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The ECB and the Ukraine war: threats to price, economic and financial stability.

Luigi Bonatti and Roberto Tamborini
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The ECB and the Ukraine war: threats to price, economic and financial stability
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Abstract

As a consequence of the Ukraine war, in the aftermath of the COVID-19 pandemic, monetary policy in the euro area is severely challenged by the convergent threats to price, economic, and financial stability. After examining them, we argue that the burden of the euro area stability cannot be left entirely on the shoulders of the central bank. The successful synergic coordination of monetary policy with central and national fiscal policies inaugurated in response to the pandemic should be strengthened.

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<td>APP</td>
<td>Asset purchase programme</td>
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<td>ECB</td>
<td>European Central Bank</td>
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<td>EU</td>
<td>European Union</td>
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<td>GDP</td>
<td>Gross domestic product</td>
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<td>HICP</td>
<td>Harmonised index of consumer prices</td>
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<td>NGEU</td>
<td>Next Generation EU</td>
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<td>PEPP</td>
<td>Pandemic emergency purchase programme</td>
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<td>REP</td>
<td>Real energy price</td>
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<td>TOT</td>
<td>Terms of trade</td>
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EXECUTIVE SUMMARY

- The Ukraine war is exacerbating some of the problems that were already afflicting the European economy, and in particular the euro area, such as the sharp increase in the prices of energy and the difficulties inherent in restoring cross-border supply chains that had been disrupted by the pandemic.

- The war has also added new ones, given that it is forcing Europe to quickly seek alternative energy sources to Russia, to welcome the many refugees fleeing Ukraine and to increase its defence expenditures. Furthermore, the shock suffered by businesses and consumers and the great uncertainty created by the war are contributing to endangering a post-COVID recovery that before the Russian aggression seemed robust.

- Monetary policy in the euro area is severely challenged by convergent threats to price, economic and financial stability.

- Cost-push, and specifically import-cost-push, inflation is first and foremost a change in relative prices with both demand and supply-side real effects. The spectre of stagflation − inflation accompanied by economic slump − is inbuilt into the price increases that are fuelled by the world markets for energy, raw materials, food.

- Conventional wisdom asserts that monetary policy is ill suited, if not counterproductive, to correct real, structural shocks. A monetary restriction would further reduce demand across the board of all sectors, whereas the correct reallocation response would require a shift of demand away from higher-price imported goods towards lower-price domestic goods. However, monetary restrictions may be justified if an acceleration of disinflation is deemed necessary, though at the cost of a deeper economic contraction.

- There are also motives to think that the ongoing inflation surge is not purely temporary, since the negative supply shocks that have been at the origin of the current increase in inflation are likely to persist over the medium and long term. In this perspective, suitable targeted fiscal policies, at the national, as well as EU central level, can usefully complement monetary policy moving from stimulus to normalisation. Examples are fiscal sterilisation of households’ energy bills, which may prevent pressures for wage-price spirals, and subsidies for investments in energy sources substitution.

- The short and long term necessities of the post-pandemic legacy, of the stagflation shock, of the economic and strategic implications of the new international stance of Russia and China, and of the EU Member States' commitments towards green transition, all make an increase in the borrowing requirements of governments likely. In the euro area context of sharp differences in Member States’ indebtedness, the ECB’s choice of whether, when and how much to taper its purchases of government bonds and raise its policy rates to dampen inflationary pressures will inevitably appear controversial and highly political.

- ECB officials are well aware of their delicate position, and call for a "credible backstop" for the euro area stability. This means that the whole burden cannot be left entirely on the shoulders of the central bank. The successful synergic coordination of monetary policy with central and national fiscal policies inaugurated in response to the pandemic should be strengthened.
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1. INTRODUCTION

The Russian invasion of Ukraine, in addition to having ignited after many decades a full-fledged war in Europe, with all the horrors that this is entailing, hit the European Union (EU) economy just as it was struggling to emerge from the COVID-19 pandemic and the European Central Bank (ECB) was about to begin the impervious path of monetary policy “normalisation”. The war has therefore exacerbated some of the problems that were already afflicting the European economy, and in particular the euro area, such as the sharp increase in the prices of energy that has raised inflation everywhere, as well as the difficulties inherent in restoring cross-border supply chains that had been disrupted by the pandemic.

To these problems the war has added new ones, given that it is forcing Europe to quickly seek alternative energy sources to Russia, to welcome the many refugees fleeing Ukraine and to increase its defence expenditures. Furthermore, the shock suffered by businesses and consumers and the great uncertainty created by the war are contributing to endangering a post-COVID recovery that before the Russian aggression seemed robust.

With this situation in the background, the paper addresses some of the issues that are more relevant now and in the near future for the conduct of monetary policy in the euro area. Hence, in Section 2 we illustrate how the ECB and its officials reacted to the events that happened in the last months. Section 3 highlights different aspects of inflation, in particular introducing the distinction between demand-pull and cost-push inflation, and the real effects of imported energy shocks, which are also discussed through a simple formal model. Section 4 deals with the implications for monetary policy of imported energy shocks, which are studied through a system of three equations that allow to simulate the economy’s adjustment trajectory under different hypotheses about monetary policy and inflation expectations. Section 5 is devoted to three important issues: recent systematic errors in central banks projections of future inflation and misdiagnoses of commodity price movements; arguments in favour of the hypothesis that the current inflation spike is transitory rather than long-lasting and policies that could avoid price-wage spirals; risk of fragmentation in the euro area and need of a credible backstop. Section 6 concludes.
2. THE ECB IN THE FACE OF THE UKRAINE WAR

In February 2022, with annual inflation above 5% in the euro area and on the rise since the summer of 2021 (see Figure 1), the ECB Governing Council expected its key policy rates to remain at their current\(^1\) “or lower levels until it sees inflation reaching 2% well ahead of the end of its projection horizon and durably for the rest of the projection horizon, and it judges that realised progress in underlying inflation is sufficiently advanced to be consistent with inflation stabilising at 2% over the medium term” (ECB, 2022a).

Figure 1. Euro area inflation rate, 2021-22

![Euro area inflation rate, 2021-22](https://tradingeconomics.com/euro-area/inflation-cpi)

It appears from this official statement that, on the eve of the Russian invasion of Ukraine, the Governing Council was still convinced that the main challenge for the ECB was to push inflation up in the medium term, so as to stabilise it at 2% after years in which it had remained stubbornly below this target (see Figure 2). At the basis of this conviction there was the judgment, shared by the other major central banks and supported by market indicators of future inflation, that the price level hike observed in the second half of 2021 was driven by transitory factors (see Bonatti et al., 2022), such as fast-growing fossil energy prices, rising food prices, continuing supply chain disruptions, clogged ports and logistics strains due to the COVID-19 pandemic.

In a recent issue of its Economic Bulletin, the ECB admitted that its staff projections had substantially underestimated the surge in inflation (see Chahad et al., 2022), with this underestimation that began to occur in the first quarter of 2021, became more pronounced since the third quarter of 2021 and reached its peak in the first quarter of 2022, when the difference between the outturn and the December 2021 projection was 2.0 percentage points (see Figure 3). Consistently with this recognition, in its 9-10 March meeting, “with inflation continuing to surprise on the upside” (ECB, 2022b) and the Russian invasion of Ukraine under way, the ECB Governing Council decided to remove any reference to the possibility that its policy rates may fall below current levels. As a matter of fact, the outbreak of the Ukrainian war had an immediate impact on commodity prices, especially those of oil and gas, that—

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\(^1\) Interest rates on the main refinancing operations, the marginal lending facility and the deposit facility were, respectively, at 0.00%, 0.25% and -0.50%.
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rising from already elevated levels—pushed the euro area consumer inflation up to an annual rate of 7.4% in March.

Figure 2. Euro area actual HICP and its 2%-trend value, 2008-2022 (2015=100)

![Graph showing HICP and trend value](image1)

Source: ECB Statistical Warehouse.

Figure 3. Evolution in HICP inflation projections

![Graph showing inflation projections](image2)


Although even food prices rose 5% in March, more than half of the increase in the euro area price level was due to the price of energy, with core inflation estimated to be at a much lower 3% annual rate. Also short-term inflation expectations rose sharply: as of 1 April, the expectations derived from the inflation-linked swap contracts were equal to 4.0% over the two-year horizon and to 3.0% over the five-year horizon (from 2.5% and 2%, respectively, in mid-January), while the 5y5y inflation swap rate stood...
just above 2% (see Figure 4). Thus, market indicators of future inflation, together with operators interviewed in the Survey of Monetary Analysts, apparently agreed with the ECB’s staff in predicting an inflation hike in 2022 and a gradual return in the medium term to the 2% target. Almost symmetrically with the ECB staff upward revision of the December 2021 inflation forecasts, the ECB staff projections for real GDP growth in the euro area were revised down in March 2022 by 0.5% (to 3.7%) for 2022, by 0.1% (to 2.8%) for 2023 and remained unchanged (to 1.6%) for 2024: the invasion of Ukraine represented a supply/cost shock for the euro area that was expected to have both an inflationary and a contractionary impact on it (more on this in sections 3 and 4).

Figure 4. Expected inflation rates implicit in inflation-linked swaps

![Graph showing expected inflation rates](image)

Source: Bank of Italy.

Together with the elimination of the “easing bias” that had previously characterised its forward guidance on interest rates, in March, the Governing Council announced the reduction of its net asset purchases taking place in the context of the asset purchase programme (APP) to EUR 40 billion in April, EUR 30 billion in May and EUR 20 billion in June, and the intention to stop or make them “data-dependent” in the third quarter of 2022. The decision of putting an end to the APP sooner than previously expected (based on previous roadmap, monthly net purchases should have amounted to EUR 40 billion in the second quarter and EUR 30 billion in the third quarter), was not fully anticipated by the markets, which reacted by consolidating the upward trend of the 10-year Bund yield (see Figure 5) and raising immediately the spread between the latter and the government bonds of the most vulnerable euro area countries (in particular, the spread between the Bund and the Italian BTP, see Figure 6).

Furthermore, in its March meeting, the Governing Council stated that any policy rate rise will take place “some time” after the end of the APP and will be “gradual”, thus giving rise to speculations amongst analysts and commentators about when the ECB will start raising its policy rates and how much the latter will be raised by end-2022. Apparently, in the days that followed the Russian invasion, market expectations regarding future increases in ECB policy rates had been revised, in the anticipation that a first 25-basis points hike will take place around the turn of the year, about two months later relative to pre-war expectations. In any case, the outbreak of the war increased uncertainty about future monetary policy and in general about the economic outlook: in March, the Governing Council
noticed that “the distribution of risks around the expected path of the three-month EURIBOR had widened substantially, reflecting the heightened uncertainty surrounding both the economic and the inflation outlook” (ECB, 2022b). In this climate of growing uncertainty, the risk assessment prevailing among market participants was not symmetric, since “the more pronounced skewness of the distribution suggested that markets had become even more concerned about upside risks to inflation” (ECB, 2022b).

Members of the Governing Council emphasised in the March meeting that the war not only had created more uncertainty, but also that the latter was typically “Knightian uncertainty”, i.e. a type of uncertainty that is not quantifiable. Given this uncertainty, at the end of March, ECB chief economist Philip Lane stressed that the ECB should maintain "two-sided optionality", since two opposing forces were at work and nobody could predict which of the two will prevail in the medium-to-long run (see Lane, 2022). Indeed, for a major energy importer as Europe (more than 90% of its energy consumption is imported), differently than for the US that is also a big producer of fossil energy, a gas and oil price hike determines both a cost shock pushing inflation up and a deterioration of its terms of trade.
depressing real income and aggregate demand. Hence, the impossibility of quantifying a priori the relative strength of those forces, also dependent on the evolution of the war and the geopolitical context linked to it, justified the insistence with which ECB officials tried in their communication of this period to reaffirm the “data-dependent” character of the ECB policy, namely to maintain a “wait and see” attitude with regard to timing and size of their future moves in matter of policy rates (see, e.g., Lagarde, 2022a).

Therefore, in its 14 April meeting, the ECB Governing Council restated that “in the current conditions of high uncertainty”, it “will maintain optionality, gradualism and flexibility in the conduct of monetary policy”, and reiterated its determination to conclude the ECB net asset purchases in the third quarter of 2022. The Governing Council also reaffirmed on this occasion its intention to reinvest, in full, “the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it starts raising the key ECB interest rates and, in any case, for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation” (ECB, 2022c).

Similarly, in this meeting it was confirmed that “the Governing Council intends to reinvest the principal payments from maturing securities purchased under the PEPP until at least the end of 2024”, and that “the future roll-off of the PEPP portfolio will be managed to avoid interference with the appropriate monetary policy stance”, with the important specification that “in the event of renewed market fragmentation related to the pandemic, PEPP reinvestments can be adjusted flexibly across time, asset classes and jurisdictions at any time” (ECB 2022c).

The above reference to the way in which the ECB would respond to a possible risk of market fragmentation is aimed at reassuring the financial markets, given the widespread fear that the announced end of ECB’s net asset purchases could create difficulties for the more heavily indebted euro area governments. In fact, in response to changes in market sentiment linked to the evolution of the war in Ukraine and coming data on inflation and growth, phases in which fears of recession or declining growth prevail, with consequent decreases in stock prices and bond yields, have recently alternated with phases in which fears of persistently high inflation and rapid, substantial, increases in central banks’ policy rates prevail, with consequent falls in bond prices and rises in their yields (and in the spreads between European sovereign bonds).
3. INFLATION IS NOT ALWAYS AND EVERYWHERE THE SAME

We now wish to draw a simple conceptual framework that may help to organise and assess the unexpected evolution of events on the inflation front, and the “real time” reactions of the ECB over the last year outlined above.

It should never be forgotten that inflation is a complex phenomenon. It may have different causes across time and space behind the same appearance. Inflation is generally classified, and analysed, as a macroeconomic phenomenon, in the sense that the index numbers of prices gather composite baskets of goods and services, and inflation is commonly understood as an upward movement of prices of (the majority of) goods in the basket. More technically, inflation is registered when prices present a common trend.

At the same time, single prices move upwards or downwards for specific reasons. These are basically: (i) changes in demand and supply, (ii) changes in production costs, (iii) changes in market structure, (iv) changes in price expectations. Common trends arise when these factors align themselves pushing single prices in the same direction. To this end, macroeconomic models of inflation monitor the behaviour of these factors at the aggregate level, but the fact that prices are eventually a microeconomic phenomenon should never be overlooked.

3.1. Demand-pull versus cost-push inflation

Against this background, a long-standing distinction can be found in the literature between demand-pull and cost-push inflation. In the former type, a generalised pressure on prices arises from a tendency of the various components of aggregate demand to grow faster across sectors than production capacity on the supply side. How much of the demand-pull is translated into some increases in production, and how much is translated into pure increases in prices, depends on the initial state of the economy (whether dwelling below, or just close to, full capacity), on the degree of pricing power in the various sectors, on the degree of “stickiness” of prices and nominal wages in the face of market imbalances. In this process, also costs of intermediate goods and of labour are obviously involved, since they rise as a result of firms’ attempts at producing more. But this is a second-round effect, not the primary impulse of inflation. In the cost-push type, on the contrary, the inflationary impulse comes directly from production costs, which may increase out of “exogenous” factors with respect to the other macroeconomic conditions. This is more typically the case of costs of imported production inputs, such as raw materials, energy and intermediate goods.

Main macroeconomic theories highlight that the two types of inflation display different consequences and have different policy implications. Demand-pull inflation is typically procyclical, meaning that the increase in prices (the acceleration of inflation) is positively correlated with aggregate demand and GDP. By contrast, cost-push inflation tends to be anticyclical, namely negatively correlated with GDP (in this respect, it looks like a negative "supply shock"). This effect is also commonly known as stagflation, i.e. inflation accompanied by a fall in economic activity.

The reason of this different macroeconomic pattern can be traced back to plausible firms’ behaviour vis-à-vis an unexpected cost shock. To fix the ideas, consider the simplest case where the energy sector is entirely abroad, and the non-energy sector is entirely domestic. Depending on the market structure they face, firms can, at least in the short run, either seek to transfer higher costs onto sale prices (this may happen even near to perfect competition if the shock is evenly affecting all firms) and/or have to

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2 See e.g. Battistini et al. (2022) for a clear account of these processes.
economise on more costly inputs, which may entail a cut of production too. In some, frequent, cases, however, the demand for the more costly inputs is rigid, since they are not easily substitutable - think of the case of the day, energy. Hence the actual trade-off for firms is between raising sale prices or cutting operation margins, and eventually production. This is the first channel whereby the cost push leads to lower GDP. Yet, even though firms are to some extent able, as is generally the case, to pass higher costs through prices, the contraction of GDP will come about as a result of the effect of higher prices on demand.

The price index $P$ of the domestic product, i.e. the GDP deflator, will look like the following:

$$P = \alpha P^n + (1 - \alpha)eP^*$$

i.e. a composition of the prices of non-energy (domestic) inputs $P^n$, and of the (imported) energy input $eP^*$, according to the respective shares in production $\alpha, 1-\alpha$, where $P^*$ is the energy price at origin and $e$ is the nominal exchange rate (units of euros for one unit of foreign currency).

As to households, energy is also a consumption item together with the domestic product. The index of consumer prices (ICP) is therefore:

$$ICP = \beta P + (1 - \beta)eP^*$$

according to the respective consumption shares $\beta, 1-\beta$.

Overall, the pass through of the energy price to the ICP results:

$$ICP = \alpha \beta P^n + \beta(1-\alpha)(1-\beta)eP^*$$

The weight of the energy price on the total "headline" ICP depends on the weight of energy in production and consumption, given the degree of cost-price pass-through by firms.

### 3.2. Real effects of imported energy shocks

By means of these relationships we can identify three channels through which the imported energy shock generates negative real effects on economic activity in the domestic economy.

The first and most straightforward is the real income effect on households via the ICP. Other things equal, the energy shock on $eP^*$ raises the ICP and, as long as nominal incomes are not immediately and perfectly linked to the HICP, households suffer from a loss of purchasing power. However, this may not be evenly distributed across the consumption basket. Households find themselves in the same position as firms: the demand for energy services is rigid. Hence the increase in their energy bill forces households to cut other items in the budget. In this way, the cost push not only does lead to lower demand and GDP, but also triggers sectoral spillovers from the sector(s) where the cost shock originates to others.

The literature offers two more detailed indicators in order to gauge the real effects of imported energy prices: the ratio of the energy component to the total CPI, $eP^*/CPI$, also called real energy price (REP), and the ratio of the GDP deflator to the energy price, $P/eP^*$, also called terms of trade (TOT). As can be seen from expression (2), the energy shock raises the REP. At the same time, from expression (1) we can deduce that the same energy shock lowers the TOT. Therefore, we can expect that as an effect of energy shocks the two indicators move in opposite directions.

This prediction is largely confirmed by the data reproduced in Figure 7, that we borrow from a recent ECB staff study (Battistini et al., 2022). Notably the REP (yellow line) remained relatively stable around

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1 E.g. Blanchard and Gali (2010), Battistini et al. (2022).
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100 from 2008 to 2019. The TOT (blue line) displayed larger fluctuations, especially in the aftermath of the Great Recession, mainly due, therefore, to the non-energy and domestic components. The data after 2020 vividly show the upsurge of the REP and the consequent fall in the TOT.4

Figure 7. Real energy price and the terms of trade in the euro area (2010=100)

Source: Battistini et al. (2022).

In order to understand the consequences of these phenomena, note first that the increase of the REP indicates that the domestic non-energy good has become cheaper relatively to the imported energy good, which in international economics is dubbed real depreciation. This may trigger a substitution from the imported to the domestic good, and is generally regarded as a means to improving the foreign trade balance, if the two kinds of goods are substitutable. If they are not, as in the case under consideration, the real depreciation has entirely a different, and perverse, effect, namely it deteriorates the trade balance and the current account. According to the ECB calculations, the euro area current account has worsened since early 2021 by approximately one point of GDP, with the negative drag almost entirely due to an increase in the imported energy bill of about 3.5% of GDP (ECB, 2022d, Box 1). Since, according to national accounting, the current account is a component of national disposable income, the deterioration of the current account reported above can be seen as the other side of the coin of the households' negative income effect of the energy shock.

On the other hand, the TOT measure the amount of imported energy that can be obtained by exporting one unit of domestic product. Hence, the concomitant fall of the TOT, represents a real loss for the domestic country since a unit of domestic good buys less imported energy, or in other words, more of the domestic good has to be given in exchange for one unit of the imported energy. From this point of view, the fall of the TOT entails a transfer of purchasing power abroad, which, as of the end of 2021, for the euro area amounted to a loss in the order of 1.3 percentage points of GDP (ECB, 2022d, p. 33).

4 Note that in the same period of observation some depreciation of euro against the dollar also occurred, i.e. a rise in the variable e of the imported cost of energy.
Overall, the three indicators presented above, from different angles converge to the point that the imported energy shock which the euro area is experiencing is not the cause of a mere nominal escalation of the HICP, but is triggering various real effects. As is intuitive even from our overly simple formulations, the phenomena expounded above are more intense the more the country is energy-consuming and energy-dependent from abroad. Therefore, the intensity of the effects may vary from country to country. Considering comparable economies like the US or the UK, it may be said that the euro area is somewhat less energy consuming but is significantly more dependent from abroad. Overall, it seems so far that the negative impact of the imported energy shock is more pronounced in the euro area than elsewhere (ECB, 2022, Box 1). Nonetheless, concern is no less acute overseas. In the words of the Governor of the Bank of England at his latest press conference:

“To characterise the situation, the United States is facing what looks like a demand shock, with a strong domestic labour market, strong domestic demand and relatively less exposure to the energy price shock given its position as a major gas producer. The euro area by contrast is facing a supply/cost shock, as it starts with a somewhat weaker domestic labour market, and is heavily exposed to the rise in gas prices. In the UK we are seeing elements of both. Like the euro area, we are experiencing a sharp terms of trade shock emanating from the rise in the price of tradable goods and energy. But our strong labour market is more akin to that in the US […]

UK CPI inflation rose to 7.0% in March. The strength of inflation relative to the 2% target mainly reflects previous large increases in global energy and tradable goods prices, owing to the build up to and subsequent Russian invasion of Ukraine, and to the continuing effects of the pandemic on the pattern of global demand and disruption to global supply chains […]

UK GDP growth is expected to slow sharply over the first half of the forecast period. That predominantly reflects the significant adverse impact of the sharp rises in global energy and tradable goods prices on most UK households’ real incomes. It is a measure of the scale of the shock that total real household disposable income is projected to fall by 1¾% in 2022 which, apart from 2011, would be the largest contraction since comparable records began in 1964” (Bailey, 2022, pp. 1, 2).
4. MONETARY POLICY AND IMPORTED ENERGY SHOCKS

4.1. Lessons for monetary policy

Lesson number one, cost-push, and specifically import-cost-push, inflation is first and foremost a change in relative prices with both demand and supply-side real effects. If conditions occur, it may even translate itself into a structural change (ECB 2022d, Box 1).

Lesson number two, conventional wisdom asserts that monetary policy is ill suited, if not counterproductive, to correct real, structural shocks. A monetary restriction would reduce demand across the board of all sectors, whereas the correct reallocation response would require a shift of demand away from higher-priced imported goods towards lower-price domestic goods. Likewise, if interest rates rise, they rise for all borrowers including those who should instead be incentivised to invest in the production of alternative energy technologies.

Lesson number three, stagflation is intrinsic in imported energy shocks, independently of any monetary restriction (Blanchard, 2022). Yet, notably, no endogenous real income effect is present in the basic macroeconomic models for monetary policy, such as the New Keynesian three-equation model, certainly not at the textbook level, but at more advanced levels either (e.g. Galì, 2008). The consequence is not merely of academic interest.

Briefly, in the standard policy model an unexpected inflation shock (above the central bank’s inflation target) can have a negative impact on aggregate demand and GDP (according to the so-called IS function) only if the central bank reacts by raising its policy rate more than one-to-one with the shock, and hence if it raises the real interest rate (as dictated by the typical Taylor Rule). The contraction of demand below potential GDP then curbs inflation (via the inflation-output relationship labelled Phillips Curve). This sequence (plus other technical conditions usually taken for granted) is quintessential to the central bank’s ability to drive inflation back on target. In this view, stagflation is the by-product of the central bank’s commitment to price stability, and it is often presented as the "real price of credibility" of the commitment itself. Furthermore, in absence of the monetary restriction, the model predicts that aggregate demand would increase and amplify the inflation shock. The reason is that the real interest rate that regulates aggregate demand is equal to the difference between the nominal rate controlled by the central bank and the expected inflation. If the latter increases while the nominal rate does not, the real interest rate falls, which spurs aggregate demand and inflation. Despite that this class of models hinges on the assumption of sticky nominal wages and prices, the endogenous real income effect of the inflation shock is absent.6

In order to better assess the point, we have re-elaborated the simple simulative version of the New Keynesian policy model presented in our previous Monetary Dialogue paper (Bonatti et al., 2022), where the real income effect on consumption, in relation to an unexpected inflation shock (above the central bank’s target) has been added to the IS function. The difference is that, before any central bank’s intervention, consumption is subject to two opposite effects: the fall of the real interest rate, which

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5 Whelan (2021) provides a fine reconstruction of this debate in some documents of the US Fed in the stagflation climate of the 1970s.

6 The technical reason is that this class of models embeds a "pseudo" consumption function, i.e. the optimal intertemporal path of consumption planned by households, which in fact depends on the real interest rate, without the budget constraint, so that there is no real income effect. See Smith and Wickens (2006), Tamborini (2014).
pushes upwards as in the standard model, and the fall of current real income, which pushes downwards.\footnote{This effect is fully consistent with the canonical Permanent Income Hypothesis. An unexpected fall of current real income below the long-run future streams of income discounted to the present that constitute the household’s intertemporal budget constraint, triggers a cut of current consumption, less than proportional, in reason of the "short-run" marginal propensity to consume (Friedman, 1957; Hall, 1988).}

After all the relevant reciprocal interdependencies among the three equations have been worked out, the current inflation rate \( \pi_t \), the current output, and the policy interest rate \( i_t \), result as follows:

\[
\begin{align*}
\pi_t &= \pi^* + a_1(\pi_{t+1} - \pi^*) + a_2u_{pt} \\
y_t &= y^* + b_1(\pi_{t+1} - \pi^*) + b_2u_{pt} \\
i_t &= r^* + \pi^* + c_1(\pi_{t+1} - \pi^*) + c_2u_{pt}
\end{align*}
\]

where \( \pi_{t+1} \) = expected inflation, \( \pi^* \) = inflation target, \( y^* \) = potential output, \( r^* \) = equilibrium real interest rate, \( u_p \) = price shock. The coefficients \( a_n, b_n, c_n (n = 1, 2) \) are combinations of the parameters of the three equations. The inflation target has been set to 2%. The values of the coefficients \( a_n, b_n \) have been obtained from the estimated structural parameters of the three equations commonly found in the empirical literature.

### 4.2. “Anchored” expectations and transitory shocks

In order to obtain meaningful scenarios, assumptions are needed about the inflation expectations and the evolution of the price shock.\footnote{More on this point in Bonatti et al. (2022).} In the first baseline simulation, we have set expected inflation anchored to the inflation target \( \pi_{t+1} = \pi^* \), and a transitory, low-persistence shock of 3% (50% of the previous period’s shock is left in each next period).\footnote{Technically this figure measures the autocorrelation of the shock over time, how much of today’s shock remains tomorrow. The speed of transition is the complement to 1 of the persistence.} We have run two simulations. The first of the complete three-equations model, the second with the interest-rate equation “frozen” to capture neutral policy stance Figure 8).

**Figure 8. The adjustment paths of inflation and output with neutral policy stance**

Source: Authors’ simulation.
The thrust of the simulation is that the inflation shock is **reabsorbed even with a neutral policy stance**. The reason is that the negative real income effect of the energy shock on consumption alone creates a negative output gap (1.7% on impact) sufficient to curb inflation.

What difference does unfreezing monetary policy make? Figure 9 gives the answer. As can be expected, it just enhances the fall of aggregate demand and output, and hence the convergence process. Both inflation and output are lower (one fifth, and one half of a point, respectively, on impact) all along the adjustment path.

**Figure 9. Difference of the adjustment paths of inflation and output with monetary restriction with respect to neutral stance (see Figure 8) (% points)**

[Diagram showing adjustment paths of inflation and output with and without monetary restriction]

Source: Authors’ simulation.

### 4.3. "De-anchored" expectations and hump-shaped shocks

A common argument in favour of enacting a monetary restriction is that shortening the extent and length of the adjustment path matters in order to prevent two phenomena that may set inflation on an explosive path: the price-wage spiral and the de-anchoring of expectations. Therefore, to add some realism, and challenge, we have introduced a hump-shaped path of the price shock (peaking at 6% in 4 periods and then petering out to zero), and de-anchored expectations in the form of adaptive updating. These two features together boost the inflationary process at initial stages, while adaptive expectations may self-sustain it over time if actual inflation is not curbed fast enough.

Figure 10 presents this new simulation in the case of neutral policy stance, and it confirms that the process still converges to the inflation target. The inflation peak is hit after 5 periods at 7.2% above the target, i.e. a bit later and higher than the peak of the price shock. The concomitant trough of output is 3.7% points below potential. The comparison of this scenario with one with restrictive monetary policy is analogous to the previous case, namely the adjustment is faster with lower inflation (-0.8% at peak) and output (further -1.5% at trough) along the process.

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10 In each period expected inflation for the next period is the weighted average between the inflation target of the central bank and the actual observed inflation. The weighing factor, which ranges between 0 and 1, can be interpreted as the degree of anchorage to the inflation target. We have set it to 0.5.
Figure 10. The adjustment paths of inflation and output with neutral policy stance, hump-shaped price shock and adaptative expectations

Source: Authors’ simulation.

These findings by no means justify any neglect of the insurgence of inflation. Yet, they may help to put the cost-benefit balance of policy choices in the right perspective. The spectre of stagflation is inbuilt into the kind of price increases that is being fuelled by the world markets for energy, raw materials, food, with or without monetary restrictions. The consequent endogenous fall of demand and activity may by itself be sufficient to curb the inflation process. However, monetary restrictions, too, may be justified if an acceleration of disinflation is deemed necessary, though at the cost of a deeper economic contraction.
5. SOME HOT ISSUES

5.1. Errors and misdiagnoses

It is true that errors are inherent to the nature of projections and that the recent underestimation of inflation was shared by other central banks, but wrong—or even worse—systematically distorted predictions on the part of the authorities can increase uncertainty and reduce public confidence in them. Hence, it is appreciated that the ECB analysed the reasons underlying its errors in the prediction of inflation (see Chahad et al., 2022). This notwithstanding, when one learns from this analysis that predominant sources of errors are market assessments of energy prices—such as those reflected in oil price futures—on which the ECB staff projections (as those of other major central banks) are conditional, one wonders whether in these cases a sort of circularity may not be created whereby market predictions and central bank’s projections reinforce each other. Some could argue that in “normal” times this circularity is harmless and indeed generates robust predictions; however, if one is “data oriented”—and these data come from market forecasts and therefore from financial analysts who project forward their probabilistic assessments based on what has been observed in the past—in times of structural changes this circularity risks producing substantial and persistent mistakes (see e.g. Tria, 2022).

As said, underestimation of inflation was going on in Europe and in the US many months before Russian invasion of Ukraine and was mainly (but not exclusively) due to the fact that energy prices have turned out to be higher than expected. In general, core inflation is considered more informative about future headline inflation because it removes the consumer price index components that are deemed to be more volatile, namely food and energy prices, since they tend to reflect supply disruptions. However, commodity prices such as gas and oil prices can be also driven by global demand developments that are affected by global monetary policy conditions (see Filardo et al., 2020).

The problem here is that, in a world of many central banks with purely domestic mandates, each central bank focuses on domestic core inflation, since it can reasonably neglect the effects of its own monetary policy on the rest of the world, and thus on commodity prices, that are treated as exogenously given. In particular, in the presence of a global shock like the COVID-19 pandemic, central banks tended to act in a correlated way by implementing ultra-expansionary policies, which endogenously drove commodity prices up. Under these circumstances, a coordination failure occurs, since each central bank does not internalise its own impact on commodity prices, thus contributing to push world inflation above the level that is collectively desirable. Furthermore, large but less energy-dependent economies such as the US may have weaker incentive to cooperate in a general contraction of demand. Finally, in this context, central banks can make prediction errors and implement inappropriate policies if they “misdiagnose a commodity price swing as being driven by an external supply shock when it is, in fact, driven by an endogenous global demand shock, and vice versa” (Filardo et al., 2020).

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11 Evidence that loose monetary policies have an effect on commodity prices via the global demand channel can be found in Anzuini et al (2013) and Filardo and Lombardi (2014).

12 As rightly noted by Blanchard: “The question is where does advanced economy inflation come from, and my sense is that it largely comes from the US, including the effect of the US on commodity prices. If the US had been more careful, there would have been a much smaller increase in commodity prices. We are focusing on commodity prices at this stage, because of Ukraine, but the rise had largely happened before the war and I think you have to trace it mainly to very strong demand from the US” (Blanchard, 2022).
5.2. Is the current inflation spike transitory? And what policy makers could do to avoid price-wage spirals?

In the light of the ECB staff’s recent underestimation of current inflation, it is legitimate to express doubts about its projection envisaging a decline of the euro area inflation—currently at 8.1%—below 2% for 2024. Obviously there are arguments in favour of a relatively fast mean reversion in inflation. Among them, one may consider that, even if we will not have a reversal of the jump in energy prices that we had in the past months as an effect of the rapid removal of coronavirus-related restrictions and the Russian invasion of Ukraine, it is unlikely that we will experience in the near future further significant rises in commodity prices. Moreover, it is reasonable to think that the upward effects on the prices of goods and services—due to global supply bottlenecks and post-COVID spikes in demand—will gradually fade away. Finally, there are only modest signs in the euro area that current inflation is sparking a price-wage spiral and a de-anchoring of medium-to-long term inflation expectations.

In contrast, there are also motives to think that the inflation surge occurring in 2021–22 is not purely temporary, since the negative supply shocks that have been at the origin of the current increase in inflation are likely to persist over the medium and long term. On several occasions Roubini has listed the reasons why, according to him, such shocks are destined to last over time:

“For starters, there is the trend toward deglobalization and rising protectionism, the balkanization and reshoring of far-flung supply chains, and the demographic aging of advanced economies and key emerging markets. Tighter immigration restrictions are hampering migration from the poorer Global South to the richer North. The Sino-American cold war is just beginning, threatening to fragment the global economy. And climate change is already disrupting agriculture and causing spikes in food prices. Moreover, persistent global pandemics will inevitably lead to more national self-reliance and export controls for key goods and materials. Cyber-warfare is increasingly disrupting production, yet remains very costly to control. And the political backlash against income and wealth inequality is driving fiscal and regulatory authorities to implement policies strengthening the power of workers and labor unions, setting the stage for accelerated wage growth” (Roubini, 2021).

With regard to the last point touched by Roubini, however, one may think that in the current context of rising prices fiscal policy might help avoiding an acceleration of wage growth: “The more fiscal policy protects the real income of workers, the weaker the demand for wage increases is likely to be in further rounds. The more a decrease in inflation becomes credible, the less the European Central Bank (ECB) will have to tighten to achieve lower inflation. In effect, larger deficits can lead to a smaller output cost of fighting inflation” (Blanchard and Pisani-Ferry, 2022, pp. 2-3).

In other words, in the presence of the ongoing energy and food price hikes, “transfers do not affect first-round inflation, but they limit the initial decrease in real income, thus potentially reducing wage pressure in second and subsequent rounds. To put it strongly, more protection and higher deficits reduce the need to tighten monetary policy to return inflation to its target” (Blanchard and Pisani-Ferry, 2022, p. 19).

Moreover, in section 3 we have put forward some reasons why monetary policy alone may not be fit for the purpose of accommodating a change in real energy prices. If the current energy shock, together with the strategic issues raised by the new international stance of Russia, turn out to be just the (somewhat earlier and faster) start of the long-run process of green transition and diversification of
energy sources that lies at the core of the NGEU programme, also a specific easing role for the monetary authority will be involved.\textsuperscript{13}

The unusual interaction between fiscal and monetary policy proposed by Blanchard and Pisani-Ferry is in continuity with the \textit{monetary-fiscal synergic approach}\textsuperscript{14} that has emerged with the pandemic in the place of the monetary dominance principle on which the Monetary Union has been built. However, what is problematic here is that, especially in the event of a prolongation of the Ukraine war that will continue to keep energy and food prices at their current high levels, governments with less fiscal space could be in big trouble in financing fiscal transfers in favour of households and firms needing protection.

5.3. \textbf{In need of a credible backstop}

In a monetary union of sovereign states where some member countries are exposed to the risk of a public debt crisis, the central bank’s choice of whether, when and how much to taper its purchases of government bonds and raise its policy rates to dampen inflationary pressures will inevitably appear controversial and highly political. This differentiates the ECB’s position from that of the Fed, which can afford under these circumstances to reverse its policy stance without fear of causing excessive turmoil in its jurisdiction. In a scenario of rising prices where the high-public debt countries tend to grow less than the low-public debt countries, it would be very problematic for the ECB to find a balance among the different national interests and attitudes towards inflation. This is a hazardous scenario for the future of the euro area, that the Recovery and Resilience Facility aims at averting, but that nobody at the moment can rule out.

Especially when ECB officials announce that the date of policy rate lift-off draws closer (probably in July, with the exit from negative rates likely to occur by the end of the third quarter, see Lagarde, 2022b), the lack of a clear indication by the ECB about the instrument it would adopt in the event of tensions on sovereign bond markets once the APP will be over does not help to allay the great uncertainty now dominating; a lack that adds to the absence of a clear orientation within the EU on the possibility of a new common budgetary instrument alongside the NGEU to meet the costs of the Ukrainian crisis and the accelerated energy transition, which would benefit above all the EU countries with less fiscal space. The lack of these instruments could put the ECB officials before a difficult choice, which is thus summarised by Blanchard:

\begin{quote}
\textit{Their position has been that if the rise in spreads is not due to fundamentals, but just to markets becoming dysfunctional or crazy for some reason or another, they would do what it took to keep the rates low. But if it were due to fundamentals, they say, it’s not something they could deal with. So, what are they going to do if the spread on Italian bonds, say, goes up by another 100 basis points? Is it fundamentals? Is it really a worry about Italian debt, or is it just investors being edgy? It’s going to be very difficult if the ECB is faced with a large increase in spreads, because the only way they could do the right thing would be to say, well, we think its fundamentals are fine and we think investors are wrong} (Blanchard, 2022).
\end{quote}

ECB officials are well aware of their delicate position: \textquote[Blanchard]{\textit{given its current architecture, the euro area remains vulnerable to fragmentation, meaning there is a risk that unexpected policy adjustments may be amplified}}

\textsuperscript{13} Some ECB materials about climate change and green transition can be found on https://www.ecb.europa.eu/ecb/climate/html/index.en.html

\textsuperscript{14} Synergic means that the joint and coordinated use of both policy arms allows for less use of each (Bonatti et al., 2020; Della Posta and Tamborini, 2022).
in parts of the euro area, leading to changes in financing conditions that are sharper than intended” (Schnabel, 2021), and call for a credible backstop: “A credible backstop that commits to counter such risks of fragmentation may help protect against disorderly movements and thereby allow the central bank to focus on its price stability mandate” (Schnabel, 2021)\(^\text{15}\). The Ukrainian war has made apparent how urgent is to strengthen the euro area with instruments like a credible backstop, or anti-spread shield as it is sometimes called in the media.

\(^{15}\) For an elaboration of a credible backstop see Della Posta and Tamborini (2022).
6. CONCLUSION

From an economic point of view, the Russian invasion of Ukraine has been a major shock for the euro area, causing both an upward push in the price of fossil fuels of which Europe is a strong net importer and a cut in the population’s real income. Therefore, this shock has both inflationary and recessive effects on the area. Economic policy, and monetary policy in particular, should be very carefully calibrated in order to take the narrow path along which the euro area economy can avoid a recession, at the same time managing to bring inflation down substantially from the peaks it has recently reached. This task is made more problematic by the great uncertainty created by the war, the limited fiscal space available to the euro area countries characterised by high public debt, and the risk of financial market segmentation that still looms over the area.

In this paper, we have discussed some of the issues related to this task, beginning with the illustration of how the ECB has reacted to the events that have occurred in recent months, and examining what the theory of economic policy in the face of imported energy shocks suggests. We then tried to better understand the reasons of recent systematic errors in central banks projections of future inflation and misdiagnoses of commodity price movements.

In assessing the arguments in favour of the hypothesis that the current inflation spike is transitory rather than long-lasting, we have argued together with Blanchard and Pisani-Ferry (2022) that fiscal transfers in favour of workers hit by energy and food price hikes could help to prevent price-wage spirals which may lead to the de-anchoring of inflation expectations, thus making the current high inflation persistent and hard to eradicate.

Finally, we have claimed that the Ukrainian war has made apparent how urgent it is to strengthen the euro area with instruments like a credible backstop, so as to allow the ECB to focus on its price stability mandate without being conditioned by the risk of fragmentation.
REFERENCES


The ECB and the Ukraine war: threats to price, economic and financial stability


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As a consequence of the Ukraine war, in the aftermath of the COVID-19 pandemic, monetary policy in the euro area is severely challenged by the convergent threats to price, economic, and financial stability. After examining them, we argue that the burden of the euro area stability cannot be left entirely on the shoulders of the central bank. The successful synergic coordination of monetary policy with central and national fiscal policies inaugurated in response to the pandemic should be strengthened.

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