

ECO FLASH

14 September 2018

Eurozone: The hypothetical return of inflation

Jean-Luc PROUTAT

- Eurozone inflation is accelerating. This summer it rose to a little over 2% year-on-year, the highest level since 2012.
- Energy and food prices, the main drivers of this upturn, have increased significantly.
- Looking beyond these two relatively volatile categories, core inflation is still mild.
- This inertia can be attributed primarily to wages, which have not accelerated much despite the decline in unemployment and the hiring difficulties expressed by business leaders.
- In the eurozone, like in most of the advanced economies, the Phillips curve seems to have flattened: wages and prices are still responding to capacity pressures, but less so than in the past.
- This has implications for monetary policy as well as interest rates, which are bound to remain very low in the years ahead.

Has inflation returned to the eurozone? In July-August 2018, inflation exceeded the ECB's official target of 2% for the first time since fall 2012. Buoyed by the rebound in oil prices, energy prices rose sharply (+9.2% year-on-year). Food prices have also increased, albeit not as strongly, and poor harvests are likely to accentuate this trend. Energy and food prices explain most of the current upturn in inflation (see table 1). Excluding these two rather volatile categories, core inflation has been rather mild. Prices of manufactured goods remain flat while the increase in service prices has ranged between 1% and 1.5% a year for the past several years. Given their preponderant weighting and the fact that they are comprised mainly of wages, service prices provide a good proxy for core inflationary trends. The ECB, which bases its analysis on the

■ Energy fuels the rebound in prices

Harmonised consumer price index (HCPI) for the eurozone

%	Weight 2018	Year-on-year		Acceleration	
		Feb. '18	Aug. '18	Pp	Contrib.
Headline	100.0	1.1	2.0	+0.9	+0.9
Energy	9.7	2.1	9.2	+7.1	+0.7
Food, tobacco, alcohol	19.6	1.0	2.5	+1.5	+0.3
Excluding food & energy	70.7	1.0	1.0	-0.0	-0.1
Services	44.4	1.3	1.3	0.0	0.0
Manufactured goods	26.3	0.6	0.3	-0.3	-0.1

Note: Between February and August 2018, consumer price inflation in the eurozone rose from 1.1% year-on-year to 2%. Inflation gained 0.9 points, an acceleration due essentially to the energy component, which contributed 0.7 points to the acceleration (see last column). Food prices also contributed to inflation. In services and manufactured goods, prices rose at a steady pace or declined slightly. They have not contributed to the acceleration in inflation since February.

Table 1

Source: Eurostat

core index (excluding energy and food) more than on headline inflation, is monitoring the situation closely.

Tension over the supply side

In August 2018, core inflation in the eurozone was measured at 1%, the same figure as in the year-earlier period. Seen in this light, it is hard to conclude that prices are surging. These figures even show the unusual inertia of inflation for this phase of the recovery. Although capacity utilisation rates have dipped slightly, they are still holding at 84%, near the cyclical peak. Skilled workers are becoming scarce and are in high demand. After bottoming out in 2013, net job creations in the eurozone have soared to 8.5 million jobs, largely surpassing the job destructions of the Great Recession and the sovereign

ECONOMIC RESEARCH DEPARTMENT



BNP PARIBAS



The bank
for a changing
world

debt crisis. Unemployment has declined to 8.3% of the active population, which is not far from an all-time low. According to European Commission surveys, the percentage of business leaders claiming to have scaled back production due to the lack of equipment or staff has reached record levels (chart 1). Job vacancies are also at all-time highs. The Beveridge curve has probably shifted upwards: greater mismatching of labour supply and demand may already hinder the fall in unemployment (Bank of France, 2014)¹.

The Eurozone economic cycle is at a stage where wages are supposed to pick-up; yet, they do not seem to be about to surge. Whether on an hourly or per capita basis, wages are growing at a pace of about 2% a year. The trend has been accelerating, but only enough to accompany the (slow) upturn in productivity. Consequently, unit wage cost (the cost of labour per unit of output) has not changed much. For the past five years, it has held to the same feeble slope of about 1% a year. Of course, this is an average that masks major disparities between countries: Germany, which is operating at full speed, has reported a net surge in unit wage costs, while Italy and Spain have reported none at all.

Phillips curve flattens

Although still valid, the Phillips curve seems to have flattened. In other words, wages are tending to be less sensitive to the availability of labour resources (also known as slack). This sensitivity has been slashed in half over the past thirty years according to a study on the G7 countries by the Bank of International Settlements (BIS, 2017)². In the mid-1980s, a 1-point decline in the unemployment rate would trigger a 1-point increase in the annual growth rate of unit labour costs, but today it would have an impact of only 0.6 points. The impact could be even smaller in the eurozone, where two successive estimates of the Phillips curve, one before the trend break of 2008 and the other after, suggest a rather relaxed wage-unemployment relationship (chart 2 and box 1).

This trend is mainly attributed to the erosion of employee bargaining power (their capacity to catch into wages past price increases or productivity gains). The explanation could be demographic. As the population ages, the active population is increasingly small relative to the number of retirees³. Wage earners ability to influence the redistributive

¹ The Beveridge curve shows the inverse relationship between the unemployment rate and job vacancies. Cyclically, job vacancies increase when unemployment declines, signalling a job market under pressure. The curve shifts upwards when, for a given unemployment rate, job vacancies rise: it becomes structurally harder to hire due to the mismatching of labour supply and demand.

For research on shifts in the Beveridge curve in France and the eurozone, see for example:

Maravalle, A., De la Serve, M.E., Verdugo, G., 2014, "The Beveridge curve in the euro area since the crisis: increase in structural unemployment since 2010" Bank of France, monthly bulletin n°198, fourth quarter.

² Bank of International Settlements (2017), Are the labour markets signalling an upturn in inflationary pressures?, Annual Report, Ch. IV, June, pp. 77-87

³ In 2016, France had an active population of 29.6 million for 16.1 million retirees, or a ratio of 1.8; in 1985, the ratio was 3.5. See Insee (2018) *French Economic Tables*.

Hiring difficulties

Eurozone, net percentage of companies claiming to have scaled back production due to a lack of personnel

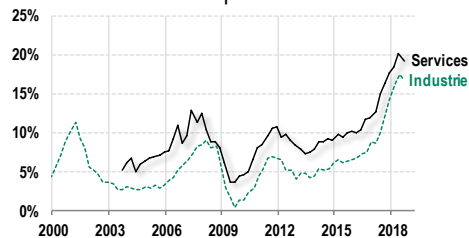


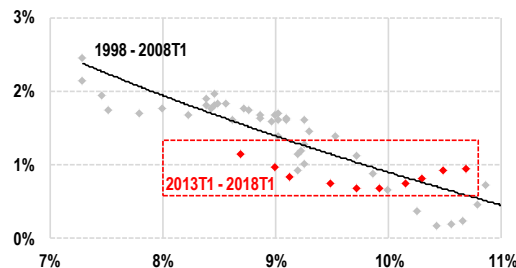
Chart 1

Source: European Commission

Wage growth on a gentle slope

X axis: Eurozone euro, unemployment rate (delayed 1 quarter)

Y axis: Eurozone, unit wage cost, average annual change



Note: The unit wage cost is expressed as the wage cost per employee over per capita productivity, after smoothing (see box 1.)

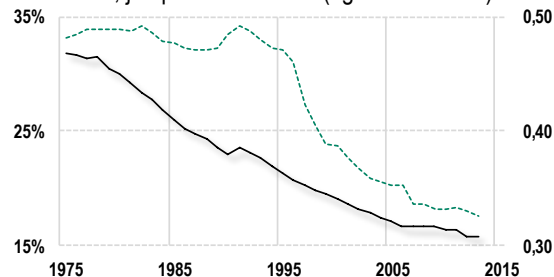
Chart 2

Source: Eurostat, BNPP

Structural change

— G7 countries, unionisation rate (left-hand scale)

--- G7 countries, job protection index (right-hand scale)



Note: The job protection index calculated by the Organisation for Economic Cooperation and Development (OECD) measures the procedures and costs implied in both hiring and firing. A higher value reflects stricter legislation. The unionisation rate is the ratio of union employees to total employees.

Chart 3

Sources: OECD, BIS, Annual report (2017)

policy to their advantage (e.g. maintaining or even increasing the labour income share in total value added) may have diluted (see Bullard et al., 2012)⁴. The causes are also institutional. In Europe, the wage-price spiral has been turning at a slower pace along with the elimination of automatic wage indexation systems (in France in 1983, and in Italy in 1994). Unionisation rates have declined across the board, while

⁴ Bullard, J., Garriga, C., Waller, C.J. (2012) *Demographics, Redistribution, and Optimal Inflation*, Federal Reserve Bank of St. Louis Review, December

globalisation has transformed the very nature of work and the degree of job protections (chart 3). Originally, the Phillips curve relationship functioned in somewhat closed economies⁵, but the international mobility of capital and labour has increased considerably. New types of job contracts offering greater flexibility have emerged, including very recently. Fixed-term contracts have played a key role in the turnaround of the eurozone job market mentioned above. In France, Italy and Spain, fixed-term contracts account for nearly 3 out of 4 jobs created since 2013.

Conclusion

Looking beyond the rebound in energy prices, and despite pressures on production capacity and employment, it does not look like eurozone inflation is about to surge anytime soon. The wage-price spiral is no longer operating like it did before, and the Phillips curve has surely flattened. The ECB is in no hurry to raise interest rates. Set at zero since 16 March 2016, the ECB's key policy rate is unlikely to be raised before summer 2019 at the earliest. It will take even longer for inflation to return to the official 2% target, especially given the slow pace of the turnaround in the core price index.

After a series of crises, the eurozone seems to have settled into a regime of lower inflation with greater inertia. Clearly, the interest rates that prevailed through 2008 (3% on average for money-market rate and 4% for government bonds⁶) are no longer the norm.

Jean-Luc PROUTAT

jean-luc.proutat@bnpparibas.com

■ Modelling the Phillips curve in the eurozone

In the eurozone, the Phillips curve relationship is estimated at 19 based on seasonally-adjusted quarterly data from Eurostat. Here it is integrated in a wage-price spiral written as an error-correction model:

$$\Delta w_t - \Delta \text{prod}_t = \alpha_0 \sum \Delta \text{ipc}_{t-i} + \beta_1 \sum u_{t-i} + \delta [w_{t-1} - \text{ipc}_{t-1} - \text{prod}_{t-1} - \text{trend}] + c + \varepsilon_t \quad (1)$$

in which:

w: wage cost (wages, bonuses, employer contributions) per employee, (log);

prod: productivity per employee (smoothed, log);

ipc: harmonised consumer price index (log);

u: harmonised unemployment rate;

trend: instrumental variable indicating a trend break.

The long-term relationship is a constraint imposed on the model. It indicates that real wages ($w-\text{ipc}$) are traditionally adjusted to productivity (prod). A trend variable was nonetheless added to take into account the distortion of the sharing of value added observed during the assessment period (decline in the share of wages). The productivity per employee data series was hard hit by the Great Recession of 2008 (sharp decline followed by a major rebound) and had to be smoothed using a Hodrick-Prescott filter.

The slope of the Phillips curve is expressed using the coefficient β and corresponds to the semi-elasticity of unit wage costs ($w-\text{prod}$) to the unemployment rate (u). Equation (1) is estimated for two successive periods, the first from spring 1998 (creation of the ECB in June, start-up of the euro) to spring 2008 (just before the outbreak of the financial crisis and the Great Recession), and the second from spring 2008 to the present.

Estimate results, annualised quarterly trends

	Q2 1998 – Q1 2008	Q1 2008 – Q1 2018
α_0	0.40 (2.6)	0.30 (3.5)
β_1	-0.52 (-2.5)	-0.19 (-1.9)
δ	-0.7 (-1.7)	-0.2 (-1.4)
R^2_{adj}	38%;	30%;
SER	0.8%;	0.7%;
DW	2.1	2

In the decade prior to the 2008 crisis, the coefficient associated with the slope of the eurozone Phillips curve is negative as expected at -0.5: a 1-point decline in the unemployment rate (with a lag of 1 period) would increase the annual growth of unit wage costs by 0.5 points. The coefficient for the post-2008 period dropped to -0.2, suggesting that the slope of the curve was not as steep: a 1-point decline in the unemployment rate would trigger a smaller, 0.2-point increase in the UWC growth rate.

In the short term, the adjustment to inflation trends (α) also seems to have weakened. The long-term relationship imposed by the model is just barely accepted (coefficient associated to the long-run equilibrium target is negative as expected, although it is only significant at the 10% threshold prior to 2008, and at 20% thereafter). Note, however, that given the eurozone's relatively recent history, these estimates are fragile since the observation period is relatively short.

Box 1

Sources: Eurostat, BNPP

⁵ In the early 1960s, Paul Samuelson and Robert Solow conducted their classic work on the Phillips curve in the United States, covering the period 1945-1960.

See Samuelson, Paul A., Solow, Robert M. (1960) "Analytical Aspects of Anti-Inflation Policy" American Economic Review, May.

⁶ Averages for the 3-month Euribor and the yield on the EuroMTS (5-7 year government bond index for the eurozone), respectively, for the period 1999-2008. Source: Thomson Reuters.

GROUP ECONOMIC RESEARCH

■ **William DE VIJLDER**
Chief Economist

+33.(0)1 55 77 47 31

william.devijlder@bnpparibas.com

ADVANCED ECONOMIES AND STATISTICS

■ **Jean-Luc PROUTAT**
Head

+33.(0)1.58.16.73.32

jean-luc.proutat@bnpparibas.com

■ **Alexandra ESTIOT**

Works coordination - United States - United Kingdom - Globalisation

+33.(0)1.58.16.81.69

alexandra.estiot@bnpparibas.com

■ **Hélène BAUDCHON**

France (short-term outlook and forecasts) - Labour markets

+33.(0)1.58.16.03.63

helene.baudchon@bnpparibas.com

■ **Frédérique CERISIER**

Euro Area (European governance and public finances), Spain, Portugal

+33.(0)1.43.16.95.52

frederique.cerisier@bnpparibas.com

■ **Thibault MERCIER**

Euro Area (short-term outlook and monetary policy), France (structural reforms)

+33.(0)1.57.43.02.91

thibault.mercier@bnpparibas.com

■ **Catherine STEPHAN**

Nordic countries - World trade - Education, health, social conditions

+33.(0)1.55.77.71.89

catherine.stephan@bnpparibas.com

■ **Raymond VAN DER PUTTEN**

Germany, Netherlands, Austria, Switzerland - Energy, climate - Long-term projections

+33.(0)1.42.98.53.99

raymond.vanderputten@bnpparibas.com

■ **Tarik RHARRAB**

Statistics and Modelling

+33.(0)1.43.16.95.56

tarik.rharrab@bnpparibas.com

BANKING ECONOMICS

■ **Laurent QUIGNON**
Head

+33.(0)1.42.98.56.54

laurent.quignon@bnpparibas.com

■ **Céline CHOULET**

+33.(0)1.43.16.95.54

celine.choulet@bnpparibas.com

■ **Thomas HUMBLLOT**

+33.(0)1.40.14.30.77

thomas.humbloit@bnpparibas.com

EMERGING ECONOMIES AND COUNTRY RISK

■ **François FAURE**

Head - Argentina, Central European countries

+33.(0)1 42 98 79 82

francois.faure@bnpparibas.com

■ **Christine PELTIER**

Deputy Head - Greater China, Vietnam, other North Asian countries, South Africa

+33.(0)1.42.98.56.27

christine.peltier@bnpparibas.com

■ **Stéphane ALBY**

Africa (French-speaking countries)

+33.(0)1.42.98.02.04

stephane.alby@bnpparibas.com

■ **Sylvain BELLEFONTAINE**

Turkey, Central European countries

+33.(0)1.42.98.26.77

sylvain.bellefontaine@bnpparibas.com

■ **Sara CONFALONIERI**

Africa (Portuguese & English-speaking countries)

+33.(0)1.42.98.43.86

sara.confalonieri@bnpparibas.com

■ **Pascal DEVAUX**

Middle East, Balkan countries

+33.(0)1.43.16.95.51

pascal.devaux@bnpparibas.com

■ **Hélène DROUOT**

Korea, Thailand, Philippines, Mexico, Andean countries

+33.(0)1.42.98.33.00

helene.drouot@bnpparibas.com

■ **Salim HAMMAD**

Latin America

+33.(0)1.42.98.74.26

salim.hammad@bnpparibas.com

■ **Johanna MELKA**

India, South Asia, Russia, Kazakhstan, CIS

+33.(0)1.58.16.05.84

johanna.melka@bnpparibas.com

■ **Michel BERNARDINI**
Contact Média

+33.(0)1.42.98.05.71

michel.bernardini@bnpparibas.com



BNP PARIBAS

The bank
for a changing
world

OUR PUBLICATIONS



CONJONCTURE

Structural or in news flow, two issues analysed in depth



EMERGING

Analyses and forecasts for a selection of emerging economies



PERSPECTIVES

Analyses and forecasts for the main countries, emerging or developed



ECOFASH

Data releases, major economic events. Our detailed views...



ECOWEEK

Weekly economic news and much more...



ECOTV

In this monthly web TV, our economists make sense of economic news



ECOTV WEEK

What is the main event this week? The answer is in your two minutes of economy

The information and opinions contained in this report have been obtained from, or are based on, public sources believed to be reliable, but no representation or warranty, express or implied, is made that such information is accurate, complete or up to date and it should not be relied upon as such. This report does not constitute an offer or solicitation to buy or sell any securities or other investment. It does not constitute investment advice, nor financial research or analysis. Information and opinions contained in the report are not to be relied upon as authoritative or taken in substitution for the exercise of judgement by any recipient; they are subject to change without notice and not intended to provide the sole basis of any evaluation of the instruments discussed herein. Any reference to past performance should not be taken as an indication of future performance. To the fullest extent permitted by law, no BNP Paribas group company accepts any liability whatsoever (including in negligence) for any direct or consequential loss arising from any use of or reliance on material contained in this report. All estimates and opinions included in this report are made as of the date of this report. Unless otherwise indicated in this report there is no intention to update this report. BNP Paribas SA and its affiliates (collectively "BNP Paribas") may make a market in, or may, as principal or agent, buy or sell securities of any issuer or person mentioned in this report or derivatives thereon. BNP Paribas may have a financial interest in any issuer or person mentioned in this report, including a long or short position in their securities and/or options, futures or other derivative instruments based thereon. Prices, yields and other similar information included in this report are included for information purposes. Numerous factors will affect market pricing and there is no certainty that transactions could be executed at these prices. BNP Paribas, including its officers and employees may serve or have served as an officer, director or in an advisory capacity for any person mentioned in this report. BNP Paribas may, from time to time, solicit, perform or have performed investment banking, underwriting or other services (including acting as adviser, manager, underwriter or lender) within the last 12 months for any person referred to in this report. BNP Paribas may be a party to an agreement with any person relating to the production of this report. BNP Paribas, may to the extent permitted by law, have acted upon or used the information contained herein, or the research or analysis on which it was based, before its publication. BNP Paribas may receive or intend to seek compensation for investment banking services in the next three months from or in relation to any person mentioned in this report. Any person mentioned in this report may have been provided with sections of this report prior to its publication in order to verify its factual accuracy.

BNP Paribas is incorporated in France with limited liability. Registered Office 16 Boulevard des Italiens, 75009 Paris. This report was produced by a BNP Paribas group company. This report is for the use of intended recipients and may not be reproduced (in whole or in part) or delivered or transmitted to any other person without the prior written consent of BNP Paribas. By accepting this document you agree to be bound by the foregoing limitations.

Certain countries within the European Economic Area:

This report has been approved for publication in the United Kingdom by BNP Paribas London Branch. BNP Paribas London Branch is authorised and supervised by the Autorité de Contrôle Prudentiel and authorised and subject to limited regulation by the Financial Services Authority. Details of the extent of our authorisation and regulation by the Financial Services Authority are available from us on request.

This report has been approved for publication in France by BNP Paribas SA. BNP Paribas SA is incorporated in France with Limited Liability and is authorised by the Autorité de Contrôle Prudentiel (ACP) and regulated by the Autorité des Marchés Financiers (AMF). Its head office is 16, boulevard des Italiens 75009 Paris, France.

This report is being distributed in Germany either by BNP Paribas London Branch or by BNP Paribas Niederlassung Frankfurt am Main, a branch of BNP Paribas S.A. whose head office is in Paris, France. BNP Paribas S.A. – Niederlassung Frankfurt am Main, Europa Allee 12, 60327 Frankfurt is authorised and supervised by the Autorité de Contrôle Prudentiel and it is authorised and subject to limited regulation by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin).

United States: This report is being distributed to US persons by BNP Paribas Securities Corp., or by a subsidiary or affiliate of BNP Paribas that is not registered as a US broker-dealer. BNP Paribas Securities Corp., a subsidiary of BNP Paribas, is a broker-dealer registered with the U.S. Securities and Exchange Commission and a member of the Financial Industry Regulatory Authority and other principal exchanges. BNP Paribas Securities Corp. accepts responsibility for the content of a report prepared by another non-U.S. affiliate only when distributed to U.S. persons by BNP Paribas Securities Corp.

Japan: This report is being distributed in Japan by BNP Paribas Securities (Japan) Limited or by a subsidiary or affiliate of BNP Paribas not registered as a financial instruments firm in Japan, to certain financial institutions defined by article 17-3, item 1 of the Financial Instruments and Exchange Law Enforcement Order. BNP Paribas Securities (Japan) Limited is a financial instruments firm registered according to the Financial Instruments and Exchange Law of Japan and a member of the Japan Securities Dealers Association and the Financial Futures Association of Japan. BNP Paribas Securities (Japan) Limited accepts responsibility for the content of a report prepared by another non-Japan affiliate only when distributed to Japanese based firms by BNP Paribas Securities (Japan) Limited. Some of the foreign securities stated on this report are not disclosed according to the Financial Instruments and Exchange Law of Japan.

Hong Kong: This report is being distributed in Hong Kong by BNP Paribas Hong Kong Branch, a branch of BNP Paribas whose head office is in Paris, France. BNP Paribas Hong Kong Branch is registered as a Licensed Bank under the Banking Ordinance and regulated by the Hong Kong Monetary Authority. BNP Paribas Hong Kong Branch is also a Registered Institution regulated by the Securities and Futures Commission for the conduct of Regulated Activity Types 1, 4 and 6 under the Securities and Futures Ordinance.

Some or all the information reported in this document may already have been published on <https://globalmarkets.bnpparibas.com>

© BNP Paribas (2015). All rights reserved.

YOU WANT TO RECEIVE OUR PUBLICATIONS?
SUBSCRIBE ON OUR WEBSITE
<http://economic-research.bnpparibas.com>

OR

READ AND WATCH OUR ANALYSES ON **ECO NEWS**, OUR IPAD AND ANDROID APPLICATION

© BNP Paribas (2015). All rights reserved.
Prepared by Economic Research – BNP PARIBAS
Registered Office: 16 boulevard des Italiens – 75009 PARIS
Tel: +33 (0) 1.42.98.12.34 – www.group.bnpparibas.com
Publisher: Jean Lemierre. Editor: William De Vijlder



BNP PARIBAS

The bank
for a changing
world