

Interpreting signals  
from the global economy  
and financial markets

# Decoder



## In Focus

- The IMF warns that without lower inflation, interest rates will not fall, which is negative for the economy and financial markets.
- We have developed a model to better grasp inflation dynamics and get a sense of where to look for inflation risks.
- The labor market does not pose an inflation risk. Inflation leads wages, not the other way around.
- Trade shocks have a stagflationary effect: a bad investment environment, especially for bondholders.

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## The destination of inflation

Inflation matters. If inflation remains stubbornly high, it is hard to foresee the substantial drop in interest rates that markets are pricing in over the next two years. The implications are wide-ranging. The outlook for the economy and financial markets depends heavily on the path inflation will take from here. We have developed a model to better understand inflation dynamics and get a grasp of where the main risks might lie.

### Disturbing disappointments

Persistent inflation would keep interest rates up, which might hurt the current rich asset valuations. It would also depress consumer sentiment, as a loss of purchasing power is generally unpopular. There is still a lot of faith in the ability of central banks to control inflation – going by inflation expectations – but their credibility would suffer a blow if inflation does not sustainably return to target levels within a reasonable timeframe.

In the most recent *World Economic Outlook*, the IMF points out the risk of sticky inflation and higher-for-even-longer interest rates, in the context of escalating trade tensions and increased policy uncertainty ([‘The global economy in a sticky spot’](#)). Both the Fed and the ECB have recently emphasized the role of the labor market as a potential source of inflation. If the labor market overheats, wages will rise too fast. Businesses will pass these higher costs on to consumers, who also happen to have more spending money as a result of their bigger paychecks. Or so the argument goes.

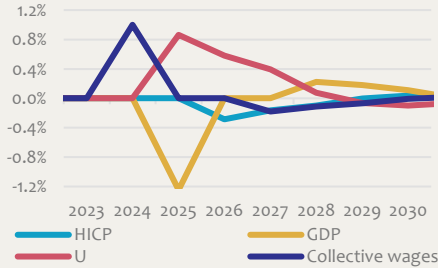
### Making sense of the moving parts

So should we worry more about overheated labor markets, deglobalization or financial shocks? There are many moving parts, which complicates matters. A model can help us get a better grasp of inflation dynamics. In this Decoder we briefly outline how the CHARLIE model (Combined Harmonized Analysis of Real, Labor and Inflation Effects) works. It is an annual vector-autoregression model for the Eurozone. The endogenous variables we use are inflation (Harmonized Index of Consumer Prices (HICP)), wages, GDP, unemployment, employment, short-term interest rates (3-month Euribor) and high-yield spreads.



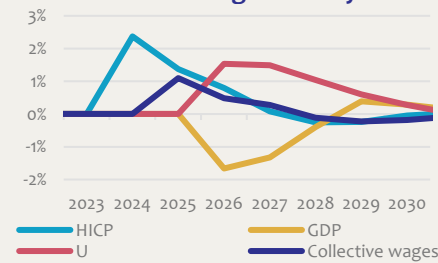
# In Figures

## Higher wages, lower GDP



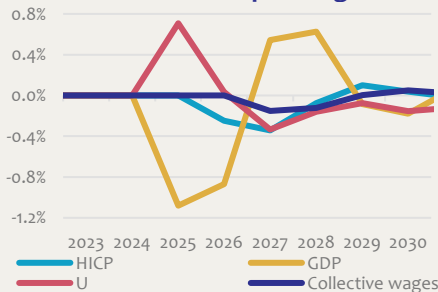
A 1% shock to wages in the CHARLIE model increases unemployment (U) and decreases GDP versus the baseline. It does not lead to higher prices (HICP).

## Trade shock has a stagflationary effect



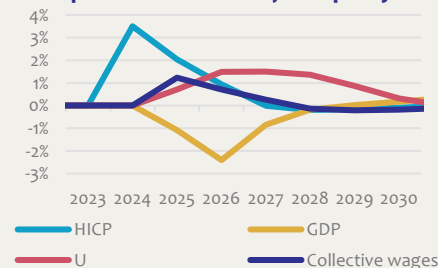
A de-globalization shock (hikes in oil price, shipping costs, USD) has a stagflationary effect.

## Financial shocks are depressing...



A financial shock (a 2 standard deviation hike in Euribor and HY spreads) has a disinflationary effect.

## ...except when inflation joins party



The picture changes if we add an autonomous inflation shock to the financial shock. The higher inflation has to be digested by the system, at a high cost to GDP.

Data: Macrobond, APG AM.

Exogenous variables are the US dollar, the oil price and shipping rates (Baltic Dry Index). By using data from the years 2002-23 to make our forecasts, we capture this century’s main economic dynamics. We can use CHARLIE to simulate a shock in any of the variables and see how it is digested by the system, and what the order of magnitude of the effects are.

### Reverse causality wages and prices

The risk of higher wages feeding into inflation are not that high. Actually, the causality mainly runs the other way. In a simple regression, there is a strong correlation (R=0.9) between last year’s inflation and this year’s negotiated wage increases. However, current pay rises are uncorrelated with future inflation (R= -0.1 for a one-year lag). Obviously, these correlations do not capture the interactions with other variables. If we run a negotiated wage increase (1 percentage point) through the CHARLIE model, we find that it actually *depresses* inflation over time. The reason for this, is that there is a strong adverse reaction in GDP and unemployment, which in turn drives down inflation. So the supposed ‘money-in-the-pocket effect’ fails to materialize.

Obviously, every model misrepresents reality. One can debate to what extent this is the case for CHARLIE. But our findings do seem to indicate that wage hikes are unlikely to drive a wage-price spiral. Coincidentally, the Dutch Central Bank also found that labor market tightness did not play a significant role in the pandemic inflation surge in the Netherlands (see [Inflation drivers](#)). In their own words: “while the pass-through from price growth to wage growth is strong, the pass-through going in the other direction is incomplete, which limits the risks of a wage-price spiral.” That makes sense. Productivity gains can limit unit labor costs and profit margins can act as a valve. Demand can exert some downward pressure. In an environment of high inflation, workers do not necessarily fully spend their extra wages.

### Digesting trade shocks

The IMF fears the effects of severe trade disruptions. We can simulate such a shock through the exogenous variables: the oil price, the USD and the Baltic Dry Index. Physical problems such as attacks on commercial shipping or mechanisms like punitive tariffs act as a tax on trade. We capture that by doubling shipping rates in year one. We also add 15% to the USD versus the EUR, as the short-term effect of increased US trade tariffs should be dollar positive (less US imports = less outflow of dollars = scarcer dollars internationally). Then we assume that the oil price goes up by 50% because of conflicts in the Middle East (this also acts as a tax on trade and production). For all these exogenous variables, this is a shock of about two standard deviations when measured over the past two decades.

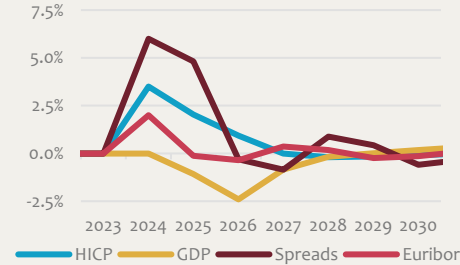
If we feed this recipe to CHARLIE, and wait until all the ingredients are fully digested, we end up with stagflationary effects (see second chart on the left). The inflation comes first and works its way through wages and (un)employment. This puts downward pressure on GDP. There is a second financial blow to the economy as the strong dollar pushes up both safe rates and credit spreads (not in the chart).

The costs are substantial. It all starts with an inflation shock in year one of 2.4%. There is also a positive shock to spreads because of the shipping rates. This then translates into higher wages and higher short-term rates. The combination of more expensive labor and credit push down GDP. Ultimately, this brings inflation back to target. But the overshooting along the way leaves price levels higher than they would have been. In the period until 2030 we end up with prices that are 4.1% higher (cumulative difference to baseline). GDP comes out at 2.7% lower. Euribor (3m) will be close to baseline again in 2030, having peaked at 170 bps above baseline in year 2, while high-yield spreads end up some 50 bps above baseline in 2030, after ballooning to 400 bps in year 3.



## More Figures

### Financial shocks to rates



Above is depicted the financial shock to Euribor, HY spreads combined with an autonomous shock to inflation (all 2 standard deviations). Inflation, GDP, Euribor and Spreads return to the baseline. The shortfall in GDP is not recovered, neither is the hike in HICP compensated by disinflation over the medium term.

Data: Macrobond, APG AM.

### The CHARLIE model

CHARLIE stands for Combined Harmonized Analysis of Real, Labor and Inflation Effects. It is a vector-autoregression model containing the following endogenous variables (annual data for the Eurozone): HICP inflation, GDP growth, (change in) unemployment, change in negotiated wages, (change in) HY spreads, (change in) 3-month Euribor. Exogenous variables are annual changes in the Baltic Dry Index (shipping freight costs), the oil price in EUR and the USD in EUR. The model is calibrated on data between 2002 and 2023.

A vector autoregression model uses a system of equations in which the explanatory variables are lagged values of the endogenous variables. In this manner, the model can give forward projections for all variables and use these as inputs for the following, and so on. In this SPA decoder, we use the CHARLIE model to run simulations, which we compare against the baseline, to get an impression of the dynamics of various types of shocks.

### Financial shocks

Interest rates and credit spreads can also rise due to waning investor risk appetite. The root cause may be economic policy uncertainty or macro volatility, resulting in negative performance for financial markets. We engineer such a shock by implementing a 200 bp hike in short-term safe rates and a 600 bp jump in high-yield spreads.

In this case, the real economic effects dominate, not inflation. As credit becomes more expensive, it causes GDP to decline and unemployment to rise, depressing wages and prices. Unemployment increases by 0.7 of a percentage point in the first year but falls again after that. The short-term blow to GDP is a little over 1 percentage point and in 2030 GDP is still 1% below baseline. The drag on growth also pushes inflation down, with price indices in 2030 still 0.5% below baseline. The overall impact on nominal wages is limited (some -0.2% in 2030), actually leaving workers slightly better off in real terms (barring the few that are no longer employed).

The picture changes if we assume inflation is part of the macro volatility story. If, in addition to the shock to rates and spreads, we apply an unspecified autonomous shock to inflation of 3.5% (2 standard deviation), the ultimate impact is a lot bigger. The reason is that it takes time for inflation to return to target. In the meantime, there is a lot of economic damage inflicted through higher unemployment and a drag on GDP – both of which are needed to dampen inflation. Ultimately, the rate of inflation and GDP growth do return to baseline in 2030, but the absolute levels do not. GDP is 4.2% lower and prices 6.1% higher. In this context, the IMF’s warning about the effects of out-of-control inflation makes sense.

### Investment implications

The CHARLIE-model links the real economy with inflation, interest rates and spreads. Simulating various shocks, the labor market does not seem to form a clear and present danger for inflation. Using data from this century, the model finds no indication that wage and price increases feed on one another. Over the medium term, a **wage shock** has negligible effect on interest rates and spreads, but a negative effect on GDP and inflation (with the real effects exceeding the nominal effects). So arguably, this should mainly be a drag on equity returns. This makes sense, as labor, in the form of wages, gets a greater piece of the pie.

**Financial shocks** – a jump in interest rates and high-yield spreads – appears to be self-correcting. High rates depress growth and push inflation down, ultimately bringing rates back to the baseline. In isolation, this financial shock is not the most obvious route to the higher-for-even-longer interest rate scenario feared by the IMF. Interest rates will revert, but the shock will leave economic scars, resulting in 1% lower GDP in 2030. The overall impact is disinflationary, with 2030 price levels estimated to be 0.5% lower.

“Equity investors are better off than bond investors in a stagflationary scenario

The picture changes if we add inflation to the financial shock. With an additional **autonomous inflation shock**, rates and spreads will also be back at baseline levels around 2030. But GDP will take a bigger hit (-4.2%) and prices will end up higher (6.1%). This puts us in stagflationary territory – something that is not great for equities, but terrible for bonds.

A **supply shock** has a similar effect. In the context of deglobalization, this can be set off by tariff hikes and other measures that impede trade. We proxy this ‘tax on trade’ using oil price hikes, higher shipping rates and a stronger USD.



Short rates and high yield spreads initially rise but return to the baseline over the medium term. However, when all is said and done the level of GDP lags the baseline by 2.7%, while prices remain 4.1% higher. That is stagflation, at least directionally. In nominal terms, GDP ends up above baseline, but that is a result of prices increasing more than the drag on volumes. In this case, equity investors are probably better off than bond investors. Inflation goes up and stays up while nominal interest rates, on balance, end up in the same place – a big hit to real rates.

#### **What should we fear most?**

There are a number of reasons why high inflation could materialize again. It could be wages, as some fear. According to our analysis, however, a shock in wages is unlikely to keep inflation persistently high. A financial shock alone is mildly disinflationary – which should be better for bondholders than equity investors. But if triggered by high inflation (which in reality should have a real cause, such as an oil price shock) it takes a while for inflation to normalize, leaving price levels considerably above baseline in the medium term, while GDP growth remains slow and according to the model, interest rates return to baseline. This scenario as is the case with trade shocks is one of stagflation, boosting prices and depressing production.

All these types of shocks offer a challenging environment for investors. The worst scenario would be a combination of trade and financial shocks; something that is unfortunately not that hard to imagine. An escalating trade war with escalating retaliation measures could hit asset values by hurting the growth outlook, causing a serious case of stagflation. This is bad for overall returns, especially in the short run. Over the longer term, it should be better for equities than bonds, as the inflation has a less negative impact on the former. Hedging inflation risk by reducing interest-rate hedges does not necessarily work for pension funds. If long-term interest rates behave like short rates – a big if – they will return to their baseline levels. So in the end there is no compensation for the associated loss of purchasing power. If the model is right and we get serious shocks in the short term – two more big ifs – it would make more sense to look for downward protection.

#### **Disclaimer**

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