

Jeremy Clift profiles
Lucrezia Reichlin,
a pioneer in real-time
short-term forecasting



The QUEEN of Numbers

EURO area growth may be on the mend, but the risks are far from over and the region is still in for a bumpy ride, reckons Lucrezia Reichlin, a professor at the London Business School who was the first female head of research at the European Central Bank (ECB).

“I think we’re not out of the crisis, and it’s going to take a while before we find the way,” says Reichlin, an expert in business cycle analysis. “We have a technical recovery in terms of GDP showing positive growth, but it doesn’t mean the risks to Europe are over,” she says in her cramped office overlooking London’s Regent’s Park.

She is a pioneer in real-time short-term economic forecasting that harnesses large amounts of data, and her expertise intersects the commercial and academic worlds. Chair of the Economics department at the London

Business School, she is also a non-executive director of UniCredit—an Italian commercial bank active in central and eastern Europe—a former director of research at the ECB under then-President Jean-Claude Trichet, and a former consultant to the U.S. Federal Reserve.

Ringside seat

“Sitting on the board of a commercial bank gives you a ringside perspective of Europe’s banking problems,” says Reichlin, who lives in north London with her daughter but visits Italy regularly.

She sees a banking union and implementation of a planned process for reorganizing or winding up failed banks as crucial next steps for a more stable euro area. The outcome of European Parliament elections in May 2014 could be critical to progress in the EU’s underlying financial architecture.

A banking union will introduce common rules and protections within the 18-member euro area by establishing an overall supervisory mechanism under the ECB, a single resolution mechanism for bailing out or winding up troubled banks, and a common deposit guarantee system (see “Tectonic Shifts,” in this issue of *F&D*). The European Union has taken some steps in the right direction, but Reichlin says more needs to be done to build a stable common monetary policy for a financially integrated world.

An Italian native, she talks with enthusiasm and empathy about her country. She studied economics at the University of Modena, a city known as the world’s “super-car capital” because of its proximity to the headquarters of Ferrari, Maserati, Lamborghini, and Pagani. She left Italy to pursue a Ph.D. at New York University before moving to teach at the Université Libre of Brussels for 10 years, where she collaborated to develop econometric models for handling large data sets, pioneering research on *dynamic factor models* that is now popular worldwide in applied macroeconomics.

In 2002 she visited the Fed at the request of then-governor Ben Bernanke (who became chairman four years later) to evaluate adapting these techniques to develop a model for short-term forecasting at central banks. This model has been adopted by many institutions around the world and is the basis for her business, Now-Casting Economics Ltd., which she cofounded 10 years later. Now-Casting uses the model she developed with her former doctoral student Domenico Giannone to forecast leading economies’ current-quarter GDP growth in real time.

Radical roots

Reichlin’s story and that of her family are closely bound up with the story of Europe since World War II. Her Swiss great-great-grandparents moved to southern Italy from Switzerland in the 19th century; her mother’s family is of Jewish origin and comes from Trieste, which until World War I was part of the Austro-Hungarian Empire. Born and raised in Rome, Reichlin grew up in a household of radical thinkers and political activists.

Her mother, Luciana Castellina, a well-known Italian Communist intellectual who later became a member of the European Parliament, played tennis as a child with Fascist dictator Benito Mussolini’s daughter. Her father, Alfredo Reichlin, was in the Italian resistance during the war and joined the Communist Party in 1946, becoming one of its leaders and its shadow “economy minister.” Her brother, Pietro, also an economist, teaches at a university in Rome.

“At home, all sorts of people came by: legendary Communist leaders such as Palmiro Togliatti; intellectuals who, like my parents, had opted for political activism; militants from all walks of life; and ‘fellow travelers’ from other countries,” says Reichlin, who as a little girl handed out political leaflets with her mother.

Reichlin is very aware of how history has treated the different generations. She contrasts her own adolescence with her mother’s in her personal introduction to Castellina’s coming-of-age memoir, to be published in English by Verso Books under the title *Discovery of the World: A Political Awakening in the Shadow of Mussolini*, which spans the turbulent years 1943 to 1947.

“We are the children of the ‘baby boom,’” she writes, “of the opulent society, of mass education, of the legalization of divorce and abortion, of new opportunities available to women, but we have also experienced disappointment.” Her mother, who

“We used to call her the Princess, but only when she wasn’t there!”

helped found the Communist newspaper *Il Manifesto* in 1969, was expelled from the Italian Communist Party because of her criticism of the Soviet invasion of Czechoslovakia.

“I was definitely very much attracted by the left, though not by the Communist Party. But then things became really difficult in Italy in the late ’70s, and my life took a different direction.”

Reichlin left Italy at a time of protest and terrorism, after the kidnapping and murder by the Red Brigades in 1978 of former Italian center-left Prime Minister Aldo Moro. She says she felt stifled in Italy at the time and needed to get away.

She feels the economic crisis has spawned an alienated generation in Europe, where youth unemployment is very high (over 50 percent in Spain, for example). Reichlin is not just skeptical about further European economic integration, but says the crisis has been damaging politically because of the rise of divisive political parties and a disaffected generation of unemployed youth.

Today, the danger is not a renewed rise of fascism, but of political instability and growing distrust of the political process, she says. “People don’t ask their politicians anymore; they don’t trust the democratic process. There is a void in democracy because there are a lot of people who are outside the process.

“People feel very alienated.”

Harnessing big data

Unlike her parents, Reichlin took refuge in numbers rather than ideology. “I studied economics and econometrics because I wanted to have more specialized technical tools to discuss progress; it was probably a bit of a reaction to my parents, but also in Italy at the time we studied a lot of Marx and the new Cambridge school, and I got a bit fed up of that, so I decided to move to the United States and got interested in econometrics.”

Econometrics lies at the intersection of economics, mathematics, and statistics. It applies statistical and mathematical methods to test and quantify economic theories and the solutions to economic problems (see “What Is Econometrics?” in the December 2011 *F&D*). It is often subdivided into two major categories: theoretical and applied.

“I’ve been very much on the technical side of economics, and I’ve been interested in developing methods to handle big data sets. This was a challenging analytical problem, but I was especially interested in practical applications. It was Ben Bernanke who invited me at the Fed when he was on the Board to try to solve the practical question that the central

What is nowcasting?

Nowcasting is used in both economics and meteorology to describe current conditions and those in the immediate future. A contraction of “now” and “forecasting,” in economics the term refers to the use of real-time data to present an up-to-date and continuously updated picture of an economy.

Economists usually can only track economic data with a time lag. So they actually must forecast the present and even the immediate past. Nowcasters have developed a statistical model that can process large amounts of data without the need for informal judgment. The model exploits information from a large quantity of data series at different frequencies and with different publication lags (Giannone, Reichlin, and Small, 2008).

The idea is that signals of changes in GDP can be extracted from large and diverse information sources (such as unemployment figures, industrial orders, the trade balance) before GDP itself is published. In nowcasting these data are used to compute sequences of current-quarter GDP estimates in relation to the real-time flow of data releases.

Nowcasting methods based on social media content (from Twitter, for example) have been developed to esti-

mate things such as the “mood” of a population or the presence of a flu epidemic.

Reichlin cofounded a company called Now-Casting Economics Ltd. to take advantage of these techniques.

“Everything gets fed into the machine—for example, an employment report. So when the government report actually comes out, there will be an error, which is the difference between the publication of the numbers and what we have anticipated. This variation will have an effect on our nowcast for GDP or anything else. So everything is connected through news. When I was at the European Central Bank, we were providing a briefing to the president, and the president would say, ‘Okay, today’s actual production has been revised up, but what does it mean?’ And this machine answers that question so that for everything that we have published we can say what it means for everything else.

“It’s a comprehensive framework to read the data, and the challenge is to say, ‘Can the machine replace human judgment?’ And what our evaluation shows is that on average it does as well as human judgment.”

bank has faced: every day you are bombarded by lots of data, and you have to actively analyze the flow of data that comes in every day and put it through a model.”

In Europe, at the *Centre for Economic Policy Research* in London and in collaboration with the Bank of Italy, she developed an index of European economic activity, called *EuroCOIN*, that is still published regularly to depict the aggregate euro area economy. Developed in the early years of the euro, it was the first index of aggregate economic activity for the currency area.

Reichlin founded the *Euro Area Business Cycle Network*, which helped link researchers at central banks and academics, and was the first chair of the Business Cycle Dating Committee for the euro area. The Committee chronicles the euro area business cycle by identifying the 11 original euro area members’ recessions and expansions from 1970 to 1998 and those of the euro area as a whole since 1999.

“This work put me closer to the central banking world, which led to the job at the ECB and my interest in monetary policy,” she says. She worked there for four years before joining the London Business School in 2008.

Reichlin has actively promoted economic research about Europe. While working in Brussels she helped establish and became head of a top doctoral school at the European Center for Advanced Research in Economics and Statistics.

Integrating research and policy

Giannone, who collaborated with her on both the Now-Casting short-term forecasting model (see box) and her work on nonstandard monetary policy for the euro area, says her main legacy at the ECB was an effort to bring “research closer to policy.”

“More specifically, she had an important impact on the debate about the role of money in the monetary policy of the ECB,” he says (Fischer and others, 2007; and Lenza, Pill, and Reichlin, 2010). She also improved the Bank’s forecasting at a time of crisis.

Frank Smets, who took over Reichlin’s old job at the ECB and is now counselor to the ECB president, says that her tenure there led to greater emphasis on empirics, following the (adapted) saying that “a stylized fact or picture is worth a thousand words.”

She supported the “enhanced use of cutting-edge research in policy debates,” argues ECB economist Michele Lenza, who points to her work on dynamic factor models for harnessing big data sets with multiple variables as probably her most enduring contribution to economics (Forni and others, 2000 and 2009).

Together with Giannone, her former professor at Modena, Marco Lippi, Mario Forni, and Marc Hallin, they were part of a team in the 1990s and early 2000s working on developing dynamic factor models that are used in policy analysis and forecasting. Similar ideas were at the same time being developed in the United States by James Stock and Mark Watson. Reichlin and Watson presented this work at the World Congress of the Econometric Society in 2000.

Lippi says that Reichlin brings to a research team “a tremendous sense of energy and purpose,” a drive to connect the theoretical and real worlds. “When the data model did not work, Reichlin would try to bring things back to reality with some blunt language.”

Being Italian, Lippi goes for a metaphor from the motor racing world. “Sometimes the more technically oriented among us felt the same way as, I imagine, the technical people in the Sebastian Vettel world champion racing team after a bad day.”

“We used to call her the Princess,” says Lippi, in reference to her somewhat imperious nature, “but only when she wasn’t there!”

Good progress

She is pleased about the progress women have made in her field. “This is a very exciting moment for women in economics,” says Reichlin with a smile.

“Often I’ve gone to meetings in the past and there were no other women. But now things are changing—Janet Yellen at the U.S. Federal Reserve; Christine Lagarde at the IMF; the new governor of the Bank of Russia, Elvira Nabiullina; the governor of the Central Bank of South Africa, Gill Marcus; and of course Zeti Akhtar Aziz in Malaysia, who has been there since 2000.

“And it could be cumulative because once you have a little bit of a base, then you have broken the cultural barrier, and also hopefully women will help each other in terms of the rules of the game, the networking, and being less shy in proposing oneself for an important job. But we are not there yet, and in my country, for example, I see a lot of attitudes still against women.”

Europe

Reichlin, who is writing a book about the ECB’s performance during the economic crisis, gives it high marks for its handling of the crisis, despite the absence of fiscal integration and the lack of a common European banking supervisory or resolution mechanism.

“It has done an amazing job in my view. In the middle of the storm, the ECB managed basically to save the financial system from meltdown. It was quite impressive how in 2008 the ECB was able to put together a package of liquidity provision measures, which were fundamental for avoiding a completely full-blown banking crisis.

“Of course, the fact that the architecture was incomplete and that the banks were not adequately capitalized and that sovereign tensions continued after the 2009 recovery implies that the central bank found itself in a situation that was inherently unstable and much more unstable than in either the United States or United Kingdom, or even Japan.

“And in that situation I think mistakes were made, but in order to give the final judgment you have to look at what it means to be a central bank without fiscal backing, without a lender-of-last-resort function, without the tools for dealing with resolution of the banking crisis. I think we’re getting there gradually, but I fear it will be a very bumpy ride.”

Why banking is key

Asked what remains to be done, she says that the top priority should be a banking union.

“It’s an extremely demanding project, where all of a sudden the responsibility of supervising the banks is foisted on the ECB, and it’s a huge effort for the organization. Where things are not clear is what will be the mechanism—what will be the resolution mechanism in case of banking variables or shortfalls of capital and so on.

“In Europe the banks are much bigger than the sovereigns because, with financial integration, one of the results of the central market was to create banks which are cross border. It’s a different situation than in the United States, where banks are smaller than their sovereigns.

“So if one of these [European] banks has problems, then we have to go beyond the nation to resolve the problems. And this is a very complicated thing to put together because it has fiscal implications and we do not have the fiscal tools. So we are really testing the program of having a central bank that is a private regulator but lacks a fiscal mechanism. So this is complex.

“Now we have a common supervisory mechanism, but there are still some questions of how this will function. And I am not particularly optimistic at the current juncture. Unless progress is made at the [May] elections, it will be difficult to continue the European common monetary policy project,” argues Reichlin, who writes regularly for the Italian newspaper *Il Corriere Della Sera*.

Looming problems

Asked about further crises, she points to the shadow banking system—nonbank financial institutions that function like banks, but are not regulated—as an area of potential concern.

“Risks are popping out in the financial system here and there, and we have to be aware that those risks will always be there in one form or another. So we have to keep our eyes open.”

High public debt must be reduced, but—where possible—gradually, she argues, and in a way that minimizes the negative short-term impact on growth. “I’m not a big believer in austerity.”

The European crisis is a debt crisis, she says. One of the lasting effects will be permanently lower GDP growth. “That would mean that we could maybe grow, but at a very low growth rate.”

Whatever the rate, she’ll be tracking it—in real time. ■

Jeremy Clift is the Publisher of the IMF.

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