Welcome address

10th ECB Workshop on Forecasting Techniques
Economic forecasting with large datasets

Ladies and gentlemen, welcome the 10th edition of the ECB workshop on FT.

I am particularly proud to introduce this workshop that I had helped organising several times in the past and that has always witnessed contributions by the best scholars in the field. And this year is no exception.

Since the first edition in 2001 this workshop has become an established reference for new theoretical and applied work on forecasting. The topic of this year is in line with the most recent trends in forecasting.

Forecasting is the way we cope with uncertainty in our life from an individual, social, and institutional perspective

It is also a key element of the decision making process of a central bank and many of our experts at the ECB spend a big fraction of their time in activities that include forecasting, counting the organization of events like this one that put together scholars, practitioners and central bankers.

A recently created division at the ECB is at the forefront of research on macroeconomic forecasting and policy modelling.

Forecasting is at the crossroad of scientifical, technological, social and also ethical domains. As such it shows a rich and complex picture. This picture has been recently enriched further by the rapidly increasing availability of methods for collecting and processing large amounts of data to serve the most disparate needs. This year's workshop joins this big data enthusiasm that has percolated society at large

The emergence of Big data is already history. But it has opened incredible new opportunities for several industries and institutions. We economists, for instance, can explore old questions whose answers where difficult when only based on few macro aggregates. Big data can also open new doors to organise the development of tools and methods necessary to exploit in a reasonable way this data, for instance to improve predictions. As a matter of fact, an extreme inductivist view of this revolution proclaims that all we need is data and smart enough machine learning algorithms.

Do we believe this? Is it true that big data or big data alone is synonymous of better predictions? In fact, what is the meaning of better? Can we use the same metrics to evaluate forecast accuracy? Are recent applications of machine learning such as *predicting policing* better because they are more objective and judgment free? Can this data deluge make scientific methods obsolete and an ethical approach even less necessary given that the machine is objective in finding a pattern?

Conferences like this one (and fortunately there is a proliferation) are a great opportunity to start filling certain gaps and answering some of the questions. Incidentally, it would be great if such conferences were also more interdisciplinary and could somewhat host epistemological discussions

given the profound methodological and ethical component of the big data applications in a number of sensitive activities

The ECB has taken quite a few steps in exploring big data since 2013.

Information on some 40,000 daily money market transactions will form the basis of an alternative reference rate as traditional benchmarks become unreliable.

We have also bought a large set of prices from actual consumer purchases and are exploring ways to scrape the Internet to measure inflation in real time.

We use algorithms to scan media reports and assess whether our communication is seen as "hawkish" or "dovish."

We are reforming our departments, implementing new technology and upgrading systems.

Work is under way to implementing a structured data handling with clear data governance, including the introduction of shared internal platforms to manage end-to-end several important processes such as the stress testing or the projection exercises

On at least two fronts perhaps we need to make further progresses:

1. We somewhat still avoid external data storage such as the cloud because we see data storage as risky, particularly in terms of the security and confidentiality of the data
2. As data become increasingly significant for central banks and regulators working with the right approaches and collaborating with other central banks is becoming essential. The collaborative part is perhaps still at infancy although the Irving Fisher Committee of the BIS is on the right track

Let me go back to one of the questions I raised before and on the fact that a new scientific paradigm based only on data can by no means succeed if we don't have a clever and context-dependent combination of data, theory, methods, judgement and a wise use of all these elements together.

The point I want to make here is that at central banks we are already quite well equipped with this mindset. For instance we hardly confuse correlation with causation. To make the most sense of it we now need to couple the recent developments in statistics, ML, AI with adequate methodological foundations and need to be aware of merits and limitations of the new advances

We are clearly not missing the opportunity to embrace the emerging paradigm. And it is true that we are not ahead of the curve. But we safely remain behind the curve and we maintain a sheltered approach that contextualises the trade-off between modelling and data analysis, an approach where sound judgment is also an important ingredient to strike the balance between the new enthusiasm and the reality of the future.

Looking at the conference programme it is clear that several of the issues I raised here will be addressed, in particular around methods, forecast accuracy, concrete applications useful for central bankers. I am sure the conference will be a great success.

Other questions will be left unanswered for future reflection and action, because central banks, as already done by private sector, will need to embrace more and more the challenges and develop the skills and tools necessary to cope with the data service evolution that is changing our society.

As said, we have the right mindset to embrace these challenges and we will make use of this revolution in the usual clever and responsible way.

I hope we can make the best out of this workshop. Thank you very much for your attention.