to make sure that future data requests are coordinated and aligned even better than today to ensure the maximum attainable harmonisation of definitions.

- We have to make sure that already existing and available data can be shared effectively.

- We have to put even more emphasis on reconciling already existing reporting requirements. The Joint Expert Group on Reconciliation of credit institutions' statistical and supervisory reporting requirements (JEGR) is a promising first example.

- We have to evaluate the need for our statistical products on an ongoing basis. It is our impression and experience that new data requests appear quite frequently, whereas already existing reporting obligations are rarely abolished. Do we really need everything that is requested? Do we actually use everything we have? Do we have the capacity to analyse and assess all we have? Is it necessary to maintain all the different statistical and accounting concepts (monetary statistics vs. supervisory statistics, securities holdings statistics vs. credit registers, reporting obligations based on national GAAP vs. IFRS, etc.)?

Similarly, closer *cooperation with data providers and reporting institutions* is required in order to monitor market trends and get a clear picture of what is possible for statistical analysis and at what price.

A further important issue is of a *legal nature*. Speaking from a purely statistical perspective, we often find that existing legal regimes prevent economically efficient solutions. For example, multi-use of data is often restricted by data

protection laws. Of course, these laws are very important. However, it sometimes appears that the new micro- and macroprudential architecture and the respective mandates may not yet be fully reflected in the relevant legal frameworks dealing with statistics. Or, putting it differently, one could also say that the mandates of prudential authorities do not optimally take into account existing regulations for statistics and data protection. Apparently, there is a trade-off between economic and legal reasoning. What we need are balanced solutions. In any case, this requires closer cooperation and intensified efforts with the relevant legislative authorities.

The concentration of statistical responsibilities, the new organisational set-up, and the way data are treated within a new data model (the ERF) call for a new, cutting edge *technological set-up*. Significantly more extensive sets of data resulting from a trend towards higher granularity require adequate IT systems to process and interlink these vast amounts of data. Hence, substantial investments in technology have to be made.

6 CONCLUSIONS

To conclude, the foundations for an efficient implementation of SSM data needs are based on the following four pillars:

- The *exploitation of existing data* (quality of regular data comes before the quantity of ad hoc data);
- The *exploitation of existing structures* (by relying on the available expertise and know-how of statisticians);
- The *exploitation of synergies between banks' internal risk management and supervision* with respect to the required data; and
- The *development of harmonised requirements* for quantitative statistical information *derived from heterogeneous primary sources* and their implementation in *standardised reporting formats (the European Reporting Framework)*.

LIST OF REFERENCES:

ECB (2014), "SSM Supervisory Reporting Manual, Version 1.0"

ENHANCING THE SYNERGIES BETWEEN THE SSM AND STATISTICAL REPORTING[1]

PEDRO DUARTE NEVES[2]

1 INTRODUCTION

The setting up of a data system to support the Eurosystem's new financial supervision activities will benefit significantly from an exploration of important synergies between the Single Supervisory Mechanism (SSM) and statistical reporting. In fact, integrating the two functions will have major benefits for both the data compilers and the reporting entities. The former will benefit from the existing infrastructure and the expertise accumulated over the years, while the latter will benefit from a reduced reporting burden through the elimination of data redundancies and overlapping.

The synergies go beyond a reduced burden for data providers and benefits in terms of economies of scale for data compilers. The possibility of combining micro-level datasets will continue to be crucial to the development of analytical tools to assess supervisory and financial stability issues.

Against this background, Section 2 of this paper provides an overview of the work done so far at the European level to enhance the synergies between the SSM's data needs and statistical reporting. Section 3 presents the experience of the Banco de Portugal in managing large micro datasets and its experience in further enhancing the synergies between financial stability assessment and micro data availability. Section 4 concludes.

2 SYNERGIES BETWEEN THE SSM'S DATA NEEDS AND STATISTICAL REPORTING: AN OVERVIEW OF WORK DONE SO FAR AT EUROPEAN LEVEL

An important step towards the setting up of the SSM's data system relates to updating the legal provisions governing the use and exchange of confidential data, which were initially designed for the statistical function of the European System of Central Banks (ESCB). To address these concerns, in April 2014 the Governing Council approved an ECB recommendation for a Council Regulation amending Regulation (EC) No 2533/98. In a nutshell, the amendments are aimed at creating a legal framework for the transmission and use of confidential statistical information supporting the role of (i) the European Central Bank

1 Contributions to this paper from the Banking Prudential Supervision Department, the Economics and Research Department, the Financial Stability Department and the Statistics Department are gratefully acknowledged.
2 Vice-Governor, Banco de Portugal.

(ECB) in its capacity as the competent authority in prudential supervision, (ii) the national competent authorities (NCAs) responsible for prudential supervision in the Member States, and (iii) the Member State and EU authorities responsible for the stability of the financial system. Actually, the need for information sharing across supervisory entities became even more evident in the economic and financial crisis. In particular, the development of macro-prudential supervision in the aftermath of the crisis highlighted the crucial role of sharing key information among banking, insurance and financial market supervisors. This is a point that definitely needs more debate and refinement at both euro area and Member State level.

As to the infrastructure, new bodies were created to cater for the data needs associated with the SSM. In particular, one of the main tasks of the recently created Working Group on Supervisory Statistics is the collection, production and dissemination of supervisory data harmonised under the European Banking Authority (EBA)'s Implementing Technical Standards (ITS) and any other additional supervisory data deemed necessary for the SSM.

Moreover, the Statistics Committee (STC) endorsed the creation of the Task Force on European Reporting Framework (TF ERF), thereby recognising the importance of data requirements harmonisation and following up a recommendation from the "Groupe de Réflexion" concerning the integration of statistical and supervisory data. According to its mandate, the task force is responsible for the design of integrated reporting schemes covering a wide range of different statistics, namely credit institution balance-sheet statistics, money and interest rates, securities holdings and credit statistics. In doing so, all issues underlying the creation of a single ERF – legal, conceptual and process-related – will be addressed by the task force. The task force should also liaise with the SSM structures in trying to identify potential SSM requirements and propose additional steps, as well as with other groups, such as the STC Expert Group on Statistical and Banking Data. It is envisaged that the implementation of its action list should be completed by early 2016.

Efforts of conceptual harmonisation and convergence have also been taken regarding another key source of micro data: central credit registers (CCRs). These databases are a fundamental tool for monitoring and managing credit risk, as well as for providing an overview of credit exposures and the level of indebtedness of both resident and non-resident borrowers vis-à-vis national financial intermediaries. Since 2007, in order to get a better overview of the level of indebtedness of borrowers in an environment of increasing financial integration across Member States (at least until the beginning of the crisis), the ESCB has been exploring the potential statistical use of CCRs.[3] In particular, the ESCB is investigating the extent to which their content may be enhanced and adapted for euro area and EU statistical needs in order to alleviate the statistical reporting burden and to increase transparency.

3 Data sharing with other countries' CCRs follows the rules of the 2005 Memorandum of Understanding on the exchange of information among CCRs, which was signed by nine NCBs (AT, BE, CZ, DE, ES, FR, IT, PT, RO) and is based on reciprocity.

Against this background, in 2012 an ESCB Task Force on Credit Registers, co-chaired by the Banco de Portugal and comprising experts from both the statistical and credit register areas, was mandated to investigate three main issues: (1) identifying a core set of information to meet main users' needs and the necessary data attributes and level of harmonisation of definitions/methodologies; (2) looking at the governance, legal and confidentiality issues; and (3) exploring the identification of entities and loans and the CCRs' links to other data sources, such as micro databases and business registers. Pursuing this avenue, a joint STC/Financial Stability Committee (FSC) Task Force on Analytical Credit Datasets (also co-chaired by the Banco de Portugal) was established in 2013. The overarching aim of this task force is the setting up of a long-term framework for the collection of harmonised granular credit data.

In sum, a lot of effort has been devoted at EU level to exploring the synergies between statistics and supervisory data. But these are clearly only the first steps on a long and promising journey.

3 ENHANCING THE SYNERGIES – THE EXPERIENCE AT THE BANCO DE PORTUGAL

The dynamic interaction between the SSM and statistical reporting will be a challenging process. One of the benefits of the SSM is a platform to share experiences. In the following, the paper highlights several ways in which the synergies between supervisory data needs and statistical reporting can be particularly fruitful, building on the experience from the Banco de Portugal.

3.1 MANAGEMENT OF MICRO DATABASES

The Banco de Portugal has been gradually developing a data system based on micro data. The approach has been twofold: first, to build and manage highly detailed and granular databases; second, to evolve towards an integrated data infrastructure. The following statistical micro databases should be highlighted in the context of financial supervision and stability:

(i) The CCR, which contains granular information on credit on a borrower-by-borrower basis, including, in some cases, details on a loan-by-loan basis, with virtually complete coverage.

(ii) The Central Balance Sheet Database, which holds accounting and financial information covering almost all existing non-financial corporations (NFCs).

(iii) The Securities Statistics Integrated System (SSIS) database, a security-by-security and investor-by-investor database of both securities holdings and issuances. The SSIS complements CCR data on loans with data on securities and, from a portfolio perspective, it is a powerful tool to measure exposures of banks and non-banks to specific issuers.

In addition, combining the information contained in the SSIS and the CCR provides a more complete overview of the exposure and indebtedness of the financial system as a whole.

(iv) Following a data request in the context of the Economic and Financial Assistance Programme to Portugal and, to better assess current credit conditions of the NFC sector and monetary policy transmission, the Banco de Portugal started collecting individual data on new bank loans and respective interest rates. As of December 2014, the database will cover all new operations (in its initial stage it was confined to banks with new loans granted per month to NFCs of €50 million or higher).

The joint management of micro databases has many advantages covering the whole of the compilation chain, spanning from the data collection processes to the dissemination policy. From an input perspective, these relate mainly to the reduction of the burden imposed on reporting institutions. From an output perspective, they relate to a wider range of possibilities as regards the level of complexity and detail of statistical products and the additional flexibility in defining and creating different outputs, allowing users to define their own data queries according to their specific needs in a tailor-made way. In this respect, the long-standing aim of the Banco de Portugal of having a fully-fledged integrated system, encompassing, insofar as possible, granular data of all institutional sectors and financial instruments, which can then serve the purposes of the various internal and external stakeholders, should be highlighted. To properly manage such detailed, comprehensive and complex information, a robust state-of-the-art data system is of the essence, boosting appropriate IT tools and solutions able to respond to the challenges ahead.

3.2 THE BENEFITS OF COMBINING SEVERAL SOURCES OF MICRO DATA: AN EXAMPLE

The Banco de Portugal has recently taken decisive steps towards further exploring the information potential of the CCR and balance sheet databases in an ongoing project aimed at creating an in-house credit assessment system (ICAS). This system will provide the Banco de Portugal with its own internal credit risk assessment system, thereby reducing its dependence on external sources. Against the background of the recent economic and financial crisis and the shortage of assets eligible to be used as collateral in monetary policy operations, these systems have recently been gaining importance within the Eurosystem, as can be seen from the increasing number of national central banks (NCBs) that have introduced them. In fact, at the current juncture, a more pressing business case for ICAS stems from the area of monetary policy, for which ICAS will provide an evaluation of a debtor's credit rating.

But the benefits of such a system are not exclusive to monetary policy. In fact, there are a broad range of advantages for other business areas, in particular regarding financial supervision and stability. First and foremost, starting with financial supervision, the credit ratings derived from ICAS could be used as a benchmark to gauge those provided by institutions with their own internal

rating system. Furthermore, the computation of sectoral default probabilities could also be envisaged, providing a useful input for stress-testing. In the area of financial stability, the monitoring of developments in the non-financial sector (and the potential building up of imbalances) would benefit from an indicator of NFC credit risk, which could serve at least two purposes: identifying situations of potential financial fragility in a set of companies from a particular economic sector, and helping to assess other risks stemming from the NFC sector. Other business areas, such as economic analysis and statistical functions, would also stand to gain from ICAS outputs.

3.3 ANALYTICAL BENEFIT FROM COMBINING SEVERAL SOURCES OF MICRO DATA

Micro data allow us to explore the heterogeneity hidden behind aggregate numbers, which only reveal the average of the distribution. Given that in many situations the tail of the distribution provides the most important information, it is clear why these data became crucial in the context of the recent crisis.

For instance, micro data allow a wide range of issues to be explored that may be relevant to understanding the risks underlying banks' balance sheets. For example, the Portuguese CCR dataset was combined with firm-level accounting information (from the Central Balance Sheet Database) to analyse the drivers of credit risk for firms. Furthermore, even though the use of household data is subject to greater legal constraints (notably with regard to combining datasets), there were also several efforts to identify what drives household defaults. This line of research allows emerging risks in banks' portfolios to be identified, and modelling tools for the forecasting of default probabilities to be created. The latter are a key input in stress-testing exercises.

In addition, the use of these datasets has helped us to improve our knowledge on issues pertaining to access to finance, the financing structure of non-financial firms, the interaction between firms and banks and the link between investment and credit.

3.4 ADDRESSING THE SSM'S NEED FOR FORWARD-LOOKING INFORMATION

Under the Economic and Financial Assistance Programme framework, the Banco de Portugal has been conducting funding and capital plan (FCP) exercises. FCPs were initially prepared and submitted to the Banco de Portugal on a quarterly basis by Portugal's eight largest banking groups. This has since been extended to other institutions, although some under a simplified framework, making a total of 33, covering almost the whole Portuguese banking sector. The FCPs focus on the solvency, liquidity and profitability of the institutions, include detailed historical and prospective accounting and prudential information (overall strategies pursued over a three to four-year time horizon), and are based on harmonised macro scenarios, guidelines and restrictions, which allow full consistency among institutions. They are dynamic in the sense that whenever there are relevant developments, additional information or further details on existing information

can be added to the information request from the Banco de Portugal to banks. Conversely, information that is no longer valid or needed can be removed from the request.

Analysis of the FCPs enables a deeper understanding of the general strategies of the institutions and of the overall adjustment path of the banking sector, providing a solid basis for challenging the managements of the banks with regard to the strategies followed on solvency, liquidity and profitability. It also provides a good way to check the consistency of the expected evolution of key aggregates reported by institutions (credit, deposits) with the macro scenario: inconsistency between the two might lead to a change in the estimates of the institutions, a challenge to the declared strategies or a review of the assumptions underlying the macroeconomic projections developed at the Banco de Portugal. Furthermore, it allows us to identify outliers with behaviour that deviates from the sector average which could have systemic implications.

It should be noted that the FCP exercises were also accompanied by quarterly stress-testing exercises, which mimicked the reporting requirements of the FCPs, albeit adapted to cater for the specificities of stress scenarios.

3.5 ADDITIONAL DATA THAT MIGHT BE USEFUL FOR THE SSM

Since 2011, the Banco de Portugal has been conducting some specific inspection exercises within the eight largest national financial groups:

- the Special Inspections Programme (SIP), which was aimed at ensuring that the capital requirements for credit risk were calculated appropriately;

- the On-Site Inspections Programme (OIP), which emerged in a particular macroeconomic context with the objective of analysing the risk exposure to specific sectors (construction and real estate – CRE) and assessing the adequacy of the impairment levels set by the banks for these sectors;

- ETRICC (a horizontal review of credit portfolio impairment) and ETRICC2 (a business plan analysis of major clients in the banking system) with the aim of ensuring that the impairment levels set by the banks were prudent and calculated according to best practice;

- the Asset Quality Review (AQR), which focused on providing guidance to the banks that will be directly supervised by the ECB so that they can provide consistent data for the evaluation of their assets and exposures;

- the Special Assessment Programme (SAP), which assesses the policies and procedures used by each of the participant institutions to handle distressed credit operations, covering the entire distressed credit life cycle.

Horizontal onsite inspections have proven to be a useful tool for deepening knowledge of specific issues in institutions and in the financial system, for assessing potential weaknesses, and for developing a suitable risk-mitigation programme.

These inspections have also allowed the consistency and comprehensiveness of the reporting requirements of financial institutions to be improved.

Looking at the achievements attained with these horizontal onsite inspections, one could highlight the following: (i) improvements in the assessment of potential weaknesses and the design of actions to avoid stress situations and promote financial stability; (ii) the use of common requirements (data models) and harmonised concepts, allowing peer comparisons and the identification of outliers; (iii) the identification of gaps in procedures and processes as well as impairment deviations; and (iv) improvement in communication between the Banco de Portugal and the financial groups involved in these actions and better alignment of expectations from both sides.

Furthermore, the horizontal onsite inspections also generate value for supervisory functions in the sense that they help to identify: (i) exposures that need a revaluation using alternative methods, such as the discounted cash flow method; (ii) specific debtors whose credits require revaluation on a more frequent basis; (iii) outdated valuations of credit collaterals; (iv) sectors of activity where credit risk constitutes a greater concern (e.g. CRE and pharmaceuticals); and (v) the need to improve credit institutions' internal impairment models.

Drawing a parallel with the SSM structure, the Directorate General Micro-Prudential Supervision IV, SSM Risk Analysis Division is expected to perform the same type of horizontal review (sector-wide reviews, identifying trends and emerging risks). However, instead of setting up a data model for each review, it will benefit from the sets of homogeneous, quality-assessed data identified in the supervisory reporting manual (namely from Module 1: Core supervisory data; Module 3: Granular credit data; and Module 4: Ad hoc data (e.g. top-down stress testing)).

4 CONCLUDING REMARKS

In a nutshell, the data needs arising from the SSM could be regarded by the NCAs and the ECB as an opportunity to explore important synergies between supervision and statistical activities, which can be threefold.

(i) Concerning data collection and information systems, integrating the reports for both functions will generate major benefits, not only for the data compilers but also for the reporting entities. In this context, highly granular data collection schemes are proving to be fundamental.

(ii) A wide range of analytical studies, which have been crucial for supervision and financial stability, benefit significantly from micro data. These analyses reveal the heterogeneity hidden behind aggregate numbers and allow a better understanding and monitoring of the financial system, thereby providing the supervisor with a closer and more comprehensive perspective of the financial sector and of its relations with the other sectors in the economy.

(iii) The core supervisory data, granular credit data and ad hoc data sets collected and used for statistics will generate value not only for the direct supervision function but also for the horizontal functions of the SSM, including sector-wide reviews and identifying trends and emerging risks.

To maximise the usefulness of all the new information that will be available under the SSM, further work should focus on its analysis and integration, to ensure that the higher reporting standards are reflected in a sounder framework for banking supervision, thereby fostering financial stability at EU level.

COMMENTS

JOSEF BONNICI[1]

In this session, the authors agree that fundamental changes in required supervisory statistics call for equally profound changes in the way statistics are produced and analysed. Unlike other large monetary unions, the euro area is made up of different countries, each with a legacy of statistical cultures and institutions. What do the authors think about the added complications resulting from such heterogeneity?

Synergies between statisticians and banking supervisors – Meeting the data needs of the Single Supervisory Mechanism (SSM) may be regarded as an opportunity to explore a number of important synergies between statisticians and banking supervisors. Aggregate data must be complemented by micro data in order to reconcile the various objectives of today's central banks: the assurance of financial stability on one hand and the achievement of more traditional monetary policy objectives on the other. In what ways can we enhance synergies between statisticians and bank supervisors?

Historical parallels – There are parallels with the development of, and interaction between, macroeconomic theory and aggregate economic statistics that occurred in the first half of the twentieth century. I am referring to the emergence of Keynesian thinking, along with the evolution of the macroeconomic statistical structure that was necessary for the conduct of countercyclical stabilisation policies. What kind of time frame do the authors have in mind for the completion of the integration of supervisory data?

Division of labour – Since the requirements and challenges faced by supervisors have increased substantially, I agree that supervisors should devote their scarce resources to their core activities. Supervisors should specify their data needs, but should then rely on statisticians to design, collect and compile the data.

Benefits of granular data – Drawing from the experience of the Banco de Portugal, Mr Neves sees huge benefits emerging from the availability of credit registers, as well as from other granular credit data, especially for the monitoring of credit exposures, credit risk and the level of indebtedness of non-financial corporations (NFCs) and households. Access to standardised and timely granular credit data supports the use of macro-prudential tools, the supervision of financial institutions and the monitoring of any deterioration in credit underwriting standards. Should national data be shared between all European national central banks or supervisory authorities?

Household Finance and Consumption Network (HFCN) – Survey work on households is relevant in this endeavour, enabling solid research to be used for supervisory purposes. However, the anomalies in the results obtained in various

1 Governor of the Central Bank of Malta.

countries from the first wave of the Household Finance and Consumption Survey raise some issues relating to the limits of international comparability. What are the thoughts of the two speakers about any lessons from the HFCN?

Public sector data – Information from the public sector could also support the provision of credit statistics, for instance by making a comprehensive business register available to the public. Such information would facilitate the identification and matching of credit data on the corporate sector. Making data available from other existing public sector sources, such as registers of value added tax, might bring about similar benefits.

The IT dimension – The concentration of statistical responsibilities and the new organisational set-up call for a reshaped, cutting edge technological set-up. Significantly more extensive sets of data containing higher granularity require adequate IT systems to process and interlink these vast amounts of data. Hence, substantial investments in technology have to be undertaken. Incidentally, last year the Banco de Portugal organised an interesting conference in Porto on the integrated management of micro-databases.[2] One of the main conclusions was in fact that the evolution in network and communication protocols, database systems and multidimensional analytical systems has removed the potential disadvantages of having to deal with the huge amounts of data normally associated with the handling of micro-databases. Governance and safeguards have to ensure the security and appropriate usage of credit data. What else can be done to reduce the burden related to the handling of micro databases?

Comparability of data – Mr Ittner places particular emphasis on a list of principles which have to be taken into account. In my opinion, the second principle – comparability – is one important area for further enhancement at the European level. I am referring to the harmonisation of accounting standards in the context of the current applicability of different accounting standards across different jurisdictions. Despite the philosophically and culturally based methodological differences between these accounting standards, certain steps have been taken towards convergence. A case in point is the difference between the US GAAP and IFRS where, despite continued challenges, convergence has been reached in standards on business combinations, as well as in the areas of revenue recognition and the financial performance of businesses.[3] Can we identify other areas where statistical convergence is necessary?

Scope of the statistics – Mr Ittner remarks that competent authorities should neither aim for the lowest common denominator (i.e. the data needs that merely fulfil all previous supervisory reporting requirements), nor for the most comprehensive data requirements. Instead, they should seize the opportunity to aim for a system that best implements the above-specified data needs. The SSM provides us with an opportunity to rethink some of our established

2 Workshop on Integrated Management of Micro-databases, Porto, Portugal, 20-22 June 2013.
3 Nicolas Pologeorgis, "GAAP And The IFRS Standards Convergence Efforts In 3 Substantial Areas", *Investopedia*. http://www.investopedia.com/articles/investing/030713/gaap-and-ifrs-standards-convergence-efforts.asp

habits, so Mr Ittner advocates a move out of comfort zones and towards building the supervisory reporting system of the future. All issues underlying the creation of European Reporting Framework – legal, conceptual and process-related – should help to identify potential future SSM requirements. In the view of the speakers, what role does the European Reporting Framework have in the harmonisation and integration of statistical and supervisory data?

Conclusion – As explained in a previous ECB statistics conference, "Financial integration is an ongoing process, but financial stability is an elusive goal. The result is that statistical requirements are constantly changing". Therefore, the compilation and processing of SSM statistics also have to be flexible and dynamic. They must be adaptable and open to further evolution as the need arises.

COMMENTS

NICOLAS VÉRON[1]

Both papers provide valuable contributions to the debate on how to adapt information systems and statistical frameworks in the new context created by European banking union, which is the overarching theme of the conference. Specifically, the paper by Pedro Duarte Neves gives thought-provoking examples of how to connect supervisory analysis of banks with statistical data about the broader economy, including credit information, non-corporate information, and securities markets information. The paper by Andreas Ittner provides a snapshot of current thinking about building up the Single Supervisory Mechanism (SSM)'s own information system, a task that involves complex trade-offs and what promises to be a somewhat protracted transition.

This discussion should start with a cautionary note: I am triply unqualified for it. First, I do not have much experience of producing statistics. Second, I have never been a practitioner of banking supervision. Third, and perhaps most relevant, I observe the developments that underlie the two papers from the outside – and not all of them are observable from the outside, for understandable and often legitimate reasons. For example, the internal documentation and workings of the SSM to which Andreas Ittner's paper refers repeatedly are something I have no access to. This may result in many of my comments being misguided, behind the curve, or simply irrelevant.

For the sake of appropriate disclosure, I should add that, as an independent board member of the global derivatives trade repository arm of the Depositary Trust & Clearing Corporation (DTCC) since mid-2013, I have learnt much recently about the challenges of handling large volumes of real-time financial information across jurisdictional borders. These challenges are different from those faced by bank supervisors, but may also colour my observations.

The future SSM information system

The establishment of the SSM is obviously a major change for Europe. It is very structural and will have long-term ramifications that are still far from having fully unfolded. These will include consequences for supervisory data collection and analysis. Policy-makers are still at an early stage of what promises to be a long journey of discovery.

National supervisors have accumulated considerable knowledge and know-how about supervisory data collection and analysis over the years. Furthermore, this year's comprehensive assessment provides an initial basis for supervisory data that are expected to be comparable across participating Member States. However, an effective SSM information system is unlikely to evolve only incrementally from this initial basis. The process underlying the comprehensive

1 Senior Fellow at Bruegel, Visiting Fellow at the Peterson Institute for International Economics.

assessment was inevitably ad hoc and too reliant on external private-sector contractors (consultants and auditors) to be contemplated on a steady-state basis. The existing national frameworks are too different from each other to evolve gradually into a coherent whole. The SSM will therefore need to develop its own solutions, largely from the top down, and find adequate ways to manage the transition from multiple legacy systems to the new one.

There are two key reasons for this, beyond the intrinsic difficulty of an incremental approach to harmonising very different national systems. First, the world of data in general, and of financial data in particular, is changing at a rapid pace. The data needs of supervisors are far from static, and solutions introduced several years ago by individual national supervisors may already be partly obsolete. In my observation, complex organisations are increasingly reliant on a centralised information backbone that serves decentralised operations, and the SSM is unlikely to be any different. Second, the SSM will have to be more data-driven than the vast majority of EU national supervisors have been until now. This is because it supervises a much wider, larger and more diverse range of banks, headquartered in multiple financial centres across the European continent. Handling all these supervised banks in a fair and consistent manner cannot be based solely on relationships and individual judgment, as has been the case in several national contexts until now, but must, crucially, also be based on reliable and comparable data. As in other spheres of public oversight, an appropriate balance will always need to be found between "human intelligence" and "signal intelligence", but the relative importance of the latter grows as the size and scope of observation and control expand.

One consequence of an approach to building the SSM information system largely from the top down will inevitably be that not all the solutions adopted will be able to be expanded to the entire EU, at least as long as some Member States choose to stay outside of the SSM. Another perhaps non-trivial consequence is that the future SSM information system is likely to result in more transparency regarding supervisory data, vis-à-vis market participants and the general public, than most of the national systems have delivered until now. Such transparency could be used to incentivise faster and more complete convergence, as external scrutiny can act as a check on inconsistencies and lingering national differences. Furthermore, as the authority with the joint largest range of supervised banks in the world (together with the United States), the SSM will be more directly compared with and benchmarked against its US counterparts in terms of supervisory transparency than supervisors in individual EU Member States have been until now. At present, there is a significant gap in this respect, with the United States providing much more supervisory transparency than Europe, as Christopher Gandrud and Mark Hallerberg demonstrated in a thought-provoking paper published by Bruegel earlier this year. The increased benchmarking will therefore encourage the SSM to raise its disclosure game. Here again, the comprehensive assessment is a promising starting point, as it will result in the disclosure of numerous data points, of which many will be new to external observers. However, the comprehensive assessment is a one-off exercise. It remains to be confirmed how much information about banks will be disclosed by the SSM on a regular basis – at least once a year and possibly more frequently.

Bank-specific data

The data that the SSM will require from banks raise a number of policy challenges, some of which may be beyond the capacity of the SSM to resolve alone.

A first set of challenges concerns accounting information, which is a crucial input in the supervisory process. Three main issues stand out here. First, while International Financial Reporting Standards (IFRS) are universally used in the EU for the consolidated financial statements of listed banks, the standards that apply for the accounts of individual entities, and even in some cases for the consolidated accounts of unlisted banks, are far from harmonised. This creates a major obstacle to data comparability. Second, audit frameworks vary significantly from one Member State to another, in spite of recently adopted EU legislation, and auditor oversight remains the preserve of different national audit regulators with only limited coordination at EU level. Third, the public enforcement of IFRS is also fragmented across Member States, generally being conducted by national securities authorities with only limited EU-level coordination by the European Securities and Markets Authority (ESMA).

Another set of challenges concern the calculation of supervisory ratios, including on capital, leverage and liquidity, which involves the application of prudential filters to accounting information as well as risk-weighting of assets. In this area, the SSM has far-reaching authority to apply a unified doctrine and to harmonise practices. It can also be a leader in applying the supervisory information disclosure obligations known as Pillar III of the Basel framework, which are currently undergoing a long-overdue update and strengthening led by the Basel Committee on Banking Supervision. As argued above, the SSM should aim to provide a level of supervisory data transparency at least equivalent to that currently delivered by US bank supervisors.

An additional set of challenges affect the collection, analysis and partial disclosure of information about specific risks. The SSM's risk assessment system is a key pillar of the entire banking union project, even though its roll-out has had to be delayed beyond the completion of this year's initial comprehensive assessment. After its launch, it will need to be carefully maintained and developed over time. Furthermore, the SSM may consider imposing risk disclosure requirements on supervised banks – over and above those included in applicable accounting standards. The work of the Financial Stability Board's Enhanced Disclosure Task Force may serve as a source of inspiration in this respect.

Broader economic and financial data

The paper presented by Pedro Duarte Neves underlines the need to complement bank-specific information with other types of data that help explain the interaction of banks with the rest of the financial system and the broader economy. The consolidation of such data at a European level may appear less urgent for the operation of the SSM than the consolidation of bank data, but is nevertheless of high importance, not least to support micro-prudential supervision with complementary insights from macro-prudential oversight.

This observation applies particularly to credit information as can be derived from central credit registers. I know too little about the AnaCredit project and its current implementation status to be able to make an informed assessment of how it will support the SSM's missions. However, what appears obvious and has already been illustrated in the conduct of the comprehensive assessment is the need to be able to analyse credit data with a high level (i.e. low threshold) of granularity in order to make appropriate supervisory judgments. The basis for this must provide for cross-country comparability within the banking union area (all countries that participate in the SSM), and the transition period to reach an appropriate degree of cross-country consistency should not exceed a few years at most.

Over time, in addition to credit information, bank supervision and macro-prudential oversight should also be supported by analysis that aggregates firm-level data across the entire banking union area. Here again, the diversity of national accounting standards for single-entity financial reporting (and also, to a lesser but still significant extent, of audit frameworks) is a thorny issue. Other types of statistical information will also need to be tackled to allow better pan-European analysis, particularly about securities issuance and ownership, as is also well illustrated in Pedro Duarte Neves' paper.

The announcement in mid-July by Commission President-elect Jean-Claude Juncker of a European Capital Markets Union (CMU) may provide a welcome opportunity to develop adequate policy responses to several of the above-listed challenges at EU level. Consistent accounting standards, audit regulation, and IFRS enforcement are needed for the sound development of EU capital markets, as well as being needed to feed the SSM with adequate, comparable data. The SSM should therefore be actively involved in the debates about the policy content of the CMU that can be expected to gather pace over the next few months.

Concluding observations

In addition to rapidly building up its own data systems, the SSM should also assist in the development of global information frameworks that support the holistic monitoring of the international financial system, including by institutions such as the Bank for International Settlements (BIS), the Financial Stability Board (FSB) and the International Monetary Fund (IMF). The ECB and SSM must be active participants in the ongoing Data Gaps Initiative, and in the International Data Hub that collects information about systemically important banks and is hosted by the BIS.

Finally, the governance of project design and management in building up new information solutions for the SSM will require adequate discussion and planning. Over the next few years, national supervisors may need to give priority to efforts to support the SSM information system over other projects to collect and analyse data. As all national supervisors have a stake in the success and effectiveness of the SSM, incentives appear reasonably well aligned for such prioritisation to occur, but it will nevertheless require significant attention, not least in terms of allocating or redirecting financial and human resources within all participating organisations.

COMMENTS

MATHIAS DEWATRIPONT[1]

The presentations put some emphasis on the role that statisticians should or could play in relation to prudential reporting. The reference frameworks for statistics may sometimes differ significantly from those that underpin prudential reporting. Indeed, prudential reporting is essentially based on the prudential requirements (the Capital Requirements Directive, CRD IV), while the accounting framework is largely based on International Financial Reporting Standards (IFRS). Could Mr Ittner or Mr Neves elaborate on how they would bridge these different elements without jeopardising the consistency of prudential reporting with prudential and accounting frameworks (in particular under IFRS)?

The input layer seems to be an interesting approach. Could Mr Ittner elaborate on how this approach maintains an appropriate balance between costs and benefits for the different stakeholders? Could Mr Ittner explain, in particular, the extent to which this approach would be compatible with the current reporting approach, or whether this would imply a structural change for banks and supervisors?

The Portuguese experience of collecting various micro and macro data is very instructive. Could Mr Neves explain how he sees this as potentially extendable to other Single Supervisory Mechanism (SSM) countries? While collecting additional and parallel flows of information is necessary in a situation of crisis, it is also important to keep data collection to a level that is manageable. Is there not a risk of duplication and overlapping when data requests go in many different directions, and are not designed on the basis of pre-existing, integrated reporting such as FINREP or COREP? It is also important for supervisors to have, inside their institutions, mechanisms for analysing the data collected in a consistent and organised way. How can this be done with different sources of information, as presented by Mr Neves?

1 Vice Governor of the National Bank of Belgium

DISCUSSION SUMMARY

In his introduction, **Mathias Dewatripont** (Nationale Bank van België/Banque Nationale de Belgique) stressed the importance of having good data to properly support an evidence-based decision-making process in monetary policy and supervision. He also highlighted the key role played by statistics in feeding empirical research. He then referred to regulatory supervisory work and plans to improve regulation after Basel III, particularly as regards the internal models used by banks, which might be better explained by using harmonised data on the size of the exposure. In this regard, he highlighted a study[1] by the Nationale Bank van België/Banque Nationale de Belgique based on a dataset of harmonised exposure at default (EAD), e.g. the size of the loans, obtained from the national credit register. He concluded by noting that this is the perfect time to discuss data issues and data needs concerning the Single Supervisory Mechanism (SSM) and highlighted the fact that the introduction of a fully harmonised prudential reporting framework under CRD IV, the new COREP and FINREP will support the SSM in pursuing its tasks.

Andreas Ittner (Oesterreichische Nationalbank) presented an overview of the data needs for the SSM from the perspective of supervisors. He said that, in order to fulfil the data requirements of the SSM's supervisory reporting manual, an integrated reporting system should be built to foster a consistent interpretation of different statistics, identical compilation processes and the application of identical data quality controls. Moreover, he pointed out that supervisors should specify their data needs and rely on statisticians to design and conduct the integration, implementation, collection and compilation of the data, as this would enable supervisors to focus on their core activities. Mr Ittner then mentioned the need to give banks incentives to produce high-quality data and the need to exploit, as much as possible, the synergies between banks' internal risk assessments and supervision. Finally, he highlighted the importance of developing harmonised requirements from heterogeneous primary sources, pointing out that this can be achieved by implementing a standardised European Reporting Framework (ERF), which should cover both supervisory and monetary statistics.

Pedro Duarte Neves (Banco de Portugal) presented the work carried out so far at the European level to enhance the synergies between SSM data needs and statistical reporting and provided an overview of the experience of the Banco de Portugal. He mentioned that important steps in the setting-up of the SSM's data supporting system have been achieved, such as (i) the update of the legal provisions governing the use and exchange of confidential data, (ii) the creation of new bodies to cater for the data needs associated with the SSM, and (iii) the steps taken towards the conceptual harmonisation and convergence of central credit registers (CCRs). Mr Duarte Neves highlighted the benefits of combining several sources of micro data, as is the case with the Portuguese CCR dataset, for

1 See Gustin E., Van Roy P. "The role of internal models in regulatory capital requirements: a comparison of Belgian banks' credit risk parameters", Financial Stability Review 2014, National Bank of Belgium, pp. 141–151.

example, which has been merged with accounting information at the firm level (obtained from the Central Balance Sheet Database). The integration of statistical reports on the monetary and supervisory functions might benefit both compilers and reporting entities. Finally, he pointed out that micro data are fundamental for supervision and financial stability in providing a comprehensive picture of the financial sector and the interrelationships with other sectors. The collection of supervisory information by statisticians will generate added value not just for direct supervision, but also for the horizontal functions of the SSM.

Mathias Dewatripont agreed on the need for data integration, but remarked that the harmonisation of supervisory reporting requirements across countries should not lead to any loss of information in those countries which currently have the richest information systems.

Josef Bonnici (Central Bank of Malta), a discussant for the speakers, highlighted the fact that the different statistical practices and institutions in euro area countries make the data harmonisation process very complex. He agreed with the speakers that adequate standard definitions of data and common audit rules on bank practices are required to ensure a level playing field among the different euro area countries. Moreover, he pointed out that although he is in favour of standardisation and agrees that micro data play a key role, confidentiality issues and the related statistical challenges for small countries should be taken into account owing to their particular characteristics. Mr Bonnici advocated a division of labour between supervisors and statisticians, with supervisors taking care of the collection of the data while also being aware of the users' needs. To conclude, he said that the new challenges posed by the SSM will require significant resources to be allocated to statistics to ensure that high-quality data are made available to supervisors in a timely fashion so that they can take the most informed decisions. "We are entering a new era and should take the proper steps to successfully embark on it", he concluded.

Mathias Dewatripont agreed with Mr Bonnici that more resources will be needed in statistics to accommodate the needs of supervisors and that standardisation and more auditing will be required to ensure that data are of the highest quality.

Nicolas Véron (Bruegel), a discussant for the speakers, acknowledged that there are different time horizons for the establishment of the SSM and the banking union. Structural changes in banking sector policy will need a certain amount of time to be implemented and are path-dependent, as the realisation of each step depends on the success of the previous ones. He argued that the collection, analysis and publication of data are key for the realisation of the long-term objectives of the SSM. Data needs are not static, as supervisors face fast-changing industry practices; the architecture of the SSM assigns the ECB the role of centrally managing the supervisory data architecture, even if the actual data collections remain the responsibility of national authorities. He explained that there will be significant external demand for more transparent supervisory information in Europe to close the gap with the US supervisory system, where many individual banking data are made available to market participants.

Different accounting standards and auditing practices are a key challenge for the SSM, and he urged European institutions to reach a better level of harmonisation in these areas. He concluded by saying that data and information systems should be a centralised and consistent aspect of the SSM architecture.

Mathias Dewatripont remarked that the quality of the data on shadow banking is currently very low and there is a risk that the more the banking sector becomes regulated, the more the risks move to the shadow banking system, with a potential indirect impact on the regulated banking industry.

Andreas Ittner said that supervisors and banks should have aligned incentives based on costs. He argued that because supervisory data requests are costly, this should be an incentive to improve the way in which reports are produced in order to avoid unnecessary costs for banks. However, any decision in this respect should come from the management of the banks, as reporting specialists might fear that changes could affect their jobs.

Pedro Duarte Neves remarked that the European Banking Authority has made important progress on harmonising and standardising data definitions, in particular with the implementation of the Implementing Technical Standards (ITS) on supervisory reporting. The Auditing Directive has made some progress with the proposed regulation of auditors in Europe. Concerning the increase in transparency for the supervisory function in Europe, he pointed out that the ECB has already done a very good job of explaining the content of the stress tests and their results. He agreed that as the banking industry is changing very fast, supervisors might need to request new sets of data, which would increase costs for the banking sector. Finally, he acknowledged the fast progress that has been made so far in the construction of the banking union and stressed that the same pace should be maintained in the coming years to make sure that the banking union will be a success.

Josef Bonnici remarked that the auditing situation is not very good because the statistical basis for audits has been put aside in the interests of saving costs, at least in the private sector. He mentioned that auditing can improve the added value of supervision if up-to-date and statistically based techniques are used and the outcomes are statistically representative.

Nicolas Véron remarked that there is a need for pan-European audit regulators and a more consistent audit regulation than the recently adopted EU legislation. He pointed out that the incentives of the auditors that participated in the Comprehensive Assessment were imperfectly aligned with the objectives of the exercise; however, he said that there was no better alternative. The ECB should impose medium term-specific standards of disclosure on banks and supervisors in order to make the system more resilient. In order to ensure that the supervisory data are of high quality, the ECB, as the centre of the SSM, should be responsible for properly and efficiently managing the overall information system, and that function should become part of the core business of the SSM. Finally, he said that the centralised IT system should be the backbone of the information provided to the SSM.

Mathias Dewatripont concluded by referring to the value of the auditors in the asset quality review (AQR), who were a good example of the value of rotating auditors.


Luigi Federico Signorini
Piers Haben
Fernando Restoy
Anne Le Lorier

2 STATISTICS FOR MULTI-PURPOSE USE – SYNERGIES BETWEEN THE CENTRAL BANKING AND SUPERVISORY FUNCTIONS

INTRODUCTORY REMARKS

ILMĀRS RIMŠĒVIČS[1]

It is a great pleasure for me to chair this session, which will deal with multipurpose statistics and, in particular, with synergies between the central banking and supervisory functions. Before coming to the conference, I was trying to think of a reference or quotation that would neatly sum up the topic of the session, and then I realised that the etymology of the word "synergy" itself would best convey the underlying philosophy of the topic. As you may well know, "synergy" stems from two Greek words "*syn*-" (together) and "*ergon*" (work), and consequently means "working together". Ideas about working together and using data for multiple purposes to produce the maximum results should be our main focus today and our main concern in the coming years, in particular in the context of the Single Supervisory Mechanism, which is the key element of the banking union.

First and foremost, our vision of data use needs to be revisited, focusing on the integration of data across different areas, such as monetary policy, financial stability and supervision, and not confining data to one area only. The need for this shift in focus was made clear by the recent crisis, which began in the financial sector in 2007 and has had a global impact. Sound policy choices depend, to a large extent, on how successfully we as central bankers identify and collect the required data. For that reason, there is an ongoing initiative to improve data accessibility, quality and harmonisation. As part of this ongoing initiative, and in view of the new tasks assigned to the ECB, the Groupe de Réflexion on the integration of statistical and supervisory data, which operates under the auspices of the Statistics Committee, has delivered a report presenting a vision on how to promote an integrated approach to supervisory and statistical data. The proposed long-term objective favours the evolution of existing national statistical and supervisory systems into a European information system, which, in turn, would be integrated in two dimensions: across countries and across domains. Against this background, I believe preference should be given, if feasible and cost-effective, to granular data in order to provide greater flexibility for multiple uses without redefining requirements for data providers. This, of course, entails managing different areas of statistical and supervisory information as parts of a single system.

In this context, I would like to single out central credit registers (CCRs), which have established themselves as a very valuable source of information for the

1 Governor, Latvijas Banka.

financial industry, central banks and supervisors. In Latvia, we have had a very positive experience of maintaining and using Latvijas Banka's Credit Register for about seven years, benefiting from synergies between the needs of a central bank and the needs of a supervisory authority and other participants in Latvijas Banka's Credit Register, among them data providers from the industry. From a central bank perspective, the analytical potential of CCR data is manifold. CCRs contribute to the narrowing of data gaps in areas such as financial stability and macro-prudential analysis, monetary policy analysis, and statistical analysis and research.

In the field of financial stability and macro-prudential analysis, some of the key application areas of CCR data are credit risk monitoring and analysis, structural analysis of banks' loan portfolios, large exposure analysis, analysis of the indebtedness of borrowers, and stress testing. It is important to note that the potential uses of CCR data are not limited to the national perspective. A good example in this regard is the AnaCredit project, which envisages the creation of a common credit register database shared between Eurosystem members. The harmonised data set based on contributions from national CCRs could be very useful for monetary policy analysis, in particular for an analysis of credit supply conditions (including financing of small and medium-sized enterprises) in the euro area. This would help to close data gaps by providing regular and granular data with a variety of breakdowns (type and size of counterparty, type of economic activity, data on new loans, etc.). Another relevant example could be the use of CCR data to analyse the functioning of the monetary policy transmission mechanism. Such an analysis would certainly facilitate the process of calibrating potential bank lending support measures. It would also be useful from a collateral management perspective, as it would allow an in-depth analysis of credit claims pledged in connection with Eurosystem monetary policy operations.

Last, but not least, CCR data are of a great significance for various statistical and research purposes which, in their turn, could support analysis and decision-making in the areas of monetary policy and financial stability. Moreover, supervisory analysis adds another dimension to the possible uses of CCR data. The Latvian Supervisory Authority has also used Latvijas Banka's Credit Register extensively to plan and carry out its on-site inspections and off-site analysis, which has allowed the Latvian Supervisory Authority to improve its credit risk assessment practices and understanding of bank exposures and credit risk mitigation practices.

From a cross-border perspective, it is very important to move towards the adoption of a European reporting framework, which ideally would encompass all the reporting requirements of the ECB, the Single Supervisory Mechanism and the European Banking Authority. A common statistical reporting framework is an absolute necessity for the effective conduct of common monetary, financial stability and supervisory policies in Europe. Although much has been achieved in these areas over the past decade, even more remains to be done in future.

It is clear that, to implement the initiatives I have mentioned, we will have to work together, seeking synergies wherever and whenever possible. I am also sure

that we will dedicate ourselves to this, because our goal is consistent, comparable and granular cross-country data available at sufficient frequency and timeliness for effective decision-making.

In these introductory remarks, I have only been able to offer a brief glimpse of this vast topic. It is the presenters of this session who will further elaborate on ideas about multipurpose statistics. Therefore, it is my great honour to introduce the presenters of the session. The first to take the floor will be Anne Le Lorier, First Deputy Governor of the Banque de France. She has a degree from the Institut d'Études Politiques de Paris and an MA in law from the École Nationale d'Administration and has spent most of her career at the French Treasury and as an advisor to the French Government. Her areas of expertise are the International Monetary Fund, foreign exchange, the balance of payments, and combating the financing of terrorism, as well as risk and audit. She has been made a Knight of the National Order of Merit and an Officer of the Legion of Honour.

Let me also introduce the second presenter, Mr Fernando Restoy, Deputy Governor of the Banco de España. He has a PhD in Economics from Harvard University and has spent most of his career at the Banco de España. He has also been a Member of the Board of the Spanish National Securities Market Commission and of the Board of Supervisors of the European Securities and Markets Authority. Among various positions currently held by Mr Restoy, I would particularly like to mention that of Member of the Supervisory Board of the Single Supervisory Mechanism.

I am also honoured to introduce our discussants, Piers Haben and Federico Signorini. Mr Haben is Director of Oversight at the European Banking Authority. He has an MSc in Economics, and is a graduate of the University of London and the University of Edinburgh. He worked at the UK Financial Services Authority for many years, and has extensive expertise in the effective implementation of Basel II rules and stress testing. He was appointed to his current position in 2011.

The second discussant, Mr Signorini, is Member of the Governing Board and Deputy Director General of the Banca d'Italia. He studied Economics at the University of Florence and Harvard University. Most of his career has been spent in the Economic Research Department of the Banca d'Italia. He moved into the area of banking and financial supervision in 2008. He is also a member of the Basel Committee on Banking Supervision, the Board of Supervisors of the European Banking Authority, and several other European and international supervision coordination bodies.

In view of the background, expertise and professionalism of the distinguished presenters and discussants, I am looking forward to this session, which, I am sure, will be an interesting exchange of opinions and experiences for the benefit of an enhanced vision of the multipurpose use of statistics.

STATISTICS FOR MULTIPURPOSE USE: SYNERGIES BETWEEN THE CENTRAL BANKING AND SUPERVISORY FUNCTIONS

ANNE LE LORIER[1]

As we all know, central banking pursues two main objectives: price stability and financial stability. These two objectives are complementary: for instance, financial stability is essential to ensure a smooth transmission of monetary policy that will help ensure price stability. Both are macro objectives. On the other hand, supervision focuses on individual institutions. However, the crisis has shown that macro financial imbalances created by excessive credit activity could have very damaging feedback effects on banks. More generally, the crisis unveiled an unsuspected magnitude of interdependency between individual banking strategies and financial stability as well as between financial stability and monetary policy transmission. Monitoring these different interdependencies at the operational level is crucial for efficiency reasons and for avoiding possible conflicts among primary objectives. From a holistic perspective, these domains can hardly be regarded as disconnected. This is probably one of the reasons why, in the three main monetary jurisdictions, the euro area, Japan and the United States, all these tasks are performed by the same body, namely the central bank. It may also be noted that banking supervision in the United Kingdom has again been returned to the central bank.

Indeed, the crisis has shown that an in-depth and detailed knowledge of the state of the financial system is essential in order to assess ongoing economic and financial developments. It should also be an important input to anticipate and hopefully prevent possible future crises.

What does this intertwined framework imply in terms of data? I would highlight three broad observations.

The first, and I would say most basic one, is that the vast majority of data are multipurpose: the same piece of information can be used to cross-check a prudential ratio, to detect the build-up of macro financial imbalances, to assess the impact of monetary measures, or to establish monetary aggregates or national accounts.

From this, a second observation can be derived: micro data are crucial. Indeed, micro data not only have a diversity of uses, but are also, in most cases, the only technical way to respond to never-ending new, unforeseen informational needs. Conversely, adopting a piecemeal approach in which, each time new

1 Deputy Governor, Banque de France.

research or analysis is to be conducted, a new reporting scheme has to be put in place, would be burdensome and cost-ineffective for both the central banks and the respondents.

Finally, the third observation concerns information collection and dissemination: business areas are now differentiated more by data usage than by data collection. This in turn implies data sharing.

Thus the keywords for a common, up-to-date approach to central banking and supervisory functions are in-depth micro-data analysis and data sharing. This obviously puts statistics departments at the centre of the information system and implies that they should provide both central bankers and supervisors with timely and reliable micro and macro data.

I am very pleased to have the opportunity today to share with you my views on the challenges of complying with these objectives. Let me elaborate a little on some of them.

First, I would like to point out that central bankers and supervisors have common needs that can be satisfied by statisticians. Second, noting that we are living in an increasingly data-rich environment, I will try to outline some possible implications that this might have. Finally, I will offer a few thoughts on the opportunities and challenges involved in ensuring efficient data collection and sharing.

1 CENTRAL BANKING AND SUPERVISION: A COMMON NEED FOR QUALITY AND HIGH FREQUENCY MICRO DATA

Here, I would like to develop two main ideas: nowadays the needs of supervisors and those of other users are tending to converge, and an important recent development has thrown the financial stability responsibility of central banks into the limelight – more specifically, macro-prudential surveillance has to be supported by recourse to micro data, including those coming from the supervisory area. I will then give three examples: AnaCredit (a European central credit register), MMSR (money market statistical reporting) and the Data Gaps Initiative (DGI).

1.1 THE NEEDS OF SUPERVISORS ARE CONVERGING WITH THOSE OF OTHER USERS OF STATISTICS

Spurred by demanding users within central banks, statisticians have long been under constant pressure to produce fresher and more timely data to allow a better informed conduct of central bank policies. In the past, some supervisors (certainly not all of them) were less demanding. Sabine Lautenschläger mentioned yesterday the "love/hate" relationship that supervisors have with data, from a quantitative to a qualitative approach and back. In other words, demand for data has varied over time. However, especially during and since the financial crisis, the needs of all supervisors have progressively become more similar to those of other users. This change is related inter alia to the need for supervisors

to assess the quality of assets more directly and more specifically, on the basis of, in particular, samples of loan files, and to develop stress tests. The creation of the SSM will clearly play a major role in this development. At the same time, in order to provide their models with well-grounded micro-foundations, economists are increasingly in need of individual data. This double movement in users' requirements has given statisticians powerful incentives to develop new tools.

1.2 MICRO DATA HAVE TO SUPPORT MACRO-PRUDENTIAL SURVEILLANCE

I believe macro-prudential surveillance has a lot to gain from using data at very granular level, collected on a high-frequency basis and with tough quality requirements. This would, in particular, facilitate the early detection of common exposures to certain economic sectors, such as the construction and real estate sectors, or agents, such as over-indebted households or countries with fragile fundamentals. Data collected initially for supervisory needs can be very useful for these purposes as they often contain precious information on, for example, sectors, denominations, maturities, etc. of transactions.

1.3 ANACREDIT, MMSR AND DGI – THREE EXAMPLES OF THE COMMON NEEDS OF CENTRAL BANKS AND SUPERVISORS

Two projects of the Statistics Committee (STC) seem to me cases in point in this regard.

In the first one, AnaCredit, the idea is to set up a common database of loans to all categories of borrower. All the necessary attributes will be known. Obviously, when the project goes live, the level and quality of information delivered to the Governing Council and to the SSM Supervisory Board will be much enhanced. For research, monetary policy, financial stability, and banking supervision, this data hub will be extremely useful.

Another key project is the Money Market Statistical Reporting (MMSR) initiative, which has been originated by the Market Operations Committee (MOC) and which the STC is taking care of at the operational level. My understanding is that this project will consist of collecting data on interbank market transactions as well as on related derivative products, providing a global and detailed picture of the functioning of the money market. Indeed, in addition to a better knowledge of institutions, detailed intelligence on financial markets is essential. Such information is clearly useful for monitoring the effectiveness of monetary policy, in particular the smooth transmission of interest rates. It is obviously also useful when reflecting on possible new monetary measures and for assessing their effectiveness if and when implemented. It can even deliver precious intelligence on market players' behaviour to a wider range of users, including banking supervisors and financial stability teams.

At the global level, and this will be my third example, the Data Gaps Initiative launched by the G20 shares similar objectives. By collecting information on the two counterparties to each interbank transaction, the DGI hub that the

Bank for International Settlements (BIS) has set up offers detailed information on interconnections among a variety of users.

2 WE ARE LIVING IN AN INCREASINGLY DATA-RICH ENVIRONMENT. WHAT ARE THE IMPLICATIONS FOR CENTRAL BANKERS AND SUPERVISORS?

Here, I will address the following three points:

– data are developing at an exponential rate and are offering new possibilities to central bankers and supervisors;

– as a consequence, we could be facing two cumulative risks: not reaching the best possible balance between reliability and timelines; and being "lost in data", while being more accountable for their use;

– a possible way forward might be to develop and leverage statistical techniques and analytical tools.

2.1 NEW OPPORTUNITIES: AN EXPLOSION OF ACCESSIBLE DATA PROVIDED BY THE PRIVATE SECTOR TOO

Data collection is no longer the privilege of public administrations and authorities, as many private companies are now data providers, and this is not only true for market data. Moreover, smart electronic devices are allowing vast data collection for commercial purposes that may also be of interest to central bankers. Authorities themselves are also collecting more and more data. I have cited the DGI as a case in point, but market authorities are following the same track, as recently epitomised by the new initiative from the European Commission to collect detailed information on each repo transaction – the Securities Financing Transactions (SFT) Proposal.

Moreover, smart electronic devices are allowing vast amounts of data to be collected for commercial purposes that may also be of interest to central bankers and, to a certain extent, to supervisors. I have in mind the example of roaming data collected by telecom companies which could be helpful in measuring tourism expenditure and establishing the balance of payments, which, in most cases in the EU, is a responsibility of central banks.

2.2 NEW CHALLENGE: HOW TO DEAL WITH THIS EXPANDING SET OF DATA

Two challenges remain. First, the data that central banks use and disseminate must remain reliable. Hence, a trade-off between robustness and timeliness has to be dealt with. Second, and this is sometimes less appreciated, the marginal benefit of collecting extra data might decrease to a point where, in the absence of proper management, it might be not beneficial but instead detrimental to the quality of central banking and supervision. Let me focus briefly on this aspect.

Collecting more data makes us more accountable to the general public, as we will no longer be in a position to assert that we "did not" or "could not" know.

At the same time, the larger the volume of information is, the more difficult it will be to cross check it, to analyse it and to extract precious early warning signals that are clear and timely enough to allow us to make the right decisions at the right time.

The challenges are real, including technical and economic ones. Some difficulties are already appearing in exploiting some ultra-rich datasets in a timely and efficient manner.

I would therefore see some merit in reflecting on possible ways to mitigate these risks. Here I would like to turn to the experts in the field, namely the statisticians. In my view, the statistical departments of central banks can play a crucial role in developing statistical techniques and tools for the benefit of all users facing these new challenges, including, of course, supervisors. For instance, not shying away from using samples when comprehensive data collection is neither possible nor necessary. Another way forward could be to systematically carry out cost-benefit analyses, without waiting for clear lists of priorities approved at senior level. Asking for relevant data can be much more useful than making never-ending requests for new data and then being unsure how to manage them in an effective and useful way.

3 DATA SHARING

This leads me to the third part of my presentation, which deals with data sharing.

I mentioned at the beginning of this presentation why, in my view, data sharing between supervisors and central bankers is absolutely necessary. Aurel Schubert, who is well-known to all of you as Director General Statistics at the ECB, has written an excellent report on this subject for the Irving Fisher Committee, the equally well-known committee of worldwide economists and statisticians working under the auspices of the BIS. This report will be presented at the BIS All Governors Meeting early next year.

I would like to emphasise some points regarding the "how":

First, to achieve this goal, experience has shown that, while a bottom-up approach is needed, a top-down approach is also crucial. In plain words, the direction has to come from the most senior level inside central banks and supervisory authorities. By nature, central bankers and supervisors are reluctant to share data, even when the legal framework allows it. As we are speaking about statistics, I will refer to a global survey conducted by the Irving Fisher Committee on the reasons for the non-sharing of data. The finding was that the percentage of difficulties in communication does not vary significantly between countries based on whether the legal setup is favourable or unfavourable. Therefore, the first thing that needs to be done, in my view, is for the decision-making people or bodies to give a clear

signal in favour of data sharing. In addition, neither the euro area nor the EU is living in a bubble. Interesting examples of data sharing, such as in Canada, may be worth looking at, while, conversely, we could aim to set an example for some other countries or regions.

Second, practical issues must be addressed and legal and technical impediments must be overcome. However, I would like to highlight first the emergence of some concrete opportunities to develop data sharing.

3.1 TECHNICAL AVENUES FOR IMPLEMENTING DATA SHARING

Of course, what may come immediately to mind is to fully align the reporting framework for supervisors and central bankers. This has been done in some countries, such as Canada and Italy, if I am not mistaken, and it is undoubtedly a very legitimate goal. But it is also a very ambitious challenge for all those who use different datasets, and it would probably take years to accomplish.

Harmonising formats between, for instance, international standards for national accounts and balance of payments on one hand and individual supervisory data on the other is also an interesting idea, but it must be shown that it can be achieved without taking too much time and without excessive costs for credit institutions and central banks. We should always be mindful of costs and delays. More than ten years were needed to put in place the "input approach".

Other options can be explored. In particular, IT tools developed for "big data" can facilitate data transmission without requiring any common formats or even definitions. This represents, in our view, a major opportunity. At the Banque de France, in cooperation with the Prudential Supervision and Resolution Authority, we are currently using big data IT technology to set up a common database fed by, and usable by, all data providers, including supervisors, while, of course, strictly respecting the confidentiality rules of EU law. This system, called "Pooling and Sharing the Statistical Series" has, I believe, been presented to the members of the STC in its SSM composition. There are pros (a quick win, economical for all stakeholders, easy to implement) and cons (falling short of full harmonisation and systematic data collection).

A unique data entry point can also be very helpful. One example among probably many others is the One Gate portal that the National Bank of Belgium and the Banque de France have jointly developed, and which is much appreciated by all reporting institutions, i.e. corporates, insurance companies and financial institutions. The common database is accessible to all users.

3.2 ANOTHER PROMISING TOOL FOR DATA SHARING: THE LEGAL ENTITY IDENTIFIER (LEI)

Harmonisation between the different codes that support accounting and statistical information can also contribute to simplifying data collection and implementing data sharing in an efficient manner. Indeed, the first pillar for a comprehensive data hub, in particular for individual entity data, is to have a common identifier for economic entities. The idea of having only one code for one entity seems obvious in a world where finance is globalised. Nevertheless, the implementation of such a system requires solid willpower. The G20 met the challenge and launched the LEI initiative, with a view to building a Global LEI System for corporates and financial institutions engaged in financial transactions. At the European level, the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB), which brings together representatives of Eurostat, the ECB, national statistical institutes and national central banks, is promoting the LEI and sharing good practices in this area.

In the first stage, LEIs will provide unambiguous identification of counterparties according to a globally agreed standard, based on best practice in terms of identification.

The first layer of the system is already operational and is facilitating the use of internationally recognised codes in mandatory reporting on derivatives transactions conducted in the United States (Dodd-Franck Act) or the EU (European Markets Infrastructure Regulation), while the second layer remains to be developed. The latter should build on existing LEIs to create a network of relationships between entities. This will be an important contribution to financial stability at the global level.

3.3 CHALLENGES TO BE ADDRESSED

The opportunities are numerous and very promising. There are, however, challenges to be addressed, as is usually the case when a new paradigm is being developed. The first challenge is to fully exploit the possibilities offered by the legal framework, while, of course, strictly respecting it. Here I am referring more specifically to Article 58 of Directive 2013/36/EU of 26 June 2013 (CRD IV) regarding confidentiality. This article reads, in particular: "*Nothing in this Chapter shall prevent a competent authority [i.e. a supervisory authority] from transmitting information to ... ESCB central banks ... when the information is relevant for the exercise of their respective statutory tasks, including the conduct of monetary policy and related liquidity provision, oversight of payments, clearing and settlement systems and the safeguarding of stability of the financial system ...*". Conversely, central banks have to transmit to the supervisory bodies all the data that are necessary for them.

The need-to-know principle among different functions and responsibilities is crucial for organising data sharing both ways, from central bankers to supervisors and from supervisors to central bankers. This implies precise and clearly defined rules, including a dedicated governance scheme to monitor their implementation.

These rules should, in my view, be aimed at taking into account, on one hand, the need to share intelligence and to work in synergy rather than in silos and, on the other hand, the obligation to fully respect legal constraints linked to the allocation of responsibilities and strong security standards when managing access rights on a daily basis.

CONCLUSION

My presentation has examined how the crisis has spurred statisticians to enhance their provision of information. This should progressively lead to the building up of an integrated information system in which all the data, micro or macro, crude or processed, comprehensive or sample-based, are put together and made available to central bankers and supervisors on the basis of strictly defined access rights. I also emphasised the necessity, in my view, to develop synergies, to avoid silo approaches within central banks, among central bankers and between central bankers and supervisors. In an increasingly data-rich environment, the statistical departments have a pivotal role to play in organising, in the most efficient way possible and adapted to the needs and responsibilities of the various users, the collection, checking and disclosing of both micro and aggregated data to all those who "need to know".

And, finally, allow me to add a few afterthoughts.

– Good data are a necessary precondition for monetary policy, financial stability and supervision. However, they are not sufficient on their own, and a bit of humility is needed in this regard.

– Costs deserve proper attention: they are covered by a levy on banks or from central bank revenues. But we cannot give governments lessons on their levels of spending if we do not pay attention to our own. Moreover, as we say in French "*le mieux est l'ennemi du bien*" (the best is the enemy of the good), or following Shakespeare's King Lear "*Striving to do better, oft we mar what's well",* and we should be pragmatic and not reason as if we were starting from scratch.

– The "lamp-post syndrome", basing analysis on visible and known cases, has to be fought: we are in dire need of better data on the shadow banking system.

WAYS TO IMPROVE THE USE OF BANKING STATISTICS BY POLICY-MAKERS: WHAT IS REASONABLE, WHAT IS FEASIBLE AND WHAT THE SSM AND THE BANKING UNION ARE CALLING FOR

FERNANDO RESTOY[1]

1 CENTRAL BANKING AND SUPERVISORY FUNCTIONS: THE LIMITS OF THE SEPARATION PRINCIPLE

Linkages between traditional central banking functions (in particular, monetary policy) and banking supervision have been thoroughly analysed over many decades. It is well-documented that keeping monetary policy and banking supervision decision-making processes apart is highly beneficial, as this minimises conflicts of interest. Countries have approached this *separation principle* in a variety of ways, designing different institutional structures. Even when banking supervision has been assigned to the central bank, it has been clearly understood that supervision and central banking functions belong to very different realms, each requiring its own particular analytical approaches and decision-making processes. The SSM Regulation[2] which established the Single Supervisory Mechanism (SSM) and assigned prudential supervisory tasks to the ECB alongside its regular central banking functions has duly taken this *separation principle* into account.

However, recent experience – including that gained during the financial crisis – helps identify the logical limits of the *separation principle*. Indeed, synergies between macroeconomic policies and supervisory policies are significant and explain why, in recent years, a number of countries have decided to integrate (sometimes to reintegrate) supervisory responsibilities into the central bank remit, albeit with some internal separation devices.

While the decision-making procedures pursue different objectives, the analytical bodies that are required for both functions have much in common. In particular, it is well understood that good monetary policy requires an understanding of how banks and non-financial agents react to monetary policy, which in turn relies on the availability of micro information, such as balance sheet data or credit registers. Equally, the design of good micro-supervisory policies requires a good understanding of the macro context in order to identify the major risks faced by financial institutions and, accordingly, to establish the correct supervisory priorities. Similarly, when performing other central banking tasks, such as

1 Deputy Governor, Banco de España.
2 Regulation (EU) No 1024/2013.

payment system oversight or the analysis of risks associated with monetary policy implementation (e.g. counterparty or collateral policies), detailed micro-information on the situation of banks is vital.

Therefore, irrespective of the need to keep the decision-making procedures sufficiently separated, the design of a good information system to serve the needs of a central bank performing both macro (monetary policy related) functions and banking supervision should fully take into account the sizeable and increasing synergies between these two functions.

In this paper, I review the grounds for moving towards a more integrated statistical system (Section 2) and the basic elements that constitute such an integrated approach (Section 3). Section 4 presents the way in which the collection and use of banking information is organised at the Banco de España, and Section 5 briefly outlines the steps being considered at the European level. Finally, Section 6 focuses on the challenges we need to address, in particular in connection with the forthcoming launch of the SSM.

2 TOWARDS A MORE INTEGRATED STATISTICAL SYSTEM

Banking data are the backbone of the information required by financial policy-makers (central banks and banking supervisors) to perform their duties, especially in countries or areas in which banks play a pivotal role in the intermediation of financial flows, such as the euro area. Much of the information reported to the central bank for both functions (monetary policy and banking supervision) comes from the same source, i.e. it draws on the different financial instruments held either on the asset or on the liability side of banks' balance sheets.

However, different definitions (for instance, for monetary policy purposes, short positions are deducted directly from debt securities held, while, for supervisory purposes, they are reported separately), different measurement criteria (e.g. loans and deposits are measured at nominal value for monetary policy purposes and at their carrying amount for prudential purposes), different levels of aggregation (e.g. the breakdown of the institutional sector), and different templates and schedules are required.

There is, therefore, scope to treat all these reporting needs in an integrated way.

Yet, it is the case that in many countries the compilation of banking information follows different and disconnected rules. This is partly the result of different institutional structures, since in some countries different authorities are in charge of banking supervision and monetary policy, and data requirements have mainly followed the specific objectives of those authorities. But it must also be acknowledged that this disconnection is also observed in countries where national central banks are in charge of banking supervision, suggesting that the main determinant in shaping data requirements is the function to be served rather than the institutional framework. This may also point to the existence of a certain silo mentality, whereby the Chinese walls separating monetary policy

from banking supervision have been erected beyond what may be considered a reasonable height, extending to the initial stages of gross data collection as well.

In this world of function-oriented reporting models, banking data collection is governed mainly by ad hoc regulations. This allows policy-makers to cope flexibly with particular requirements: if a new set of data (or a different periodicity or a new accounting criterion) is considered necessary, the corresponding regulation can be amended without having to pay much attention to other possible implications. But the price of this flexibility is that it is time- and resource-consuming, with many people at central banks and supervisors working to collect and store data, and to check their consistency. It also overburdens banks, since they have to regularly send large amounts of information to national authorities in accordance with different criteria, schedules and templates. Overall, it makes synergies (the combination of different types of policy-relevant information) more difficult: focusing data reporting on the specific needs of one user complicates the ability of other users to effectively use that information.

We should ensure that an efficient system to collect financial information is in place, allowing us to minimise costs, to better allocate available resources and to facilitate the circulation of information to the interested stakeholders, thereby enhancing the decision-making processes in both policy areas.

One way of achieving progress in this direction is to aim at developing an integrated approach. At the European level, there is broad agreement on the need to gradually integrate the information system.

3 THE SCOPE OF AN INTEGRATED APPROACH FOR BANKING STATISTICS

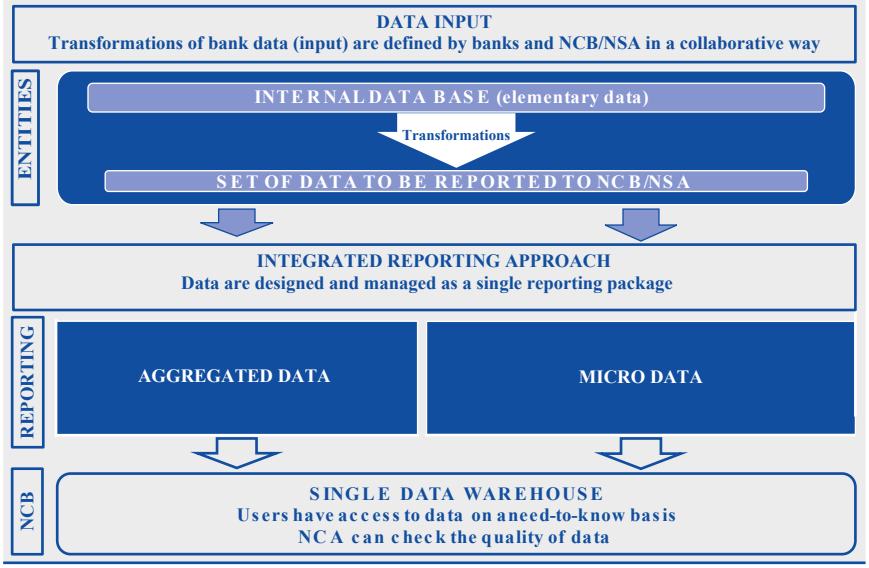
Under an integrated approach, all financial and prudential information that reporters must report (e.g. FINREP, COREP, BSI and MIR), including micro-data (e.g. data for central credit registers and securities holdings statistics), are designed and managed as though they were part of a single reporting package, irrespective of the main function for which the specific data are required and the fact that they are collected under different reporting packages.

Such an integrated approach is possible because the basic information is the same. The degree of integration can vary, although the following elements might be considered for the basic set-up.

– A single data point model and dictionary with all the elements needed for identifying all the data to be collected, including validation rules applied across the different data.

– A single data warehouse for storing all the information together, designed to allow access to data by different users on a need-to-know basis. This means that non-anonymised data must also be stored in an anonymised way, so as to allow their use by users who do not have need of non-anonymised data.

Chart 1 Example of a common way of organising internal data



To increase the quality of data, in addition to the above, banks could have a common way of organising the internal data they need to report to regulators (see Chart 1 above). This approach would facilitate the transmission of information to central banks and supervisors as well as allowing a flexible and swift response to any new requirement from the authorities. In addition, this approach would simplify the monitoring of data by auditors and supervisors.

4 THE (PARTIALLY) INTEGRATED REPORTING APPROACH OF THE BANCO DE ESPAÑA

At the Banco de España, we are at quite an advanced stage in the so-called integrated approach.

The design and collection of supervisory and statistical data from credit institutions is integrated. We collect all data from a single point and have implemented a large number of validation rules across the different data. With the introduction of financial reporting (FINREP) at the consolidated level, we are currently adapting our solo reporting requirements and our data point model and dictionary to the requirements of FINREP.

Additionally, the Banco de España is currently introducing a new central credit register (CCR)[3] with a lot of granular data on the financial assets and off-balance-sheet exposures of the banks. This is going to (a) harmonise the formats of the internal databases of entities to facilitate the transmission of micro-information;

3 See Banco de España Circular 1/2013.

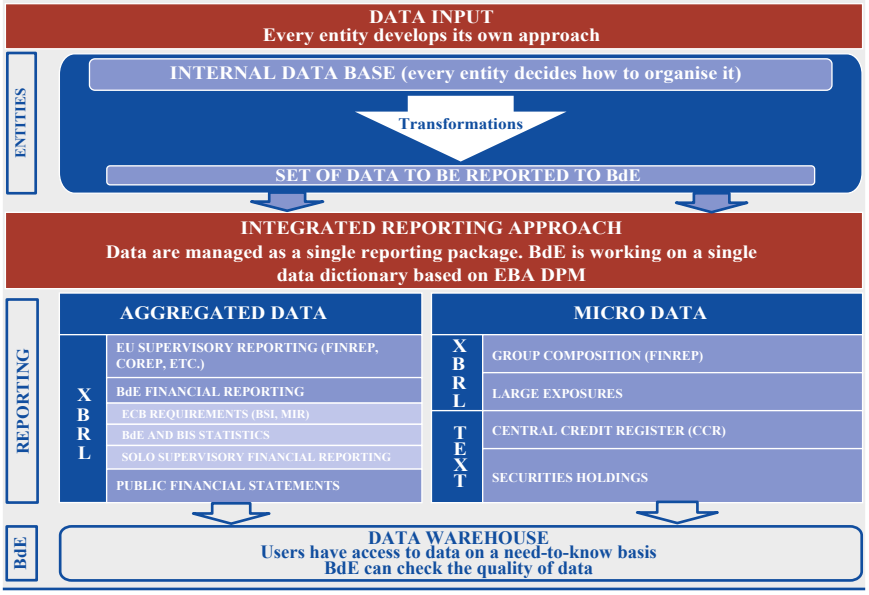
(b) improve the quality of the different templates reported to the Banco de España for monetary policy and supervisory purposes, because we will be able to compare the micro-data reported to the CCR with the data reported on an aggregated basis; and (c) allow the compilation of new statistics through the combination of the different attributes required.

The level of granularity of the new CCR will, compared with the current situation, substantially improve the quantity and quality of the data reported to the Banco de España, because entities will have to build their databases with all the data required transaction-by-transaction in order to be able to report them to the Banco de España. With the attributes required for the CCR, we could construct the majority of the FINREP templates and ECB and Banco de España statistics, but not the common reporting (COREP) templates.

Finally, the Banco de España is working in setting-up a single data warehouse for storing all micro- and macro-information. This facilitates data validation, the monitoring of the consistency of all the information and the performance of quality controls, although this is only possible for some items. Moreover, it allows different indicators to be constructed on the basis of the reported information. Users accessing the information stored could have different access rights.

Although the Banco de España has implemented an advanced integrated reporting approach, we consider that a higher degree of integration of banking information is possible, especially in the case of the financial data and COREP.

Chart 2 Example of organising internal data at entity level



In addition, work remains to be done on how data are organised at the entity level (see Chart 2). Currently, there are no guidelines provided by the Banco de España. Entities are free to choose how to organise their internal databases, but they need at least to use a standardised format to be able to report the micro-data and aggregated data required.

5 A ROADMAP FOR A EUROPE-WIDE INTEGRATED APPROACH TO BANKING STATISTICS

These issues have been thoroughly discussed for a number of years in different fora at the European level. As long ago as in 2007, a *Report to the ECB Governing Council on the analysis of the function of statistics* by the Statistics Task Force described the principles of the integrated approach. At that point it was recognised that we should support and enable the full re-use of available (micro-) data for statistical purposes, integrate different statistics within each central bank and align the concepts and the national collection of supervisory and statistical data.

Indeed, after that report was published, a group was set up, under the aegis of the Statistics Committee (STC), the Financial Stability Committee (FSC) and the European Banking Authority (EBA), with a name that is particularly apt: *Joint Expert Group on Reconciliation of credit institutions' statistical and supervisory reporting requirements* (JEGR). Between 2008 and 2013 this group designed a classification system for the ECB's statistical requirements relating to credit institutions' balance sheets and interest rates and the relevant supervisory guidelines established by the EBA, delivering two products: a) a methodological bridging manual on areas of potential overlap between the two requirements; and b) a relational database to systematically identify possible links between those requirements.

More recently, just a few months ago, the *Groupe de Réflexion on the integration of statistical and supervisory data* (GRISS), also under the auspices of the STC, delivered a report with a very clear objective: the gradual integration of the European information system in two dimensions (across countries and across domains). To achieve this, a number of tasks were identified, some of which have already been set in motion:

– adoption of a harmonised common European reporting framework (ERF) for data collection from banks: moving towards a single, integrated ERF incorporating both the EBA and ECB requirements (the task force for the ERF is already in place);

– development of a common statistical data dictionary describing data managed within ESCB/SSM information systems (a task force has been established to work on this dictionary);

– development of a banking data dictionary containing a logical description of the source data and of the transformation rules a bank might use to fulfil the reporting requirements;

– analysis of the legal framework which should be put in place in order to enable data-sharing.

Moreover, a euro area initiative to collect micro-data on loans and other exposures (known as AnaCredit) is being developed, which would also allow progress in that direction. A detailed instrument-by-instrument database, built on the basis of homogenous standards at euro area level, would be a very useful tool for both monetary policy and banking supervision functions.

6 CHALLENGES AHEAD

The banking and financial landscape is changing rapidly in the euro area. Private banks and public authorities have been working hard in recent months to catch up with the ambitious initiatives launched as a consequence of the financial crisis, in particular, with the setting up of the SSM and further moves towards achieving a banking union at EU level. Measures are being taken simultaneously in several fields, but we run the risk of focusing excessively on every single measure needed to progress towards our goals, while failing to see the overall picture emerging. This is particularly true in the case of banking statistics. As I have tried to explain here, it is both reasonable and feasible for much more efficient use to be made of banking data by monetary authorities and bank supervisors than has so far been the case.

In this regard, all efforts by the ECB geared to moving towards an integrated approach are welcome, because we are convinced, on the basis of our experience, that the use of multi-purpose statistics affords many synergies between the central banking and supervisory functions, reduces the reporting burden and increases the quality of data. Along with the tasks to be pursued on this front, it is also important to disseminate the best practices followed at present by some European countries. Indeed, experience shows that a much better exploitation of banking information is feasible and less costly.

It is also very important for all relevant stakeholders in international organisations to be fully aware of the broad landscape of financial statistics, in particular when they are setting new requirements or new standards. New requests by those institutions (such as the ECB, the SSM, the Financial Stability Board (FSB), the European Securities and Markets Authority (ESMA) and the EBA) should be coordinated in order to reduce the reporting burden and maximise the usefulness of the information already available.

Deeper reflection is also needed on the new possibilities offered by the use of information across domains (for example, exploring the potential benefits of an integrated approach for economic research). The trade-off between confidentiality and the use of information should be addressed with appropriate rules. IT advances may help make these two goals compatible, since they should facilitate the setting up of an appropriate access rights management regime.

At SSM level, the challenges are more pressing and do not relate as much to the lack of harmonisation across domains (monetary policy vs. banking supervision) as to that across countries. The current approach is mainly based on the FINREP-COREP schemes required by the EU implementing technical standard (ITS) on reporting, although it is expected that the ECB will enhance it by extending the FINREP data requirements to non-IFRS groups and some banks on an individual basis, because they are outside the scope of the ITS.

Setting a minimum level of harmonisation may be considered an appropriate goal, but only as a starting point. In this regard, the existence of jurisdictions with more demanding solo reporting requirements means that euro area banks are subject to different reporting burdens in different countries, so the ability of the ECB to supervise them depends partly on the country in which they are established. Despite this, the additional information available in some countries should not be overlooked, since, in the long term, the aim should be more ambitious harmonisation. Indeed, a level playing field must be ensured, without compromising the need to have ever deeper knowledge of banking data.

In the short term, an enhancement of the current scheme for institutions should be foreseen, and further work on harmonising definitions and concepts to make data fully comparable would be very welcome. Apart from the harmonisation of some crucial definitions, such as those of *non-performing loans* and *forbearance*, progress is also needed on harmonising accounting practices, with full respect for international accounting rules. In this regard, the lessons drawn from the asset quality review (AQR) are very relevant: e.g. it has been ascertained that a crucial item such as *provisions* does not actually mean the same thing throughout the euro area.

These harmonisation issues are complex and may require long periods of preparatory work. But it is important to be clear about the goal, while being pragmatic about the timeframe for achieving it. An ambitious approach to the compilation of banking information, along the lines of a more integrated model, will definitely allow both central banks and banking supervisors to be better equipped to make sound policy decisions.

COMMENTS[1]

PIERS HABEN[2]

I INTRODUCTION

Deputy Governors Fernando Restoy and Anne Le Lorier's excellent papers both raise a crucial point: successful performance of monetary and financial stability functions as well banking supervisory and regulatory tasks require a significant amount of reliable and comparable data which, in many cases, share a single source. Both papers therefore imply that we have an obligation to explore synergies, both in substance and process, and both papers explore this theme with an elegance which makes the central point hard to refute. Indeed, as an official of the authority responsible for designing the single regulatory reporting framework in the EU, and an authority that regularly receives requests for data for macro-prudential purposes, I am obliged to share the sentiment.

The pursuit of synergies is not only about improving efficiencies, although this alone could be an overarching objective given the costs involved. Both Restoy and Le Lorier accurately point out that one lesson learnt from the financial crisis is that central banks and supervisors had only a partial view of banks' risk exposures. This impaired our ability to clearly identify the sources of vulnerabilities and intervene promptly at the very moment when timely actions were required. This was to some extent due to gaps in data requirements, but also to the fragmentation of data sources, poor sharing and coordination of reporting efforts, and lack of comparability across jurisdictions.

In this context, I agree with Restoy that there is room for better exploiting the potential information synergies between statistical and supervisory data. Also, cross-use of data would benefit policy-making and supervision on both micro- and macro-levels, whilst avoiding the costly use of ad hoc data requests which Le Lorier refers to and which have been necessary throughout the recent crisis to address urgent and pertinent questions asked by senior policy-makers. Closer integration of statistical and supervisory frameworks will both promote cross-use and also increase efficiencies of reporting processes for all stakeholders.

We in the European Banking Authority (EBA) know we can do a lot more in terms of synergies and sharing of data. We know how this can improve the efficiency of data collection and analysis, even if there are some short-term costs. And we know how this can improve the robustness and coverage of the data. This holds true for both micro- and macro-prudential authorities at EU and national level. But there are practicalities, which are well considered in the papers, and on which I would like to reflect further.

1 With thanks to EBA colleagues, including Mario Quagliariello, Gaetano Chionsini and Meri Rimmanen, for advice, whilst all inaccuracies remain mine. These comments do not reflect an official position of the EBA.
2 Director Oversight, EBA.

Non-bank financial institutions

Both papers make the case that much of the data needed for price and financial stability and for individual bank assessments comes from one source: banks. I agree, but in my first comment I would like to make an aside concerning the need to keep a broad vision for data, even if I agree that we need to start somewhere. The EBA's own experience in working with colleagues in the European Systemic Risk Board (ESRB) on macro-prudential interlinkages is that one should not underestimate the need for data also from other financial institutions and we should be cognisant of the importance of maintaining a constructive dialogue with our colleagues in insurance and securities. We have found data on insurance holdings of some assets, and as counterparties, as well as data on securities transactions to be a vital component of the tool kit needed for effective macro-prudential analysis and indeed for micro-prudential oversight of the banking sector. That said, I will restrict my comments to banking data for the remainder of this piece.

Sequencing – the art of building on micro foundations

Le Lorier provides examples of areas where progress is being made, and indeed, since the start of the crisis, previously unthinkable progress has been achieved at the global level – thanks to the work of the Financial Stability Board (FSB) – and, I would argue, even more significant work has been achieved in Europe, largely thanks to the work of the European institutions.

The driver of this effort appears to have been micro based, driven, in fairness, by legislation, for the purposes of banking supervision. But this has not happened in isolation. We have leveraged the analysis of macro-prudential data gaps, and the EBA had a close dialogue with the ESRB on their data needs. The EBA's single reporting framework has also benefited from the work of the Joint Expert Group on Reconciliation of credit institutions' statistical and supervisory reporting requirements (JEGR), as Restoy's paper recalls. Meanwhile, the reporting standards form the bedrock of the current revision of the Consolidated Banking Data, which is a key source for both macro- and micro-prudential authorities. This means that, by design, the EBA's new framework on reporting already addresses some of the concerns linked to multiple reporting requirements, but we acknowledge that we still have a way to go.

Thus, spurred on by the crisis, and the need to fully understand cross border banks across the Union, the EBA has built an exceptional foundation of coherent and consistent micro-prudential data. In 2014, for the first time ever, there is a comprehensive set of supervisory reporting data that is being consistently applied across the EU so that all relevant authorities within the EU can rely on a comprehensive set of data covering solvency, liquidity, leverage ratio, large exposures, asset encumbrance and financial information. The standard sets uniform reporting requirements and integrates various areas of supervisory reporting into one framework. This supervisory reporting framework is uniform in the substance of the data and the process for collecting it.

Restoy gives a very clear account of these substance and process issues in his paper, highlighting the challenges we have from a starting point that is currently characterised by differences across countries and between micro- and macro-

prudential authorities in terms of definitions, measurement, taxonomies and data dictionaries, not to mention physical data collection, identifying issues of

1) scope, definitions, measurement criteria – the "what",

2) the need for a single process, including a single data point model and dictionary and a single data warehouse – the "how",

and leading to his suggested "input approach".

An interesting description of single collection process is also provided by Le Lorier in her description of the data collection activities in France.

I don't know whether there is a theoretically appropriate sequencing of micro to macro data, but we appear to have a foundation that follows this sequence. Moreover, I should note from a fairly robust process of forging this set of standards, including the more recently developed definitions of non-performing exposures and forborne exposures, that it took both a crisis and a legislative push to overcome entrenched national positions on definitions and data collection processes to allow us to succeed.

In any case, we now have a unique opportunity with this new micro-prudential reporting data set to really consider how we can move forward in a way which now joins up the micro-prudential world with the world of macro-prudential and monetary policy.

Euro area versus European Union

Even with this EU micro foundation, I am particularly struck by Restoy's insightful identification of the link between micro- and macroeconomic policy-makers in any given economic area. He usefully provides examples of the euro area and the United States, whilst the paper helpfully also refers to the EU setting. This focus on the commonalities of data needs in a given economic area nonetheless begs the question of how define such an area. To those of us working in EU institutions, that area is self-defining. But the question remains. In particular, we might characterise it thus: does the same process apply to harmonising micro-prudential data as for macro-prudential data and monetary statistics, and does this process differ in the variable geometry of economic areas we face in the EU. And there's the rub. The single market in banking services, for which we have developed a single supervisory reporting framework, comprises all 28 countries in the EU. And we have worked closely with the EU macro-prudential authorities in the form of the ESRB to satisfy macro-prudential needs. The extent to which this foundation is extendable across the European Union to macro-prudential and monetary authorities depends very much on goodwill in the absence of the legislative drive that led to the micro-prudential foundations. The superb work of the EU-wide Statistics Committee (STC) shows this is entirely possible, but it will be very interesting to see how further progress is made, using the micro foundation, definitions, scope and single reporting framework as a base for further and future harmonisation of data for macro-prudential and monetary policy use.

Sharing data for macro-prudential purposes and legal obstacles

Although it is a very young institution, the EBA has practical experience of the points so eloquently made by both Restoy and Le Lorier outlining how harmonised, good quality micro-level data are crucial for micro-prudential supervision and are also one of the building blocks for macro-level analysis. Le Lorier does note, however, the potential legal impediments to such sharing of information. We have found these impediments reasonably easy to overcome with formal written processes and the provision of aggregated supervisory data. The EBA has also promoted data sharing across borders, and the majority of European competent authorities are currently making arrangements for sharing bank-specific data for micro-prudential supervision.

Public data and market discipline

In the context of confidentiality concerns, and as a second aside, it is worth referring to the public good of data as a transparency tool which promotes research that can tangentially benefit policy-makers and enhance market discipline. Every year the EBA organises a research workshop and every year we note that most European researchers focus on US banks, rather than EU banks, because there is a lack of data. Increasing transparency and providing information to researchers, market analysts and other external stakeholders should therefore be another priority for public authorities.

There are legitimate confidentiality concerns in this regard, but I think we have a long way to go on transparency before we bump into the risk of publishing commercially sensitive data or other confidential data. To date the EBA has made great efforts to get the most basic balance sheet data into the public domain, publishing around 7,000 data points per bank in transparency exercises that have accompanied stress tests and recapitalisation exercises which have gone some way to addressing this deficit. But there remains much to do in this regard which we should not forget as we pursue the goal of better data quality for our own purposes.

Data infrastructure issues

Restoy points out that advances in IT systems will facilitate the sharing of information across functionalities and enrich policy analysis by using all available data sources. I think this is an interesting avenue to explore, acknowledging that the integration of European statistical and supervisory reporting frameworks will require much more work. A fully integrated framework would obviously be beneficial and efficient for reporting institutions and users of data, but designing and administering such a framework may prove challenging. The EBA has worked over the years on developing IT standards and provides data point models and XBRL taxonomies for the implementing technical standards (ITS) reporting framework. Le Lorier very helpfully flags up the issue of legal entity identifiers (LEIs), and, indeed, the LEI system provides a first step towards harmonising very granular data and allows integration of different frameworks covering data from institutions. LEI coverage is rapidly increasing and in Europe both the European Securities and Markets Authority (ESMA) and the EBA have issued recommendations and requirements for financial institutions to require LEIs.

One particular aspect of data infrastructure which Restoy's paper highlights is the benefit of a single data warehouse. What this looks like and how it is organised relates partly to the variable economic geometry we find in the EU as outlined above, but it is certainly a possibility. The EBA has built a consistent micro-prudential EU data warehouse, both for our own benefit and for the benefit of competent authorities, and in some cases data are publicly available on our website (stress test data, key risk indicators).

Harmonisation of standards for national accounts, balance of payments, accounting standards and prudential requirements is an enormous challenge. Close cooperation among different standard setters (regulatory, statistical, accounting) to explore ways to reconcile and converge standards and to design an integrated framework will be necessary, and the means of cooperation would need to be explored in the current legislative settings.

Concluding comments

It is clear that identifying synergies and commonality in data collection improves both efficiency and the quality of analysis. We know that banks are spending significantly on new data infrastructure, as are authorities. And we need to be mindful of the sheer number of data collections (ST, ITS, supervisory data, the European Market Infrastructure Regulation (EMIR)), and requests coming from many stakeholders against a background of reducing resources. Thus, the more we move to comprehensive data collection with common definitions and infrastructure, the easier over time this will be, easily offsetting these short-term costs.

The Banco de España's experience is outstanding. They have implemented an integrated reporting framework where all reporting from banks is managed centrally. Experts on supervisory data and monetary and financial statistics work together, increasing the comprehensive knowledge and expertise of both reporting frameworks.

The question is whether a similar approach can be achieved at EU level as suggested by, for instance, the Groupe de Réflexion on the integration of statistical and supervisory data (GRISS).

We have made a tremendous start at EU level with the work on micro-prudential data in the form of the supervisory reporting framework, at a global level with the FSB data gaps, and on the macro-prudential side through the work of the STC. Further progress is within our grasp, perhaps in the medium term, assuming some conditions are met, which both Restoy and Le Lorier touch on and acknowledge in slightly different ways.

First, there should be open and constructive cooperation under an EU umbrella. This would ensure that the development and maintenance of reporting frameworks would involve all the relevant counterparties. In that respect, the EBA has a key role to play in building a common European reporting framework and related data dictionaries. We would continue the coordination and integration work at EU level in order to avoid fragmentation inside the Single Market.

This kind of bottom-up integration would also be beneficial for wider EU-level integration, where experts participating in the development of reporting frameworks would share knowledge and spread awareness of financial statistics. This bottom-up approach, starting from working groups, could facilitate movement towards a truly integrated reporting framework.

Second, as Le Lorier notes, some sort of direction is required for change to happen. Le Lorier refers to this as a top-down approach, which I think is a useful characterisation. Indeed, we do see goodwill and coordinated efforts for more integrated reporting. But, to really ensure change, we need an impetus to abandon "national" traditions in data definitions and management. Sometimes, this is difficult to achieve, but, as our efforts in the supervisory reporting area show, the twin dynamics of a crisis and legislation are useful ingredients that do the trick. Even in the absence of such external impetus, we can all work towards integrated reporting frameworks, both bottom-up and top-down, and build wider understanding of European financial statistics and the links between them in order to be able to start building one single framework serving all policy, regulatory and supervisory purposes.

COMMENTS

LUIGI FEDERICO SIGNORINI[1]

1 INTRODUCTION

Let me begin by thanking the organisers for the opportunity to discuss these stimulating papers. I am happy to have this chance to come back home to the statistics family, which I left several years ago but never actually lost sight of since then.

The paper by Fernando Restoy offers a thorough treatment of a variety of matters and I find it difficult not to agree with most of what he says. Fernando reminds us of the reasons why data collection and data processing at banks have taken separate, unconnected paths from start to finish in a number of historical cases. And he explains all the work that has been done to avoid this scenario of separation for supranational supervision in Europe.

Anne Le Lorier paints a picture in which the elementary data available "out there" have increased, as have policy-makers' requests for broader, more detailed and timelier data, and makes some interesting remarks and proposals which I will comment on later.

Both Anne and Fernando are strongly in favour of an integrated, unitary approach to the collection and processing of the information supporting monetary policy and supervision, an idea to which I largely subscribe.

My statistics colleagues drew my attention to the content of the ECB's Decision of 17 September on the implementation of separation between the monetary policy and supervision functions. Its fourteenth recital states that:

> "*[…] effective separation between the monetary policy and supervisory functions should not prevent the reaping, wherever possible and desirable, of all the benefits to be expected as a result of combining these two policy functions in the same institution, including drawing on the ECB's extensive expertise in macroeconomic and financial stability issues and reducing double work when gathering information. It is therefore necessary to put in place mechanisms that allow an adequate flow of data and other confidential information between the two policy functions […].*"

President Draghi has just clearly stated in his introductory speech at this conference that integration is a clear goal for ECB statistics. Fernando's and Anne's position in favour of an integrated system of monetary and supervisory statistics and of full use of granular data are very much in accordance with this

1 Member of the Governing Board and Deputy Governor, Banca d'Italia.

goal[2]. I welcome the spirit and the letter of the Decision. I do hope that our reflections here will contribute to its practical implementation, which will be no easy task.

It needs to be said from the outset that the integrated approach and data exchange and sharing cannot answer all the present and future needs of banking supervision. Even highly disaggregated data do not guarantee that every subsequent request for new statistical information can be calculated and made available simply by recombining the existing elementary data. Other data, new data, will often have to be collected or simply validated and made available to supervisors. Harmonisation of statistics across countries will remain indispensable, as it has been for monetary policy since the creation of the ECB. The best way to guarantee the quality and non-redundancy of the new reports is to ensure they are logically consistent, and can be reconciled, with the existing data collection schemes for monetary policy[3].

Let me also recall that central banks perform other functions based on the data they collect: they produce official statistics and supply data for economic research. Not only are these functions traditional in central banks, but there are also strong arguments in favour of their being performed by central banks in terms of economies of scale and scope with respect to monetary policy, financial stability and supervision. Although I will not develop the point, my remarks on the integration of data with respect to institutional functions also hold for official statistics and support for research[4].

2 HOW THE BANK OF ITALY HAS APPLIED THE INTEGRATED APPROACH IN STATISTICS

Fernando's considerations on the integrated reporting approach tally with the main conclusions of the report of the Groupe de Réflexion on the integration of statistical and supervisory data (GRISS), as regards the definition of the integrated approach (financial and prudential information designed and managed as if they formed part of a single reporting package), its chief components (input approach, unique data point model, unique dictionary, unique data warehouse) and chief advantages (reduction of the reporting burden and economies of scale in data management).

I agree with the way the paper presents the integrated approach in statistics and its emphasis on the importance of cross-fertilisation deriving from the multi-purpose use of statistical and supervisory data. Our line at the Bank of Italy has always been

2 I remember that a decade ago, when I was a member of the Statistics Committee for the Bank of Italy, our approach based on full integration and pronounced granularity was rather unusual and looked idiosyncratic. The balance of opinions appears to have shifted since then.
3 On the development of Eurosystem statistics for monetary policy, see Bull (2004, 2013) and ECB (2010, 2011).
4 On the crucial role of statistics for a central bank, see Ciampi (1993), Visco (2008), Fischer (2008), and Draghi (2009).

to avoid multiple collections of the same information (or, even worse, equivalent but slightly different information), and to generalise the re-use of information for multiple purposes. These objectives, which have guided our practice since the 1980s, are important not just in order to reduce the burden on reporting agents, but also to give us a more efficient framework for data management.

The Bank of Italy's integrated statistical system is not limited to reporting; it covers the entire data cycle, from data extraction at reporting agents to the production and dissemination of final statistical outputs. Let me spend a few words on this model.

To begin with, I regard the first step of the data cycle – data production by the main contributors to our statistics, namely banks and other financial institutions – as particularly important[5]. The quality and timeliness of credit and financial statistics strictly depend on the quality and timeliness of the input data from intermediaries. In the 1980s the Bank of Italy promoted an initiative aimed at organising reporting agents' internal processes so as to ensure the completeness and consistency of the data they transmitted to it. In close collaboration with the banking and financial industry, an "input approach" was developed for integrated, granular data extraction from reporting agents' archives. A shared data dictionary was compiled containing a description of granular data, which have to "be ready" at the reporting agents' end, and the transformation rules necessary to meet the Bank of Italy's reporting requirements were developed.

All the data transmitted to the Bank of Italy, even if required for different purposes and tasks, are extracted by reporting agents just once, according to a single protocol. This ensures data consistency across datasets and intermediaries and reduces the need for burdensome ex-post data reconciliation[6].

A single data collection system is in place, despite differing statistical needs of the various departments and the different legal bases of monetary policy and supervisory information. The Bank of Italy's practice in this respect is in line with that recommended in the GRISS report, described in Fernando's paper and already adopted by other countries in Europe.

Anne's references to the ever-growing volume of data theoretically available and the increasing requests by policy-makers for statistical information highlight an aspect with key organisational and practical implications. This, I would say, is intellectually stimulating but practically very complex. Integration and standardisation would be a difficult challenge.

Back to our data collection model, a shared corporate statistical data dictionary (SDD) and a shared corporate statistical data warehouse (SDW) are two core components of the Bank of Italy's statistical information system. Both were planned with a view to managing the different areas of statistical and supervisory

5 President Draghi has made this point in his introductory address to this conference.
6 In the previous session, Andreas Ittner has eloquently explained the issue so I needn't go any further into it.

information as parts of a single system. Although the supervision and central banking functions require their own analytical approaches, their decision-making processes draw on the same corporate statistical data dictionary and statistical data warehouse. The same holds, as I mentioned, for other uses of the data, like research and official statistics. Careful organisational and IT choices over the entire process, from the identification of possible data sources to final uses, are required so that each piece of information can be effectively processed and used for different tasks and functions.

Users belonging to different departments can fully exploit information across domains, of course within a system of data access authorisation that is consistent with the needs of confidentiality. This is an important and sensitive issue[7] but by no means an insurmountable problem. In our experience it is possible to ensure the required protection of confidentiality and at the same time satisfy many research needs, first of all internal research. For a good many years now we have been making available even to external researchers, on our website, the anonymised individual data of sample surveys of firms and households, without any instance of leak of confidential information so far.

The third and last aspect of the Bank of Italy's approach I will mention concerns IT support for statistics. Close cooperation among analysts, economists, statisticians and IT experts is crucial for the design and development of computerised statistical applications.

The integrated approach also offers more powerful services to internal and external users: faster response to new data requests, richer information available on the website, improved opportunities for cross analysis, more extensive data sharing and easier use of different data sources, reflected in published material[8].

3 DISCUSSION OF THE GRANULAR/INTEGRATED APPROACH

How far to go in the direction of greater detail, greater granularity of the data collected, is a crucial issue for the appropriate tailoring of a multi-purpose data framework and for maximising the synergies between central banking and supervisory data requirements.

Taking granularity first, there now appears to be a consensus that more granular data collection would ensure the flexibility central banks need in order to respond rapidly to new data requirements and avoid continually addressing new requests to reporting institutions. Of course I welcome this development. But this does not necessarily mean we should collect data at more or less the same level of granularity as is found in banks' archives and procedures.

7 President Draghi, Governor Bonnici and several other speakers have made this point during this conference.

8 For a picture of this interdisciplinary approach in the field of financial stability statistics, see De Bonis, Grande, Magri, Signorini and Stacchini (2005).

More elementary and raw data require a more intense data management effort, especially to ensure data quality. They can also imply greater responsibility for the collecting authority in using and disseminating such data and in ensuring data transparency (making relevant data available to the various stakeholders and to the public) and preserving confidentiality. Moreover, certain prudential reports must be compiled and transmitted by the supervised entity, which is responsible for ensuring the accuracy of data; the collecting authority cannot compile them by aggregating micro data. This is the case, for instance, of data requested under the EBA's standards for uniform supervisory reporting.

So, as an early proponent of a granular data collection system, let me say that the issue of the appropriate level of granularity is likely to be one of optimal choice along a trade-off rather than a corner solution. One should refrain from collecting overly detailed and unnecessary information, while maintaining sufficient detail to permit the production of different output definitions, thereby helping to meet current and (at least some) potential future statistical needs in a flexible way.

The data collection burden imposed on intermediaries is also an important consideration, though the issue here is not so much the mass of data sent through routine procedures as the costs and difficulties of change[9].

Also, as a long-time advocate of an integrated approach, perhaps I should also point out one possible drawback of such an approach. The design of an integrated system requires close coordination and dialogue among different users, possibly implying additional costs and a longer timetable. The lag between the emergence of a new requirement and the production of the final, steady-state output may be longer. This is more easily managed within one organisation; it can become more complicated if two or more independent institutions are involved.

Therefore the management of change requires a rational and flexible approach. When urgent new information needs arise, they can initially be met with ad hoc data requests. As Fernando points out, this may not ensure at the outset that all possible interactions with other pieces of data are considered, controlled, or exploited. It is the unavoidable price to pay in order to have quick results. Subsequently, if the need persists, and as it possibly evolves and becomes more precise, then a formal change-management process has to start, and eventually a structural solution will have to be implemented that reaps all the benefits of integration in terms of efficiency, quality and (steady-state) timeliness.

9 Friends of the old statistics committee may recall the "bus principle" that one of our colleagues proposed at the time. It stated that when a full bus reaches the next stop, only as many passengers can get on as those who step off the bus. Similarly, new statistics could be established only if an equivalent set or requirements was abolished. This seemed to me to be unconvincing for two reasons: 1) in a world where something like Moore's law holds, the bus doubles in size every 18 months, so the number of seats is not likely to be the main issue if the distance between "stops", i.e. statistical requirements, is of the same order of magnitude (1-2 years). 2) More importantly, the real burden for reporting agents depends on the efficiency, clarity and stability of the data collection system, much more than on the number of data items. This is supported, in our experience, by the opinion of reporting agents themselves.

The change-management process must be carefully established so as to achieve the best results in terms of efficiency and timeliness. A formal, partly quantitative cost-benefit analysis must be conducted at an appropriate stage; the timeline and criteria for this must be set out in advance. The respective roles of users, statisticians, database experts are different in each stage (for example, ad hoc requests may sometimes be more directly managed by users at an early stage), but coordination must be pursued at all stages in order to ensure maximum efficiency (quality and cost) and effectiveness (adherence to users' needs).

In an integrated approach it is also doubly important that the data model be designed with flexibility in mind, so that it will be relatively easy to adapt to new requirements. I say this from experience: too much emphasis on efficiency in the current processing of data carries the danger of too much rigidity in the data structure, which will hinder change. Subsequent versions of our integrated data collection framework have paid greater attention to this point.

All this has to be kept in mind and requires skilful design from the start, but it does not change the fundamental picture. Based on our own experience with an integrated, granular model, my view remains that the advantages of such a model outweigh the disadvantages by far.

4 ANACREDIT AND CCRS

Anne and Fernando refer specifically to CCRs and the Anacredit initiative. This gives me the opportunity to make three points.

First, Anacredit is a fruitful example of the cross-domain integration of requirements: since the beginning of the project the new requirements coming from financial stability and micro-prudential supervision have been taken on board together with "pure" statistical needs. We have supported the project from the very beginning and are persuaded that this instrument can make a valuable contribution to many functions. These include economic research, for which the use of individual data is invaluable[10]. Again, looking at our own experience to date, if adequate safeguards are in place, then certain individual data can be made available at least to internal researchers and the risk of unintended dissemination of confidential information is much reduced.

Second, Anacredit also goes in the direction of cross-country integration, i.e. harmonisation of data and concepts among euro-area countries. This is a welcome development although it will require time. Finally, existing CCRs are valuable sources of information for the effective monitoring and management of credit risk and for the overview they provide on credit concentration and

10 It is no less important for supervision, where the mean is no sufficient statistics and tails are what counts most, as Mathias Dewatripont has reminded us.

borrowers' indebtedness to financial intermediaries[11]. As with every change to a well-functioning mechanism, care must be taken to preserve all its most valued current features.

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11 I have mainly Italy's example in mind but this is in no way unique. Pedro Duarte for instance has provided very interesting information on the credit risk database in Portugal and its uses.

DISCUSSION SUMMARY

In his introduction, **Ilmārs Rimšēvičs** (Latvijas Banka) expressed his pleasure at chairing the session dealing with statistics for multi-purpose usage and synergies between central banking and supervision. He noted that the etymology of the word "synergy" was the best way to convey the underlying philosophy of the topic of this session. He reminded the audience that the word "synergy" comes from two Greek words, syn "together" and ergon "work", and consequently means "working together". He said that the concepts of "working together" and "making data available for multiple uses" to produce the maximum result should be the main focus of the conference and the main concern in the coming years, in particular in the context of the Single Supervisory Mechanism, a key element of the banking union. A number of initiatives aimed at improving data accessibility, data quality and data harmonisation have been launched as a response to the crisis. The ESCB Statistics Committee is considering combining existing national statistical and supervisory data systems in a single European information system. The collection of granular data would lead to greater flexibility in terms of reusing existing data for multiple purposes and would reduce the need to introduce new data requirements. From a global cross-border perspective, he stressed the importance of moving towards the adoption of a European reporting framework, which would ideally encompass all reporting requirements imposed by the European Central Bank, the Single Supervisory Mechanism and the European Banking Authority in order to ensure the effective conduct of common monetary, financial stability and supervisory policies in Europe. Much has been achieved in this field over the last decade and even more is required in the future.

Anne Le Lorier (Banque de France) explained that central bankers and supervisors have common needs which can be satisfied by statisticians. Price stability, financial stability and supervision are not separate domains, as they all concern the financial sector and individual institutions. For this reason, the vast majority of data are in fact multi-purpose: the same piece of information can contribute to the cross-checking of a prudential ratio, detect the build-up of macro-financial imbalances, assess the impact of monetary measures or produce monetary aggregates or national accounts. She noted that micro data, such as those derived from AnaCredit and central credit registers, are crucial as they not only allow for a large number of uses, but are the only technical way to respond to never-ending new, and largely unforeseen, information needs. Conversely, adopting a piecemeal approach, whereby a new reporting scheme would need to be established each time new research or analysis was conducted, would be burdensome and not cost-effective for central banks or respondents. She indicated that specialisation by business areas relies more than ever before on data usage (rather than data collection), hence on data sharing. Ms Le Lorier then referred to a number of projects currently being developed, such as AnaCredit, the collection of money market data and the G20 Data Gaps Initiative, which represent important opportunities for central banks but also entail significant challenges. While the progress made since the start of the crisis and the G20 initiative is impressive, Ms Le Lorier reminded the audience that much more still has to be done to ensure the smooth implementation of monetary policy, effective conduct of banking supervision and the stability of the financial system.

Fernando Restoy (Banco de España) focused his presentation on the benefits of an integrated statistical system allowing statistical data to be used for both supervisory and monetary policy purposes. Under such an approach, all financial and prudential data requirements (e.g. FINREP, COREP, BSI and MIR), including micro data (e.g. data for central credit registers, AnaCredit and securities holdings statistics), are designed and managed as if they were part of a single reporting package, regardless of the main function for which the specific data are required or the various reporting models. Mr Restoy reflected on the experience of the Banco de España, where an integrated reporting approach has already been implemented. He explained that the banking reporting model in Spain is composed of three layers: (i) the data structure at the entity level, (ii) the structure of reporting (and collection) requirements, and (iii) the structure of data storage in the Banco de España's data warehouse. Mr Restoy also reflected on the main challenges for central bank statisticians in developing an integrated statistical system capable of meeting all user requirements. These include developing IT devices to utilise standard packages, identifying flexible medium-term targets for servicing increasing information requests and addressing confidentiality issues through IT tools and legal instruments. Mr Restoy noted that there is still a need for deeper harmonisation of reporting requirements definitions and accounting practices across countries. Some flexibility in data provision could be allowed in the short term, but without compromising the long-term objectives of a level playing field and fully harmonised practices, which may involve considering moving beyond the current COREP and FINREP systems.

In his discussion, **Piers Haben** (European Banking Authority) complimented both papers, with which he was in general agreement. He welcomed the innovative programmes presented by Ms Le Lorier and Mr Restoy. Mr Haben reminded the audience to be mindful of the sheer number of data collections (ITS, supervisory data, EMIR, etc.) in response to requests from many stakeholders against a backdrop of increasing constraints on resources. Thus, the more we move to a system of comprehensive data collection with common definitions and infrastructure, the simpler this will become over time, which will easily offset the short-term implementation costs. Mr Haben noted that the Banco de España's experience has been very positive, as they have implemented an integrated reporting framework where all reporting by banks is managed centrally. Experts on supervisory data and monetary and financial statistics work together, which increases comprehensive knowledge of and expertise in both reporting frameworks. The key question is whether a similar approach can be achieved at the EU level. Both papers acknowledged the tremendous work of recent years – at both an EU and a global level – and stressed that further progress is within our grasp, assuming certain conditions are met. There should be open and constructive cooperation under an EU umbrella, not only among euro area countries. In that respect, the European Banking Authority has a key role to play in building a common European reporting framework and related data dictionaries. As Ms Le Lorier noted, some kind of explicit direction is required for such a change to happen. However, Mr Haben emphasised that to secure this change we need impetus to abandon national traditions in data definitions and management.

Luigi Federico Signorini (Banca d'Italia) thanked the organisers for the opportunity to discuss these two stimulating papers, with which he was in general agreement. He noted that both Ms Le Lorier and Mr Restoy strongly favoured an integrated, unitary approach to collecting and processing the information supporting monetary policy and supervision, an idea to which he largely subscribed. As an early proponent of an integrated approach, he welcomed the emphasis the ECB is now placing on the integration of statistics as a goal. However, he stressed that the integrated approach, data exchanges and data sharing cannot meet all the present and future needs of banking supervision. New data will need to be collected, validated and made available to supervisors. In this respect, harmonisation of statistics across countries is crucial, as it has been for monetary policy since the creation of the ECB. Reports required for supervision need to be logically consistent and reconciled with those collected for monetary policy purposes. Mr Signorini explained that the Banca d'Italia has long tried to avoid collecting the same information multiple times. The Banca d'Italia has developed a single integrated statistical system covering the entire data cycle, with a shared corporate statistical data dictionary and statistical data warehouse. The system is able to meet the statistical needs of various departments and cope with the different legal bases of monetary policy and supervisory information. Mr Signorini highlighted AnaCredit as a fruitful example of the cross-domain integration of requirements, since requirements from financial stability and micro-prudential supervision have been taken on board alongside "pure" statistical requirements. AnaCredit also promotes cross-country integration by increasing the harmonisation of data and concepts among euro area countries.

Ben Dubow (Bank of England) asked what innovations should be considered over the next ten years until such a new data collection strategy is eventually developed.

In reply, **Mr Rimšēvičs** reflected that there was still much work to be done by statisticians, but that users should be optimistic. He was of the opinion that there was still some work to be done on definitions.

Ms Le Lorier hoped that it would not take ten years for progress to be seen. Nevertheless, to follow a single model that was too rigid might increase costs and delays. Therefore, a more pragmatic approach to harmonising data requirements for reporting agents, with a common aim of utilising new technology to collect data, might save time and reduce costs.

In his reply, **Mr Restoy** agreed that it will take time to develop a complete system and that there is therefore a need for flexibility in the short to medium term. The immediate challenge is to define and establish a comprehensive collection of the relevant data that are already available. This would involve adopting a pragmatic approach, for example in reviewing reporting requirements on a regular basis in order to add and remove specific items.

Mr Habens agreed that it would be necessary to review data requirements and be aware of the costs to those involved in the collection of new data. This would involve reviewing what is already available before meeting new ad hoc requests.

Mr Signorini agreed with the other discussants that central bank statisticians must remain pragmatic and allow for some flexibility, but always be attentive to costs and efficiencies.

Jean-Marc Israël (European Central Bank) asked whether data collectors should focus on consolidated or non-consolidated data and asked about the need to reconcile the two concepts by using a register of institutions.

In her reply, **Ms Le Lorier** said that, in her view, non-consolidated data could not be relied upon because this would promote fragmentation in the ESCB system, which would not be welcomed by users. Therefore, she supported the development of consolidated datasets.

Mr Restoy considered that consolidation will be difficult to achieve in practical terms but is desirable for banking supervisors in most cases. The issue is perhaps how to accommodate both consolidated and non-consolidated datasets under the same framework so as to link consolidated and non-consolidated information without being too ambitious.

Mr Habens reflected in his reply that placing the focus on consolidated data in the European Union made sense.

Finally, **Mr Signorini** commented that he saw no problem in having both consolidated and non-consolidated datasets as long as they can be reconciled at the reporting level. He was of the opinion that a bigger problem was overcoming the current heterogeneity of accounting rules at the national level.


Lessons Learned to Date
Francesco Mazzaferro

3 THE MACRO AND MICRO DIMENSIONS OF THE BANKING UNION – WHICH ARE THE CHALLENGES FOR STATISTICS?

INTRODUCTORY REMARKS

HANS BUURMANS[1]

Ladies and gentlemen,

Let us start with a short film (http://www.youtube.com/watch?v=OORnMYoWX9c) to illustrate that to develop new ideas we need not only bright ideas, but also the commitment of all relevant parties. The film shows how a challenging new idea about rolling round wheels can end up as a non-viable solution of square wheels. We all know about the big ideas of the EU and its most recent developments, such as the Single Supervisory Mechanism and the Single Resolution Mechanism. Today is part of the question of how all of us – including the banking industry – participate in these ideas. And that includes related issues concerning statistics. How do we prevent square wheels from being invented in statistics?

As a banker, I feel honoured to have the opportunity to chair this session about the opportunities and challenges for statistics on behalf of the European Banking Federation. It shows that the ECB is willing to coordinate and communicate with the banking industry, which will be very important in the coming years. Banks and banking organisations, such as the European Banking Federation, will greatly appreciate having proper coordination and communication channels with the ECB on reporting, which is the basis for ECB statistics.

I have been involved in bank finance, including regulatory reporting, for many years. I started 45 years ago in external auditing, before moving to internal auditing. I then went to a small bank, which grew into a very big bank, before becoming a smaller bank again. I am happy to be here with you and to have the opportunity to share some thoughts with you. Believe me, there are huge challenges ahead for the banking industry, not only in terms of reporting, but also as regards cost containment, customer services and the overall changes to the new banking industry. Session 3 may be an opportunity for all of us, bankers included, to learn more about the various challenges and opportunities.

We have five excellent speakers and discussants, who will share with us their views from their respective backgrounds. This session will hopefully enable you to find out everything you've always wanted to know about square wheels in statistics and allow you to share any suggestions you may have to make the wheels in statistics roll in a more effective and efficient manner.

1 Chair of Reporting Requirements Task Force of the European Banking Federation (EBF).

Let me now introduce our first speaker for this session, **Martin Špolc**, Deputy Head of the Banking and Financial Conglomerate Unit at the European Commission, which deals with bank structure reform and financial conglomerates. Until recently, he was advising Jonathan Faull, Director General of the Directorate General Internal Market and Services, on all key projects in the area of financial services, in particular the banking union, banking prudential requirements and bank resolution. Before 2011 Mr Špolc worked on transposing the Basel III framework into EU law, and before joining the Commission he worked with Ernst & Young in the Corporate Finance and Risk Management Advisory Service. In his speech, he will give his views on the micro and macro dimensions of the banking union and the challenges for statistics.

The next speaker is **Janez Fabijan**, Deputy Governor of Banka Slovenije, where he was previously Director of the Statistics Department for ten years. Mr Fabijan has 23 years of experience and is a member of the Eurosystem IT Steering Committee, which is responsible, among other things, for the definition of the IT architecture of the Single Supervisory Mechanism. Following a proposal by Banka Slovenije, he was appointed by the Slovenian government as a member of the Interministerial Committee for the Rehabilitation and Reconstruction of the Slovenian Banking System in 2012. In his speech, Mr Fabijan will update us on the macro and micro data and the opportunities and challenges for statistics in the banking union, looking at matters from a more pragmatic perspective.

Our last speaker is **Micheline Casey**, Chief Data Officer of the Federal Reserve Board. As the first chief data officer for the state of Colorado, she was responsible for developing and executing the state of Colorado's enterprise data strategy. Her private sector experience includes working with IBM Global Services. She will explain the role of chief data officer and the importance of having a data strategy.

We also have two discussants, who will be commenting on the speeches.

Francesco Mazzaferro has been the head of the Secretariat of the European Systemic Risk Board (ESRB) since January 2011. He started work in March 2010 as the project manager for the ESRB Preparatory Secretariat and began his career at Istituto Bancario San Paolo di Torino (today part of Intesa Sanpaolo) in 1987. In 1992 he joined the European Commission in Brussels, where he worked in the European Currency Unit on the preparations for the introduction of the single currency. In 1995 he joined the European Monetary Institute, and in 1998 he became the senior European relations officer in the ECB's European Relations Division. From 2000 he worked as principal in the EU Neighbouring Regions Division, becoming the head of division in 2003. He has been working in the field of European monetary policy for almost 20 years.

The second discussant is **Steffen Kern**. Since 2012 he has been Chief Economist and Head of Financial Stability at the EU's financial markets and supervisory authority (ESMA) in Paris. His responsibilities include analysing market developments and identifying risks and vulnerabilities in the securities and derivatives markets. Before joining ESMA, he worked at Deutsche Bank, holding positions including Director for International Financial Market

Policy and Executive Assistant to the CEO of Deutsche Bank Group. He is an honorary professor at Johannes Gutenberg University in Mainz, where he teaches international financial market development, regulation and supervision. He also serves as a senior non-resident fellow at the Transatlantic Academy in Washington DC where he was appointed the 2011 Helmut Schmidt Fellow.

EMERGING OPPORTUNITIES AND CHALLENGES WITH CENTRAL BANK DATA[1]

MICHELINE CASEY[2]

1 INTRODUCTION

This paper describes the emerging opportunities and challenges relating to establishing a professional data management and data governance function at a central bank. The paper provides insights into how the Federal Reserve Board (FRB) responds to the increasing demand for and need to integrate and jointly analyse large amounts of new macro and micro data – "connecting the dots".

The paper starts (Section 2) by outlining the key roles and the related data needs of the FRB. Section 3 lists the main obstacles to overcome when implementing central data management and data governance. Section 4 shows how traditional and newly emerging data types are merging to form big data for central banks. Section 5 points out that you "can't solve exponential problems with linear solutions" and that increasing needs and complexity call for new approaches and solutions in the management of macro and micro datasets. Section 6 presents the strategic purpose given by the FRB to data management, the data management framework and the still-developing data management organisation. Finally, Section 7 looks towards the future: "How can we motivate ourselves to coalesce and collaborate around common enterprise data governance and data management needs in order to deal with the complexity and scale of the challenges?" The paper concludes in Section 8 with the key lessons learned which will be important for the future development of the programme: "Most of the challenges of data management cannot be solved individually, but require the creation of global communities of interest."

2 KEY DATA NEEDS OF THE FRB

The FRB has a dual mandate of promoting effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.

The authority of the FRB in the domain of banking supervision was expanded during the financial crisis with the passing of the Dodd-Frank Act.

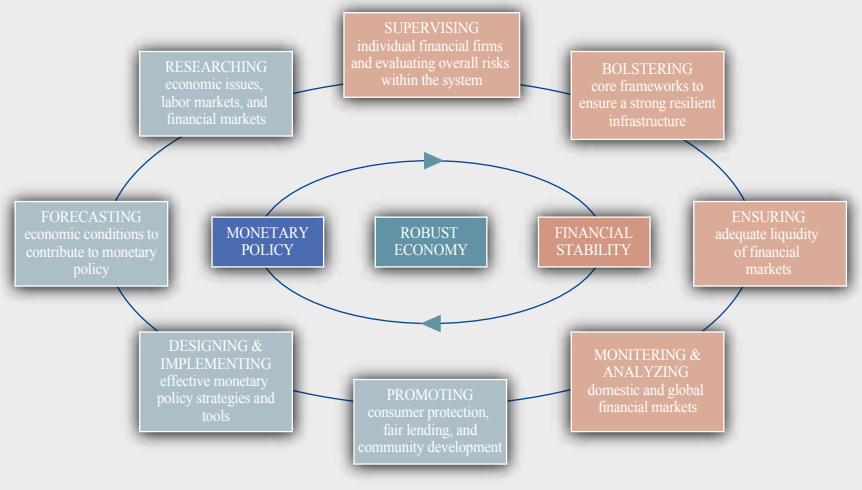
1 Note: This document was prepared for the Seventh ECB Conference on Statistics. The document is intended only as a basic primer on the topics covered. It reflects the author's views and not necessarily those of the Federal Reserve Board or anyone else associated with the Federal Reserve System.

2 Chief Data Officer, Federal Reserve Board.

Prior to the financial crisis, there was not much need for cross-divisional information sharing. When the financial crisis emerged, the FRB did not have the necessary micro data management infrastructure in place either to support easy identification of existing in-house data or to easily provide controlled sharing access to those who needed key data to support the monetary policy mechanism. There were also gaps in micro-level datasets. The fulfilment of new business requirements requires a new approach to data integration and management.

This paper describes how the FRB structures and improves data management and governance to ensure effective, efficient and timely collection and integration of micro and macro datasets.

Chart 3 Key roles and data needs of the FRB



Source: Robert Galleta, FRB NYEDMO

3 SUB-OPTIMAL DATA LEAD TO INCREASED BUSINESS RISK

With the financial crisis it was realised that sub-optimal data collection, sharing and integration lead to substantially increased business risk. The ability to connect and share data became business-critical for monetary policy and supervision. Enabling data sharing and integration requires a number of obstacles to be overcome, such as:

- lack of data visibility
- lack of data fluidity (difficult to integrate and disseminate data)
- data "my-ning"
- security and access control issues

- historically siloed environment
- legacy system issues
- increasing cost pressures
- skyrocketing data volumes

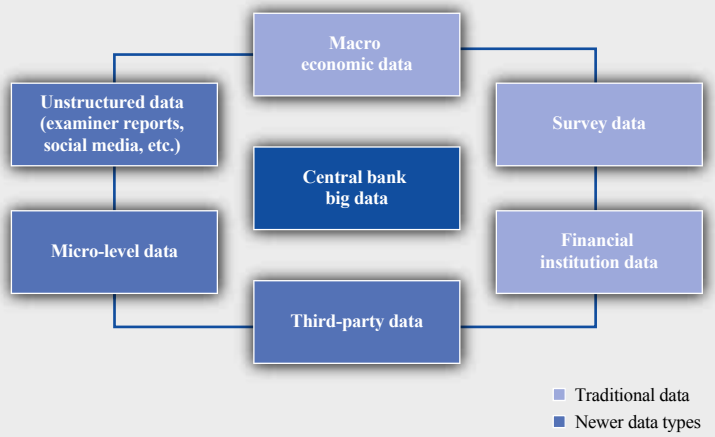
Realising necessary improvements in a historically siloed, generally non-optimised, inflexible and costly data environment requires holistic thinking, both strategically and cross-functionally:

- trust in data quality and provenance is fundamental, so better data quality and data management are necessary;
- more flexibility and agility in data relationships and robust data integration and distribution capabilities are critical pre-conditions;
- on the data collection side, new and more external datasets are needed with multiple data varieties and timeliness;
- communications loop and near real-time feedback are important for the success of data management;
- an ecosystem and process view of data is required, including new measurements and key performance indicators;
- more pressure and attention on data security levers;
- maximisation of infrastructure investments and portfolio management;
- the new world order is driven by intelligence, insight and analysis – an ability to ask and answer a broader range of questions.

4 TRADITIONAL AND NEWLY EMERGING DATA TYPES ARE MERGING TO FORM BIG DATA FOR CENTRAL BANKS

The traditional types of central bank data – macroeconomic data, survey data, and structured and aggregate financial institution data – need to be complemented by new types of data, such as third-party, micro-level, and various types of unstructured data. The combination of new central bank business requirements (particularly around financial stability and monetary policy), new types of data and advances in computing power is forcing long-overdue changes in data governance, data management, and infrastructure needs.

Chart 4 Traditional and newly emerging data types are merging to form big data for central banks



The processing of the new data types requires advanced analytical and IT infrastructures for structured, unstructured, and semi-structured data and for analysing and extracting insights across all data types ("connecting the dots"). The management of the new data and capabilities requires a cultural change and an organisational shift towards a central data management structure with a chief data officer (CDO).

5 INCREASED NEEDS AND COMPLEXITY CALL FOR NEW APPROACHES AND SOLUTIONS

"You can't solve exponential problems with linear solutions"
(Prof. Banny Banerjee, d.School, Standford University).

The business drivers of the financial regulatory ecosystem have changed since the financial crisis. At the same time, we have experienced a massive torrent of new complex data that are both required by new regulatory regimes and available via third parties and open source mechanisms. Finally, the computing power which exists today via massive parallel processing (MPP) systems is unprecedented. Central banks cannot approach this problem in traditional ways. The scale, complexity, cross-functional needs, and general ecosystem trends demand new ways of thinking, and the adoption of best practices that are being applied in many other sectors. This is true for bank oversight and supervision, for monetary policy, and for advances in forecasting (nowcasting).

What are "big data" today will be "small data" in five years. We need to put data management in order before the data quantity and complexity become unmanageable. The management of newly emerging data types, in conjunction with changing business needs, requires strategic thinking and an enterprise data strategy. Just collecting and providing more data will not solve the problem.

6 FRB ENTERPRISE DATA GOVERNANCE FRAMEWORK

To meet these challenges, the FRB has defined data governance as a priority in its strategic plan (Strategic Framework 2012-2015)[3]: "redesign data governance and management processes to enhance the Board's data environment".

This section describes how the enterprise data governance framework is currently being implemented at the FRB.

6.1 FRB STRATEGIC FRAMEWORK, STRATEGIC THEME 2: DATA GOVERNANCE

The scope of the FRB data governance strategy is outlined in Strategic Theme 2 of the Strategic Framework 2012-2015. The strategy is being built around the following three pillars.

- Improve data governance by establishing a new Office of the Chief Data Officer (OCDO) and by ensuring that there is a clear division of roles and responsibilities among the CDO, the Board Data Council, and data users. This is meant to launch the Board Data Council, which comprises key enterprise stakeholders, to support enterprise-wide data governance policies, processes, definitions, standards and metrics.

- Ensure that all enterprise data are handled, processed, stored, and disseminated by professional data management groups by creating the Office of the Chief Data Officer for central data management and defining the OCDO's mission, charter, goals and competencies.

- Develop the enterprise data strategy to strengthen the Board's data environment by establishing an infrastructure to share data and improve opportunities for data integration that supports the Board's research and analytical capabilities.

The FRB OCDO and data governance programme priorities are aligned with the Board's mission: conducting monetary policy; maintaining the stability of the financial system and containing systemic risks; supervising and regulating financial institutions and activities; providing certain financial services; and promoting consumer protection, fair lending and community development.

The charter, scope, operating procedures, and target priorities were set in line with the data strategy and involve all of the FRB's key stakeholders.

6.2 FRB OCDO ORGANISATION

The FRB OCDO was originally intended to focus on data management strategy and polices. However, this soon had to be extended to cover all three dimensions

3 http://www.federalreserve.gov/publications/gpra/2013-preface.htm

of organisational development: people, policies and technology. The mission and scope of the OCDO are:

Vision – The OCDO enables the seamless use of data as a strategic asset in support of the Board's mission.

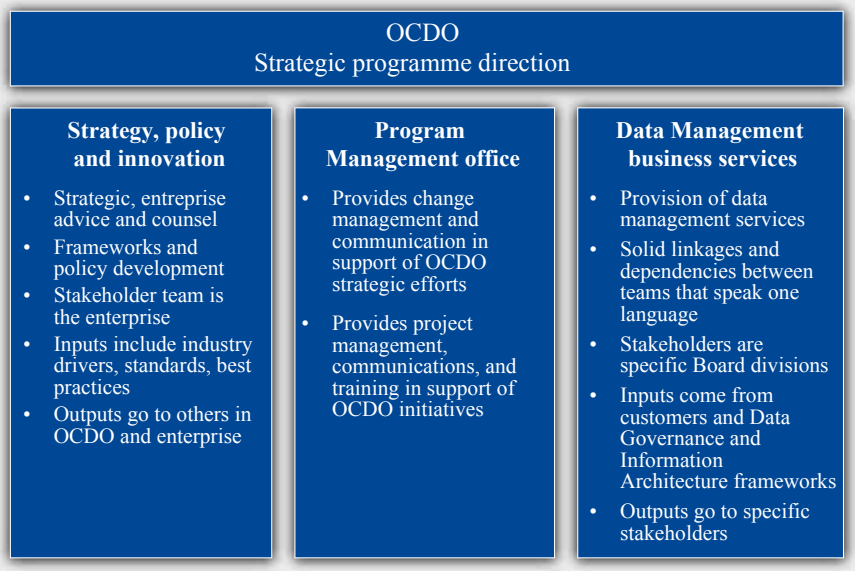
Mission – The OCDO supports the Board's interdisciplinary approach to monetary policy, supervision, and financial stability through strategic thought leadership, policy setting, advisory services and collaborative outreach to optimise enterprise data and information assets.

Scope – Enterprise data governance and data management services across Board and Board-delegated functions.

6.2.1 FRB OCDO ORGANISATION

Chart 5 below illustrates the three pillars of the OCDO. The pillars of the OCDO cover three dimensions: organisation, process and technology. Implementing a successful, sustainable data governance and management programme requires cultural changes across any organisation undertaking such efforts. After all, we impact on how people work and do business within and across the organisation vis-à-vis data. Therefore, the Program Management Office (PMO) is led by a senior change manager, and all communications are filtered through a prism of change. The new data strategy will not be sustainable if the culture of the institution regarding data ownership and governance (data "my-ning") is not changed.

Chart 5 The three pillars of the Office of the Chief Data Officer



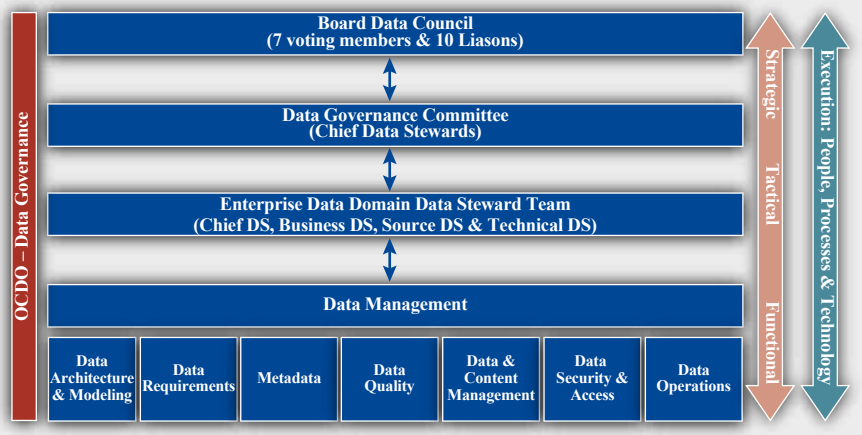
The OCDO started its operations in 2013 and will be fully staffed by mid-2015. Two existing operational teams (26 full-time equivalents) moved from the Research and Statistics Division to the OCDO covering the areas of regulatory reporting (including under the Dodd-Frank Act) and clearance as well as data management. Twenty net new positions, including the CDO were created by the FRB to support Strategic Theme 2, Data Governance. These 20 resources will focus on data governance, information architecture, business analysis, project management support, and strategy and innovation.

6.2.2 ENTERPRISE DATA GOVERNANCE FRAMEWORK

The data governance framework should improve the overall data supply chain. The overall objectives of the framework are therefore:

- improving governance, planning, and communications;
- maturing data stewardship and analytical practices;
- maturing data inventory and controlled sharing practices;
- business process improvements, innovation, and partnership.

Chart 6 FRB OCDO organisation



Besides the formal structure given by the framework, and in view of the many opportunities available, the OCDO intends to move forward pragmatically and practically in a gradual, iterative, and targeted manner, given its limited resources and other important constraints. The implementation process therefore needs to identify the key data pain points and the main opportunities, and needs to build a strategy, an approach and an office that will all be sustainable over the long term.

Unfortunately, there is no short-term fix for the obstacles and challenges of data management. Sustainable data governance and data management also require cultural changes and incentivisation. Technology is clearly not enough. Establishing a data strategy and framework is a long-term (decade plus) effort to adjust to a world that is characterised by hyper-change, global interconnectedness and interdependencies, tsunamis of new data, and rapidly evolving technology that outpaces the ability of regulators and legislators to keep up.

7 THE FUTURE: DOING THINGS DIFFERENTLY

How can we motivate ourselves to coalesce and collaborate around common enterprise data governance and data management needs in order to deal with the complexity and scale of the challenges?

We do not know when the next financial crisis will come or what it will look like, but we can be certain that it will come. We do not know what the world will be like in 10 to 20 years, but it will be data-driven and it is essential to prepare for it:

- building an integrated, but distributed information architecture and set of platforms;
- a one-stop shop for data: connecting the dots, leveraging what we already have;
- enterprise data inventories and common metadata, to know what we have and how to find it;
- information architecture and common taxonomies, having a common language and common terms;
- maturing data governance and stewardship practices;
- componentising and abstracting the data layer;
- central banks and financial regulatory regimes all monitor the same globally important financial institutions – we should work together to develop a "common core" both for information sharing and to reduce the reporting burden.

Implementing these data management objectives entails a number of risks, but also creates opportunities which need to be managed:

- the most important change is the transformation of the culture of the organisation;
- transforming the culture to be data-centric and data-driven, and incentivising enterprise solutions;

- developing common data governance and data management based on best practice;
- creating an integrated, distributed information architecture and set of platforms for increasingly complex data and information sharing needs (internally and externally);
- working together in the Federal Reserve System (FRS) and beyond to develop common ontologies, data architecture, data dictionaries, and other data standards;
- optimising the analytic environment for insights across domains, data types, and business processes;
- embracing transparency and open data for engagement and efficiencies;
- creating global communities of interest for crowd-sourced approaches to our biggest financial stability and economic challenges;
- keeping the existing system running, but investing heavily in the future.

The willingness to see things differently takes time, effort and long-term commitment.

8 SUMMARY: LESSONS LEARNED TO DATE

Even though the journey of implementing data management at the FRB has only just started, a number of key lessons have already been learned that will be important for the future development of the programme:

1. the concept of the *pervasiveness and criticality of data and data technology* to the FRB's mission;
2. it is crucial that certain *foundational components* be in place to support the scale and complexity of new data;
3. *education and awareness* of data strategy concepts and data management approaches are greatly desired and necessary throughout the FRB;
4. developing and bringing the *required skills* together takes time and requires long-term commitment and considerable investment;
5. *communication and collaboration* across the FRB and FRS are imperative to success;
6. there is a *deliberate nature to the FRB* that must be taken into consideration;

7. the *OCDO is aligning itself* to support the FRB – there are significant data "pain points" across the institution, many of which we have already identified in the strategic priorities;

8. continuing to *balance strategic and operational needs* in a resource-constrained environment.

Most of the challenges of data management cannot be solved individually, but require the creation of global communities of interest, so I would hope not to be the only chief data officer giving a presentation at this conference next time.

MACRO AND MICRO DATA CONSISTENCY FOR EFFICIENT DECISION-SUPPORT SYSTEMS TOWARDS BANKING AND FISCAL UNION

JANEZ FABIJAN[1]

ABSTRACT

We all dream that data at an aggregate level are highly consistent with those at a micro level; that micro level data tell us exactly the reason for macro behaviour and vice versa. Today's modern data warehouse technology and decision-support systems are helping us to make our dreams come true. We would like to be able to make better decisions. We are trying to build a highly consistent information system in order to support the better performance of risk management functions in financial institutions and to help efficient policy implementation overcome the great financial and economic crisis. Institutional development is consequently moving in the direction of turning the euro area into a banking and fiscal union. In the light of this, this paper examines the very turbulent ride that Slovenia has experienced.

1 THE BASIC CONCEPTUAL FRAMEWORK

My intention is not to go into detail again about the conceptual framework of the information system needed, but rather to present its usefulness for taking pragmatic decisions on the basis of information at either the micro or the macro level. However, we cannot avoid reviewing the fundamental basis of the efficient decision-support system. In our opinion, this lies in the consistency between the data at the macro (aggregate) and micro (individual) levels. Ideally, we should strive for an optimal level. In practice, however, we are happy to settle for a sub-optimal level.

From an information point of view, the conceptual framework of the information system should be seen as a big data warehouse with many data marts (building blocks – sector data), having two basic dimensions: the sectors of parties in contractual relationships and the financial instruments concerned. Two more data dimensions could be added: (i) the needs of financial institutions, i.e. knowing the customer (risk control) or serving the customer (customer relationship management) in a competitive environment; and (ii) policy needs, in particular for monetary policy, financial stability and supervision, but also for other economic policies. Since financial intermediaries are supposed to be efficient in handling information asymmetries, avoiding moral hazards and adverse selection problems, they have to be placed in the centre of the conceptual framework. We should request or extract data from their databases. To minimise the reporting burden and to fulfil different functions by collecting the data only

1 Deputy Governor, Banka Slovenije.

once for many purposes, policy-makers must cooperate closely with the financial industry. They need either to harmonise different methodological concepts or to ask for more granular data. Furthermore, it is policy-makers that have to set up data dimensions for attributes other than sector and financial instrument, e.g. for attributes such as maturity, currency, collateral, residency, etc. For each dimension, a unified code list has to be agreed with reporting bodies. Some of these are already standardised (e.g. country codes) and some are not (e.g. maturity breakdowns). It would therefore be appropriate for policy-makers to position the centralised data collecting and quality control function in one place, even in one organisational unit within their respective institutions. Under our conceptual framework, the statistics department would be the most appropriate one to take on this role. The practice of policy-makers of asking for data ultimately influences the risk controls applied by individual financial institutions. As we have already mentioned, the multidimensional space (features around the contract agreement) can be further freely and systematically deployed in a competitive environment by financial institutions, but the accounting principles require them to include such dimensionality in their integrated accounting information systems. Furthermore, the fact that at least two parties have to be involved in the contractual relationship requires consistent mirror bookkeeping – a quadruple entry system.[2] For policy purposes, economic units need to be grouped into strata – sectors of economies. Consistent micro-level recording has to result in accurate sectoral relationships at the level of each national economy and among them.

Better risk control by financial intermediaries is fully in line with the broader banking union goal of not using any more taxpayers' money to bail out banks. Using a fully consistent set of information – from micro to macro levels of the economy – in the decision-support system, we can expect a better allocation of funds to the real economy, economic growth and higher employment.

Slovenia started its journey towards European integration in November 2001, when the Government announced the goal of joining the monetary union as soon as possible. It became a full member of the EU on 1 May 2004. Running its own monetary policy in a small, export-oriented and open economy, the Bank of Slovenia has constantly been improving and harmonising its information system for efficient decision support. A successful, inflation-targeting, independent monetary policy allowed Slovenia to join the Exchange Rate Mechanism (ERM2) as early as 28 June 2004 and to become the first new central European EU Member State to adopt the euro on 1 January 2007. We all know what happened very soon after.

2 "The quadruple entry accounting ensures vertical consistency (debits and credits for all transactions for an institutional unit are equal), horizontal consistency (debit entries of a transaction type for all entities are equal to the credit entries of that transaction type for all entities), and consistency in the counterparty relationship. The quadruple entry accounting provides the underlying basis for developing data on a from-whom-to-whom basis." – Shrestha, M. and Mink, R. (2011), "An Integrated Framework for Financial Flows and Positions on a From-Whom-to-Whom Basis", paper presented at the IMF-OECD Conference on Strengthening Sectoral Positions and Flow Data in the Macroeconomic Accounts, February/March, pp. 8-9.

Of course, it is not easy to build up such an information system, and especially not in a short period of time. Its development requires long-term, systematic work. I would like to present some experiences of the Bank of Slovenia and its efforts in this respect. We have been developing the information system described since late 2001, but now we would like to focus much more on the user side of the information system. Let us review the main examples of how the decision-support system has proved to be useful either at the macro or micro level of the information system in Slovenia in a very turbulent environment.

2 EXTERNAL IMBALANCES AND SUSTAINABLE CONVERGENCE

It is obvious from the "data warehouse" of the information system described, and in particular from the "data mart" of external sector statistics, that, as a result of the financial and economic crisis and, above all, the failure to eliminate domestic macroeconomic imbalances, it became increasingly hard for Slovenia to obtain foreign capital at the beginning of the crisis. All sectors other than the government, i.e. corporates and banks, faced an inability to obtain new inflows, either via equity or debt capital. There were outflows of private capital in the five months between January and June 2009 and in the eight months between January 2011 and May 2012. It is of particular concern that, recently, the relative size of the outflows has increased sharply, an indication of still-diminishing access to foreign capital. In the last year and a half, the government sector has also seen inflows dry up, as the price of borrowing became prohibitive. For countries lacking credibility, this development can lead to a phenomenon known as a "sudden stop". This occurs when inflows of foreign private capital suddenly stop, with the result that the country in question must apply for official financial assistance in the form of a stabilisation programme from international financial institutions. Since the outbreak of the financial crisis, several EU Member States inside and outside of the euro area have faced this situation. Given the free movement of capital between members of the euro area,[3] in the sense of the ability of a solvent company to borrow anywhere in the monetary union, the hitherto inconceivable balance-of-payments crisis for an individual member of the euro area can be defined as a situation in which net outflows of private capital are "comparatively sufficient" and exceed the withdrawal of non-resident investors from the member's government securities, which means that there is also an impact on other domestic sectors.[4] This is an additional factor in the decline in the supply of loans or tighter terms for borrowers.

The impact on other domestic sectors in Slovenia is particularly important from the point of view of the previous model of the net financing of economic growth via foreign savings. "Comparative sufficiency" takes account of a single (first threshold in Chart 7) or double (second threshold in Chart 7) negative

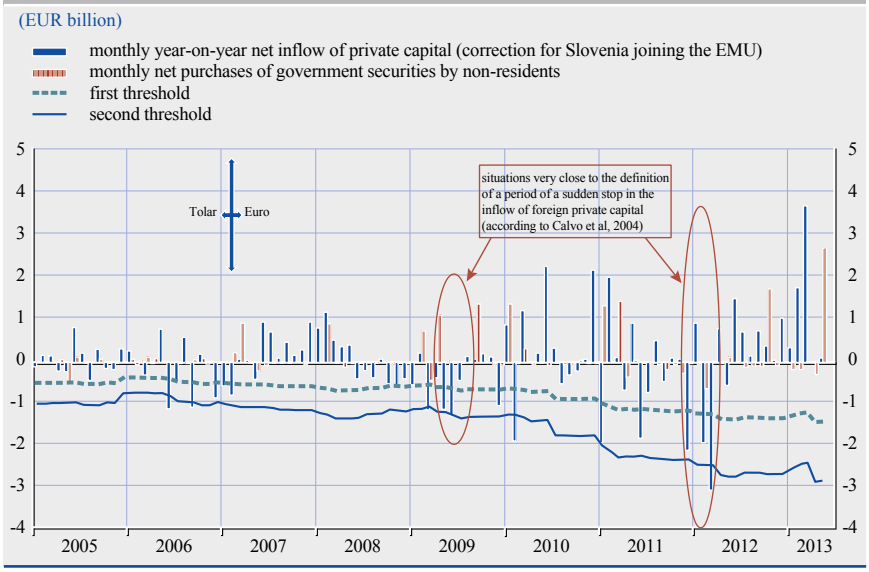
3 "A major effect of EMU is that balance-of-payments constraints will disappear … Private markets will finance all viable borrowers, and savings and investment balances will no longer be constraints at the national level." – European Commission (1990), "One market, one money. An evaluation of the potential benefits and costs of forming an economic and monetary union", *European Economy*, No 44, October.

4 See Calvo, G.A., Izquierdo, A. and Mejía, L-F. (2004), "On the Empirics of Sudden Stops: The Relevance of Balance-Sheet Effects", *NBER Working Paper Series*, No 10520, May.

standard deviation from the 24-month moving average of the net inflow of foreign private capital. If at least one of three comparatively sufficient deviations in the net outflow of foreign private capital in a quarter exceeds double the negative standard deviation, this denotes a sudden stop in the inflow of foreign private capital and a balance-of-payments crisis in the euro area member in question.

As can be seen in Chart 7, the financial and economic crisis evidently resulted in greater variability in the net inflow of foreign private capital into Slovenia. In 2009 there were four negative deviations exceeding the first threshold and two reaching the second threshold. In 2010 there were two such deviations, one of which significantly exceeded the second threshold (in May 2010, at the start of the ECB's programme to purchase government securities on the secondary market within the framework of non-standard monetary policy measures – the securities markets programme (SMP) for Greece), while in 2011 the renewed increase in the intensity of the crisis brought three deviations, followed by two more in the first quarter of 2012 (in February and March), with the March deviation exceeding the second threshold.

Chart 7 Sudden stops in the inflow of foreign private capital into Slovenia



Source: Balance of payments, Bank of Slovenia.

Notes: *First threshold*: a single negative standard deviation from the 24-month moving average of the monthly year-on-year net inflow of private capital. *Second threshold*: two negative standard deviations. *Correction for Slovenia joining the euro area* made in January 2007 – the establishment of the Bank of Slovenia's opening TARGET2 position, namely net liabilities (inflow) of €1.841 billion, has been set aside. *A sudden stop in the inflow of foreign private capital* is denoted by a situation in which net outflows of private capital are large enough to be "comparatively sufficient" and exceed the withdrawal of non-resident investors from the government securities of the euro area member in question, thereby impacting on other domestic sectors. This is an additional factor in the decline in the supply of loans or tighter terms for borrowers. The impact on other domestic sectors in Slovenia is particularly important from the point of view of the previous model of the net financing of economic growth via foreign savings. "Comparative sufficiency" takes account of a single (first threshold) or double (second threshold) negative standard deviation from the 24-month moving average of the net inflow of foreign private capital. If at least one of three successive comparatively sufficient deviations in the net outflow of foreign private capital exceeds double the negative standard deviation, this denotes a sudden stop in the inflow of foreign private capital and a balance-of-payments crisis in the euro area member in question.

Chart 7 shows that Slovenia was most affected by the debt and financial crisis in mid-2009. It is here that the first potential sudden stop in the net inflow of foreign private capital into Slovenia can be found. Economic policy-makers at the time reacted by issuing government securities and continuing the policy of borrowing in the rest of the world. The instrument of securities issued by government replaced the instrument of bank loans.

The government deposited the excess money with the banks. Numerous economic policy measures were aimed primarily at preserving jobs, based on the assumption that there would be a gradual recovery in economic growth.

This policy was insufficient, which meant a double-dip recession for Slovenia, even if not for all the members of the euro area. The second wave of recession gave rise to a second potential stop in the inflow of foreign private capital into Slovenia, which was significantly more pronounced. The period at the end of the first quarter of 2012 saw the second actual stop in the net inflow of foreign private capital into Slovenia as indicated in Chart 7, although it does not entirely satisfy the definition, as in April 2012 there was a slight net inflow of foreign private capital (as a result of a relatively successful Treasury bill issue), but the net outflows of foreign private capital in February and March both markedly exceeded the monthly net sale of government securities by non-residents (net withdrawals of foreign holders), which means that, in terms of net financing via foreign savings, other sectors of the economy, in particular the non-financial sector (S.11), were affected. Slovenia's second sudden stop episode was significantly stronger than the first. Unless action is taken by means of economic policy, a third stop, and the strongest so far, is sure to follow, and it is likely to entirely satisfy the methodological definition.[5]

Since 2009 Slovenia has been saved from a final freeze in private capital from the rest of the world by two things: (i) the fact that the current account deficit stalled and did not broaden; and (ii) the perception of Slovenia as a country with a relatively low ratio of public debt to GDP.

Slovenia's financial position against the rest of the world on any specific day is illustrated by its international investment position (IIP). At the end of 2006, before Slovenia joined the euro area, its IIP stood at -€5.3 billion, or 15.3% of GDP (in 2007). Based on transactions between 2007 and the end of the first half of 2012, there was a net inflow into Slovenia of €4.7 billion in foreign private and

5 The base year for our analysis is 1994, a period when Slovenia was in external balance (a balanced net investment position) and the time of the Mexican debt crisis. It was said about the latter, during a situation similar to that in Slovenia in late 2012, that "it is not speed that kills, it is the sudden stop". This statement can today be applied to Slovenia, from the point of view of the net inflow of foreign private capital and the model of predominant debt financing of economic growth since 1994. In the case of Slovenia, speed is illustrated by the rapid and efficient liberalisation of capital flows with the rest of the world, its integration into the EU and, not least, Slovenia being the first new Member State to join the euro area after the major enlargement (on 1 January 2007). See Dornbusch, R. and Werner, A. (1994), "Mexico: Stabilization, Reform and No Growth", *Brookings Papers on Economic Activity*, No 1, pp. 253-316.

public capital,[6] taking the negative investment position, or Slovenia's net financial liabilities to the rest of the world as at that day, to over €10 billion. However, financial instruments also bear risks that can be manifested as revaluations, even if we are speaking of the same financial instrument. For example, there is a huge difference in Slovenia's country risk between the asset side and the liability side. After it joined the euro area, Slovenia borrowed heavily via loans in the EU, and invested via multiple instruments (loans, direct investments, securities) in the former Yugoslav republics. This is one of the reasons for negative revaluations totalling almost €2 billion accruing by the first half of 2012. The Chart would be even greater if some of the household sector's cash claims from tourism and labour income were treated as bad investments in the rest of the world.[7] With other changes, primarily as a result of the treatment of household cash transactions, Slovenia's net IIP at the end of the first half of 2012 stood at 45.3% of GDP in 2007 or -€15.7 billion. Slovenia had exceeded the threshold for external imbalance (more than 35% of GDP) by the end of 2008.

Empirical analysis clearly points to the urgency of changes to Slovenia's economic policy measures and the introduction of the necessary reforms. The two fluctuations that were potential stops in the net inflow of foreign capital into Slovenia (Chart 7), the second of which was significantly more pronounced, gave clear warning of a lack of confidence in Slovenia on the part of foreign financial markets and investors. The balance of payments, or external imbalance, is therefore of importance in the monetary union, even though it is not among the Maastricht criteria. This imbalance is itself made up of imbalances in other areas of domestic economic policy, such as a high budget deficit, wage growth in excess of productivity growth, excessive credit growth, etc., which are then passed through to other sectors, thereby reducing competitiveness, combined with an unwillingness on the part of economic policy-makers to tackle unavoidable structural changes by cutting industries with poor prospects (e.g. coal) and inefficiency in public services which are financed through excessive social security contributions. These are all factors that ultimately prevent the country and its economic operators from accessing foreign capital.[8] Under such circumstances, the country's sole remaining option is a radical change in macroeconomic and structural policies.

6 The accounting identity of the financing of the current account thus reads: CA = PCI + T2 + OF + SMP, where CA is the current account deficit (surplus), PCI is private financial flows, T2 is the TARGET2 position, OF is financing via official international financial institutions' programmes and SMP is financing via purchases of bonds on the secondary market by the ECB. See Merler, S. and Pissani-Ferry, J. (2012), "Sudden stops in the euro area", *Bruegel Policy Contribution*, Issue 2012/06, March.

7 Under the Bank of Slovenia's regular annual revision of the balance of payments and the IIP, the conservative method meant that all accrued household claims in the form of currency from current account transactions (tourism, labour income) were included in other changes, and thus are not recognised as a claim in the IIP until there is evidence of their existence (e.g. the inclusion of claims arising from the cash purchase of holiday homes in Croatia by residents of Slovenia).

8 In our analysis, we have ignored the problem of the symmetric adjustment of imbalances in the monetary union as a whole. It is clear that the problems of the peripheral countries would be more easily addressed if the countries with budget or balance-of-payments surpluses raised demand in the periphery.

Our information system allows us to look at sectoral dimensions down to the level of micro data. It was not difficult for us to see that the domestic sector that suffered the most from the "sudden stop" effect was banks, and particularly state-owned banks. After 10 May 2010, spreads over the state-issued bonds of the peripheral countries rose significantly. State-owned banks found themselves at risk of mismatches in funding and maturity. The economic policy reaction in 2013 was very decisive – an independent asset quality review (AQR) and stress test were performed for the Slovenian banking sector and a huge capital injection was provided by the state. The privatisation and further consolidation of those banks have been announced. The financial markets reacted very positively and the "sudden stop" effect has been overcome. Domestic funding has stabilised and a run on the banks has been avoided.

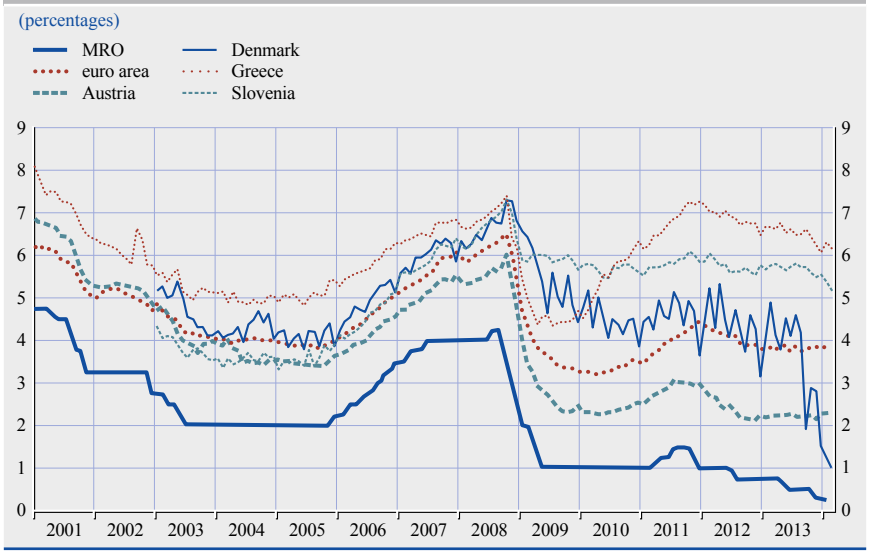
3 IMPAIRMENT OF THE TRANSMISSION MECHANISM AND FINANCIAL INSTABILITY

Receiving highly granular and consistent data from monetary financial institutions (MFIs) allows us to analyse the monetary transmission mechanism through interest rate statistics. Coming from an era of over-confidence to one of under-confidence, we can easily expect that a fragmentation of financial markets in times of crisis would result in larger asymmetric effects from a single monetary policy transmission mechanism. Since we have at our disposal harmonised and granular measuring of data from different EU Member States, hypotheses about monetary policy interest rate effects can be tested for several countries. Simple linear regression is suitable for this purpose.

Chart 8 shows us how the dispersion of short-term interest rates on loans increased in selected countries in the euro area after the crisis erupted. Denmark, as a country in ERM2, has been much more successful than some euro area members (e.g. Slovenia and Greece) since August 2008 by running its own monetary policy and cutting interest rates for faster recovery. It is evident that, after the early first adoption of interest rates, the expansionary monetary policy of the ECB had little effect in Slovenia. We find almost the same situation whether looking at short-term, medium-term or long-term interest rates. Thus, the Slovenian non-financial sector has not been supported by the accommodative monetary policy of the ECB in any period during the financial crisis. We can therefore conclude that the Slovenian institutional framework does not provide the necessary conditions for an efficient transmission mechanism to be in place.

If we compare the effects of the ECB's key interest rate decisions on the Slovenian and Austrian economies, we find completely opposite results: imperfect functioning on one side (Slovenia) and perfect transmission on the other (Austria). This is particularly pronounced for short-term interest rates on loans of less than €1 million, which is what small and medium-sized enterprises (SMEs) mostly depend on for financing.

Chart 8 Impairment of transmission mechanism



Sources: Bank of Slovenia, ECB Statistical Data Warehouse.

Notes: Interest rates on new loans to non-financial corporations, less than €1 million with variable interest rates or one-year fixation (weighted averages), and the ECB's main refinancing operation (MRO) interest rate.

In Chart 9 (*a* and *b*) we compare the simple linear regression model for Slovenia and Austria for short-term interest rates on loans to non-financial corporations of less than €1 million. The regression models are applied to changes in interest rates as a result of changes in the MRO rate in the period from January 1999 to February 2014 for Austria and from January 2003 to February 2014 for Slovenia. We show the most notable results in testing the hypothesis for the intercept in the case of Slovenia and for the regression slope coefficient in the case of Austria at a time of extremely expansionary monetary policy at the ECB.

We found that there is a relatively high probability that with a zero MRO rate, nominal interest rates on short-term loans of less than €1 million to non-financial corporations would still be higher than 5% p.a. in Slovenia. On the other hand, the continuing perfect relationship gives additional space to reduce the same interest rates in Austria. This demonstrates the asymmetric effects of the single monetary policy transmission mechanism. Of course, the problems lie in the institutional, legal and economic circumstances of the country that does not benefit from the accommodative monetary policy actions. Therefore serious economic policy measures in the Member State are needed.

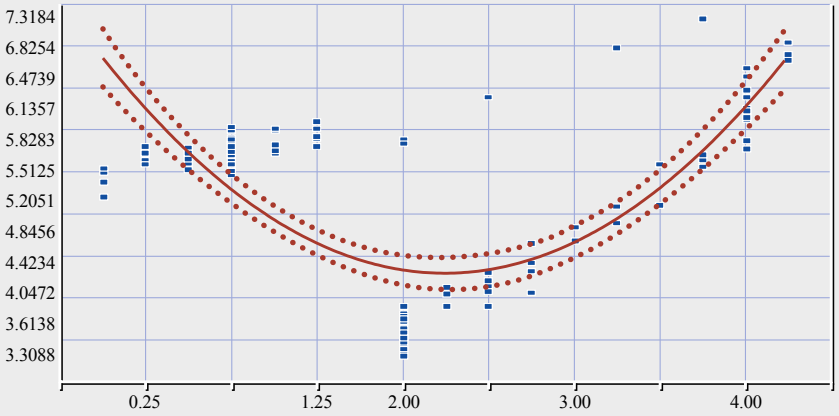
Besides the funding risk from abroad, expressed as a market fragmentation effect during the great recession which has been recognised by consistent external statistics data, it is possible to go deeper in our information system to the level of a single bank. Domestic funding risk can also be observed as a risky business model with outliers or extremely high deposit interest rates. Consistent sets of data could provide detailed information to the supervisory body on a bank-by-bank basis for a certain category of interest rates.

Chart 9 Linear regression: interest rates (% p.a.) on loans from S.122 to S.11, up to one year fixation, less than €1 million, against MRO rates

(Jan. 2003 – Feb. 2014) (Jan. 1999 – Feb. 2014)

a) Slovenia

x-axis: MRO



Rehabilitation of Banking sector

H_0: $a = 5$

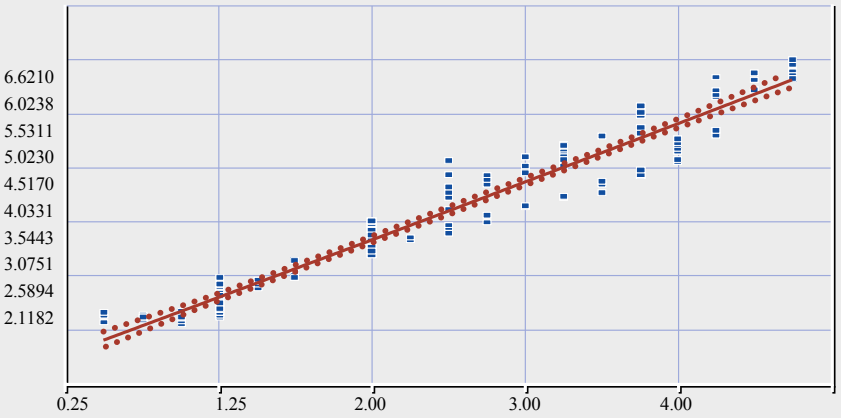
H_1: $a > 5$

$\alpha = 0.05$

We reject the null hypothesis!

b) Austria

x-axis: MRO



Rehabilitation of Banking sector

H_0: $b = 1$

H_1: $b < 1$

$\alpha = 0.01$

We accept the null hypothesis!

Source: ECB Statistical Data Warehouse.

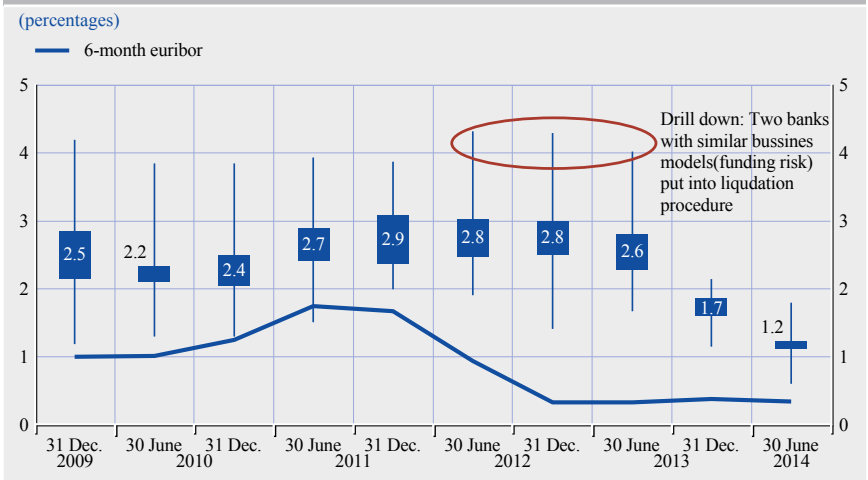
Note: S.11 – non-financial corporations; S.122 – deposit-taking corporations except the central bank.

Chart 10 shows us how, after the provision of funding by the ECB or the implementation of a non-standard monetary policy measure in the form of the very long-term refinancing operation (VLTRO) at the end of 2011 and the beginning of 2012, deposit interest rates at Slovenian MFIs remained high, and outliers have even broadened and maximums have risen. Consistent micro-level data indicate that two domestic banks (red circle in Chart 10) were funding and attracting deposits from various sectors at extremely high deposit rates. Their business models were viable in the pre-crisis time of extreme economic growth, but not after that.

Policy reaction has been strong, including establishing a "bad bank" (Bank Asset Management Company – BAMC) and taking some very serious supervisory measures (liquidation procedures) against banks with risky behaviour and unsustainable business models (non-viability). The result, by the end of 2013, was a significant drop in average deposit interest rates, giving the viable banks an additional margin for recovery. Interest rates on loans are slowly following deposit interest rates, prompting calls for further consolidation efforts towards a competitive banking system in which monetary policy decisions can be effective.

The external data mart and MFI data mart from our information system provide us with all the detailed information, but for the economic policy decision support they have to be incorporated into a sectoral relationship. Transmission mechanism and financial stability concerns should be analysed in the much broader context of sectoral accounts.

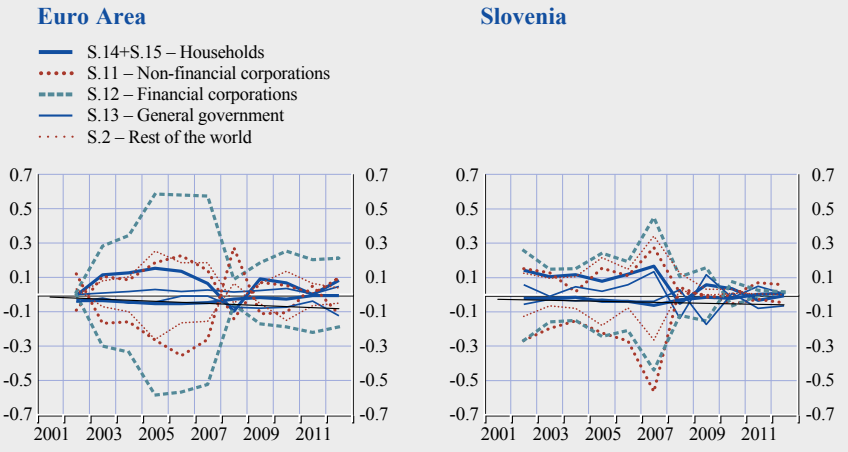
Chart 10 Frequency distribution of MFI deposit interest rates (3-month to 1-year maturity) for households



Source: Bank of Slovenia.
Notes: min – max, interquartile range (IQR), weighted average.

Chart 11 Gross financial position of sectors before and after the crisis – euro area and Slovenia

(in percentage of GDP)



Sources: ECB Statistical Data Warehouse, Bank of Slovenia, Financial Accounts of Slovenia 2007-2012.

Notes: Yearly relative changes in assets and liabilities, including transactions, valuation and other changes by sector. Relative changes for assets are usually shown above and relative changes for liabilities below the x-axis, except where valuations and other changes have prevailed over transactions in a given year. S.14+S.15 – households and non-profit institutions serving households; S.11 – non-financial corporations; S.12 – financial corporations; S.13 – general government; S.2 – rest of the world.

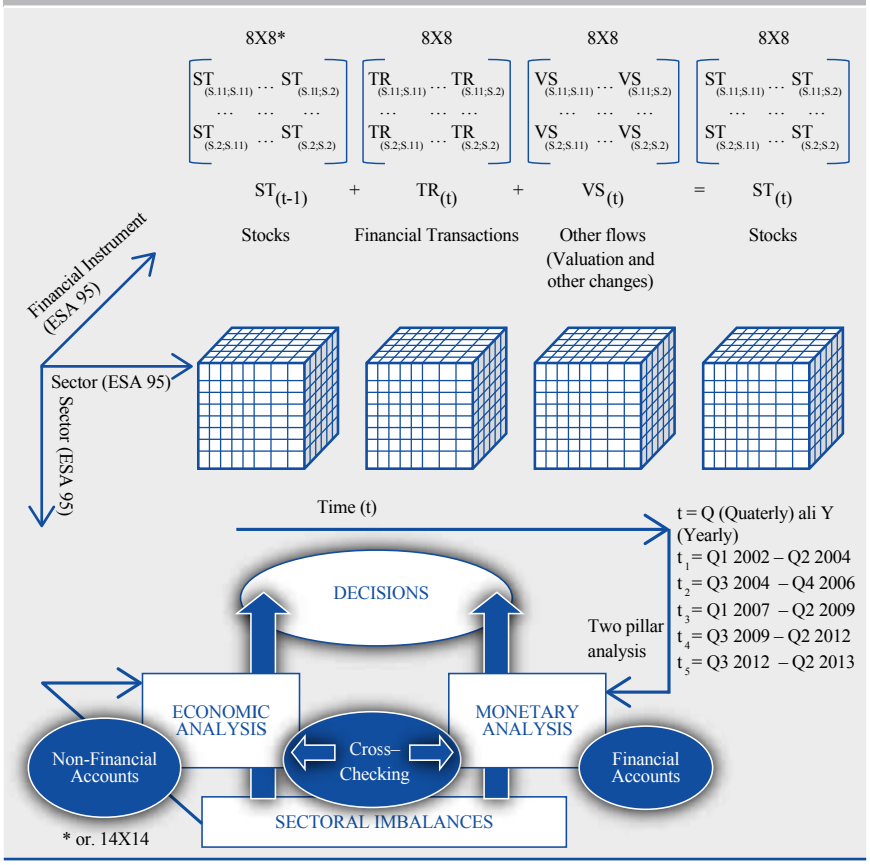
From Chart 11, we see that, on the whole, in the euro area the financial sector was responsible for the crisis.[9] However, in Slovenia, the non-financial sector was even more heavily in debt in the two years before the crisis emerged. With the lack of capital market development, both the credit and the balance sheet channel of the transmission mechanism in Slovenia have been seriously impaired. How serious is this problem? Does it matter for financial stability?

Tremendous recent statistical developments in the comprehensive richness of financial accounts statistics allow us to explore them better. Staying at the very aggregate level of the financial account matrix, we applied some stochastic methods – namely the Markov chain approach.

Also, by using matrix algebra, we proved the very serious impairment of the transmission mechanism for Slovenia. There is a split in the Markov chain between the financial and non-financial sectors, which is significant as we are studying a highly banking-focused financial economy. This is a particularly important aspect in the light of banking union efforts to strive for efficient financial intermediation or allocation of funds to the real economy for economic growth and employment. We deployed a transition matrix from the 8x8 sector financial accounts matrix. The matrix is therefore quadratic. Each sector is treated as a state. Positive flows indicate claims from the sector in the row against the sector in the column of the matrix, e.g. from banks against corporations

9 See Tichy, G. (2013), "What Can Sector Accounts Tell About the Financial Crisis?", *Intereconomics*, Vol. 48(2), pp. 106-115.

Chart 12 Using matrix algebra to analyse the monetary policy transmission mechanism and financial stability via a consistent set of financial accounts for Slovenia



Sources: ECB[1)] and the author.

1) See Winkler, B. (2010), "Cross-checking and the flow of funds", in Papademos, L.D. and Stark, J. (eds.), *Enhancing monetary analysis*, ECB, Frankfurt am Main, pp. 355-380.

(S.122→S.11). The probability is a simple share of each flow in the total sum of the row. The total row probability has to be one. We can, of course, deepen the sector and get to a matrix of higher level, but we can also deepen the instrument. For the monetary analysis pillar, we can add up some instruments to arrive at M1, M3, etc.

The more we go into the detail of the dimension of a financial instrument, e.g. at the level of a single financial instrument, such as F.22 (transferable deposits), and trace positive flow as proposed by Copeland (1947)[10] or Cohen (1972)[11], the

10 "Debits to individual accounts have often been taken as an approximate measure of the debit total of the money circuit." – Copeland, M.A. (1947), "Tracing Money Flows through the United States Economy", *American Economic Review*, Vol. 37(2), pp. 31-49.

11 Cohen, J. (1972), "Copeland's Moneyflows After Twenty-Five Years: A Survey", *Journal of Economic Literature*, Vol. 10(1), pp. 1-25.

Chart 13 Characteristics of states in the Markov Chain probability distribution for 8x8 sectors of Slovenian economy flows at the level of transferable deposits (F.22)

	S11	S121	S122	S123+24	S125	S13	S14+15	S2
2002	R	R	R	R	**T**	R	**T**	R
2003	R	R	R	R	**T**	R	**T**	R
2004	R	R	R	**T**	**T**	R	R	R
2005	**T**	**T**	R	R	R	**T**	**T**	R
2006	R	R	R	R	**T**	R	**T**	R
2007	**T**	**T**	R	**T**	**T**	R	R	**T**
2008	**A**	**T**	**T**	**T**	**T**	**T**	**T**	**T**
2009	**A**	R	R	R	**T**	**T**	**T**	R
2010	**A**	**T**	**T**	**T**	**T**	**T**	**T**	**T**
2011	**A**	R	R	R	**T**	**T**	**T**	R
2012	**T**	R	R	R	**T**	R	**T**	**T**
2013	**A**	R	R	**T**	**T**	R	**T**	R

Source: Aggregated tables of financial accounts for Slovenia, Bank of Slovenia.
Notes: ESA 95 – F.22 – including net claims for transferable deposits. Net claims S.122 →S.11 represent the lack of liquidity for non-financial sector (S.11) and vice versa. **A** – absorbing state, R – recurrent state, **T** – transient state. In years with states characterised as **A** or R, the Markov chain is closed and non-broken with non-period in transition. In years where **T** states are also presented, the Markov chain is closed and broken with non-period in transition. In both cases, a steady-state probability distribution exists.

more we can expect to find a split in the Markov chain. If not, and this concerns financial intermediation providing excessive funds to real sectors (S.122→S.11, S.14+S.15), the better the transmission mechanism performs.

Going deeper into some dimensions of our information system, a total break in the Markov chain at the level of loans or transferable deposits reveals the pattern for financial instability. This applies to the total break in the Markov chain shown in Chart 13 for the years 2008 and 2010 for the Slovenian economy, which is a prime example of a double-dip recession. This unique approach to the analysis of the transmission mechanism via financial sectoral accounts is possible because we have proved that the steady-state probability distribution for the matrix of financial sectoral accounts usually exists. Not only the very low steady-state probability distribution, for example for claims from S.122 against S.11 for transferable deposits (higher liquidity), but also the characteristic of the state itself (S.11), shown as A (absorbing state) in almost all periods of crisis, indicate that the transmission mechanism of monetary policy is highly impaired. The absorbing characteristic of the non-financial sector means that it mainly depends on its own intra-sectoral financing. The transient characteristics of all other sectors in the years at the bottom of a double-dip recession represent the very low level of connectedness between the financial and real sectors of the economy. Financial instability is very high and the transmission mechanism is highly impaired (Chart 13 – red characters).

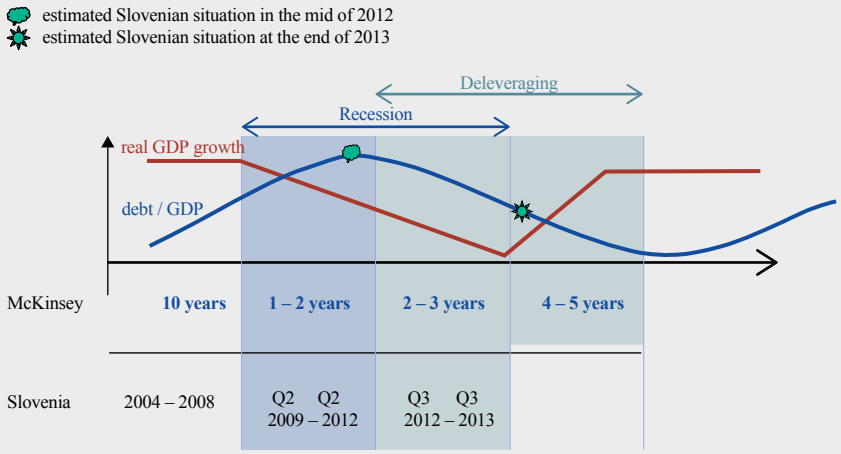
At the time of the second sudden stop episode for Slovenia at the end of the first quarter of 2012, the economic policy reaction was that, alongside the financial sector, the non-financial sector also had to deleverage and restructure.

4 PHASING-OUT STRATEGY OF ECONOMIC POLICY AND SOME FURTHER NECESSARY DEPLOYMENT OF THE INFORMATION SYSTEM

The economic policy decisions which were taken have to be put into the broader context of sectoral accounts (financial and non-financial). Deleveraging and the growth of the economy have to be observed close together. History has recognised the most common successful scenario for a phasing-out episode (Roxburg et. al, 2012, p. 15)[12] in which the sectoral sequence of deleveraging plays an important role.

It is obvious that the deleveraging process is easy to implement in a time of economic growth. In a recession, we usually expect the government sector to help other sectors of the economy. We have seen that the fiscal position of Slovenia in pre-crisis times was stable enough in this respect. The deleveraging of the private sector therefore began sharply from the second half of 2012 in the financial sector at a level of 30% of GDP (recapitalisation by the state of around 10% of GDP), followed by the non-financial sector deleveraging in 2013 by 5% of GDP. In the last three years, we have observed a current account surplus in Slovenia of an average of more than 6% of GDP. This gives more opportunity for further

Chart 14 Debt and deleveraging: 100 years of crisis experience and Slovenia



Sources: McKinsey Global Institute[1)] and the author.

1) McKinsay Global Institute (2010), *Debt and deleveraging: The global credit bubble and its economic consequences*.

12 "In our research into historic episodes of deleveraging, we see that countries often progress through two distinct, yet overlapping, phases of private- and public-sector deleveraging. Today's deleveraging economies face what seems to be a uniquely difficult situation: a weak global economy, banking troubles across many major economies, and little room for fiscal manoeuvring. Yet, they share many of the same challenges that faced deleveraging nations in the past. The way debt reduction played out in Sweden and Finland in the 1990s provides a useful frame of reference … we see that both economies went through a distinct, initial phase of deleveraging in the private sector, leading to a second phase of growth and public-sector deleveraging." – Roxburgh, C., Lund, S., Daruvala, T., Manyika, J., Dobbs, R., Forn, R. and Croxson, K., (2012), *Debt and deleveraging: Uneven progress on the path to growth*, McKinsey Global Institute.

deleveraging or recapitalisation, in particular for the non-financial sector, and for improving external imbalances as the most fundamental imbalance. The Slovenian economy came out of formal recession by recording positive growth in the last quarter of 2013, but investments in the private sector, the first real sign of recovery, are still negative.

The indebtedness and restructuring problem in the Slovenian economy is concentrated very much in some activities related to pre-crisis over-confidence (construction, management buy-outs, holdings, shadow banking, leasing) and can be solved. Two thirds of the economy is performing well and has contributed much to the last three years' significant current account surplus. But the Slovenian economy is small and open and also highly interconnected from both a business and an ownership perspective.

To enable banks to efficiently manage credit risks and to enable the ECB and national central banks (NCBs) to supervise those risks, we need to base the credit register not only at the client (borrower/sector) level but at the loan (instrument) level. The overall (financial, business, ownership) restructuring of large, indebted non-financial corporations in a highly interconnected economy usually also affects SMEs as their suppliers in terms of liquidity (Rotemberg, 2009, p. 2)[13]. The credit register should be connected to the internal credit assessment system (ICAS) of each NCB at the micro level as a part of the Eurosystem credit assessment framework (ECAF) for proper management of the collateral framework. With such infrastructure, it is assumed that the creation of an appropriate non-standard monetary policy instrument would be much more efficient and applicable to different (asymmetric) countries' infrastructures in a single monetary area. We believe the AnaCredit project of the ECB is a development in this direction.

CONCLUSIONS

The great financial and economic crisis has severely damaged the Slovenian economy. There had been an overheating of the economy before the crisis which erupted in the autumn of 2008 followed by the second biggest drop in GDP growth in the EU. In seven years of double-dip recession, the fundamental problems of the Slovenian economy were exposed. We investigated the period from early 2002, when Slovenia's very fast European integration journey started, until the end of 2013. A two-pillar approach to monetary analysis was used for the Slovenian economy, similar to that of the ECB. We applied it to the developing concept of the decision-support information system at a national level.

Slovenian economic policy had allowed a serious external imbalance or over-indebtedness to develop in the pre-crisis period from 2004 to 2008. The "sudden stop" approach was applied to the crisis period in Slovenia. For the most part, monetary analysis was conducted using consistent sets of available financial

13 "more interconnected financial systems require more liquidity (from exogenous sources) to settle a given volume of debt" – Rotemberg, J.J. (2009), "Liquidity Needs in Economies with Interconnected Financial Obligations", *CQER Working Paper*, No 1, Federal Reserve Bank of Atlanta.

accounts statistics. The pre-crisis period of independent Slovenian monetary policy can be divided into two periods: the period before the inclusion of the Slovenian tolar into ERM2, and the period after its inclusion. Monetary policy was very efficient in the first period, but in the second period independent action was limited and ECB monetary policy was already showing pronounced restrictive tendencies.

The overall consistency of the proposed and developed integrated information system made it possible for us to demonstrate the asymmetric effects of the ECB monetary policy transmission mechanism on the economies of Member States. We analysed the monetary policy transmission mechanism for the Slovenian economy further by applying stochastic processes to the matrix of financial sector accounts. Consistent macro-micro accounting and statistical information systems allow us to go deeper in some dimensions, in particular the dimensions of sector, financial instrument and time. We applied the Markov chain approach to the matrix of sectoral financial accounts. Using this method, all the risk determinates in the sectoral imbalances analysis were proved. We believe this is extremely important for financial stability. The method applied could contribute to greater efficiency in the exploitation of the richness of financial and sectoral accounts statistics in their support for monetary policy and financial stability.

In the last section, we further supported the development of a complex statistical information system with a proposed credit register, fully consistent and incorporated into the monetary and supervisory function. The developed and proposed information system would enable and require financial institutions to improve control of information asymmetries and risks taken. It is our opinion that the main parts of the proposed concept should be built into the architecture of the forthcoming Single Supervisory Mechanism.

We strongly recommend the creation of a similar statistical information system for decision support at the national level in each Member State. By reaching sustainable convergence (Draghi, 2013)[14], a national dimension could be replaced by a regional one to support fiscal union in a further efficient allocation of funds by the common EU economic policy to primarily support investment and cooperation at the level of SMEs.[15]

To deal with the consequences of the crisis, the common EU economic policy should have a more pragmatic basis (Caballero, 2010)[16], such as the decision-support system presented here and tailored approaches to the specific situations of the Member States.

14 "Sustainable convergence means more than meeting a set of nominal targets at a certain point in time. It requires real economic, legal and institutional convergence prior to adopting the euro. And crucially, it requires continued efforts once inside monetary union." – Keynote speech by Mario Draghi, President of the ECB, at the Euro Conference – Latvia, Riga, 12 September 2013, available at http://www.ecb.europa.eu/press/key/date/2013/html/sp130912_1.en.html

15 *EU Cohesion Policy 2014-2020 – Targeting Investments on Key Growth Priorities*, available at http://ec.europa.eu/regional_policy/sources/docgener/informat/2014/fiche_sme_en.pdf

16 Caballero, R. J. (2010), "Macroeconomics after the Crisis: Time to Deal with Pretense-of-Knowledge Syndrome", *Journal of Economic Perspectives*, Vol. 24(4), pp. 85-102.

MICRO AND MACRO DIMENSIONS OF THE BANKING UNION – WHAT ARE THE CHALLENGES FOR STATISTICS?

MARTIN ŠPOLC, GINTARAS GRIKŠAS AND CARLOS MARAVALL RODRIGUEZ[1]

The establishment of the banking union represents a major milestone in the supervision and resolution of banks in Europe. The agreed new institutional set-up, centralising the decision-making powers, will be considerably more effective than a patchwork of national authorities. Decisions will be made on the basis of a more comprehensive understanding of the overall situation, thanks to a more complete set of all relevant information and data. The increasing complexity of financial markets poses considerable challenges for supervisors and resolution authorities, underlining the critical importance of having all the necessary and appropriate data to be able to make informed decisions. The agreed legislative framework underlying the banking union provides the right basis for this. Nevertheless, legislation on its own will not suffice. It will need to be complemented by action by the relevant supervisory and resolution authorities, ensuring appropriate exchange of data and information so that the benefits of the banking union can be reaped to the largest extent possible. This paper examines the key challenges in relation to data needs arising from the establishment of the banking union from two perspectives: the macro-prudential perspective and the resolution perspective.

More broadly, the ECB has far-reaching powers when it comes to statistical information. Council Regulation (EC) No 2533/98 governs the collection of statistical information by the ECB. In March 2014, the ECB adopted a recommendation to amend this Regulation in the light of the establishment of the Single Supervisory Mechanism (SSM). The purpose is twofold: (i) to allow the ECB to use confidential statistical information for the purpose of carrying out supervision and (ii) to allow the transmission of statistical data to, among others, national competent authorities, the European Supervisory Authorities (ESAs) and the European Stability Mechanism (ESM). The discussions on these possible amendments are still ongoing.

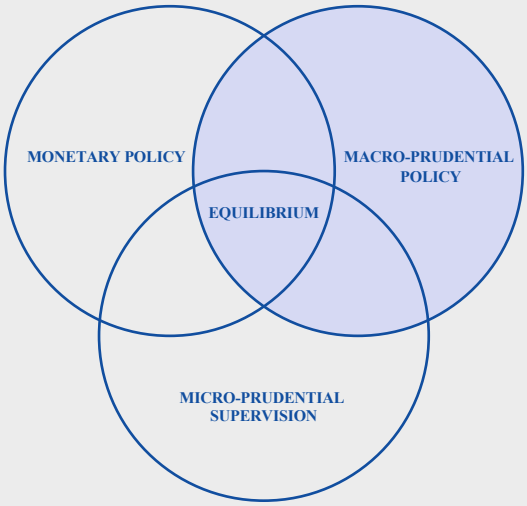
1) DATA NEEDS FROM THE MACRO-PRUDENTIAL PERSPECTIVE

The new macro-prudential regulatory powers conferred on the ECB by the SSM Regulation[2] give rise to an important interplay between micro-prudential and macro-prudential regulation in the banking union.

While these policies have complementary objectives – the soundness of individual institutions and overall financial stability – some instruments could easily be seen as contributing to both micro- and macro-prudential goals, as in the case of

1 European Commission – Directorate General for Internal Market and Services.
2 Regulation (EU) No 1024/2013

Chart 15 Balancing monetary policy, macro-prudential policy and micro-prudential supervision



imposing capital buffers on global or domestic systemically important institutions (SIIs). There may also be situations in which measures undertaken in one policy area impede policy implementation in another. This underlines the need to ensure close coordination of these policies and their respective measures with a view to reaching the most appropriate balance (as illustrated in Chart 15 above).

Moreover, it is essential that these policies, including monetary policy, should interact in a way that is conducive to the single market and not detrimental to a level playing field, not only within the SSM, but across the EU as a whole.

Macro-prudential instruments are powerful tools in terms of their ability to effectively and relatively quickly change the risk profile of individual institutions and of the banking system as a whole. Given the considerable impact of these measures, all relevant authorities should develop their capacity to understand and monitor underlying macro-prudential risks and have all the necessary information available to be able to make informed decisions.

i) Challenge: data should support effective interaction between national authorities and the ECB

The need for coordination between micro- and macro-prudential authorities is highlighted by both the European Banking Authority (EBA) and the European Systemic Risk Board (ESRB) in their opinions on macro-prudential tools.[3]

3 Opinion of the European Systemic Risk Board of 30 April 2014 regarding Belgian notification of a stricter measure based on Article 458 of the CRR (ESRB/2014/1), available at http://www.esrb.europa.eu/pub/pdf/other/140430_ESRB_Opinion-on-Belgian-measure.pdf?46afb80e2eec4f50a667db4f5d99f433; Opinion of the European Banking Authority on measures to address macro-prudential or systemic risk (EBA/Op/2014/02), available at https://www.eba.europa.eu/documents/10180/657547/EBA-Op-2014-02+Opinion+on+measures+to+address+macroprudential+or+systemic+risk.pdf

The need for effective coordination stems from the fact that the Capital Requirements Regulation (CRR)[4] and the Capital Requirements Directive (CRD)[5] allocate different macro-prudential tools to different authorities, while the SSM Regulation gives the ECB important macro-prudential powers and competences, in a number of cases shared with the national designated or competent authorities, whereby the ECB may apply higher requirements for capital buffers than applied by the national competent authorities or national designated authorities of participating Member States.[6] The allocation of responsibilities for different macro-prudential instruments is summarised in Table 1 in the annex.

Given that macro-prudential measures unavoidably overlap in terms of their impact, it is essential that the collection of data by the respective authorities and their exchange with other relevant authorities in charge of macro-prudential policy work effectively.

ii) Challenge: geographical coverage – data should cover the whole single market

It could be argued that the geographical coverage of data in the banking union should be limited to the participating Member States. This could be seen as a natural extension of the data needs to support ECB monetary policy. However, there are at least three important reasons why data used to inform macro-prudential policy-making should cover the EU as a whole.

First, there is an important single market dimension, which has to be taken into account in the macro-prudential decisions to be taken within the SSM. The CRR and CRD establish an overarching principle that the spillover effects within the single market from any macro-prudential decisions should be well assessed. Assessing the potential cross-border effects of macro-prudential measures is essential in order to ensure the effectiveness and efficiency of macro-prudential policy in the EU as whole. Macro-prudential measures taken by the relevant authorities within the SSM could have material positive spillovers in other, non-participating Member States (and vice-versa) by reducing the build-up of systemic risk and the probability and impact of systemic crises, but they could also transfer risks, reduce credit supply and temporarily lower GDP growth. Negative cross-border spillovers could arise in cases where national economies have strong financial interconnectedness but experience asynchronous credit cycles. Any assessment of cross-border effects therefore needs to consider both the long-term benefits for financial stability and the potential short-term costs associated with the policy measures in question. This calls for the establishment of a framework that would allow the effective exchange of information between the relevant authorities in the SSM, in particular the ECB, and the relevant authorities in the non-participating Member States.

Second, there is the prospect of future enlargement of the SSM. In view of the fact that time series are needed to inform macro-prudential decisions, it would

4 Regulation (EU) No 575/2013
5 Directive 2013/36/EU
6 See Articles 5(2) and 9(1) of the SSM Regulation.

therefore be practical to also start collecting the relevant data for Member States that might join the banking union in years to come.

Third, the current institutional framework for macro-prudential policy gives an essential role to EU bodies, in particular the EBA, the ESRB and, to a lesser extent, the European Commission. Maximising synergies in data collection and in the exchange of data with the EBA[7] and the ESRB[8] would benefit the financial stability of the EU as a whole.

Since the entry into force of the CRR and the CRD, the experience of Member States in activating macro-prudential instruments has shown that the assessment of the potential cross-border impact (positive and/or negative) of their respective macro-prudential measures remains rather limited. Therefore, a pro-active approach by all relevant authorities in the SSM, in particular the ECB, while ensuring close cooperation with the EBA and the ESRB, is essential in order to build the relevant data collection and dissemination platform and to encourage an EU-wide focus of macro-prudential policies and their interaction with micro-prudential policies at all three levels: national, SSM and EU. This is an important challenge that all the authorities concerned will have to meet as of 4 November 2014.

Finally, to ensure the effective use of statistical data, it will be particularly crucial for the functioning of the banking union that an appropriate methodology for assessing cross-border impacts is put in place and constantly improved.

2) DATA NEEDS FROM THE MICRO PERSPECTIVE – RESOLUTION

With the entry in force of the Single Resolution Mechanism (SRM) Regulation[9] in August 2014, the EU has now come full circle in its proposal to establish a banking union.

Equipping the Single Resolution Board with the tools and the capacity to undertake economic and financial analyses of credit institutions is just one of the pieces that need to fall into place to ensure its success. Access to data and the Board's capacity to analyse such data are vital. Among the matters the Board will need to consider are the following:

- evaluation of available data;
- identification of the SRM's data needs;
- addressing the resulting difference (i.e. the data gap).

7 With respect to macro-prudential regulation, the EBA plays an important methodological role in macro-prudential supervision, such as with respect to the identification of global systemically important institutions (G-SIIs) and other systemically important institutions (O-SIIs) or the application of the counter-cyclical buffer. In relation to statistical matters, the EBA is responsible for implementing technical standards with regard to aggregate statistical data on key aspects of the implementation of the prudential framework in each Member State.

8 In order to ensure consistent macro-prudential oversight across the EU, the ESRB develops principles tailored to the EU economy and is responsible for monitoring their application.

9 Regulation (EU) No 806/2014

The Commission is reviewing the above matters until the Board becomes fully operational. The next section draws attention to a number of (tentative) conclusions drawn as a result of this exercise.

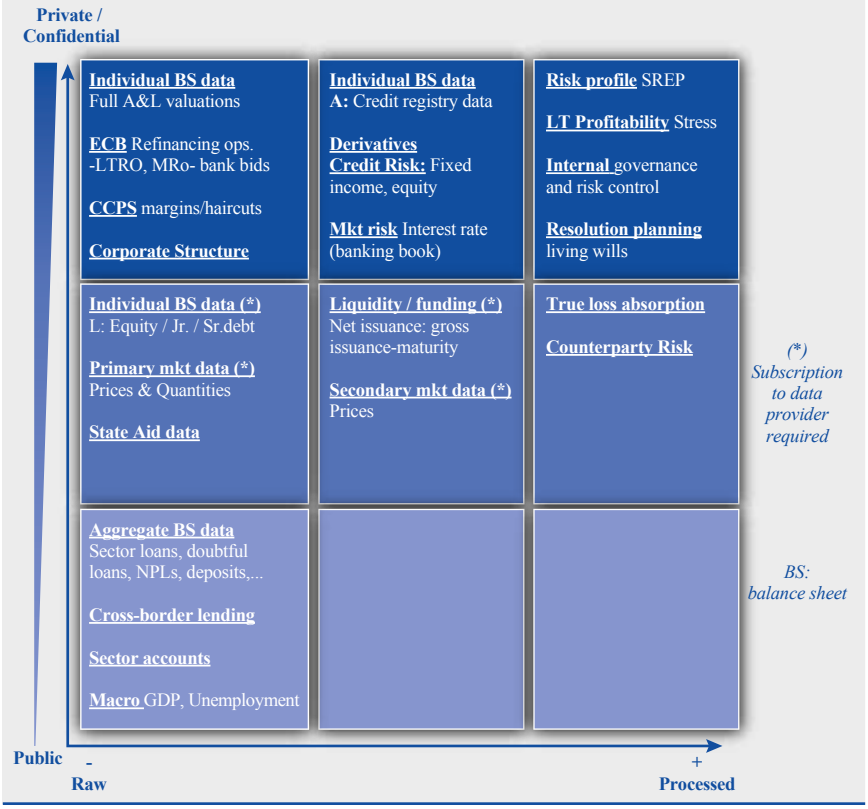
i) Available data

Resolution authorities need to keep up with economic and financial developments that could have an impact and could, potentially, provide critical information on whether an institution is failing or likely to fail. In this regard, Chart 16 below depicts part of the toolkit that a resolution authority will be able to use when monitoring credit institutions:

a) **Data accessible to private market analysts**[10]

b) **Raw confidential supervisory data.** Bank supervisors regularly receive raw data from banks to perform analyses and reviews, including accounting

Chart 16 Data relevant for analysing credit institutions



10 Research departments of financial institutions regularly monitor the following data: macro-economic data (GDP, unemployment, interest rates, business cycle variables); financial and non-financial sector flows-of-funds; cross-border flows (balance of payments); primary and secondary market activity; and market references.

data (valuations of assets and liabilities), data on the institution's quarterly performance, general regulatory compliance data, and risk and solvency reviews and evaluations. An example of data falling into this category is the ECB's comprehensive assessment (prior to assuming full responsibility for supervision under the SSM).[11]

c) **Supervisory conclusions.** Supervisors need to make an overall evaluation of an institution regarding its arrangements, strategies, processes and mechanisms as well as its capital and liquidity to ensure sound management and coverage of risks to which it is or might be exposed, including those revealed by stress testing. This is the minimum set of analyses supervisors need to carry out to establish a dialogue with the institutions under their supervision. In the EU, the EBA is currently developing guidelines for such analyses, in accordance with a CRR/CRD mandate.

d) **Other data, including data on access to non-bank sources of financing.** Banks not only interact with each other, but also regularly access non-bank sources of financing. This includes, for example, tapping secured financing in repo markets through central counterparties (CCPs).[12] Thus, bank resolution authorities should, as a minimum, have the ability to access and exchange information with CCPs and trade repositories. More generally, financing coming from repo markets is also of considerable interest.

ii) The SRM's data needs

Table 2 in the annex presents an overview of the relevant key provisions on the establishment of cooperation and exchange of information in the SRM. Both the SSM and SRM Regulations provide a strong legal basis for mutual support and exchange of information within and between the SSM and the SRM.

iii) The SRM's data gaps

To sum up, a lot of work has been done, but a lot remains to be done. Establishing a framework to access information and tap data is burdensome and a never-ending work in progress. In the SRM's case in particular, the framework will need to take into account the significant issues that private investors and supervisors face when investing in and supervising banks.

However, a number of issues are already addressed in the SRM Regulation. For instance, it gives the Single Resolution Board access, through the national authorities or directly, to information relevant for performing its duties which, in particular, includes information on issues that could undermine resolution. These include, for instance, the exceptions to declaring that an institution is failing or likely to fail (Article 18) or problems that might arise when applying a bail-in because of the implicit incentive to substitute funds over time for those higher

11 In this regard, as the comprehensive assessment has shown, we should not underestimate the work involved in ensuring that data coming from participating Member States are harmonised.

12 Moreover, new EU regulatory initiatives require banks to report and clear transactions through trade repositories and central counterparties, respectively.

up in the bail-in hierarchy (Article 27).[13] The latter would, in particular, imply having access to the data referred to in point (d) above.

In order to facilitate cooperation, memoranda of understanding (MoUs) should be established between the Single Resolution Board and the ECB, national resolution authorities and national competent authorities, describing how they will cooperate in the performance of their respective tasks under the SRM (see Article 30(7)). This would cover access to the data referred to in points (b) and (c) above.

13 For instance, substituting long-term liabilities for financing that falls below the 7-day threshold; substituting unsecured for secured financing; etc.

ANNEX

Table 1 Allocation of responsibilities for the various macro-prudential instruments

Instrument	Relevant provision	Allocation of responsibilities by a Member State
Counter-cyclical capital buffer (CCB)	Articles 130, 135-140 CRD	Designated authority (or competent authority for the exemption of SMEs under Article 130 CRD)
Systemically important institution (SII) buffers (G-SII and O-SII buffers)	Article 131 CRD	Designated or competent authority (more than one authority possible)
Systemic risk buffer (SRB)	Articles 133 and 134 CRD	Not mandatory to implement – if implemented, designated or competent authority
Macro-prudential use of pillar 2 measures	Articles 102-105 CRD	Competent authority
More stringent requirements regarding capital/liquidity/large exposures/risk weights	Article 458 CRR	Competent or designated authority
Higher real estate risk weights and stricter lending criteria	Article 124 CRR	Competent authority
Higher minimum exposure-weighted average loss given default (LGD)	Article 164 CRR	Competent authority

Table 2 Provisions on cooperation and the exchange of information in the SRM

RESPONSIBILITIES	LEGAL PROVISION AND WORDING	ACTION
BASIS OF MECHANISM	Article 114 TFEU and Article 42 SRM Regulation *The Board shall be a Union agency*	
EFFECTIVE AND CONSISTENT FUNCTIONING	Article 7 SRM Regulation *The Board shall be responsible for the effective and consistent functioning of the SRM*	Build a strong legal department
OBLIGATION TO COOPERATE AND INFORMATION EXCHANGE	Article 30 SRM Regulation *In the exercise of their respective responsibilities under this Regulation, the Board, the Council, the Commission, the ECB and the national resolution authorities and national competent authorities shall cooperate closely, in particular in the resolution planning, early intervention and resolution phases pursuant to Articles 8 to 29. They shall provide each other with all information necessary for the performance of their tasks.*	An (interim) Board working group has been established to develop the *Priorities & Work Programme for 2015*
COOPERATION WITHIN THE MECHANISM (FRAMEWORK)	Article 31(1) SRM Regulation *The Board shall, in cooperation with national resolution authorities, approve and make public a framework to organise the practical arrangements for the implementation of this Article.*	An (interim) Board working group has been established to develop *Resolution Planning, Procedures and Guidelines.* The establishment of MoUs will be developed in this context.

Table 2 Provisions on cooperation and the exchange of information in the SRM (cont'd)

REQUESTS FOR INFORMATION	Article 34(1) SRM Regulation *For the purpose of performing its tasks under this Regulation, the Board may, through the national resolution authorities or directly, after informing them, making full use of all of the information available to the ECB or to the national competent authorities, require the following legal or natural persons to provide all of the information necessary to perform the tasks conferred on it by this Regulation.*	An (interim) Board working group has been established to develop the *Exchange of Information and Data Requirements*
GENERAL INVESTIGATIONS	Article 35 SRM Regulation *For the purpose of performing its tasks under this Regulation, and subject to any other conditions laid down in relevant Union law, the Board may, through the national resolution authorities or directly, after informing them, conduct all necessary investigations of any legal or natural person referred to in Article 34(1) established or located in a participating Member State*	An (interim) Board working group has been established to develop the *Priorities & Work Programme for 2015.* The experience of the SSM arrangements will be instructive in this respect.

Table 2 Provisions on cooperation and the exchange of information in the SRM (cont'd)

ON-SITE INSPECTIONS	Article 36 SRM Regulation *For the purpose of performing its tasks under this Regulation, and subject to other conditions laid down in relevant Union law, the Board may, in accordance with Article 37 and subject to prior notification to the national resolution authorities and the relevant national competent authorities concerned, and, where appropriate, in cooperation with them, conduct all necessary on-site inspections at the business premises of the natural or legal persons referred to in Article 34(1). Where the proper conduct and efficiency of the inspection so require, the Board may carry out the on-site inspection without prior announcement to those legal persons.*	An (interim) Board working group has been established to develop the *Priorities & Work Programme for 2015*. The experience of SSM arrangements will be instructive in this respect.

THE MACRO AND MICRO DIMENSIONS OF THE BANKING UNION – WHAT ARE THE CHALLENGES FOR STATISTICS?

FRANCESCO MAZZAFERRO[1]

As Head of the ESRB Secretariat, I am very glad to provide some insight into the main challenges for a macro-prudential body such as the European Systemic Risk Board (ESRB). I will do so by structuring this presentation in three parts. First, I will briefly explain what the ESRB is about. Second, I will discuss the need for and the use of data. Third, I will add some additional reflections from a practitioner's perspective.

1 THE ROLE OF THE ESRB

The ESRB is responsible for the macro-prudential oversight of the EU financial system. It has been created as a forum to ensure that central banks and authorities supervising all segments of the financial market cooperate on, and contribute to, a macro-prudential analysis of risk and jointly define policy conclusions. For this purpose, the ESRB has at its disposal several instruments, including warnings and recommendations, as defined in its own founding regulation (Regulation (EU) No 1092/2010), and opinions, as required under the Capital Requirements Directive (CRD) and Capital Requirements Regulation (CRR), which provide several macro-prudential instruments for the banking sector. The ESRB has also been given powers under other legislation, in particular to have access to statistical information, e.g. under the European Market Infrastructure Regulation (EMIR) and the Alternative Investment Fund Managers Directive (AIFMD).

2014 is also the first year in which new macro-prudential instruments have been available to EU Member States, and they have been used rather intensively, although in quite careful measures. Actions have been taken to address the too-big-to-fail problem in the financial sector, to prevent risks in the real estate sector and to address idiosyncratic systemic risks in specific cases. In one case, macro-prudential measures were used to expand (rather than restrict) financial conditions, pioneering a more symmetric use of macro-prudential policy.

2 ESRB DATA USE

As a macro-prudential authority, the ESRB already has access to macro-level data, and also provides data to the general public in the form of a risk dashboard which is published every quarter, one week after the General Board meetings. The risk dashboard also informs General Board discussions on the risk outlook.

1 Head of Secretariat, European Systemic Risk Board.

The risk dashboard provides both EU-wide and country-specific dimensions for six types of risk: interlinkages and macro, credit, funding and liquidity, market, profitability and solvency risks. However, the ESRB always takes into account national specificities when judging the importance of certain national indicators. The ESRB considers a mechanical interpretation of the dashboard as potentially misleading; the dashboard is, therefore, always accompanied by an "overview note" which offers a synthetic view of the risk situation in Europe.

It is important to stress that the risk dashboard does not provide a final assessment of risks, which remains the prerogative of the General Board. Moreover, there is no direct link between the evolution of the indicators and possible policy actions by the ESRB.

The risk dashboard is also not a static instrument. Risks change, and it is, therefore, necessary to have procedures to make sure the analytical statistical basis is adequately updated. To this end, the ESRB has created an annual procedure to meet two needs: first, to have a stable basis of relevant information, second, to assess the costs of renewing the database as compared with the benefits. The first update took place in March 2014.

The challenge for the ESRB is how to make policy use of the risk dashboard. It is not sufficient to simply publish and disseminate the document, it is crucial to also make use of it. This depends partly on the ESRB Secretariat itself which presents its systemic risk outlook to the General Board at the beginning of every General Board meeting, including as a synthesis of contributions received from other institutional players, such as the ECB and the three European Supervisory Authorities (ESAs). It also depends on some work that is still in progress, and is only now starting to become more concrete, on how to link signals from the risk dashboard to policy questions.

3 THE POLITICAL ECONOMY OF DATA

Allow me to finish with a couple of personal reflections.

No matter how important particular data are, it is crucial that policy-makers are ready to take decisions on a first-principles basis even without them. I have often found that a request for more statistical evidence – in a situation in which it is obvious that this would be very laborious, would encounter strong resistance and would possibly not be completely conclusive – is an indirect way of expressing a fully-fledged negative vote by way of postponement. It goes without saying that if systemic risks emerge that jeopardise the orderly functioning of the economy, policy-makers must be prepared to take necessary preventive and mitigating actions on the basis of existing data. As the French say, *le mieux est l'ennemi du bien* (the best is the enemy of the good).

COMMENTS

STEFFEN KERN[1]

Banking union has been one of the central projects of the EU's single market policy over recent years, and ensuring that regulators and supervisors in the banking union have state-of-the-art analysis at their disposal will continue to be a key concern in the coming years.

As a discussant, let me try to contribute to the presentations on this panel by providing a non-bank view on banking union statistics. The European Securities and Markets Authority (ESMA) is the authority for securities markets, market infrastructures and institutional investors in the EU. In addition to tasks related to regulation, supervision and supervisory convergence, ESMA has a mandate to monitor and assess trends, risks, and vulnerabilities in the markets and in the financial system overall. Our priorities regarding data and statistics are conditioned by this specific remit. Given the strong degree of interconnectedness of banking with the financial markets under our remit, I hope our views can add colour to the important discussion on this panel.

But let me first say a few words on the excellent presentations by Micheline Casey, Janez Fabijan and Martin Spolc.

CHALLENGES FOR STATISTICS IN THE BANKING UNION

The speakers have made a number of crucial points which – I very much agree – will be decisive for the future success of authorities in improving our macro and micro analysis. Let me highlight just three areas which, I believe, will be particularly pressing going forward:

- **Data integration**: Working towards integrated data systems is a key ingredient for a comprehensive view of the risks in the banking union and other parts of the financial system. As Micheline Casey pointed out, our business is becoming increasingly data-driven, and the challenges we are facing in terms of data collection, management, governance and analysis are of an exponential nature. Well-defined, integrated systems for data management should be considered a vital precondition for both micro and macro supervisory tasks, and for bringing both dimensions together.

- **Data culture**: Micheline Casey rightly points out that there is a need to explain the pervasiveness and criticality of data and data technology, and that our organisations are aware of our data strategies. Let me add to this important point that this culture also entails prioritising and specifying the questions to be addressed. Micro and macro supervisors will be most effective if their

1 Chief Economist and Head of Financial Stability, European Securities and Markets Authority.

working hypotheses can be translated into data requirements, data structure and, finally, into empirical verification.

- **Data harmonisation**: Janez Fabijan and Martin Spolc make an important point about integrating data across jurisdictions and authorities in the EU. Overcoming data fragmentation in the EU certainly represents a vital challenge. As highlighted by Janez Fabijan, common taxonomies are an essential precondition for this work, and, certainly, in the world of securities markets, taxonomies that are comprehensive and continuously updated are key for us to succeed in our task. One prominent example is reports on all over-the-counter (OTC) derivatives to trade repositories (TRs). To be able to have micro and macro knowledge of the positions held by financial parties is currently one of our main goals, derived from the G20 policy agenda. Given the wide variety of financial actors, products, and underlyings, globally harmonised legal entity identifiers (LEIs), unique transaction identifiers common to all TRs and unique product identifiers (UPIs)[2] will mark quantum leaps for risk analysis in the EU and beyond, once implemented.

In addressing these three and a number of other key challenges, Micheline Casey, Janez Fabijan, and Martin Spolc have identified key themes of data and statistics initiatives in response to the financial crisis. Importantly, these themes are shared concerns in the EU and the United States and among many of our colleagues in national and international authorities around the world.

THE NON-BANK PERSPECTIVE

Let me briefly highlight three concrete issues which are of particular concern from my non-bank perspective. My starting point is the strong degree of interconnectedness of the EU banking sector with non-bank financial institutions, including through key markets and infrastructures. This interconnectedness is, of course, of particular relevance from the macro perspective, especially for the analysis of market, systemic and macro-prudential risks. And my points naturally relate to the key thoughts outlined by the three panel speakers.

Data and statistics naturally play a crucial role in dealing with this strong degree of interconnectedness. Most importantly,

- **Connecting data across markets**: Most importantly, our statistical work needs to be aligned with the reality of the strong degree of interconnectedness of the banking sector with non-bank activities. We are only at an early stage of understanding these complex channels of interaction. Matching up our data statistics from the banking sector with key non-bank activities, such as derivatives exposures, collateral postings with CCPs and other market participants, or exposures to large institutional investors, will be an important, albeit challenging task. Especially considering that this matching will ultimately need to be performed for ongoing surveillance of activities

2 *Feasibility study on approaches to aggregate OTC derivatives data*, Financial Stability Board, 19 September 2014.

and exposures. The ad hoc studies that we at ESMA have undertaken in cooperation with the European Systemic Risk Board (ESRB) on, for example, the credit default swap (CDS) market and its network structure or securities financing transactions (SFTs) and the market for cash and non-cash collateral suggest that the transition from ad hoc to ongoing monitoring in matching these data will be a challenging task.

- **Connecting data across institutions**: Directly following on from my first point, banking and non-bank financial institution statistics need to be aligned and analysed across a wide variety of host institutions. This is a particularly pertinent issue in the EU, where financial market data are collected for regulatory and supervisory purposes across a wide range of institutions at national and EU level – at least 67 national and EU authorities[3] are currently involved in this work, many of which command data unique to their respective remits and jurisdictions.

Creating fully integrated data systems in such an environment may prove a disproportionately costly undertaking. Working towards an efficient network of data hubs may be a more pragmatic approach, and at ESMA we are currently establishing structures comprising data warehouses, exchange platforms and access rights for, for example, transaction-level data on derivatives as collected by TRs in the EU. We realise, of course, that we may not achieve a uniform approach to data systems, so our strategy for managing proprietary data ranges from integrated EU-level databases (credit rating agency (CRA) data, position-level derivatives data), via network structures, as in the case of derivatives transactions or alternative investment funds, to completely decentralised supervisory data collection at Member State level, as for trading venue transactions.

Under this pragmatic approach, providing appropriate levels of exchange of and access to data between the authorities involved will play an even more prominent role in future. Especially when it comes to analysis and research, we are cooperating closely with the European Supervisory Authorities (ESAs), and the ESRB represents an ideal forum at EU level for pursuing ever-closer cooperation on statistics, research, and risk monitoring.

- **Connecting data types**: Finally, we need to be aware that, looking ahead, we will be confronted with an ever-greater heterogeneity of data and statistics. Making sense of this heterogeneity in the light of our task of assessing and monitoring financial market risks will be a key challenge going forward. Already today, the range of types, sources, and qualities of financial market statistics is vast. For example, ESMA's data mandates include the register of and supervisory data on CRAs, a central public register containing data on alternative investment fund managers (AIFMs), and aggregate OTC derivatives data in order to construct position matrices that allow us to measure systemic

3 This is the number of authorities represented on the General Board of the ESRB. (See European Commission, "Report from the Commission to the European Parliament and the Council on the mission and organisation of the European Systemic Risk Board (ESRB)", Brussels, 8 August 2014, COM(2014) 508 final, p. 5.).

and non-linear risks, and we are establishing a register around structured financial products. On top of this come numerous commercial databases from a variety of providers and vendors. The volume of data collected is growing exponentially, and the diversity of data types is set to increase further, driven, not least, by technological progress.

Thus, technology is now allowing us to develop tools for collecting and analysing non-quantitative information that we have to incorporate in our databases and analysis. Non-numerical micro-supervisory data has already been mentioned in our discussion. To incorporate this non-numerical knowledge in our databases will be challenging, and our colleagues at the European Banking Authority (EBA) are developing guidelines for the use of this information. Important progress is currently also being made at the Securities and Exchange Commission (SEC) where tools for big data text mining are being developed to facilitate effective institutional supervision. Finally, big data collected outside the financial market supervisory system, e.g. on global news and events, may in future be useful for our understanding of systemic risks in finance and the interrelation with variables exogenous to the system (such as political, economic, social, or geo-strategic events).

CONCLUSION

Bringing together micro and macro perspectives on banking union has been recognised by the speakers on this panel as a key task for data and statistics strategies of regulatory and supervisory authorities in the EU and beyond. Providing links to data, statistics and analysis on non-bank financial activities, including securities markets infrastructure and institutional investors, may be considered a complementary target on the way to achieving a comprehensive assessment of micro- and macro-prudential risks in the banking industry and the financial system at large. Effectively connecting regulatory and supervisory statistics across markets, institutions and data types can serve to fundamentally improve financial market supervision as a whole.

DISCUSSION SUMMARY

Hans Buurmans (European Banking Federation) started his introduction with a short video to stress the importance of all relevant parties being committed to great ideas. He recognised the ECB's willingness to coordinate and communicate with the banking industry, as well as the banks' willingness to take part in the banking union in spite of the many challenges that lie ahead.

Martin Špolc (European Commission) emphasised the importance of effective coordination and close cooperation between different authorities in charge of macro-prudential supervision. He pointed out the core challenges for data needs from a macro- and micro-prudential perspective originating from the establishment of the banking union. As regards the macro-prudential perspective, Mr Špolc discussed the data needs supporting effective interaction between the national authorities and the ECB. Data collected by the various authorities responsible for macro- and micro-prudential supervision should be exchanged effectively. In addition, he stressed the need for data to cover the whole Single Market, beyond the banking union, to allow for the assessment of spill-over effects and to ensure a smooth future enlargement of the SSM. In this respect, it is essential to enhance cooperation with the European Commission and EU authorities, in particular the European Banking Authority and the European Systemic Risk Board. In the context of the micro perspective, he stressed the importance of data accessibility and the capacity of the Single Resolution Board to analyse data.

Janez Fabijan (Banka Slovenije) looked at how consistent statistics can support efficient policy decision-making, favouring a pragmatic (rather than a model-based) approach. Consistency between macro- and micro-level data forms the basis of an efficient decision support system. The harmonisation of definitions is important, as is the approach adopted to collect the data. This should be fully integrated between the statistical and supervisory domains, ensuring that data are collected only once, and should allow for the most granular information possible. Based on the experience of Banka Slovenije, he showed how using a fully consistent and comprehensive set of information from these two levels enables unusual or extreme behaviour and the underlying reasons to be quickly detected, with the ultimate goal of ensuring a better allocation of funds to the real economy, economic growth and employment. He concluded by emphasising the key role of credit registers in providing comprehensive information, including rating data, on a loan-by-loan basis.

Micheline Casey (Federal Reserve Board) provided some insights from a Federal Reserve Board perspective on the increasing need for micro, third-party and unstructured data, as well as for integration with more traditional macroeconomic, survey or financial institution data. She said that data governance and data management at the Federal Reserve had to be reviewed after the financial crisis. Connecting the dots and understanding the interrelationships in a global picture became essential, and agility in building relationships, robust data integration and data processes across domains became increasingly important. New types

of data, such as micro-level data, third-party data (available from vendors) or unstructured data, need to be combined with more traditional types. This requires new and more advanced analytical and infrastructure tools in order to achieve more agility in collecting and processing data. Ms Casey emphasised the need to think more strategically with regard to how to exchange and make data available effectively to end users. She also stressed the importance of transforming organisational cultures in order to support changes to the current approaches and to develop common practices, data architectures, data dictionaries and other data standards.

Francesco Mazzaferro (European Systemic Risk Board), the first discussant, presented the main challenges that decision-making bodies face when a limited amount of information is available. He emphasised the importance of taking forward-looking decisions despite having a very limited amount of data and striking the right balance between statistical data and actual market insights. He also encouraged institutions to be ready to take responsibility when important decisions must be taken, and he explained that central banks have often done this. Mr Mazzaferro then explained that the rules by which the market functions need to be fully understood, in order to collect the best possible data for a few robust indicators with the best forward-looking capacity. He also stressed how crucial it is to make the best use of available information, as given the large amount of information already available, there is a risk of this not being properly used or analysed by policy-makers.

Steffen Kern (European Securities and Markets Authority) highlighted, as the discussant for the three speakers, the common points of all the presentations. He emphasised the importance of data harmonisation, since the lack of harmonised micro data could adversely influence decisions on financial stability. As regards data integration, he noted that micro- and macro-prudential perspectives are very different domains and that it is encouraging to see such a strong commitment among the audience to linking and sharing these data. He also mentioned non-bank statistics and their relevance for macro- and micro-prudential analysis of the banking union owing to banking sector exposure to non-banking activities (for example through derivatives markets and the close relationship with the shadow banking sector). He stressed the importance of integrating and connecting all the relevant data from different institutions and various market activities in a more pragmatic way. Mr Kern concluded by talking about ESMA's experience of data management and data integration.

Hans Buurmans concluded the discussion by complimenting regulators and supervisors for looking for cost efficiency and synergies by limiting reporting burdens and ad hoc requests. He stressed the importance of clear coordination and communication between regulators and banks to ensure that all parties are aware of the common goal. He then reminded the audience that the banking sector must be given a sufficient amount of time for planning and executing the implementation of new regulations.


Hans-Helmut Kotz
Brian Blackstone
Walter Radermacher
Huw Pill
Christine Graeff
Aurel Schubert
Chair

4 COMMUNICATING STATISTICS TO MEET USER REQUIREMENTS AND MANAGE MARKET EXPECTATIONS

INTRODUCTORY REMARKS

AUREL SCHUBERT

Welcome to the fourth session of the Statistics Conference. It is an established tradition for the Statistics Conference to have three sessions focusing on producing and using statistics and one session on communicating statistics.

As we all know, and as we have already heard today, the work of statisticians, as producers of statistics, is complex, multifaceted and very demanding. A lot of effort is required to produce good new statistics, which are up to date, reliable, accurate, timely, and of the best possible quality. However, we also need to communicate statistics in the best possible way to a vast and very diverse audience, making sure that the underlying message is correctly understood and properly reflected in market expectations.

It should not be forgotten that the production of statistics entails a burden on reporting agents, that the process is expensive and paid for by the society, and that the outcome is a public good which should be shared with the public. Statistics should therefore be communicated in a way that takes into account the knowledge, skills and needs of the respective audiences. This is why there cannot be only one single approach to communication, and why various and diverse channels should be explored. In my more than 18 years in statistics, I have written many statistical press releases, even more in-depth articles, prepared and held many press conferences and press briefings, given media interviews and made presentations to a wide variety of audiences. This is part and parcel of producing central bank statistics.

Communicating the statistics we produce is certainly an important part of our work, but another equally important aspect is communicating the limits of the data, explaining both the uses of and the gaps in the available information.

It is my pleasure to chair a discussion today on our experiences and our views on how communication should, on one hand, meet user requirements and, on the other hand, manage market expectations. This sounds like a simple task for a communication strategy, but most of us are well aware that this is not the case, and we will hear from our speakers today that it is far from easy to achieve but is a key factor for successfully communicating with our audience.

Let me begin by introducing the first presenter, **Christine Graeff**, ECB Director General Communications & Language Services. Before joining the ECB,

Ms Graeff worked as Partner and Managing Director in the Brunswick Group, a business communications firm, setting up Brunswick's Frankfurt office and leading the Financial Services team.

In her presentation, Ms Graeff will highlight how communication has become an instrument of monetary policy, and discuss how statistics also became a communication channel. For this reason, the way statistics are presented is becoming more and more crucial. Ms Graeff stresses how the quality of a presentation can determine success or failure. However, one should not forget that good communication may not be the same for a central bank as for other organisations. In this respect, the ECB has its own approach and is working on improving it even further.

The next presentation is by **Huw Pill**, chief European economist at Goldman Sachs and co-head of the Economics team in Europe. Mr Pill serves on the Macro Research Operating Committee. Before joining Goldman Sachs as a managing director in August 2011, he worked at the ECB, where he was Deputy Director General of Research and Head of the Monetary Policy Stance Division. Previously, he has worked at the Bank of England and at Harvard University.

In his presentation, Mr Pill addresses the role of communication and statistics in the context of the banking union and highlights how statistics should help to stabilise expectations and improve the legitimacy and efficacy of policy actions. The communication strategy should be aimed at achieving transparency, clarity and accountability of the policy actions. However, these communication objectives also entail potential trade-offs between, for example, transparency and clarity, or between transparency and honesty on one side and effectiveness on the other side. Another important aspect of communication relates to managing feedback effects and market responses in an effective way in order to build and maintain credibility.

The final presenter is **Walter Radermacher**, Director General of Eurostat. Before joining Eurostat, Mr Radermacher served from 2006 to 2008 as President of the Federal Statistical Office in Germany and as Federal Returning Officer. He was Vice-President of the Federal Statistical Office from 2003 to 2006. He is a lifelong statistician and is now at the helm of the European Statistical System (ESS), which brings together the national statistical institutes. The ESS is the "other statistical tower" of Europe, alongside the ESCB's statistical system, which is led by the ECB.

In his presentation, Mr Radermacher addresses two important aspects of communication – literacy and confidence. In this respect, the recent introduction of the new European Statistical Accounts (ESA 2010) highlighted the importance of proper communication and the challenge for statisticians to build up the necessary literacy in the public so that the message we communicate is correctly understood. In order to do so, it is crucial to address the various audiences with the right means. Another important aspect of communication concerns the need to coordinate various communication initiatives; in the case of ESA 2010,

coordination efforts were required across countries. Last, but clearly not least, a key element is the availability of proper figures that can sufficiently fuel the communication engine.

I am also honoured to introduce our discussants:

Brian Blackstone from the Frankfurt office of The Wall Street Journal (since 2009) will be discussing the papers of Ms Graeff, Mr Radermacher and Mr Pill. Mr Blackstone writes about the ECB. The areas he covers include monetary policy, the European economy and the ECB's response to the debt crisis in southern Europe. Previously, Mr Blackstone covered the Federal Reserve in Washington during the financial crisis. He is highly qualified to tell us how things appear from a journalist's perspective.

Hans-Helmut Kotz, Senior Fellow at the Center for Financial Studies (CFS) since 2010, Program Director of CFS's and Goethe University's SAFE Policy Center in Frankfurt, and a professor at Harvard University, will be discussing the papers of Ms Graeff, Mr Radermacher and Mr Pill. Before joining the CFS, Professor Kotz was a Member of the Executive Board of the Deutsche Bundesbank (2002-2010), in charge of Financial Stability, Markets and Statistics, and a member of committees of the Bank for International Settlements, the Financial Stability Board and the OECD, where he was chair of the Financial Markets Committee. He was also the Deutsche Bundesbank deputy at the G7 and the G20.

THE FIGURES TELL THE STORY

CHRISTINE GRAEFF[1]

1 INTRODUCTION

Statistics are, without doubt, one of the pillars of good monetary policy. How could the Governing Council make responsible decisions month on month without accurate data on the economic situation and monetary aggregates? To the layperson, the topic may at first seem rather dry, but, in truth, statistics come straight from the hustle and bustle of everyday life. They show how many people are gainfully employed, whether they can afford washing machines, cars and houses, and how easily businesses can access credit in order to create jobs. In short, they show how the economy is doing, and how scarce or plentiful money and credit are. Statistics, in this regard, are the eyes and ears of monetary policy.

Baron Lamfalussy described just how crucial statistics are for monetary policy when he said "nothing is more important for monetary policy than good statistics." Seen in this light, I believe enormous progress has been made. The ECB's two-pillar approach has an extremely sound database to fall back on. When it comes to statistics for economic analysis and the development of money and credit aggregates, there are now virtually no blank spots left.

However, Lamfalussy also recognised that the crucial importance of statistics lies not just in providing a basis for decision-making, but also in communicating with the general public. He said: "When monetary policy measures cannot be justified and explained through statistical data, the measures will not be understood, and the executing institution will lose credibility."

It is this second aspect – the role of statistics in the communication of monetary policy – that I would like to discuss with you today. Central bank communication requirements are changing rapidly, and this also holds true in terms of the role of statistics.

2 COMMUNICATION AS AN INSTRUMENT OF MONETARY POLICY

Mario Draghi, the President of the ECB, said recently "Today, central bank communication is right at the heart of monetary policy. It is actually a monetary policy tool in itself. Even for those with little interest in central banking, it is difficult to avoid the pronouncements of one or the other of us in the newspaper."

Only two decades ago, the world's biggest central bank, the Federal Reserve, kept its interest rate decisions secret. In those days, the Chairman of the Board of Governors made a show of consciously keeping his assessments opaque. That would be unthinkable today. Constructive ambiguity is a stylistic device that has become the exception. The impact on markets and the real economy is too serious if the central bank is misunderstood. Managing expectations as precisely as possible –

1 Director General Communications & Language Services, European Central Bank.

forward guidance – has become an important instrument. In future, central banks will become even more transparent by publishing accounts of their proceedings.

Statistics will take on a larger role in the communication of monetary policy decisions. Figures and data form the foundations of the decisions and – if used properly – they can be a powerful channel of communication.

A look back to the beginnings of the graphic representation of statistics shows how influential and effective they can be in this respect. The difference between a "data cemetery" and a well-designed statistical presentation of data can make the difference between success and failure, and sometimes even between life and death.

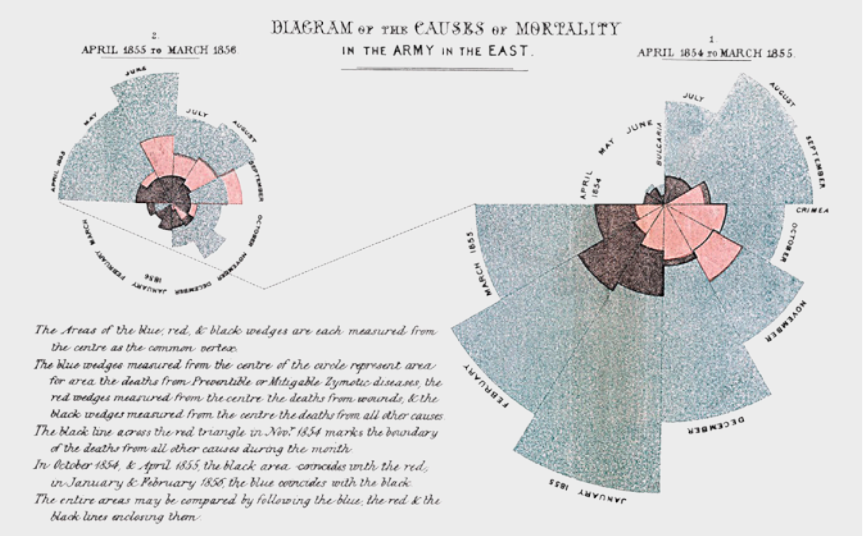
3 EFFECTIVE COMMUNICATION

3.1 GOING BACK TO THE ORIGIN

Research shows that the human brain is much faster at understanding data graphics than rows of figures. Therefore, to achieve the best impact, statistics should not be presented in a dry manner.

When the young nurse Florence Nightingale went to care for British wounded in the Crimean War in 1854, she was horrified by the fact that many more soldiers were dying of infection and disease than from their actual injuries. Nightingale was not just a humanitarian; she was intelligent and mathematically trained. She counted the number of deaths and kept a record. But all of that would probably not have been enough to change anything if she had not been a gifted graphic designer as well. And that without a computer programme in sight.

Chart 17 Nightingale and the Crimean War: how figures tell more than a thousand words



Source: Statistician of the century, M. Stone, 2001, p. 172.

This almost modern conversion of her statistics into images later helped her, after having returned to England, to realise her dream of better care in hospitals. She succeeded in persuading the Government to launch an investigation that marks the start of modern nursing and gave impetus to better sanitary conditions in the British army.

I am, of course, aware that within the guild of statisticians there is, so to speak, a natural reticence towards the preparation and presentation of data. It is argued that it is too easy to slip into the realm of interpretation, which would compromise the objectivity and, therefore, the quality of the data. This penchant for, or should I say love of, accuracy is not an obstacle to communication, but an opportunity for its enrichment.

3.2 MOVING TO MORE RECENT TIMES

Accuracy casts a new light on things. This might seem eccentric to some, but it is not. Sometimes the statistician's sharp eye and an equally courageous presentation of the figures give rise to a completely new story. A good example of this is the work of the Swedish statistician and health economist Hans Rosling. Rosling has set himself the goal of re-contextualising freely available data. He takes raw data as a starting point for a new and, as he claims, more appropriate representation of reality. We should not be too quick to condemn this as a renunciation of objectivity: the "unadulterated" raw data are still available to everyone. The solid foundations of the data as a starting point for analysis are not weakened.

But even a more subtle and neutral approach, which is perhaps easier to reconcile with the requirements of a central bank, can produce astonishing results.

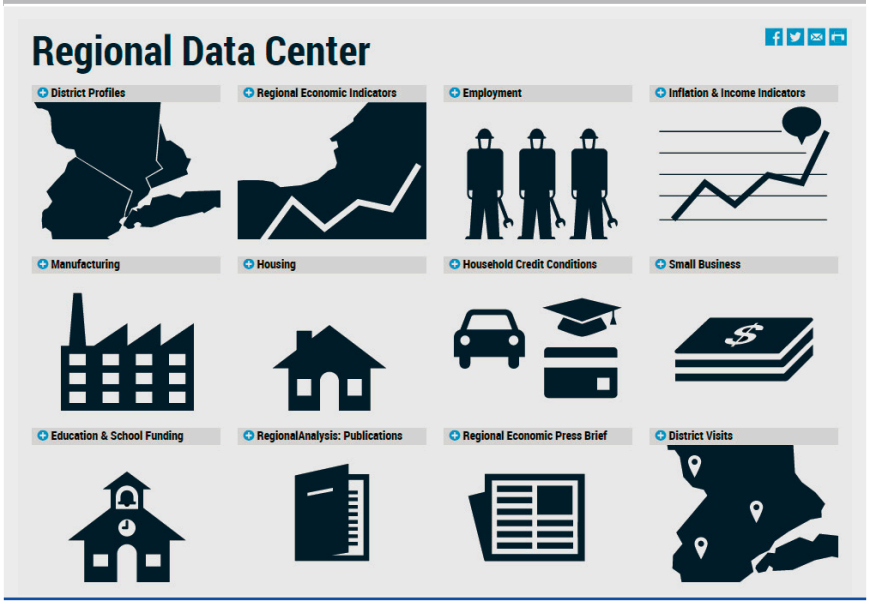
3.3 THE EXPERIENCE OF THE FEDERAL RESERVE BANK OF NEW YORK

For me, one of the world leaders in this respect at the moment is the Federal Reserve Bank of New York. Three years ago, it started to redesign the way it presents statistics. To do this, the Bank employed Donna Wong, who had previously been responsible for graphic representations at the New York Times and later at the Wall Street Journal.

Opening the portal of the Federal Reserve Bank of New York is itself enough to make you want to explore further. Let me illustrate this with a few examples.

With just a few clicks, even the layperson can find interesting data about, for example, the development of house prices in his/her immediate neighbourhood. You can find out in an instant how the market has developed in a particular area, or as compared with other areas, or how incomes have changed in relation to these developments.

Chart 18 Statistics at the Fed: an invitation to learn more



It is then possible to see just how affordable a house is for people there. An example of statistical products accompanied by graphic presentations from the website of the Federal Reserve Bank of New York is shown in Figure 3.

Chart 19 Easy to access and with relevance for the broader public

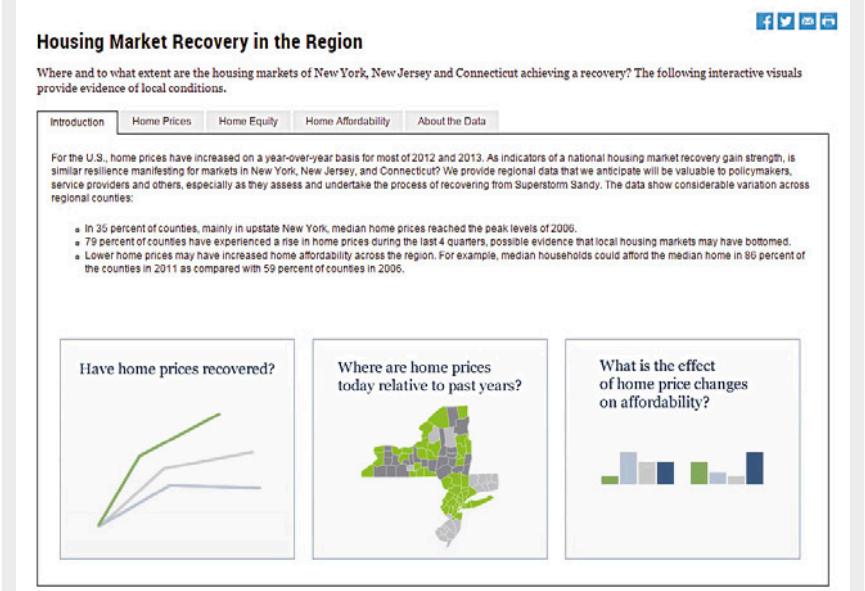


Chart 19 Easy to access and with relevance for the broader public (cont,d)

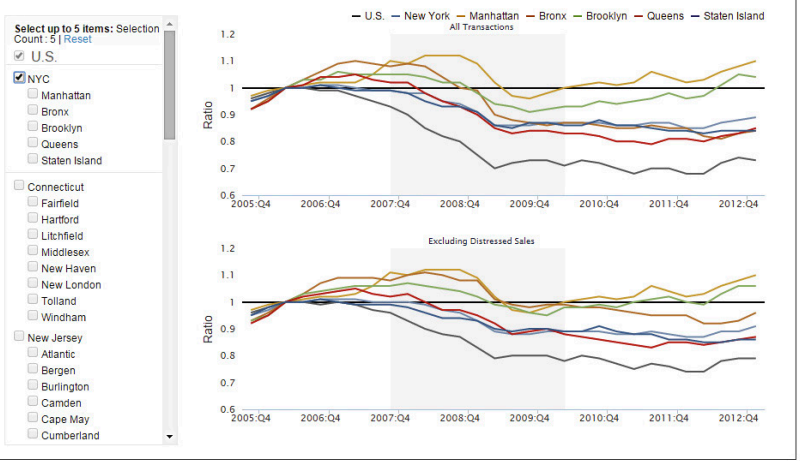
Housing Market Recovery in the Region

Where and to what extent are the housing markets of New York, New Jersey and Connecticut achieving a recovery? The following interactive visuals provide evidence of local conditions.

Introduction | Home Prices | Home Equity | Home Affordability | About the Data

Home Price Indexes

Home prices—both including and excluding distressed sales—are recovering at the national level. However, the extent of the recovery varies widely across local housing markets. The following chart compares home price indexes—normalized to the 2006 U.S. peak—for the geographies that you select.



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Ratio of median household income to qualifying income

One way to assess home affordability is to compare a borrower's actual income to the income required to qualify for a mortgage. Given a home's price, lenders qualify homebuyers with incomes that result in debt-to-income (DTI) ratios—the percent of monthly gross income used to cover housing costs—between .25 and .35. The closer a homebuyer's actual income is to the qualifying income, the more affordable housing is deemed to be. To illustrate this connection, we graph the ratio of median household income to qualifying income. Values above zero indicate higher affordability. For example, a ratio of 0.1 indicates that the median income is 10 percent higher than the qualifying income.

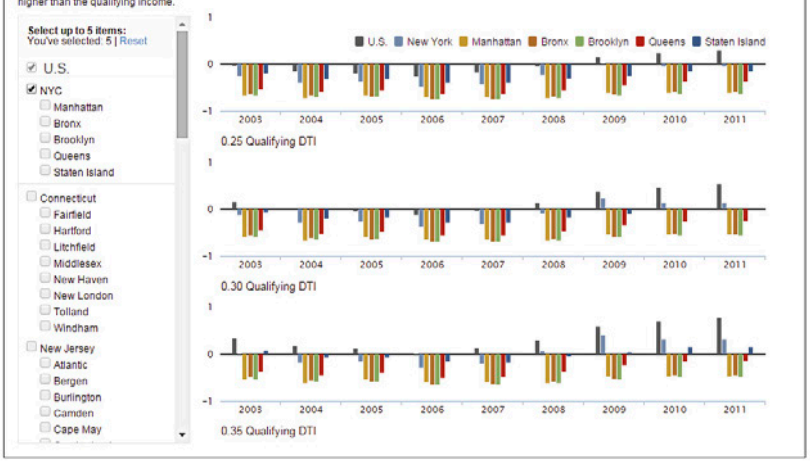
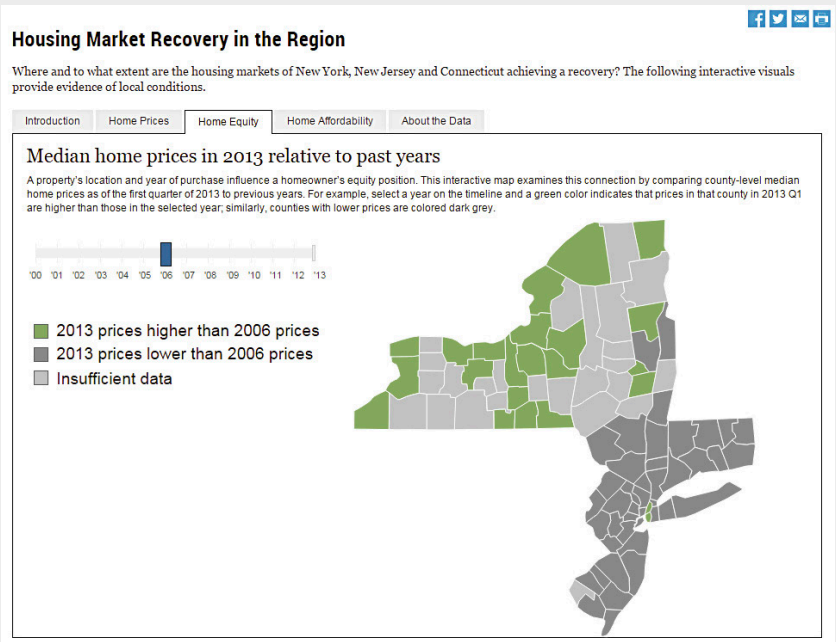


Chart 19 Easy to access and with relevance for the broader public (cont,d)



Don't get me wrong. I am not saying that a central bank should compete with commercial websites for attention. But where our data are also of interest to the general public – as is very often the case – an intuitive and user-friendly presentation creates an excellent opportunity to come into direct contact with citizens. Moreover, we should not underestimate the fact that experts – that is analysts, academics and journalists – are also interested in graphic representations that are meaningful and easy to understand. And when they are appealingly designed and easy to find, much will have been gained.

My favourite example of a successful presentation of large amounts of data is one with animation from the Federal Reserve's website. For all of its lower districts (some 300 ZIP code areas), the Federal Reserve collects data on the frequency of payment defaults and forced sales (foreclosures). For the past seven years, this comes to over 50,000 monthly values. Compressed into a table, this vast ocean of data would be difficult to digest, but a short film can better reveal the fever curve of the crisis. A picture is worth a thousand words, as the saying goes. Good statistics are sometimes worth more than a thousand pictures. And well-designed graphics do not necessarily imply big budgets, but rather lots of thinking and sharing of ideas and perspectives.

4 CONCLUSIONS

We don't have to search on the other side of the Atlantic to find good examples of progress in graphic presentation. A similar process has already started here. At the ECB, there are some very promising approaches. Colleagues in Directorate General Statistics are working on a new app that will be fed with data directly from our Statistical Data Warehouse and present graphics on mobile devices. A particularly user-friendly application will be an internet site to visualise euro area statistics. Some of you may have already seen the "our statistics" site at the presentation during the coffee break.

Statistics have always been and will always be a key requirement for monetary policy. They lay the ground for all important decisions and help to clarify and to demonstrate what the reasons for monetary policy decisions are. More recently, communication itself has become an instrument of monetary policy. This is changing the demands made on the presentation of statistics, turning statistics into a channel of communication in their own right.

To conclude, let me quote Florence Nightingale: "*To understand God's thoughts we must study statistics, for these are the measure of His purpose*".

COMMUNICATING STATISTICS IN THE CONTEXT OF BANKING UNION – A MACRO USER'S PERSPECTIVE

JAN KOZAK[1] AND HUW PILL[2]

1 THE BENEFITS OF BANKING UNION[3]

Dysfunction in European financial markets lies at the heart of the 2007-13 euro area economic and financial crises.[4] Given the bank-centric nature of the continental European financial sector, the banking system has served as both an important source and a significant amplifier of the shocks that have destabilised the euro area throughout this period.[5]

To address the euro area's current malaise, as well as to build a more stable and workable new regime for the future, three challenges need to be met: (1) the stability, resilience and efficiency of the European banking sector as a whole must be improved; (2) area-wide markets must be reactivated and reintegrated, so as to ensure a more uniform availability and pricing of credit (and other financial services) across the euro area; and (3) legacy balance sheet problems at banks need to be dealt with thoroughly, so that banks can move forward unencumbered by the mistakes of the past.[6]

The European authorities have presented "banking union" as the solution to these challenges. Banking union has several dimensions: a Single Supervisory Mechanism (SSM) at the ECB, a Single Resolution Mechanism (SRM) to deal with failing banks, more transparent and uniform application of state aid rules to government support for the banking sector, and a clearer definition under the Bank Recovery and Resolution Directive (BRRD) of when and how the authorities can intervene to support troubled banks.[7]

1 PhD candidate in economics at the University of Chicago. He was an intern in the Goldman Sachs European economics team in the summer of 2014.
2 Chief European Economist, Goldman Sachs.
3 This paper was prepared for the seventh ECB statistics conference "Towards the banking union: opportunities and challenges for statistics" held in Frankfurt am Main on 15 October 2014. The views expressed in this paper are those of the authors and do not necessarily reflect the views of Goldman Sachs.
4 See, for example, the description in Giannone et al. (2011).
5 Pill and Reichlin (2014) provide a narrative of the recent financial crises, highlighting the important role played by banks both (i) following the failure of Lehman Brothers in 2008 (when concerns about bank counterparty credit risk led to a seizing up of the interbank money market), and (ii) in the context of the 2011-12 sovereign debt crisis (when the vicious interaction between sovereign and bank balance sheets posed existential risks to the euro area).
6 See Pill (2014) for a longer discussion of these issues.
7 Other elements originally defined as part of the banking union – notably a common area-wide deposit insurance scheme – appear, at least at this stage, stillborn.

To illustrate the benefits of banking union, consider the possible implications of the SSM for the euro area banking sector. Unifying responsibility for bank supervision at the ECB offers scope both (1) to raise the average quality of supervision (e.g. by spreading best practice and/or breaking the capture of regulators by "national champions"), and (2) to ensure common application of standards and rules across euro area countries (e.g. by imposing common definitions of non-performing loans), thereby establishing a level playing field to enhance competition among banks. Moreover, the recently completed ECB/European Banking Authority (EBA) comprehensive assessment of euro area bank balance sheets (consisting of an asset quality review and stress test exercise) has served to clarify the extent of legacy programmes and allow them to be addressed.

Thus far, the reaction of market pricing and financing to the announcement and implementation of banking union has largely been positive. Funding access and costs for peripheral banks have improved significantly over the past year, as has their ability to raise private capital. It is to the credit of those building the banking union at the ECB (and elsewhere) that such credibility has been established from scratch so quickly. In general, markets remain sceptical of the ability of European authorities – at both supranational and national levels – to create a more workable monetary union. But the creation of banking union appears to be an exception. Accumulation of such credibility means that there is a lot for the new SSM to live up to in a potentially difficult market and economic environment.

2 THE CONTRIBUTION OF STATISTICS (AND THEIR COMMUNICATION) TO BANKING UNION

To meet these high expectations, the SSM needs the necessary raw materials for policy-making: well-qualified staff, an efficient decision-making process and, above all, the required data. If we are to have "evidence-based policy-making", then we must have the evidence. And quantitative evidence relies on the collection of data and the construction of policy-relevant statistics.

Other contributions to this volume describe the impressive progress made in creating a granular framework for data collection at the level of individual institutions. And, as has been demonstrated elsewhere, ample scope exists for synergies with the construction of statistics underlying macro-prudential policies and monetary analysis.

Assuming that the relevant information is available in a timely and comprehensive manner, the issue addressed in this paper is how it should be presented to external audiences. We aim to provide the perspective of financial market participants analysing the euro area economy and financial system from a macro standpoint.

Communication can be a very important channel supporting the transmission of central bank policy decisions. Recent experience in the monetary policy domain – e.g. President Draghi's "whatever it takes" intervention in July 2012 – provides ample evidence in this direction. Effective communication can help to stabilise expectations and improve both the legitimacy and efficacy of policy actions.

Communication supports policy through several channels, notably by improving the transparency, accountability and clarity of central bank actions. Through these channels, communication can improve the effectiveness of policy.

One should not confuse means with ends: in our view, the contribution made to policy effectiveness is the appropriate criterion on which to judge the quality of central bank communication. We are sceptical of arguments that assign specific transmission channels a value in and of themselves. For example, we do not share the view that transparency is a "moral imperative", which should take precedence over other potential channels or (still less) the underlying goal of ensuring that policy objectives are met efficiently.

On the basis of this approach, the remainder of this paper develops two arguments.

First, we suggest that the impressive efforts underway to collect supervisory data on banks' balance sheets – a necessary *input* to the policy process – should be complemented by efforts to develop statistics that provide a convincing real-time assessment of the effectiveness (and thus success) of these policies – the *output* of the process. For most macro observers, it is reassurance about outcomes that is key.

Second, we argue that trade-offs exist among the various channels by which communication can influence policy effectiveness. The quality of central bank communication largely reflects how well these trade-offs are managed. We illustrate this point by exploring the interactions between transparency and clarity in communicating policy decisions and their rationale.

3 COMMUNICATING OUTCOMES MATTERS

Nothing succeeds like success. The credibility (and thereby the effectiveness) of economic policies is bolstered if their success can be readily demonstrated. Market participants' response to a credible signal of success creates a virtuous feedback loop: for example, depositors do not make runs on sound banks.

Demonstrating success means being explicit about the objective of policy and providing timely statistical information to allow policy performance to be judged easily and in real time.

This insight lies at the heart of inflation targeting regimes for monetary policy (and, in the ECB's case, underpins its definition of price stability). Having a clear, published, quantitative target for a specific inflation measure allows policy analysis to be focused and ensures that policy-makers are held to account. The credibility of monetary policy has been bolstered as a result. Empirical studies demonstrate that the stability of observed inflation and inflation expectations has (thus far) been higher in inflation targeting regimes than in the preceding, typically more discretionary, monetary policy frameworks.[8]

8 That said, this conclusion may be challenged by recent data and the threat of deflationary dynamics in some parts of the world (potentially including the euro area). For the earlier (more benign) period, see the empirical evidence provided by Bernanke et al. (2001).

Statistical considerations played an important role in the design of such inflation objectives. Issues such as the measurement bias in inflation indicators, the independence of the institutions producing the statistical series, the coverage of the series across countries and activities, and the timeliness of publication all influenced the design of the target.[9]

Can this broadly successful experience be translated into the context of banking union? Supervisory and macro-prudential policies aim at maintaining financial stability. But offering a quantitative definition of financial stability is more challenging than designing an inflation target to characterise monetary policy's price stability objective. Perhaps illustrating the point, Charles Goodhart – a leading scholar on such issues – has made reference to practitioners defining financial stability as "the absence of financial instability".[10]

Yet this merely shifts rather than addresses the problem. How to define financial instability? This is an equally challenging task. Financial instability is episodic in nature and non-linear in character. It is multi-dimensional. Characterising financial (in)stability in terms of a single statistical indicator is much more difficult than using an inflation measure to define price stability.

Nevertheless, reaping the credibility benefits stemming from communication requires efforts in this direction. Particularly from the perspective of a macro observer in financial markets, reassurance is sought that financial instability is distant (permitting us to maintain our usual focus on traditional macro analysis, at least for the present). A "data dump" of (for example) balance sheet, profitability and pricing information cannot provide this reassurance: how should we interpret it? Rather a reliable, synthetic, summary real-time indicator is required.

Building on work in the academic literature,[11] we have used the price of bank credit default swaps to construct measures of the probability of systemic financial tensions. Moreover, we have related these measures to macro-financial variables and explored whether they offer early signals of forthcoming financial tensions. These efforts are reflected in Chart 20.

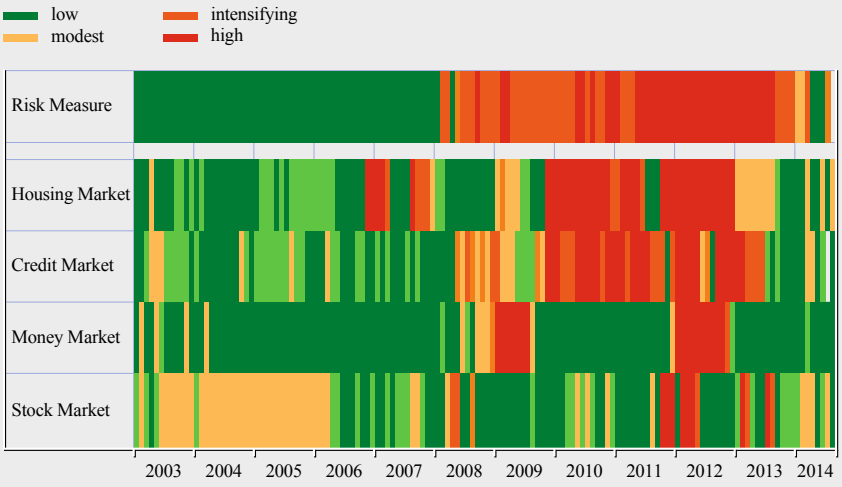
This is not the place to enter into the technical details of how our indicators are constructed. And even a cursory inspection of our results gives many reasons for caution when considering whether they can be seen as a reliable measure of financial stability. But while our and others' efforts in this direction remain preliminary and incomplete, we nonetheless view attempts to construct summary statistical measures as an important complement to the ongoing collection of underlying supervisory information. It is only through progress in this direction that policy credibility can be signalled to the wider, non-specialist community.

9 See Issing (2003), especially Chapters 2 and 3.
10 See Goodhart (2004).
11 See, for example, Segoviano and Goodhart (2009).

Chart 20 An indicator of risks to financial stability

(Derived from a regime-switching model of the risk of multiple bank defaults derived from CDS prices)

x-axis: Magnitude of systemic financial risk in banking sector
y-axis: Categories



Source: Goldman Sachs Global Investment Research

4 MANAGING TRADE-OFFS AMONG DIFFERENT CHANNELS OF COMMUNICATION

To illustrate the need to manage potential trade-offs among the various channels through which communication initiatives can support policy effectiveness, we explore the relationship between transparency and clarity.[12]

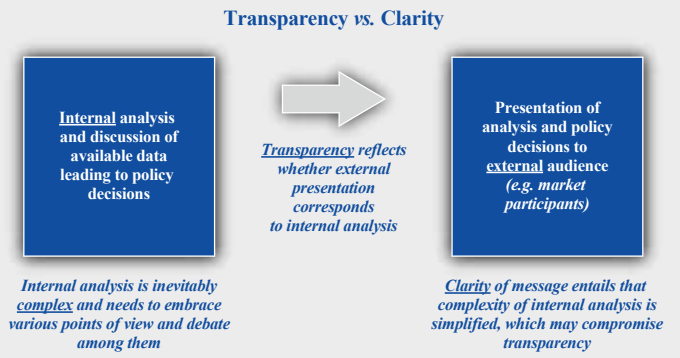
Any policy framework has two aspects: (1) *internal* analysis and discussion of the available data, leading to policy decisions, and (2) presentation of those policy decisions and their rationale to *external* audiences (e.g. the general public, market participants, etc.). A natural definition of the transparency of the policy process is the extent to which the external presentation of decisions corresponds to the internal preparation of those decisions. Full transparency entails that the former perfectly replicates the latter (Chart 21).[13]

But internal analysis is necessarily complex, perhaps especially in the often detailed and controversial discussions surrounding financial stability and bank supervision. The information to be assessed is voluminous and complicated. Moreover, successful policy-making requires a healthy confrontation of different views and arguments that tests the robustness of individual decisions.

12 For a richer analysis of the multiple potential trade-offs in this domain, see the discussion in Winkler (2000), upon which this section heavily draws.

13 In the context of bank supervision, this implies that full transparency is not consistent with respect to the confidentiality of information provided by individual institutions. That represents another interesting trade-off.

Chart 21 Trade-offs between transparency and clarity



In this context, it is (almost) inevitable that providing all the underlying information, as well as the minutiae of how it is analysed and assessed, will come at some cost in terms of the clarity with which the final policy decision is presented to the public. Full transparency therefore hinders genuine clarity. Central bank communication in general – and the construction and presentation of statistics in particular – needs to manage the resulting trade-off.

With this in mind, in the external presentation of policy decisions there is a need to *simplify* the complexities of the underlying decision-making so as to make the presented rationale for policy decisions digestible and clear to outside audiences. The nature of that simplification will have to be tailored to each target audience. Even when users express the desire (in principle) to have "all the information", in general they will (in practice) lack the technical capacity to process the volume of internal information and analysis underlying decisions.[14] Some filtering and organisation to simplify – and thereby clarify – the policy message is always needed. Nowhere is this more apparent than in the presentation of data and statistical information.

Yet the danger exists that efforts to create a *simple* policy message out of the underlying internal analysis will degenerate into the formulation of a *simplistic* external communication. By nature, a simplistic message – while probably clear in itself – is likely to be misleading. It may provide false reassurance if complacent, or threaten to destabilise expectations if alarmist.

Managing the trade-off between transparency and clarity requires policy communication to be simple, but not simplistic. Given the potential power of signalling and feedback effects, the choice of how to filter and organise communication so as to achieve this balance is itself a crucial policy decision.

Recent experience with the publication of the ECB's comprehensive assessment of euro area bank balance sheets illustrates some of these issues. For each of the

14 Despite the availability of modern technology, which has significantly eased and facilitated the management and analysis of "big data".

roughly 120 banks that were part of the exercise, more than 12,000 pieces of information were published. Simple arithmetic dictates that the release of stress test results entailed publication of around one and a half million individual data points.

This was certainly an impressive (and important) exercise in transparency. Many of our colleagues who focus on the "bottom-up" analysis of individual banks benefitted over the subsequent weeks from the extraordinarily rich set of information that was made available.

But for the (more casual) macro observer, this volume of data was simply indigestible. Attempting to draw conclusions from a data set of 1.5 million observations in the course of a Sunday afternoon may lead us in directions other than those the policy-makers intended. Transparency may have come at the expense of clarity – at least for the macro audience – on this occasion.

5 CONCLUDING REMARKS: FORM SHOULD FOLLOW SUBSTANCE

In the monetary policy domain, communication has been shown to play a key role in enhancing the effectiveness of policy measures. It is unsurprising that this issue has again arisen upon the ECB's assumption of new supervisory and macro-prudential responsibilities in the context of banking union. Communication of statistical information and data underlying bank supervision and financial stability analysis are central to this debate.

We are sceptical that communication constitutes an independent channel of policy transmission. In our view, the design and presentation of statistics and data needs to be fully embedded in the overall policy framework. Communication of statistics should be understood as an amplifier of well-designed policies, rather than a substitute for them. However well communicated, a bad policy choice is still a bad policy choice.

Communication needs to be the catalyst for positive, stabilising feedback from market participants, financial institutions and the general public. To achieve this, communication needs to support both the predictability and the credibility of policy decisions: you need to "say what you do" and "do what you say".

But the most important issue remains making the right policy choice. For all the potential benefits of the communication of statistics and policy choices, it is crucial that statistics prompt analysis that leads to the correct decision. In the end, form must follow substance – not lead it.

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LITERACY AND CONFIDENCE – THE COMMUNICATION CHALLENGE OF ESA 2010

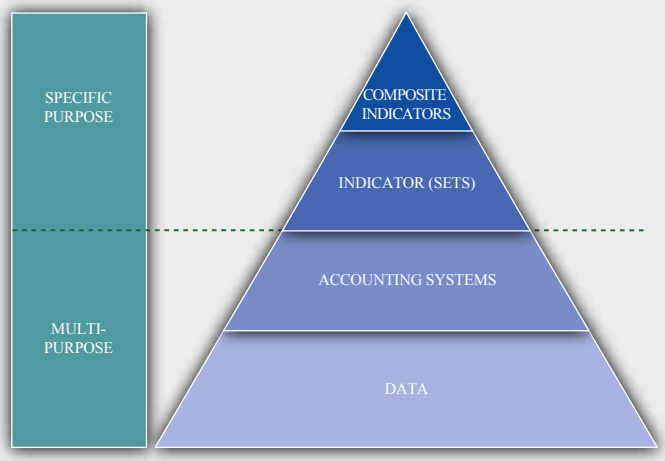
WALTER RADERMACHER[1]

As a starting point in thinking about communication, I might, as a German, turn to Habermas and the importance of language and communication. My starting point is that statistics is a language: it has grammar, syntax, semantics – all of which are features of a language. It allows us to talk about and deal with the features of a complex reality. Without statistics, we would not be able to have a debate about complex phenomena.

In fact, you could say that statisticians are in a similar situation to climate researchers. Everybody believes that he/she understands the weather, that it is a simple and concrete concept in which, for example, temperature is measured with a thermometer, but climate is an abstract concept, just as inflation and GDP are abstract concepts in statistics.

Therefore, when talking about statistics, we need a language, and my title highlights two concepts that go together – literacy and confidence. The more statistically literate your audience is, the easier you will find communication with that audience, but if your audience is not statistically literate, you will have to look at building confidence in the data that are used.

Chart 22 Statistical information infrastructure



1 Director General, Eurostat.

So what does this complexity mean in statistics? In statistics – in particular at the macro level – we can distinguish between data, accounting systems, indicator sets and high-level, composite indicators. And we find that communication difficulties increase the higher you go up this pyramid.

At the lowest level – data – communication is easy. Everyone understands the number of school leavers or the price of a cup of coffee. Accounting systems are much more difficult to communicate. For instance, when you want to talk about or make use of national accounts, you really need to understand the language. Communication becomes even more difficult when we look at indicator sets, such as those used for the macroeconomic imbalance procedure or the excessive deficit procedure, or at composite indicators, such as the inflation rate, which is constructed from a large number of individual price measurements.

One example of this is that it was extremely difficult after the introduction of the euro to communicate the inflation rate to the general public: they simply did not believe that it was as low as we said. There was a widely held perception that what we were calculating was totally wrong.

This is a question of literacy and confidence. And there are problems to solve in both areas.

ESA 2010

The European System of Accounts provides the rulebook for macroeconomic bookkeeping in the EU. ESA 2010 is the latest version of the rulebook, following on from ESA 1995. It represents a major change in national accounts methodology, of a type that only occurs every 15 years or so, and is based on a worldwide standard, the System of National Accounts (2008 SNA). We are now entering the final phase of 15 years of discussion and preparation.

Technically, everything is fine. If you know the language of national accounts and are part of the statistics community, then you will know that ESA 2010 is based on an international standard and 15 years of hard work, and you will have no doubt that it is a major improvement in the macroeconomic framework.

The question is how to communicate this to citizens so that they also believe it is an improvement. You can't just say that it is an international standard or that we can compare ourselves with the United States. The general public will ask if this is really relevant to them and their concerns.

EVIDENCE-BASED DECISION-MAKING

In our communication efforts, we were confronted with a number of problems, one of which is particularly important in the EU – evidence-based decision-making.

Evidence-based decision-making is used more and more in Europe, and is having a wide impact on the political sphere in areas such as the EU budget, structural funds and the excessive deficit procedure. In fact, in many areas of EU policy there is an extremely close link between evidence and decision, and there are even examples of evidence being used in place of decision-making – for example, pay rises for certain groups might be mechanically linked to a particular inflation index.

This linkage brings us to Goodhart's law – "when a measure becomes a target, it ceases to be a good measure" – and to the starting point of a potential feedback loop – decision-based evidence-making – which can lead to a lack of confidence among citizens if they perceive the statistics not as policy-relevant but as policy-driven.

It was in part for this reason that one of the key principles that we followed in our communication was that the communication should clearly come from Eurostat and our national partners in the European Statistical System (ESS), and not from the political level – the President of the Commission and the Commissioners. The aim was to keep our communication technical and to clearly show the separation between the evidence and the decision-making.

THE COMMUNICATION CHALLENGES

Here we come back to the original two challenges – literacy and confidence.

In the area of literacy, we needed to address not only the complexity of ESA 2010 itself, but also the fact that other changes were introduced at the same time. For instance, there were major statistical revisions to sources and the implementation of agreed guidelines stemming from work on harmonisation in the context of gross national income (GNI) and its use in determining EU budget contributions.

Confidence was equally important. The starting point here was that, particularly in the media, there was a perception that the change was not purely statistically motivated, but that the increase in GDP was designed to drive down the debt and deficit ratios. This is a very dangerous perception which, if unchallenged, could call into question the credibility of the switch to ESA 2010.

DIVERSITY OF TARGET AUDIENCES

Looking at the diversity of target audiences, we have those who are statistically literate and who understand the changes and their origins (statisticians, professionals, think tanks, economists, etc.); those who need to interpret the results (decision-makers and administrators); and the media, who we want to properly understand the changes in order to communicate them to our final audience – the general public.

For professionals and decision-makers, communication was relatively straightforward and made use of a range of common tools, such as our website, background material, training courses, conferences, webinars and seminars.

The most difficult audience was the media. The media, of course, want to tell a story, and in this context there was huge interest in one particular aspect of the changes – the inclusion of some parts of the illegal economy in GDP figures. This was in fact a marginal element of the change, and not even one due to ESA 2010, but the media loved this story, which led to many misunderstandings and even some (deliberate) misrepresentations. Much time was invested in trying to make the facts clear. However, the myth is "out there" and some groups within civil society link it further to an "antipathy towards growth" – the notion that GDP is not measuring what it is supposed to measure (well-being) and is therefore bad. The "sex and drugs and statistics" issue just serves to reinforce this misconception.

Only time will tell if we have succeeded in meeting the communication challenge, but it was not an easy task.

THE CAMPAIGN – STANDARD TOOLS

We started with a technical briefing in January 2014, at which we outlined the forthcoming changes, provided an initial estimate of their likely size, and explained the reasons for making the change.

In the final publication before the changeover, and in each relevant news release, there was a text box announcing the change and providing links to the detailed information available on our website. The final quarterly GDP news release compiled under ESA 95 included a one-page annex providing an overview of the changes and, again, links to the website.

Then, in mid-October, the first GDP news release under ESA 2010 was published. This release presented a comparison of annual data according to both ESA 95 and ESA 2010, quantifying and explaining the differences. It was accompanied by a technical press briefing.

On 21 October, the regular biannual news release on government debt and deficit figures was published using data compiled under ESA 2010 for the first time. Again there was an accompanying press briefing, at which a detailed quantification and explanation of the changes was presented.

THE CAMPAIGN – SUPPORT ACTIONS

But we also made use of other channels of communication.

All answers to relevant media questions were accompanied by standard statements repeating the same message over and over again (purpose, main features and main

impact of the changes). We created and maintained a media-friendly FAQ section on the website, in which we attempted to tackle the main myths pro-actively. And, based on our media monitoring, statements on particular issues were sent pre-emptively to all journalists on our mailing list.

Our campaign used social media as well, with regular tweets and a weekly series of short video clips on YouTube featuring Walter Radermacher and outside authorities talking about the changes.

COMMENTS

COMMUNICATING STATISTICS: IT'S MORE THAN NUMBERS

HANS-HELMUT KOTZ[1]

To justify its existence as a practical subject, statistics must ultimately influence people's decisions. It can only do this if statisticians succeed in communicating their findings to the decision makers.

B.H. Mahon, 1988

1 INTRODUCTION: FACTS, FACTS, FACTS?

Over the last couple of years, in the wake of the Great Financial Crisis, European nation states, sharing a common currency, have been intensively engaged in shoring up the infrastructure of their Economic and Monetary Union (EMU). Morphing at the end of 2009, more than a year after its eruption, into a partial (peripheral) European debt crisis, the GFC has made unequivocally clear that EMU is "incomplete" (Paul de Grauwe). Spreads between government bond yields were as wide and volatile as if EMU were a fixed exchange-rate system, and a badly working one at that. For numerous reasons (including turf wars), institutional learning is generally pathological and exhaustingly slow (Hall, 1989). This also held true for the debate on a common supervisory structure in EMU (or the EU), re-launched in mid-2012, around Banking Union and, more specifically, the Single Supervisory Mechanism. Its swift implementation in November 2014 would not have been conceivable without a foregoing accident on a massive scale.

In fact, all the arguments in favour of a supra-nationalisation of banking supervision had been largely discounted by the prevailing consensus only a few years previously. Moreover, those arguments were, of course, not flawed or erroneous at first sight (for an excellent discussion, see, e.g., Houben, 2008). At the time, facts (or data) where just read differently. The potential failure of a number of cross-border banks was understood as a low probability event and still as manageable within existing arrangements (memoranda of understanding, colleges of supervisors etc.). This set-up has proven to be wanting. The same facts are now re-framed and re-interpreted.

1 Prof. Hans-Helmut Kotz is Program Director, SAFE Policy Center, Goethe Universität, Frankfurt, a Resident Fellow, Center for European Studies, and a Visiting Professor, Department of Economics, both at Harvard University, e-mail: kotz@ifk-cfs.de or kotz@fas.harvard.edu; notes written for the proceedings of the ECB's seventh biennial statistics conference. I am deeply indebted to Aurel Schubert with whom I have discussed these (and other) issues for longer than I dare to remember.

This is where Statistics comes in – and this is also why investing some effort in pondering the subject of *communicating statistics* is such a pertinent endeavour. The ECB's DG Statistics is to be congratulated for having chosen this engaging topic for its seventh biennial statistics conference. Personally, I am grateful to organisers for having invited me, since this has given me the opportunity to pre-read the three excellent contributions to the panel's topic – as well as to return to an issue and a literature which have, in fact, fascinated me since my student days. After some brief comments on the presentations by Christine Graeff, Huw Pill and Walter Rademacher, I will list some open issues and end with three practical (and unsolicited) suggestions. But, given that our panel addresses a rather philosophical (or conceptual) topic, let me start with a couple of general remarks.

2 ..."SKILFUL USE OF WORDS, TABLES AND PICTURES"

Since time immemorial, statistics (and statisticians) has (have) been seen in a largely supporting role: collecting data and developing the tools to make sense of these numbers (Alain Desrosières, 1992). Statistics, as a mere instrument, was often separated from substance and had a largely input- or service-oriented role. Hence, its ultimate purpose was client-defined.

And the first client was, of course, the Prince or the State – statistics originally standing for "studies of the state". This was, for example, the perspective of the Göttingen School's *Staatskunde*, all-encompassing in scope and largely qualitative in approach (Diekmann, 2014, p. 94). From a different angle, England's "political arithmetic" was observational, quantifying and focused on regularities – a precursor to understanding average or population behaviour – statistical regularities, in short – from the perspective of Adolphe Quetelet's *homme moyen* (average man) (as developed in his *Physique Sociale* 1835, see Alain Desrosières, 1992, pp. 94-99). The early English statisticians, foremost their first, John Graunt (in his *Political Observations* of 1662) as well as Sir William Petty (the author of *Political Arithmetick*), were more focused: data collectors as well as interpreters. There was no immediate purpose attached to their research efforts, i.e. sampling and pondering interferences from these numbers (probabilities). Nonetheless, Graunt's tabulations of births and deaths in London proved, of course, decisive in creating, amongst other things, a whole new industry: insurance (see the marvellous account of Peter Bernstein, 1996, pp. 74-95).

Thus, *l'art pour l'art*, finding its purpose mainly in itself, is only rarely a sufficient condition for an academic discipline. Statistics has always also been a *Staatswissenschaft*, in German speaking countries the old notion for an encompassing analysis of all things public (from law, to *Nationalökonomie/ Volkswirtschaftslehre* (economics) to statistics). Statistics was therefore always about supporting decisions (policy formation implementation as well as evaluation), also often with an evidence-based approach from early on.

Quite obviously this also implied framing or influencing decisions. And it inevitably included communication – in this particular case: "…the skilful use of words, tables and pictures" (Mahon, 1977, p. 298). As a consequence,

there is ample literature on how to (or how not to) tell a statistician's story, present the findings. And there are also long-standing complaints amongst statisticians – they are loath to get their message across. Ultimately, statistics is a language with its own, evolving grammar (see, amongst others, Arney, 1979, or Boroto and Zahn, 1989), and getting into speaking terms with one's target audience often requires quite some translational effort. Unfortunately, this presentation of statistical information is often really badly done (Wainer, 1984). At the same time, given that this is a recurring debate amongst statisticians, numerous laudable and very practical efforts at improving communications have been made (see, in particular, Ehrenberg, 1977, on how to construct tables, or Edward Tufte on how to design telling graphs in, for example, his magisterial 1983 work *The Visual Display of Quantitative Information*).

This communicating part – or, if you like, the marketing dimension – has often not been taken as seriously as it should have been; not, at least, if statisticians/ statistics want(s) to have an impact. Of course, it would be interesting to understand why this is the case. In other domains, purposeful communication is rather uncontroversial; for example, when it comes to issues of (private or, less so, public) health. Designing preventive strategies to cope with diseases does not need much justification. Consequently, improving ways to get one's message across, which ultimately means, of course, that the target audience *acts* accordingly, are actively pursued and fostered in a number of disciplines. In those areas, the emphasis is on application or implementation. In the case of cardiovascular disease – "the major cause of death in adults in Europe" – for example, it is generally accepted that "practical prevention will only be achieved through dynamic partnerships between the medical profession, Government, voluntary bodies, teaching institutions, insurance companies and paramedical bodies" (Graham and Clavel, 2003, p. 217).

However, such universal agreement on preventive measures in matters of financial stability does not exist. This might have something to do with the objective pursued, which is not at all well-defined. It might also be connected with the side-effects of the tools used to promote financial stability, which inevitably come with opportunity costs, i.e. losses for some (politically significant) market participants, and impact different interest groups differentially. That is why the dynamic partnership to which Graham and Clavel refer is so difficult to create. The stubborn resistance of major parts of the financial industry – understandable and legitimate from their perspective – testifies to this. This is more about the political in "political arithmetic", or about political economics.

But, even at the stage before the purely presentational and the subsequent interpretative part, there is substantial room for improvement. While this might sound trivial, it sheds light on foundational issues for statistics as a discipline: "considering aims and objectives requires thinking about the nature of statistics itself… something that has never been properly resolved, agreed on, and then communicated" (Wild, 1994, p. 163). According to Christopher Wild (and, amongst others, Frederick Mosteller and Donald Marquardt), statistics should aim for a "wider view", including the whole process of inquiry, not only its number-crunching or service part.

As far as the provision of the public good of financial stability is concerned, this ideally entails statisticians being involved in the research design process, in methodological issues (data collection, data summaries – the eponymous "statistics") and in policy implementation and evaluation. It also entails thinking about how to make the knowledge created intelligible to a wider audience, given that "the purpose of data analysis is to facilitate human understanding of data" (Wild 1994, p. 168).

Understanding – readability – by necessity requires theoretical or analytical frames. Ways of reading and communicating have to be tailored to the respective audience. In our particular case, this includes, of course, the respective industry and private market participants. But the communication task is made much more challenging by the fact that the audience also includes the general public, given that decisions on financial stability issues have a large policy impact and therefore are often subject to political debate, as they should in democratic societies.

3 COMMUNICATION, AN INDISPENSABLE POLICY TOOL

This is exactly where Christine Graeff begins her excellent contribution to this panel. It puts central bank communication (with diverse audiences) at the front and centre of the debate. Referring to monetary policy, which became over time, as she documents, ever more data-driven and thus, almost by necessity, communicative, she highlights that making policies understandable has become a core tool of central bank policy for more than a decade now. Long gone are the days when central banks could be – mainly correctly – portrayed as temples, jealously guarding secrets (see Blinder, 2004, or, for an early exposition, Winkler, 2000). In particular at the zero-lower bound of nominal rates, where the standard interest rate policy instrument is of largely no avail, "forward guidance" becomes an indispensable tool, both independently and as an additional channel of influence on the economy.

By analogy, Christine Graeff extends this argument to the new – *pace*: economic historians: old – task central banks are charged with: micro- and macro-prudential regulation of the banking industry.[2] She convincingly explains why communication is of the essence in the financial stability domain also. And she emphasises a particular case – the information needs of private households faced with the challenges of their (in most cases) most important investment decision: to buy a house or to continue renting. Christine Graeff, approvingly, refers to a website of the Federal Reserve Bank of New York, lauding its user-friendliness. She also highlights the importance of telling the statistical story to one's audience in a readable or decipherable way as well as, one would assume, actionable. This is the statistician in a translator and enabler role, as referred to before. However, while we largely agree, we do not concur with her larger claim: namely, that the data basically tell their own story.

2 Both roles, the micro- as well as the macro-prudential, are indeed as old as central banking, see Goodhart, 1987.

Huw Pill, in his comments, does not agree either. He shares, as we do, many of the points with Christine Graeff, and he focusses his remarks on the pertinence of communication for achieving the objectives of banking union. Huw Pill highlights the four reasons why communication has become an indispensable ingredient of modern monetary policy (as well as modern supervisory activities). Transparency reduces uncertainty, thereby improving the implementation of monetary policy. It enhances effectiveness. And it also allows proper accountability. This also fits well, as Huw Pill goes on to argue, with the ultimate objectives of Europe's banking union: fostering a resilient and efficient environment for intermediation in a deeply integrated European financial industry. As a welcome (almost intended) side-effect, this is also conducive to the monetary transmission mechanism.

Huw Pill, however, also emphasises three critical issues: given that the ultimate goal is largely defined *ex negativo*, it is difficult to specify the effectiveness. But here, with financial stability, the purpose is to be roughly right. Regarding the tasks that financial stability communication is charged with, there are a number of snags ("trade-offs"): full transparency might entail too much complexity – four-handed economists – at the price of clarity and simplicity. The latter being a virtue in communication with larger audiences. Moreover, with substantial uncertainty in markets, prone to go awry at times, acknowledging the potential for self-fulfilling prophecies is a sensible policy. Hence, central banks might, given circumstances, mince their words. Huw Pill concludes by insisting on the positive role effective communication can play by (a) ensuring predictability ("say what you [will] do [contingent upon]") and (b) providing credibility ("do what you say [unless contingencies force your hand]"). I largely agree (my modifiers are added in brackets). In particular, I concur with Huw Pill's view that communication is not an independent channel for financial policy. To convince the representative market participant (Quetelet's *homme moyen* of sorts), central banks have to put their money where their words are. But communication is a clarifier as well as an amplifier – no mean roles at all.

Walter Radermacher, in his presentation, elaborated on another important case: the implementation of ESA 2010, the revised procedures to produce data on national income, spending, financial flows and stocks. This substantial and obligatory change was based on the changed System of National Accounts of 2008, an independently developed, worldwide standard. Walter Radermacher focused, in particular, on the communication challenges, arising especially from two barriers: complexity (hence the difficulty of understanding) and suspicion (about non-statistical reasons for "fumbling" around with measurement instruments). Moreover, the target audience was broken up into three distinct groups: professional data users (including policy-making institutions), the media, and the general public. While professionals (as well as clients in administrations) proved to be an uncomplicated target group, this did not hold true for the media. They are, as Walter Rademacher pointed out, in the business of story-telling and simplifying. And some are also vulnerable to over-simplification or probing for all sorts of conspiracies. Given the competitive pressures under which, in particular, the classical print media work, scandalisation/personalisation have

become an almost self-evident survival strategy. Walter Rademacher, rather sceptically, referred to work of the great philosopher Jürgen Habermas on the deliberative capacities of the public sphere – hopes (as entertained in Habermas' 1962 work *Strukturwandel der Öffentlichkeit* (The Structural Transformation of the Public Sphere)) that have largely been dashed.

While this is beyond the scope of my brief remarks, what I found particularly interesting was the approach taken by Walter Rademacher and his colleagues at Eurostat to face these challenges – campaigns, directed at specific audiences, including the use of social media. This is very old-fashioned in its focus on enlightenment – and all the more convincing as a result. But they also face up to client-specific challenges to get their message across to the receiver.

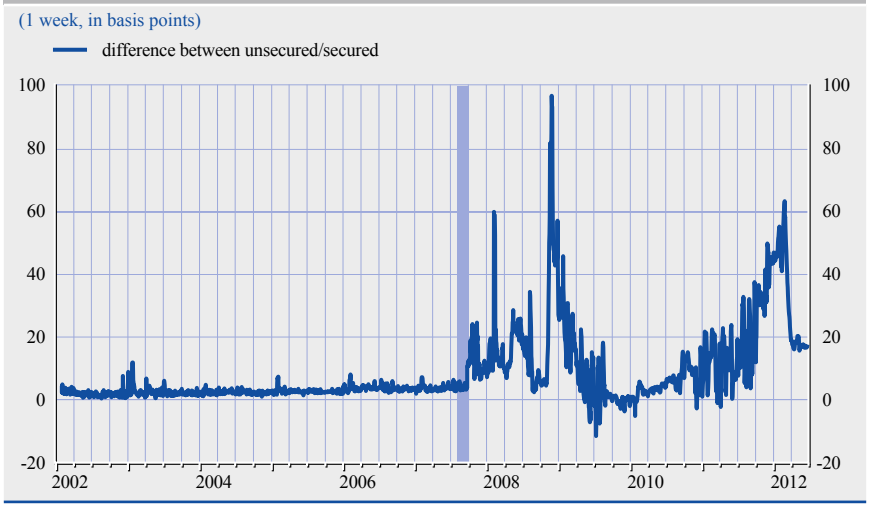
4 FACTS DON'T (AND CAN'T) TELL THEIR OWN STORY

There is ample room for improvement in presenting data (and facts) in a more telling and readable way. And the statistics profession has, at various points in time, taken up the issue. In particular, Edward Tufte has made very valuable propositions with regard to graphical presentations; as has Andrew Ehrenberg on how to support numeracy, or data literacy, with proper tables. Howard Wainer, in, for example, *How to display data badly* (Wainer, 1984), has also done the profession an enormous favour by "categorizing methods of *bad* data display" (ibid, p. 137; my emphasis). Unfortunately, and against his proclaimed intentions, his advice is still too often followed.

However, while proper tabulation and graphing are of substantial importance, they are not sufficient on their own. Statistics cannot avoid issues of substance – or a consistent way of reading the data. As Alfred Marshall was fond of saying: facts don't tell their own story. They have to be interpreted in the light of a theory. Therefore, statistics cannot shy away from analytical moulds. To be legible, statistics must make reference to stories, ways of interpreting or making sense of numbers. The run-up to the Great Financial Crisis – as it was called *ex post* – is one of many cases in point. Just consider the following two graphs, showing the spreads between secured or collateralised lending in short-term inter-bank money markets before the crisis broke in the summer of 2007 over the subsequent half decade.

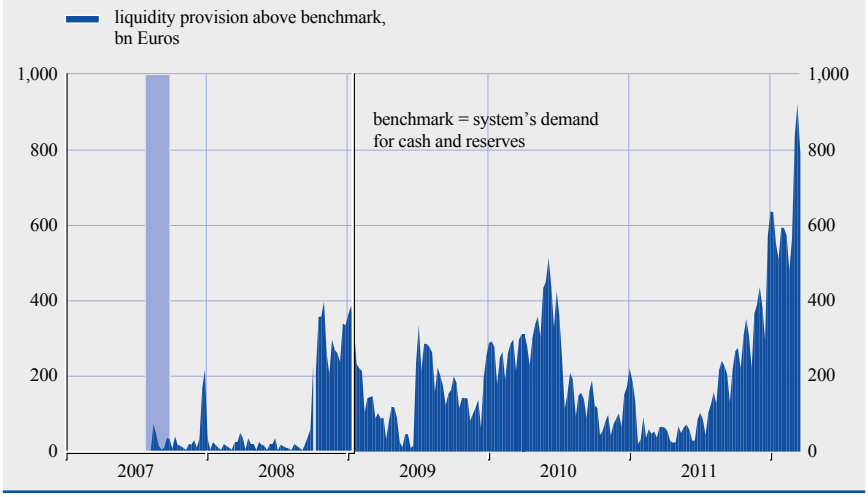
Chart 23 shows spreads for unsecured interbank lending. We focus on the phase around August 2007, when spreads suddenly widened out substantially, as compared to their previous history, between 2002 and August 2007. Of course, this was small fry indeed relative to what happened later on, in particular in the wake of developments around Lehman and AIG. But in mid-summer 2007 actors were, of course, not in the know about what they were to face later on. For them, Chart 23 was truncated at the shaded area. But they had to act, nonetheless, on the basis of their reading of available real-time data and the theories to make sense of them. The ECB chose to implement a policy of full-allotment at a fixed rate, adding substantially more liquidity to the system than was required from a benchmark perspective (i.e. the system's needs as arising from demand for

Chart 23 Spreads in interbank lending



Source: ECB.

Chart 24 ECB Main Refinancing Operations



Source: ECB.

cash and reserves). While this policy had quite some shock value at the time (in August 2007), it was of course dwarfed by what was to follow (see now Chart 24, to the right, of Sept 2008).

Initially, for perfectly legitimate reasons, policy-makers' responses were almost contradictory. Some authorities, with reference to, amongst others, Stiglitz, Grossman and Weiss, insisted on letting the market sort it out ("finding a separating equilibrium"). Hence they stayed on the side-line, which was also

a way of dealing with pertinent issues of moral hazard ("teaching them a lesson"). However, early on the ECB read what was happening as a run à la Diamond-Dybvig, although not happening in the retail space this time, but in the wholesale domain (Kotz, 2008). The latter interpretation only became conventional after some time. With ex post knowledge, policy-makers might have behaved differently. But they were not blessed with hindsight – they never are. The movie is simply not running backwards.

Moreover, contemporaneously, sceptics with regard to the evolution of housing or structured credit markets were in a tiny minority indeed. Whilst I, personally, sided with them, finding observations and arguments of Robert Shiller (and Carl Case) in 2004 (on house prices in some regions of the United States), Raghu Rajan in 2005 (on systemic issues with regard to credit derivatives) and Nouriel Roubini (establishing the link between structured products, home prices and potential macro risks) convincing, there were not too many who shared similar perspectives.

Here's the point. The same data, not only the new facts, were deciphered rather differently by a large majority of perfectly respectable economists. (More importantly, investors put their money in a continuation of prevailing trends.) It should be obvious on whom policy-makers will make their bets. After the fact, it is, of course, gratuitous to show that those firmly held beliefs were erroneous. The real question is: "why did so many people make so many ex post bad decisions?" (Foote et al., 2012). Or how did these dominating "distorted beliefs" – what Robert Shiller called three decades ago "social fads" – arise in the first place? Why do they do so on an almost regular basis?

This is where statistics could play a decisive role. It should have the courage of a "wider view" (Wild 1994). Christopher Wild emphasises that the investigative process has to be understood holistically. Beginning at the beginning: the research question. It would be too narrow a view to understand statistics only in a serving role or supporting capacity, collecting and delivering the data (which data?) for the serious analysts to take up the baton and do the important work. Unfortunately, such an understanding is still deeply engrained in the institutional set-up of a number of organisations. It is inappropriate for the tasks at hand, and it underutilises what statistics can and, indeed, should deliver.

5 PRACTICAL SUGGESTIONS, COMPLETELY UNSOLICITED

Verstehen ist eine zweistellige Relation. (Understanding is a two-way relationship.)

Jürgen Habermas, 1963

Data, as well as their interpretation, inevitably have a public-good dimension. Statisticians are in the old-fashioned business of contributing to enlightenment, nurturing public discourse. Communicating – making oneself understandable – is the crux of this task. As Jürgen Habermas once wrote: "Understanding is a two-way relationship." Consequently, the sender of a message has to take into

account the intended receiver's capacity to absorb information. And, to repeat, statisticians do serve different audiences. This "requires a willingness [to use] the consumer's language and [respect] the consumer's epistemology" (Boroto and Zahn, 1989, p. 72).

In conclusion, I would like to focus on a particular clientele – students just embarking on becoming acquainted with numbers and their reading. Obviously, access to data is of the essence; and access means both availability of numbers and availability of devices to gauge what those observations might tell us.

This endeavour is all-encompassing in scope. But it can be illustrated nicely with the topic at hand – monetary policy and financial stability. The ECB offers, through its very useful *Statistical Data Warehouse*, a wealth of data with substantial granularity in terms of issues treated. In fact, for the newbie, this treasure trove is often overwhelming. Hence, a suggestion would be to simplify access and reduce hurdles. One option could be to provide data on different levels, with users graduating to higher levels over time. The unsolicited suggestion I am making is to create a first-step platform, including ways of portraying the observations in a telling way.

Secondly, observations can and, indeed, should be seen from different angles. On the ECB's statistics' webpage, this might take the form of regular (concise) articles on what one can do with numbers, showcasing tools and methods of interpretation. Communicating in this case would entail enabling – providing users with tools to handle (manipulate, as it were) the data. Preferably, this would revolve around current issues of monetary or financial stability policy, always at an applied level and possibly using open-source programs (R, for example) to do the numbers.

Whilst both propositions might be judged as too narrow in focus, I wholeheartedly concur with Christopher Wild that we should not miss the opportunity to whet students' appetite early on. But the ECB's statistical platform can (and should) also be attractive for interested laypersons. If data provision were matched with concise articles on tools and ways of interpreting numbers, this could substantially contribute to an interested public's capacity to judge.

A third aspect would be interesting to ponder: private households are being expected to take care of the risk they face themselves to an ever larger degree. Becoming "risk savvy" (Gigerenzer, 2013) is therefore indispensable. Statistics could contribute to this – not only by showing the numbers (with long-term averages as anchoring devices or points of reference) but also by putting those numbers into historical and analytical contexts.[3]

3 Of course, to face up to these challenges, we have to be more than financially literate. There is an important behavioral economics dimension to this (see, for example, Kotz and Weber, 2007). Still, by just providing an appropriate data context, statistics could at least nudge people into caution or careful pondering of facts.

To conclude: communication is an essential tool of policy making. With regard to statistics, it has to be more than just publishing "the facts". Those can be read rather differently. Hence, public authorities should, in addition to making data available, also enhance interpretative accessibility. Actually, to prevent group think from developing, it would be better if the tools provided and perspectives rendered were eclectic. Our knowledge is of too fragile a nature to disregard the critics.

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DISCUSSION SUMMARY

Aurel Schubert (European Central Bank) introduced the topic of the session by saying that good statistics, which are up to date, reliable, accurate, timely and of the highest quality, need to be communicated in the best possible way to a vast and very diverse audience, making sure that the underlying message meets the user requirements and, at the same time, is reflected in the best way in market expectations. He noted that as statistics are a public good, they should be shared with the public and communicated in a way that fits the knowledge, skills and needs of different audiences. He also indicated that good communication should describe the limits of the statistical data; hence, the usefulness of data and the gaps in the available information should be communicated together.

Christine Graeff (European Central Bank) highlighted the role of communication in general and as an instrument of monetary policy in particular. Her presentation stressed the importance of statistics and the need to put data in the right context. Statistics – the eyes and ears of monetary policy – are essential for monetary policy and are therefore becoming ever more crucial. The need to justify and explain decisions to a diverse audience should also be considered as part of an effective communication strategy, which should provide the public with the tools to properly understand the message and should be used to manage expectations as precisely as possible. Data should be presented clearly, and the approaches used should bring them to life. The way data are presented can determine the success or failure of communication: for a central bank, a communication failure would mean a loss of credibility. Ms Graeff concluded by noting that central bank communication strategies have changed significantly over the past 20 years and that the ECB has its own approach, which it is working on improving even further.

Huw Pill (Goldman Sachs) offered the perspective of a user of statistics in financial markets. He focused more narrowly on communication issues related to the banking union. His presentation emphasised that communication is not an independent channel of policy transmission, but rather a complement to, and amplifier of, policy decisions. Communication needs to be part of an effective policy framework, rather than an operation that runs in parallel with the decision-making process. The banking union is an important and successful project aimed at underpinning a robust, resilient and efficient European banking sector. He noted that communication should support the effectiveness of policy actions by enhancing their transparency, clarity and accountability. There are, however, potential trade-offs between these channels (for example, between transparency and clarity, or between honesty and impact). The quality of central bank communication is in large part governed by the skill with which these trade-offs are managed. From a practitioner's perspective, another important aspect of communication relates to its influence on feedback effects and market responses. Successful communication needs to create and maintain policy predictability and credibility.

Walter Radermacher (Eurostat) addressed two important aspects of communication, namely literacy and confidence, and referred to the specific case of the release of the new macroeconomic figures based on the European System of Accounts (ESA 2010). He highlighted the importance of proper communication – briefly mentioning Jürgen Habermas' theory of communicative action based on language and communication – and the challenge for statisticians to build the necessary literacy in the public so that the information is correctly understood. He stressed that the key element is the availability of figures that can sufficiently fuel the communication engine. Mr Radermacher then mentioned the communication activities and coordinated efforts with all Member States' national institutes of statistics which were required for the introduction of ESA 2010. He mentioned how important it is to choose different communication channels and approaches depending on the literacy level of the target audience (e.g. experts, decision-makers, the public and the media), indicating that the public and the media are the most difficult audience to deal with.

In the discussion, **Brian Blackstone** (Wall Street Journal, Frankfurt office) and **Hans-Helmut Kotz** (Center for Financial Studies, Goethe University Frankfurt, and Center for European Studies, Harvard University) discussed the papers presented by Ms Graeff, Mr Pill and Mr Radermacher.

In the discussion on Ms Graeff's presentation, **Mr Blackstone**, as a consumer of statistics on economic developments and central banking, pointed out how complex central bank communication has become, especially in recent years. He recalled the types of indicator that the Chairman of the US Federal Reserve used to look at in the 1980s for information on the behaviour of the US economy. In more recent years, in contrast, owing to the unconventional times, policy-makers have had different needs and faced different challenges in trying to communicate with the financial markets. Mr Blackstone explained the importance for journalists of understanding what central banks look at and which indicators central banks and policy-makers consider relevant. The financial markets greatly value clear communication based on specific indicators. He then mentioned the importance for central bank communication of not surprising the financial markets or the media, instead providing a sort of guide to what they consider important when determining unconventional monetary policy measures.

Mr Kotz, the second discussant, first addressed Mr Radermacher's presentation. He referred to the extensive work done by Jürgen Habermas on communication issues, in particular the impact of communication statements on an audience. Mr Kotz also referred to what the mathematician Kelvin said concerning numbers and knowledge: "When you can measure what you talk about and can express it in numbers, you know something about it, but when you cannot measure it, when you cannot express it in numbers, your knowledge is unsatisfactory." He noted that communication has become increasingly important in the context of monetary policy. However, with reference to the independence of communication mentioned by Mr Radermacher, he stressed that communication cannot be an independent device or instrument, especially in the domain of financial stability, which is particularly complex. He then moved on to Ms

Graeff's presentation and agreed with her that the diversity of the audience is a key element to be considered when designing an effective communication policy, which should target various audiences and not only market experts. Mr Kotz also agreed with Mr Pill about the importance of honesty, effectiveness and transparency in communication and the fact that communication is crucial for reducing uncertainty and explaining actions. He concluded with a remark by Alfred Marshall ("facts do not tell their own story") and emphasised that theory is needed as well as explanations, as people need to understand why particular policy decisions are taken, as highlighted by Ms Graeff.

Carlos Sánchez Muñoz (European Central Bank) referred to the statements by Mr Pill and Mr Radermacher about the way in which statistics are presented. He asked whether there was a way for them to converge towards a common message, since Mr Pill indicated that statistics should go together with monetary policy when communicating policy measures, while Mr Radermacher emphasised the independence of communication and the evidence (statistical data) provided.

Per Nymand-Andersen (European Central Bank) asked Mr Pill about his views on central banking transparency and clarity in the context of the ECB's forward guidance as a tool for anchoring inflation expectations in the medium term, and about the expected publication of the deliberations of the Governing Council. He asked which other tools Mr Pill would suggest to provide more clarity to the market.

Mr Pill started by answering the second question, stressing the importance for a central bank of "doing what you say and saying what you do". As regards Mr Blackstone's comment on complicated policy in a complex environment and the difficulty of being clear about complicated issues, he pointed out that there must be an attempt to make the message simple but not simplistic, as a simplistic message may entail a loss of information, as well as credibility. Transparency and clarity are not absolute values: effective communication has to manage the trade-off between the two.

In response to the first question, he said that statisticians should be independent in producing information. On the other hand, policy-making and the production and communication of statistics need to be consistent and seen as part of the whole process. They should complement each another without endangering the independence of either those producing statistics or those taking policy decisions.

Mr Radermacher agreed with and supported the explanation given by Mr Pill.

Ms Graeff first addressed the comments by Mr Blackstone. She stressed that central bank communication is indeed very complex, saying that she understood the media and the markets' desire for messages from the ECB which are not too complicated and based on a few clear indicators. However, given the trade-off mentioned by Mr Pill between clarity and the risk of being simplistic, central bank communication should maintain a constructive ambiguity. On the comments by Mr Kotz, she said that the accounts of the Governing Council meetings will help

to understand the policy decisions, although the challenge of the communication policy will be the question of how to report a useful discussion in the ECB's Governing Council without the risk of it being perceived as a disagreement.


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CONCLUDING REMARKS

DANIÈLE NOUY[1]

Ladies and gentlemen,

Let me warmly thank you for your attendance at, and valuable contributions to, the seventh ECB statistics conference. Please allow me to make a few concluding remarks before the end of this successful event. It has been my pleasure to participate in this conference for the first time as Chair of the Supervisory Board and I greatly appreciate this opportunity to address such a distinguished audience.

BANKING UNION: CHALLENGES AND OPPORTUNITIES

The banking union constitutes a milestone in the reinforcement of the institutional framework in the euro area. It will be the driver for achieving one of the main objectives since the beginning of the financial crisis: boosting the confidence of citizens and markets in the resilience of the banks under our supervision. And statistics (data) will play a crucial role in achieving this aim.

Confidence in the banking system arises from a positive perception of its robustness, but our senses cannot directly assess this robustness. In order to assess how sound a bank, or a banking system, is, we need data, we need statistics.

I have stated on a number of occasions that European banks are much better than markets perceive. The failure to provide full transparency of banking institutions has been one driver of this misperception.

Pillar 3 of the Basel Accord aims to encourage market discipline by developing a set of disclosure requirements to allow market participants to assess key pieces of information on the capital adequacy of institutions. Hence, there is already information publicly available that should help to improve transparency. Nevertheless, currently it is not yet possible to access this information in a quick and harmonised way. This makes it difficult for the markets to compare the health of banks, and reduces the efficiency of market discipline.

Lack of transparency is also due to very quick changes in the complexity of the world. In the last two decades we have witnessed a technological shock that has dramatically increased the complexity of the world, especially in the financial system. Interactions between financial agents have become much more global and frequent. The possibilities generated by vastly increased computational power allow us to make very difficult calculations in a short time, thereby contributing to the creation of complex financial instruments. The oversight of the financial sector requires, more than ever, accurate data with high frequency and quick availability.

1 Chair of the Supervisory Board of the ECB.

Banks themselves are also suffering from the lack of transparency, not only because of the misperception in the markets, but also because of the unsatisfactory coordination of national initiatives to improve the situation. Banking institutions active at European level face the problem of having to comply with an increasing panoply of regulations and, more specifically in the statistical field, different reporting requirements and definitions of concepts. The European Banking Authority (EBA) has already started to work on the harmonisation of data requirements and definitions for supervisory reporting. But banks do not only compile supervisory information: harmonisation of data requirements should include other domains, like monetary policy, national accounts and market operations.

We face very relevant challenges, and the banking union shall serve as a catalyst for achieving the necessary improvements. There is no doubt that the integration in one institution, the ECB, of different domains related to the euro area banking system paves the way for enhancing the statistical function within the European banking system. Nevertheless, the ECB and the EBA should collaborate to achieve a modern reporting environment for banks, increasing the availability and quality of both public and confidential data, while helping to alleviate the reporting burden.

SUMMARY OF THE CONFERENCE CONTENTS

So statisticians have a very challenging task on the horizon, but let me express my confidence in their success. Statisticians know what they have to do; this conference has clearly showed it.

The presenters have successfully analysed the challenges we are facing, and have included very relevant proposals.

In this context, there is a question that has been repeatedly addressed in the presentations: integration in its many aspects. You have had the opportunity to hear the experience of some European countries that are heading towards an integrated statistical approach, where collection, production and dissemination of data is centralised and performed indistinctly of the final information purpose.

You have heard and discussed ideas like the use of micro data or the design of multipurpose reporting frameworks. This approach should help increase the reliability of information and the overall efficiency of the statistical process, while reducing the burden for reporting institutions. Thus it seems clear that integration is a win-win solution; statisticians should continue to work on it.

You also had the opportunity, during the third session, to discuss how the micro and the macro perspectives interact. Although there are different perspectives from which we need to analyse banks (e.g. macro-prudential, micro-prudential and monetary), they all concern the same underlying reality: banks and their business. This idea links again with the previous concepts related to integration, which should ensure that the different sets of information we analyse, depending on the perspective, are consistent.

Learning from the experience of the Federal Reserve has been a very valuable and inspiring added value of the conference. The Fed is facing similar challenges to those we have within the banking union, and we have seen that it is working on solutions based on similar ideas to those presented by European authorities. In this respect, I would like to highlight three of the proposed ideas: the concept of transforming the data culture; the idea of developing best practices for data governance and management; and the need for global communities to address our common challenges.

The last topic of the conference concerned communication. Data is information and information exists to be communicated. But the communication of statistics can be a very complex and delicate issue, as the experience with the new standards for national accounts shows. Statistics need to be communicated to a variety of audiences, not all of which have the technical background to fully understand them. If we manage to create good data, but fail to communicate their meaning, the ultimate objective of statistics – but also of supervision – might, at least partly, fail.

CONCLUSIONS

The world is rapidly evolving and the banking system is quickly adapting to this evolution. Data (statistics) are the basic material for assessing these changes. If statistical practices do not evolve at the same speed, we will find ourselves unable to properly analyse reality.

This conference has shown some of the recent developments that different authorities have applied in order to enhance their capacity to create statistics. It has been made clear that we need accurate and timely data to analyse the reality of the banking system. Only holistic strategies, across countries and domains of interest, will enable us to really improve our current status. We have to overcome silos, in data collection and data banks, but also in minds, and create an integrated picture.

There are at the moment a number of activities aimed at enhancing such statistical integration. I have already mentioned the EBA, which has harmonised supervisory data collection among EU countries. But that is not the only European development. Currently there are working groups trying to further harmonise reporting requirements for banks (e.g. by creating a European reporting framework), or to create a common statistical dictionary of financial concepts.

And there are other initiatives at a more international level aiming to enhance the use of standards in statistics, some of them well-known for many years, like the United Nations System of National Accounts or the initiative by the Financial Stability Board.

Integration, harmonisation and standardisation are necessary, although not sufficient, conditions for achieving a fully satisfactory degree of transparency in the banking system. We also need to properly disseminate and communicate the data.

In this regard, creating a common repository ("European Hub") for publicly available data could be a relatively simple task with a very important and positive impact.

At this moment, the statistical world is facing many challenges and there are still many things to do. The banking union shall serve as a catalyst for the very relevant improvements we all expect.

I recently wrote that I cannot promise that the ECB can once and for all eliminate the risk of another financial crisis. But the ECB is equipped to minimise this risk. And statistics play a crucial role here. Remember that the inability to correctly measure and analyse the risks associated with banking activity was one of the reasons for the current financial crisis. Developing and communicating accurate and timely statistics is essential in order to avoid the repetition of this failure in the future. For that reason, all of us – institutions and individuals involved in the banking statistical process, reporters, regulators, statisticians and supervisors – share a common responsibility towards society. Let's keep on working on the construction of a more solid foundation for the future of the financial system.


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CONTRIBUTORS AND RAPPORTEURS

Blackstone, Brian
Wall Street Journal

Bonnici, Josef
Governor, Central Bank of Malta

Buurmans, Hans
Chair of Reporting Requirements Task Force of Banking Supervision Committee, European Banking Federation

Casey, Micheline
Chief Data Officer, Federal Reserve Board

Dewatripont, **Mathias**
Deputy Governor, Nationale Bank van België/Banque Nationale de Belgique

Duarte Neves, Pedro
Vice-Governor, Banco de Portugal

Fabijan, Janez
Deputy Governor, Banka Slovenije

Graeff, **Christine**
Director General Communications & Language Services, European Central Bank

Haben, Piers
Director Oversight, European Banking Authority

Ittner, Andreas
Vice-Governor, Oesterreichische Nationalbank

Kern, Steffen
Head of Financial Stability, European Securities and Markets Authority

Kotz, Hans-Helmut
Senior Fellow Center for Financial Studies, Goethe University and Center for European Studies, Harvard University

Le Lorier, Anne
Deputy Governor, Banque de France

Mazzaferro, Francesco
Head of Secretariat, European Systemic Risk Board

Nouy, Danièle
Chair of the Supervisory Board of the Single Supervisory Mechanism, European Central Bank

Pill, Huw
Chief European Economist, Goldman Sachs

Radermacher, Walter
Director General, Eurostat

Restoy, Fernando
Deputy Governor, Banco de España

Rimšēvičs, Ilmārs
Governor, Latvijas Banka

Schubert, Aurel
Director General Statistics, European Central Bank

Signorini, Luigi Federico
Member of the Governing Board and Deputy Governor, Banca d'Italia

Špolc, Martin
Deputy Head of Unit Banks and financial conglomerates II, European Commission

Véron, Nicolas
Senior Fellow, Bruegel

RAPPORTEURS

Bareikaite, Egle
Directorate General Statistics, European Central Bank

Dionelli, Iphigenia
Directorate General Statistics, European Central Bank

Gadsby, Robert
Directorate General Statistics, European Central Bank

Lasuen Marina, Jose Ramon
Directorate General Statistics, European Central Bank