

The problem with probability

With big-name speakers talking up the prospects of a global recession, we give this subject another look today. We are not alarmed.



Recession - its a drag

With big-hitting names like Paul Krugman and Ray Dalio openly embracing the prospect of global recession, we take another look at this today.

Off-the-shelf models, such as the New York Fed probability of a US recession are, as we noted some days ago, pointing to a 24.6% probability of recession in 12 months time. Though as we also noted, even with a relatively good track record of predicting recessions, the model more recently has in recent years, been showing much lower probabilities 12 months before a recession, hitting only just over 11% on average 12M before a recession is indicated by the National Bureau of Economic Research ([NBER](#)). Such figures usually go on to rise to higher probabilities as recession draws closer, but the point is, they don't seem to be sending strong signals 12 months out.

12%

My estimate of the probability of US recession

12M forecast

But surely...?

With these models proving a little hair-triggered (almost as binary as the recession event itself, nothing for ages and then Bam!) I decided to test whether there was any merit in respecifying the NY Fed's model. They use the 12m lag of the 3m-10Y spread as the sole variable in their regression. This is effectively a restricted version of a model in which the 3mth T-bill rate and 10Y bond yield were incorporated separately, and I thought it would be fun to see what happened to un-restrict the model (we economists certainly know how to have fun!).

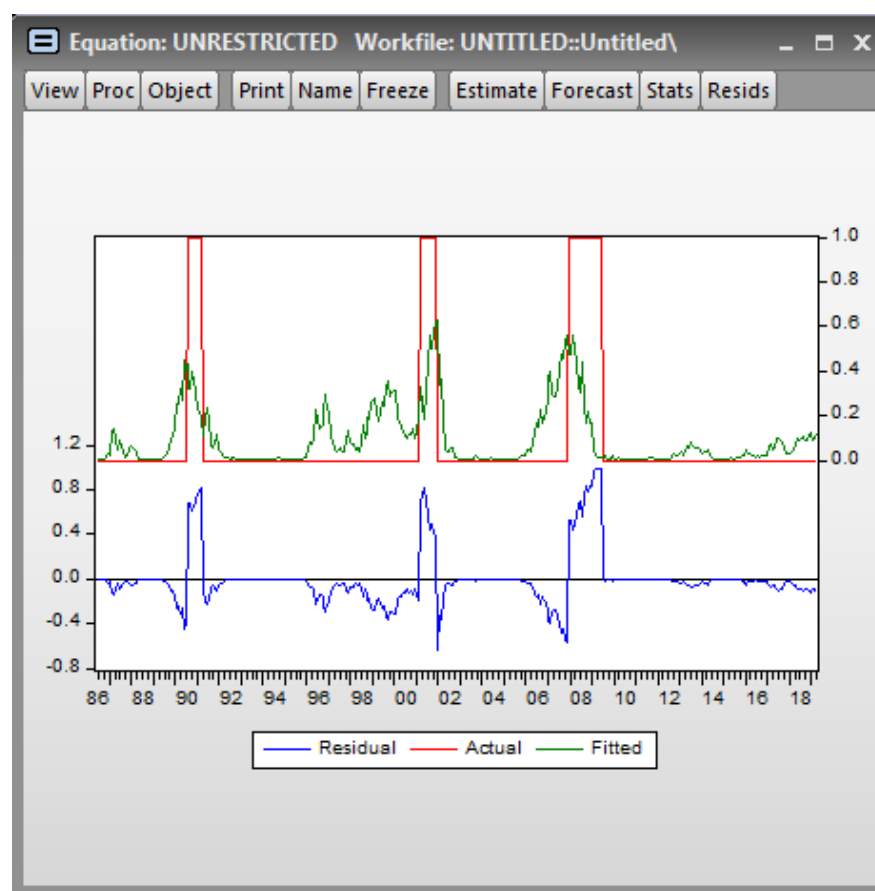
It doesn't help

The serendipitous finding of the exercise came from having a somewhat reduced sampling period than the NY Fed. My data feeds only started from 1986, theirs from the 1970s. Though this still gives me more than 30 years of monthly data, more than enough to draw firm conclusions. And the model works very nicely too, with 12M lags providing clear recession signals ahead of the actual events (see chart below). In fact, the model works rather better than the Fed model, with recent recessions coinciding with a 50% probability in 2 out of the three cases, and a 36% reading in one other case (not 11%!). There were no false signals. This contrasts with the much lower figures from the NY Fed model.

So conclusion one: there may well be a structural break (or several) in the NY Fed model, which they ought to take account of - it would not be surprising to find that the inference of a 3mth - 10Y yield spread had changed over the last fifty years. Think about how much economies have altered in this time. More data is not always better.

The subsequent test for the restriction on the NY Fed model proved to be a damp squib. So conclusion 2: There is virtually no difference between the restricted and unrestricted model in terms of data fit or the sum of squared errors. Without formally testing the restriction hypothesis, the eyeball test says, the restriction is valid.

Probit model output - probability of recession



So what percent probability of a US recession?

The final question is, if not 24.6% probability of US recession what probability is it? The answer is 12.3%. There is a long way to go yet before we need to worry, and that is based on the latest, flattest 3mth-10Y figures from this Friday's low 10Y yield figure filling in for the whole of March.

So what would we need to see to get a 50% recession probability reading? The 50% reading 12M before the 2008/2009 recession coincided with inversion of the 3mth-10Y yield of between 30 and 60bp. For 1990/1991, it was about -20 to -30bp. The current spread is closer to +20bp. Today, with the yield curve artificially flattened by the \$11tr or more of printed money by global central banks, I wouldn't be surprised if we needed to see something even more negative to draw recession conclusions.

So, to sum up: Krugman and Dalio might yet be right. And yield curve models can be useful, as they theoretically incorporate all of the information in all the macro newsflow, political noise and market expectations in a very small and efficient package. But these sort of models seem to be particularly sensitive to starting points and data periods, and my tinkering with the data suggests things aren't all that bad yet. Slowdown, as our US Economist, James Knightley is forecasting, looks likely. But recession? Case not proven.

Author

Amrita Naik Nimbalkar

Junior Economist, Global Macro

amrita.naik.nimbalkar@ing.com

Mateusz Sutowicz

Senior Economist, Poland

mateusz.sutowicz@ing.pl

Alissa Lefebre

Economist

alissa.lefebvre@ing.com

Deepali Bhargava

Regional Head of Research, Asia-Pacific

Deepali.Bhargava@ing.com

Ruben Dewitte

Economist

+32495364780

ruben.dewitte@ing.com

Kinga Havasi

Economic research trainee

kinga.havasi@ing.com

Marten van Garderen

Consumer Economist, Netherlands

marten.van.garderen@ing.com

David Havrlant

Chief Economist, Czech Republic

420 770 321 486

david.havrlant@ing.com

Sander Burgers

Senior Economist, Dutch Housing

sander.burgers@ing.com

Lynn Song

Chief Economist, Greater China

lynn.song@asia.ing.com

Michiel Tukker

Senior European Rates Strategist

michiel.tukker@ing.com

Michal Rubaszek

Senior Economist, Poland

michal.rubaszek@ing.pl

This is a test author

Stefan Posea

Economist, Romania

tiberiu-stefan.posea@ing.com

Marine Leleux

Sector Strategist, Financials

marine.leleux2@ing.com

Jesse Norcross

Senior Sector Strategist, Real Estate

jesse.norcross@ing.com

Teise Stellema

Research Assistant, Energy Transition

teise.stellema@ing.com

Diederik Stadig

Sector Economist, TMT & Healthcare

diederik.stadig@ing.com

Diogo Gouveia

Sector Economist

diogo.duarte.vieira.de.gouveia@ing.com

Marine Leleux

Sector Strategist, Financials

marine.leleux2@ing.com

Ewa Manthey

Commodities Strategist

ewa.manthey@ing.com

ING Analysts

James Wilson

EM Sovereign Strategist

James.wilson@ing.com

Sophie Smith

Digital Editor

sophie.smith@ing.com

Frantisek Taborsky

EMEA FX & FI Strategist

frantisek.taborsky@ing.com

Adam Antoniak

Senior Economist, Poland

adam.antoniak@ing.pl

Min Joo Kang

Senior Economist, South Korea and Japan

min.joo.kang@asia.ing.com

Coco Zhang

ESG Research

coco.zhang@ing.com

Jan Frederik Slijkerman

Senior Sector Strategist, TMT

jan.frederik.slijkerman@ing.com

Katinka Jongkind

Senior Economist, Services and Leisure

Katinka.Jongkind@ing.com

Marina Le Blanc

Sector Strategist, Financials

Marina.Le.Blanc@ing.com

Samuel Abettan

Junior Economist

samuel.abettan@ing.com

Franziska Biehl

Senior Economist, Germany

Franziska.Marie.Biehl@ing.de

Rebecca Byrne

Senior Editor and Supervisory Analyst

rebecca.byrne@ing.com

Mirjam Bani

Sector Economist, Commercial Real Estate & Public Sector (Netherlands)

mirjam.bani@ing.com

Timothy Rahill

Credit Strategist

timothy.rahill@ing.com

Leszek Kasek

Senior Economist, Poland

leszek.kasek@ing.pl

Oleksiy Soroka, CFA

Senior High Yield Credit Strategist

oleksiy.soroka@ing.com

Antoine Bouvet

Head of European Rates Strategy

antoine.bouvet@ing.com

Jeroen van den Broek

Global Head of Sector Research

jeroen.van.den.broek@ing.com

Edse Dantuma

Senior Sector Economist, Industry and Healthcare

edse.dantuma@ing.com

Francesco Pesole

FX Strategist

francesco.pesole@ing.com

Rico Luman

Senior Sector Economist, Transport and Logistics

Rico.Luman@ing.com

Jurjen Witteveen

Sector Economist

jurjen.witteveen@ing.com

Dmitry Dolgin

Chief Economist, CIS

dmitry.dolgin@ing.de

Nicholas Mapa

Senior Economist, Philippines

nicholas.antonio.mapa@asia.ing.com

Egor Fedorov

Senior Credit Analyst

egor.fedorov@ing.com

Sebastian Franke

Consumer Economist

sebastian.franke@ing.de

Gerben Hieminga

Senior Sector Economist, Energy

gerben.hieminga@ing.com

Nadège Tillier

Head of Corporates Sector Strategy

nadege.tillier@ing.com

Charlotte de Montpellier

Senior Economist, France and Switzerland

charlotte.de.montpellier@ing.com

Laura Straeter

Behavioural Scientist

+31(0)611172684

laura.Straeter@ing.com

Valentin Tataru

Chief Economist, Romania

valentin.tataru@ing.com

James Smith

Developed Markets Economist, UK

james.smith@ing.com

Suvi Platerink Kosonen

Senior Sector Strategist, Financials

suvi.platerink-kosonen@ing.com

Thijs Geijer

Senior Sector Economist, Food & Agri

thijs.geijer@ing.com

Maurice van Sante

Senior Economist Construction & Team Lead Sectors

maurice.van.sante@ing.com

Marcel Klok

Senior Economist, Netherlands

marcel.klok@ing.com

Piotr Poplawski

Senior Economist, Poland

piotr.poplawski@ing.pl

Paolo Pizzoli

Senior Economist, Italy, Greece
paolo.pizzoli@ing.com

Marieke Blom
Chief Economist and Global Head of Research
marieke.blom@ing.com

Raoul Leering
Senior Macro Economist
raoul.leering@ing.com

Maarten Leen
Head of Global IFRS9 ME Scenarios
maarten.leen@ing.com

Maureen Schuller
Head of Financials Sector Strategy
Maureen.Schuller@ing.com

Warren Patterson
Head of Commodities Strategy
Warren.Patterson@asia.ing.com

Rafal Benecki
Chief Economist, Poland
rafal.benecki@ing.pl

Philippe Ledent
Senior Economist, Belgium, Luxembourg
philippe.ledent@ing.com

Peter Virovacz
Senior Economist, Hungary
peter.virovacz@ing.com

Inga Fechner
Senior Economist, Germany, Global Trade
inga.fechner@ing.de

Dimitry Fleming
Senior Data Analyst, Netherlands
Dimitry.Fleming@ing.com

Ciprian Dascalu
Chief Economist, Romania
+40 31 406 8990
ciprian.dascalu@ing.com

Muhammet Mercan

Chief Economist, Turkey

muhammet.mercan@ingbank.com.tr

Iris Pang

Chief Economist, Greater China

iris.pang@asia.ing.com

Sophie Freeman

Writer, Group Research

+44 20 7767 6209

Sophie.Freeman@uk.ing.com

Padhraic Garvey, CFA

Regional Head of Research, Americas

padhraic.garvey@ing.com

James Knightley

Chief International Economist, US

james.knightley@ing.com

Tim Condon

Asia Chief Economist

+65 6232-6020

Martin van Vliet

Senior Interest Rate Strategist

+31 20 563 8801

martin.van.vliet@ing.com

Karol Pogorzelski

Senior Economist, Poland

Karol.Pogorzelski@ing.pl

Carsten Brzeski

Global Head of Macro

carsten.brzeski@ing.de

Viraj Patel

Foreign Exchange Strategist

+44 20 7767 6405

viraj.patel@ing.com

Owen Thomas

Global Head of Editorial Content

+44 (0) 207 767 5331

owen.thomas@ing.com

Bert Colijn

Chief Economist, Netherlands

bert.colijn@ing.com

Peter Vanden Houte

Chief Economist, Belgium, Luxembourg, Eurozone

peter.vandenhoute@ing.com

Benjamin Schroeder

Senior Rates Strategist

benjamin.schroeder@ing.com

Chris Turner

Global Head of Markets and Regional Head of Research for UK & CEE

chris.turner@ing.com

Gustavo Rangel

Chief Economist, LATAM

+1 646 424 6464

gustavo.rangel@ing.com

Carlo Cocuzzo

Economist, Digital Finance

+44 20 7767 5306

carlo.cocuzzo@ing.com