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Drivers and spillover effects of inflation: The United States, the euro area, and the United Kingdom ☆

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ABSTRACT

We investigate the drivers of the recent inflation in three currency areas: the United States, the euro area, and the United Kingdom. To do so, we use a VAR set-up to examine the nature of the shocks that underpinned the recent inflation. We apply-two methods to calculate shocks – the standard Cholesky decomposition and a new method that captures more realistic shocks by solving the VAR backwards. We also use spatial modelling to investigate cross-country inflation spillovers. We find the inflationary shocks in the United States are transmitted to the euro area and the United Kingdom in a powerful and consistent way. The euro area transmits inflation to the other regions but to a lesser extent, while the inflation in the United Kingdom has little effect on the other two regions.

1. Introduction

At the beginning of 2021, a debate broke out in the United States about the prospects for inflation in that country. U.S. consumer prices, which had increased by 1.4 percent in the year to January 2021, began moving steadily upward, reaching 5.4 percent in June and 7.0 percent in December. In a February 2021 column published in the *Washington Post*, former Treasury Secretary, Larry Summers, expressed concern that the $ 1.9 trillion American Rescue Plan (amounting to almost 8 percent of U.S. GDP) then making its way through Congress could "set off inflationary pressures of a kind we have not seen in a generation" (Summers, 2021).[1] Federal Reserve officials, however, expressed little concern about inflation in early 2021. In late January 2021, Fed Chairman Jerome Powell was quoted as saying that "The kind of troubling inflation that people like me grew up with seems far away and unlikely" (quoted from Ip, 2021). In that same month, Charles Evans, President of the Chicago Fed, stated: "I'm not worried about inflation going up substantially beyond 2.5 percent. I don't even fear 3 percent" (quoted from Ip, 2021).

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[1] The American Rescue Plan was enacted into legislation in May 2021. It followed a $ 2.3 trillion (10 percent of GDP) spending package, the "Coronavirus Aid, Relief, and Economic Security Act", which was signed into law in December 2020.

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In 2022, U.S. inflation continued to rise, peaking at 9.1 percent in June, before falling somewhat (as of this writing in October 2022) to 8.3 percent in August. After a succession of forecasts that underpredicted the inflation rate in 2021 and the first half of 2022, in June 2022 Fed Chairman Powell stated: "We understand better now how little we understand about inflation" (quoted from Arnold, Smith, and Giles, 2022).[2]

Similar patterns of rising inflation were experienced in the euro area and the United Kingdom during 2021 and 2022. In the euro area, the year-on-year increase in the harmonised index of consumer prices (HICP) accelerated from 0.9 percent in January 2021, to 1.9 percent in June, 5.0 percent in December, and 8.6 percent in June 2022. In the U.K., the comparable numbers were: 0.7 percent (January 2021), 2.5 percent (June 2021), 5.4 percent (December 2021), and 9.4 percent (June 2022). Central bank officials in Europe responded to the rise in inflation in a way that echoed Powell's above remarks on the difficulty in understanding the drivers of inflation. For example, Pierre Wunsch, the governor of the Belgian central bank, was quoted in September 2022 as saying that "We have come to the conclusion that we know much less about inflation drivers than we thought" (quoted from Arnold, 2022).

What caused the rises in inflation in 2021 and early 2022 in the U.S., the euro area, and the U.K.? Each of the currency areas was hit by a series of common shocks during that period – namely, a succession of waves of the Covid pandemic,[3] spikes in oil prices, and the Russian invasion of Ukraine (in February 2022). These shocks, however, appeared to affect the three currency regions differently. The euro area and the U.K. are more dependent on Russian oil exports, and are more exposed to the trade disruptions with Russia, than the U.S., implying that supply bottlenecks may have had a larger impact on those regions than that in the U.S. The U.S. responded to the pandemic shocks with much larger fiscal expansions than the euro area and the U.K. As indicated above, the U.S. adopted fiscal expenditure programs amounting to almost 20 percent of that country's GDP in 2020 and 2021. Moreover, in contrast to the other two currency regions, the U.S. experienced a very large increase in money (M2) growth in the initial stage of the inflation rise: between March 2020 and May 2022, M2 rose by 35 percent.[4]

What were the impacts of the various shocks on inflation in each of the three regions? This paper addresses this issue. We construct VAR models of the determinants of inflation in the U.S., the euro area and the U.K. In doing so, we apply-two methods of calculating shocks -- the standard Cholesky decomposition and a method that we introduce which captures more realistic shocks by solving the VAR backwards. As we discuss, the standard decomposition is subject to several drawbacks when, as in recent years, the shocks are highly idiosyncratic and powerful. In contrast to the standard decomposition, our procedure captures such shocks. Our data are monthly and the sample period is from 1999 M1 to 2022 M5. Our data include fiscal and monetary variables as well as other determinants of inflation, such as energy prices, changes in output, supply chain effects, and unemployment.

A salient feature of the acceleration of inflation in 2021 and early 2022 was that the acceleration occurred across countries; it was not isolated to any specific country. The common acceleration of inflation raises the possibility that the acceleration involved feedback elements that exacerbated the domestic sources of inflation -- apart from international sources stemming from supply bottlenecks and energy prices (Blanchard, 2021; Coibion, Gorodnichenko and Weber, 2022; Eichengreen, 2022).[5] How did the inflation rise in each of the regions affect inflation in the other two regions? To examine inflation feedback effects, we investigate the possibility of spillovers among the three currency regions. Specifically, we apply a spatial modelling set-up to our VARs in which shocks in each of the regions are linked, thus allowing for the possibility of feedback effects.

The remainder of the paper is organised in the following way. Section 2 provides a brief overview of the empirical literature on the recent inflation. Section 3 describes the data used for each of the three regions. Section 4 introduces the structural VAR model and our identification strategy. Section 5 presents the VAR results for each of the three regions. Section 6 reports the spillover effects among the three regions using spatial VAR modelling. Section 7 concludes. Appendix A reports data sources and Appendix B reports the detailed VAR results.

2. Literature review

Reis (2022) proposed four "tentative" hypotheses to explain the rise of inflation in the U.S. and the euro area in 2021 and early 2022: (1) a misdiagnosis of the nature of shocks during a time of great uncertainty leading to an overly long period of expansionary policy; (2) a neglect of expectation signals driven by a strong belief that inflation expectations were firmly anchored and so inflation increases would be temporary; (3) an over-reliance on the credibility earned in the past, creating an illusion of too much room to focus on the recovery of real activity and underpredicting the resulting inflation; and (4) a

[2] Within the context of the late-1970s and early-1980s, a period marked by high inflation variability, Tobin (1981, p391) observed: "We have not done well in modeling the inflation process." More recently, González-Rivera (2013, p185) noted: "In fact, inflation rates are notoriously difficult to predict.".

[3] The initial wave of the Covid pandemic occurred in early 2020.

[4] This figure is from the Federal Reserve Bank of St. Louis FRED data bank. U.K. M2 rose by about 10 percent during this period. M3 in the euro area rose by 17 percent during this period.

[5] In a commentary on inflation in the U.S. and Europe in 2021 and early 2022, Furman (2022) wrote that "some of the excess core inflation in Europe is also imported from the U.S. Since the pandemic started, the U.S. has spent cumulatively an extra $600 billion on goods, which is roughly 4% of the world's total annual goods consumption (assuming a third of global consumption is spent on goods). In contrast, Europe has spent below-trend amounts on goods over that period. High U.S. demand in conjunction with global supply-chain problems is driving up spending on goods all over the world.".

revision of strategy that made central banks tolerant of higher inflation because of the falling trend in the real return on government bonds, even though the return on private capital remained high.

To empirically investigate the cause of the inflation surge since the pandemic, Shapiro (2021a, 2021b) decomposed the personal consumption expenditures (PCE) price index into goods prices and services prices. Shapiro (2021a) provided evidence indicating that the supply chain bottlenecks had different impact on goods and services prices -- whereas services positively contributed to core PCE inflation from January 2019 to March 2021, while goods had a negative effect on the PCE inflation at the start of the pandemic. Subsequently, Shapiro (2022) quantified the supply and demand drivers that affected the prices and quantities of over a hundred goods and services in the PCE price index in a standard two-equation VAR model consisting of price and quantity equations. Using monthly data from 1988 to 2020, and a 10-year-window rolling regression, that author found that the inflation surge in the U.S. during the pandemic was caused by both supply and demand factors; his results were able to explain the following: supply factors accounted for half of the price surge and demand factors explained a third of the inflation increase.

LaBelle and Santacreu (2022) used industry level panel data and fixed effect models to show that the global supply chain bottlenecks had an inflationary effect on the U.S. producer price index in 2021. Di Giovanni et al. (2022) employed DSGE models with calibrated shocks from 2019Q4 to 2021Q4 to investigate the causes of inflation in the U.S. and the euro area. Those authors found that aggregate demand shocks and the supply chain bottlenecks played an important role on inflation in both currency areas. They also found that nominal wage increases contributed to the price changes. Benigno et al. (2022) used the Global Supply Chain Pressure Index (GSCPI) as a measure to quantify the global supply bottleneck. Using a simple ARDL model, those authors found that both PPI and CPI inflation in the U.S. and the euro area could be explained to a substantial degree by the GSCPI shocks and oil price shocks. Using a structural VAR and quarterly data from 1960Q1 to 2021Q4, Gharehgozli and Lee (2022) found that the money supply (M2) and the velocity of money shocks significantly increased core inflation in the U.S., while the unemployment shock negatively affected the inflation. Using forecast error decomposition, their structural VAR model indicated that the money supply (M2), the velocity of money, unemployment rate and real GDP per capita explained 40 percent of the variation in U.S. inflation.

Other studies employing VAR models to study the effect of Covid-19 on inflation include the following. Using monthly data from 1988 M12 to 2020 M5, Lenza and Primiceri (2020) showed that rising unemployment in the U.S. in early 2020 put downward pressure on price levels. Using quarterly data from 1980Q1 to 2021Q2, Bobeica and Hartwig (2022) investigated the effect of Covid-19 on the euro area in a Bayesian VAR. The authors showed that the inclusion of the Covid-19 observations significantly improved the explanatory power of their VAR results.

Inflation spillovers among the major economies have been discussed in the literature pre-covid (Auer, Levchenko and Sauré, 2019; Bäurle, Gubler and Känzig, 2021; Istiak et al., 2021). Auer, Levchenko and Sauré (2019) used multi-country industry-level data and found that inflation spillover explained half of PPI inflation. Bäurle, Gubler and Känzig (2021) investigated the inflation spillovers from the EU to Switzerland using a structural dynamic factor model. They found that half of the Swiss price variations could be explained by foreign inflationary shocks. Using monthly data from 1956 M6 to 2020 M12, Istiak et al. (2021) examined the inflation spillover among G7 countries with a VAR model. They found that U.S. inflation transmitted to inflation in other countries in both the short and long terms.

3. The data

A detailed list of the variables used, along with data sources, for this study is given in Appendix A. Here we will discuss the general approach adopted in choosing the variables included in each of the regional VARs. As mentioned, our primary objective is to assess the implications of the major shocks to which the economies in our study have been subjected since 2020 for inflation (measured as the annual rate of change in the CPI). In order to do this, for each region we select a set of variables that are likely to have provided the main channels through which the shocks have been transmitted into inflation: these variables include measures of the fiscal responses of governments to the Covid pandemic, measures of the monetary response in the form of both interest rates and the money supply, a measure of the change in output in the economy (proxied by the growth of real GDP), labor market pressures – namely, wages and the unemployment rate -- the price of oil, and exchange rate effects. The rises in oil prices in early 2022 can be viewed as a proxy for the impact of the Russian/Ukraine war. In light of the importance of supply chain disruptions from 2020 to 2022, in our VARs we use the Global Supply Chain Pressure Index developed by the Federal Reserve Bank of New York. The index tracks the state of global supply chain constraints using data from the transportation and manufacturing sectors. The number of variables initially assessed differ for the three regions, reflecting differences in data availability in the three currency areas. In total, we considered 18 variables for the U.S., 14 variables for the euro area, and 19 variables for the U.K. All rates of change (e.g. the money supply) are expressed as an annual rate of change (that is, year over year of the corresponding month).

Figs. 1-3 display the annual inflation (CPI) rates for the three regions. Those figures provide a way to show the sharp spikes in inflation in 2021, which continues into 2022. Subsequent figures and tables will show the effects of shocks on the price level as this is the best way to show the long-term effects of shocks on prices.[6] The figures exhibit some common features, including a peak in inflation around 2008 with a sharp fall following the 2008 financial crises. From 2010 until 2020,

[6] If we were to show the change in the monthly rate of inflation, it would need to be accumulated over time to calculate the total price effect.

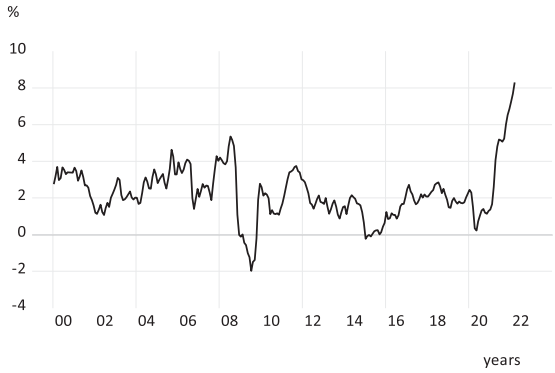

Fig. 1. U.S. CPI Inflation.

inflation was fairly steady at around the 2 percent level for all three regions, although the euro area experienced negative inflation around 2014.

4. The VAR model set-up

We start with a standard VAR in structural form in the following.

$$A_0 Y_t = B + A(L)Y_{t-1} + \varepsilon_t \tag{1}$$

where Y_t is a (nx1) vector of endogenous variables, A_0 is an (nxn) matrix with unity down the main diagonal and B is a (nx1) vector of constants, A(L) is a matrix of lag polynomials up to some suitable lag length q, determined by information criteria, and ϵ_t is a (nx1) vector of error terms. Equation (1) is a structural VAR because the A_0 matrix may have off-diagonal terms, implying a simultaneous interaction between the endogenous variables. Estimating this model presents difficulties due to the simultaneous nature of the model. Consequently, it is typically estimated in reduced form, that is,

$$Y_t = A_0^{-1}B + A_0^{-1}A(L)Y_{t-1} + A_0^{-1}\varepsilon_t \tag{2}$$

or

$$Y_t = A_0^{-1}B + A_0^{-1}A(L)Y_{t-1} + u_t \tag{3}$$

Now, the standard identification problem is clear; we wish to apply shocks to ε_t but we only observeu_t. Therefore, we need to be able to identify the original structural errors ε_t from the observed reduced form errorsu_t. This requires identification conditions. The usual procedure is to assume the structural errors are orthogonal to each other and then to use a Cholesky decomposition of the covariance matrix of the reduced form residuals to identify the structural errors along with an assumption about a causal ordering of the variables.

While we will follow this standard procedure, assessing the effect on inflation to a shock equal to one standard error to each variable in the VAR, we believe that several problems arise.

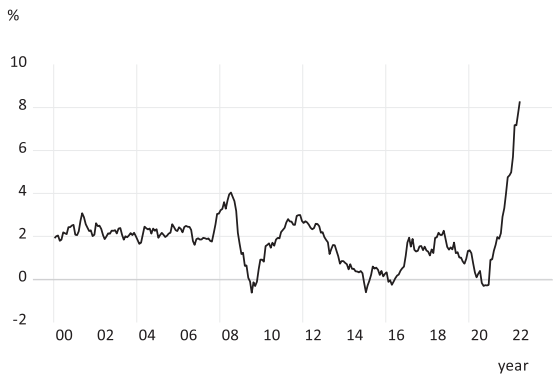

Fig. 2. Euro Area HICP Inflation.

Fig. 3. U.K. CPI Inflation.

1. Although using the average covariance matrix of the observed residuals over the estimation period is the standard way to analyse a VAR, our primary interest is in the effects of the shocks that have occurred over the past few years (that is, the period at the end of our sample). These shocks may not follow those based on the estimated covariance matrix since the recent shocks are idiosyncratic; the recent shocks are not representative of the shocks that occurred during the rest of the data sample.
2. The assumption that the structural shocks are orthogonal may be questioned. The standard approach is to assume that the only shocks that occur are those characterised by the VAR. But in any realistic application, there may be other shocks that occur outside the VAR. A major event such as the pandemic may affect many variables at once. For example, it may produce unexpectedly large changes in oil prices and in the fiscal balance; thus, the shocks to these variables may not be orthogonal to each other as assumed in the standard VAR analysis.
3. Within the standard approach, there is a possibility that the A_0 matrix may be an identity matrix without any non-zero off-diagonal elements. This would imply that the original structural VAR is not simultaneous and we, therefore, observe the structural shocks directly. In our case, the VAR is estimated with monthly data, and at this frequency it is reasonable to assume that the variables would not react instantly (within the month) to a shock to one of the other variables. Prices, for example, may be sticky (at low rates of inflation) and unlikely to react within a month to a change in the government deficit.
4. In the standard VAR impulse response analysis, the shocks which are applied to the VAR are based on a one standard error of the errors made by the VAR over the whole sample period. These shocks will not be representative of the shocks which hit each of our three regions during the period 2020–22. What happened over this period is not representative of the average shock in the entire sample period. Therefore, the standard analysis cannot be related to the recent shocks, which have been highly idiosyncratic. The standard analysis will tell us which shocks have long run effects and the relative sizes of the effect of the shocks to each other. But the overall size of the impulse response cannot be directly related to recent history or what is likely to happen in the next few years. For this reason we put forward a new way of deriving shocks which, we believe, provides results that are more closely related to what has happened over the last few years. Our new VAR approach also provides a more-realistic assessment of what is likely to happen in the near future compared with the standard approach.

Therefore, as well as carrying out the standard impulse response analysis, we subject the VAR to a set of shocks that represent the shocks that actually occurred in the last few years of our sample. We then use the VAR to calculate the effect on inflation of those shocks. To implement this exercise, we begin by examining the movements in our variables over the recent period 2020 m1-2022 m5 with the aim of identifying unusual movements that are likely due to either the pandemic or the war. In formal terms, denote Y^*_{it} as the unusual movement of the i'th element in vector Y^*_t that we observe and let $\widehat{Y}_t = A_0^{-1}B + A_0^{-1}A(L)Y_{t-1}$ be the forecasts from the VAR. We then define a set of shocks u^*_{it} that we can apply to the i'th element in vector $\widehat{Y}_t$, such that variable $\widehat{Y}_{it}$ changes toY^*_{it}. In other words, Y^*_t is the forecast of Y based on the VAR in the absence of any shocks. We then calculate the shocks u^*_t which would have made the VAR produce Y^*_t. Formally, this means solving the following problem.

$$u^*_t = Y^*_t - \left(A_0^{-1}B + A_0^{-1}A(L)Y^*_{t-1}\right) \tag{4}$$

In effect, we solve the VAR backwards to calculate a set of shocks u^*_t that would have caused the VAR forecasts $\widehat{Y}_t$ to change by the amount actually observed. We then apply those shocks to the VAR and calculate the response to these shocks in the usual way. Initially, we would expect the VAR to reproduce the unusual behavior we have observed but then to follow

a dynamic adjustment path. For example, if we were to shock oil prices over the first 6 periods of the simulation, we would expect the change in oil prices to reflect what actually happened after period six. The VAR would then continue to forecast the change in all the variables endogenously.

For each region, we estimate a number of VARs with alternative variables to capture the influences on inflation. We choose among the VARs on the basis of the standard Cholesky impulse response functions to ensure that the response of inflation has the correct sign, that the residuals are uncorrelated, and that the VAR is stable. The lag lengths of the VARs are chosen based on the Akaike, Schwarz and Hannan-Quinn information criteria. We begin in each case by testing for cointegration using both the Engle-Granger single equation approach and the Johansen rank test since this determines the form of the specification of the VAR. If the variables cointegrate, then the VAR should be specified in the levels of the variables, that is the price level, the level of the money stock, etc. If the variables do not cointegrate, the VAR should be specified in terms of rates of change, that is the inflation rate, the real GDP growth rate, etc.

5. Results

In this section, we report the basic VAR results based on both the standard approach and the set of realistic shocks described in Section 4. The full estimation results of the VAR models for each of three regions are presented in Appendix B.

The U.S.

The cointegration tests reject cointegration among various combinations of the variables in levels. The conclusion of both procedures is that the VAR should be specified in differences.[7] The following variables are found to be significant: inflation, the rate of change in the log of M2, the ratio of government spending to GDP, the rate of change in the log of Brent crude oil prices, the rate of change in the log of real GDP, the long-term interest rate, and the supply chain index, which tracks global supply constraints. We select a lag length of 7 for the VAR as reported in Appendix B.

Fig. 4 reports the standard impulse response analysis. We focus only on the response of inflation since this is our primary concern. We also report the accumulated effect because it can be interpreted as the total effect over time on the price level. The responses are reported over 36 months; the VAR has typically settled down by the end of this period.

The accumulated response of inflation is, of course, the change in the price level over the three years on which we focus. As shown in Fig. 4, a shock to either M2 or government spending gives a permanent increase in the price level. A shock to GDP produces an initial rise in the price level but this falls back as GDP itself falls back to its original level. There is very little response to a shock to interest rates. A shock to the supply chain index has a positive and long-lasting effect on the price level.

As noted in Section 4, the shocks applied here are one standard deviation of the errors in each variable over the entire estimation period. The actual size of these shocks cannot, therefore, be realistically related to the effects we have seen over the last three years. This circumstance limits the usefulness of the standard approach in explaining recent developments in inflation. We can, however, conclude from the standard approach that the recent developments to M2, government spending and the supply chain will have long lasting effects on the U.S. price level while the other shocks will have much smaller and more transitory effects. To understand the relative impact of the actual developments that we have seen over the last few years, we turn to the more realistic shocks, as discussed in Section 4.

To implement our alternate approach, we now consider the specific shocks that were dominant beginning in 2020. We use these shocks to simulate the effect on inflation. We derive the following shocks as described above in equation (4):

1. For M2 there was an unusual 3-month period in early 2000 during which growth in that variable was exceptionally high. M2 growth had been running at monthly growth rates of under 1 percent for a number of years. However, in early 2020, the monthly growth rate (i.e., month over the preceding month) was 4 percent, 6 percent and 4 percent in March, April, and May, respectively, before reverting to more normal growth rates. These unusually high growth rates produced a large upward shift in the level of M2, which was not reversed. We apply this shock to M2 in the VAR.
2. The government expenditure-to-GDP ratio had been fairly stable at around 35–36 percent for many years. In 2020, however, it jumped upward as a result of Covid-related expenditure, reaching to 45 percent. It was estimated to be 42 percent for 2021. Therefore, we apply a shock which is constant over the first 18 months of the simulation to produce rises of 9 percent and 7 percent to this ratio in 2020 and 2021, respectively.[8]
3. Oil prices were, if anything, initially somewhat depressed by the Covid pandemic. Brent crude traded at around $65 per barrel until early 2020, and they fell to under $30 per barrel in March 2020. There was, then, a steady rise to the $70–80 range by the end of 2021. The Ukraine shock led to a further increase in oil prices. We calibrate a shock to oil prices of 50 percent to capture the oil price spikes in the final 6 months of our sample period.
4. Real GDP had been on a steady, if modest, upward growth path for a number of years, reaching a peak of $19.2 trillion in the fourth quarter of 2019. By 2020Q2, it had fallen to $17.3 trillion, before recovering to $18.6 trillion. We apply a negative shock to GDP of this magnitude.

[7] The Engle-Granger single equation approach has a null hypothesis that the variables do not cointegrate with the test probability level of 0.54, which does not suggest we should reject the null. The Johansen rank test for the null of a zero cointegrating vector has a test statistic of 37.2 with a 5 percent critical value of 40.1, and so again we could not reject the null.

[8] The expenditure programs undertaken in 2020 and 2021 (mentioned in footnote 1 above) were spread out over several years.

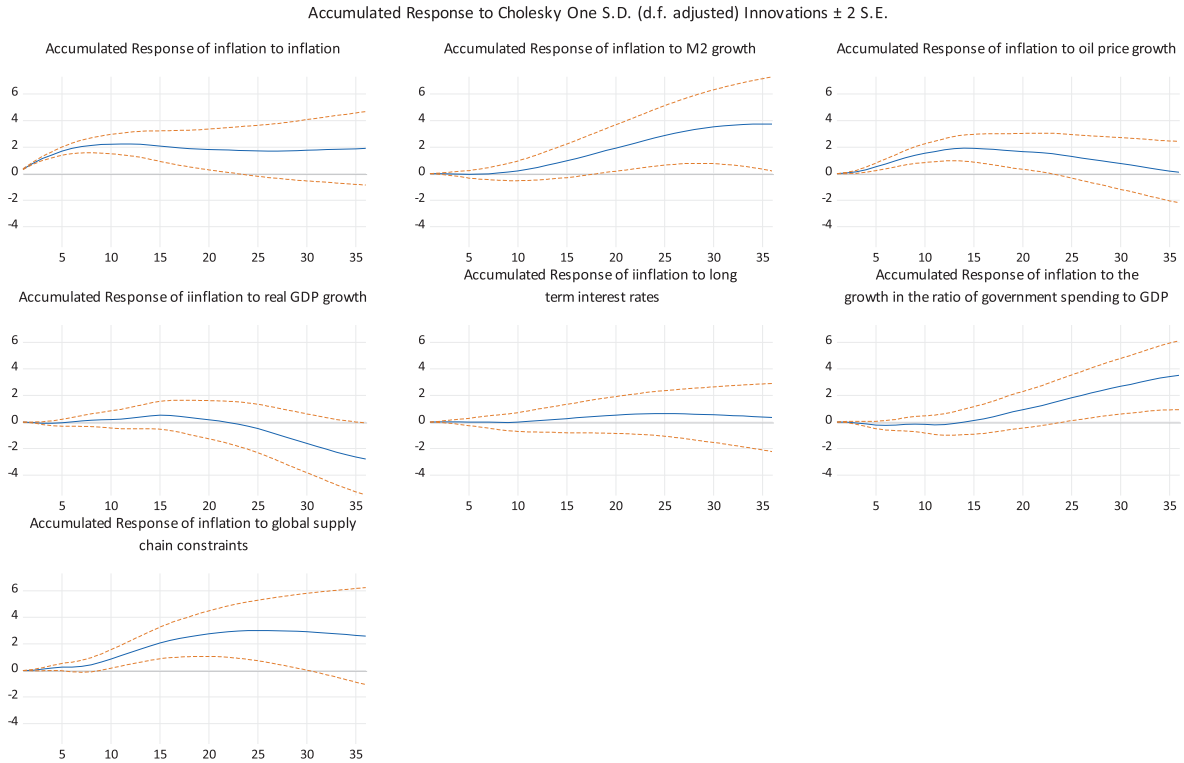

Fig. 4. Standard Impulse Response Analysis for the U.S.

5. Long-term interest rates (as measured by the yield on 10-year U.S. government bonds) had been moving down very slowly through 2019, ending the year at 1.7 percent. At the start of the pandemic, rates fell sharply to around 0.3–0.4 percent, and then began rising through 2022. We apply a shock under which the long-term interest rates initially fall (by around 1 percentage point) and then rise by about 2 percentage points (as in the data).
6. To measure the role of global supply chains we use the New York FED's Global Supply Chain Pressure Index, which is referenced in Appendix A. The index was close to zero for most of the period, fluctuating between +1 and −1, where zero is the long-term value. In 2020 there was a very sharp increase in the index, denoting considerable supply chain disruption, peaking at 3.25 in 2020 m4 and then falling back; by the end of 2020 it stood at 1.4. In 2021 it rose sharply, reaching 4.35 by the end of the year. It fell back during the first half of 2022, ending at 2.4 in our sample.

The effects of the alternative shocks on the price level are reported in Table 1. The interpretation of the table is the following. The first column shows the effect of each of the shocks in the VAR on the price level after 24 months. The second column shows the peak effect of each of the shocks; since the shocks take varying dynamic paths in affecting the price level, their respective peak effects also vary. Thus, the peak effects reported in the second column entail different periods. Consider, for example, the shock to government expenditure. After 24 months, that shock causes the price level to rise by a cumulative 8.5 percent (column 1) – that is, by about 4.25 percent a year. The peak effect occurs after 37 months (column 2) and amounts to 30.2 percent – implying that the shock to government expenditure that occurred in 2020 and 2021 added 30.2 percent to the price level after slightly more than 3 years. That figure needs to be interpreted in the context that the complete VAR has been simulated. Therefore, a shock to government expenditure in the present period leads to additional government spending in future periods, reflecting the time series properties of government spending – once it increases to a particular level, it continues to rise even though the rate of increases might diminish. In this way, the VAR leads to a large cumulative effect of government spending on inflation.

The results indicate that the major impact on the price level reflected both the shock to the money supply and the large increase in the government expenditure. Despite the large increase in oil prices, the effect of higher oil prices was relatively small. The fall in GDP exerted a negative effect on the price level, suggesting that the VAR captures the demand side – rather than the supply side – impact of changes in GDP. The interest rate effect was very small and quickly fades, which is unsurprising since the interest-rate shock first rises and then falls. The supply chain effect was reasonably large and persistent.

The Euro Area.

The variables we use in the VAR for the euro area are inflation, the change in the log of M3, the change in the log of Brent crude oil prices, the change in the log of industrial production, the unemployment rate, the euro/U.S. dollar exchange rate (in

Table 1
The medium term effects on the price level of the realistic shocks to the U.S.

	After 24 months	Peak effect
M2	7.0	7.3 % (after 18 months)
Government expenditure	8.5	30.2 % (after 37 months)
Oil price	0.8	1.2 % (after 8 months)
Real GDP	−3.2	1.5 % (after 4 months)
Long-term interest rate	−0.4	0.4 % (after 12 months)
Supply constraints	1.9	1.9 % (after 12 months)

logs), and the supply chain index. The tests of cointegration again suggest no cointegration.[9] We select a lag length of 6 for the VAR as reported in Appendix B. Fig. 5 displays the standard impulse response for inflation to a range of shocks.

We observe a small but permanent positive increase in inflation from a shock to M3 and industrial production. Oil prices produce a rise in inflation but the effect fades somewhat after 24 months. There is a very small permanent reduction in inflation from a rise in unemployment and a small long-term effect from the exchange rate. By far the largest effect comes from the supply chain index and it has a long lasting effect.

We now turn to the following realistic shock simulations.

1. A shock to M3. At the end of 2019 the annual growth rate of M3 stood at around 5 percent; by the end of 2020 it had risen to 11 percent. The shock to M3 is therefore, calibrated to approximately double the annual growth rate over one year.
2. The oil price shock is the same as that assumed in the case of the U.S.
3. Industrial production in the euro area had been growing steadily since 2008. At the start of the pandemic, however, it fell rapidly, with the largest annual fall of 34 percent registered in April 2020. This fall was reversed in 2021, with a rise of 33 percent in the year to April 2021. We calibrate a shock to industrial production which causes a fall of 30 percent over four months.
4. The unemployment rate increased sharply between 2008 and April 2013, when it peaked at 12.1 percent. It then fell steadily until March 2020, when it fell to 7.1 percent. By August 2020, it had risen to 8.6 percent, before subsequently falling back. We calibrate a shock which will increase the unemployment rate by 1.5 percentage points over 5 months.
5. There was an appreciation of the euro relative to the U.S. dollar at the start of 2020 of about 10 percent. We calibrate a shock for a 10 percent appreciation of the euro.
6. The supply chain shock is the same as that assumed in the case of the U.S.

Table 2 reports the results. The largest impact (by far) on the price level in 2021 and 2022 was due to supply constraints, which contributed a cumulative 9.5 percentage points to the price level after 24 months. Moreover, the effects of the supply constraints continued to grow in the VAR, peaking at 16.8 percentage points after 38 months. Of the other variables in the VAR, only the decline in industrial production (described above) had a substantial (negative) effect on the price level: after 18 months, industrial production caused the price level to fall by 3.3 percentage points.

The U.K.

The VAR for the U.K. includes the change in the log of M3, the change in the log of Brent crude oil prices, the long-term interest rate, the change in the log of wages, the ratio of the fiscal deficit to GDP, and the supply chain index. The levels of these variables do not cointegrate.[10] In this case, the selected lag length for the VAR is 4, as reported in Appendix B. Fig. 6 shows the standard impulse response for inflation to a range of shocks.

We again find a permanent positive effect on the price level from a shock to M3, oil prices and wages. The government deficit is defined as negative when the deficit is actually negative, so a positive change in the deficit is actually a reduction in the deficit, which reduces inflation in the VAR. An increase in long-term interest rates also reduces inflation. Finally the supply chain index has a permanent effect although it does not dominate the other effects as it does for the euro area.

We now consider the more-realistic shocks.

1. Throughout 2019 there was virtually no growth in M3. After the pandemic hit, M3 began to expand rapidly; by December 2020 the annual growth rate was just under 12 percent. It remained at this level for the first 3 months of 2021 after which it began to fall. We calibrate a shock to M3 which mimics this effect.
2. The oil price shock is again the same as that assumed in the case of the U.S.
3. Long-term interest rates were in the range of 0.6–0.8 percent in 2020 and 2021; by April 2022, they had risen to 1.6 percent, roughly doubling. The shock to interest rates is calculated to mimic this small rise.

[9] The p-value for the Engle-Granger test is 0.7 and the Johansen rank test statistic is 64.7 relative to a 5 percent critical value of 69.8 for the null of no cointegration.

[10] The p-value in Engle-Granger cointegration test is 0.95. The Johansen rank test statistics is 32.5, compared with a 5 percent critical value of 33.8.

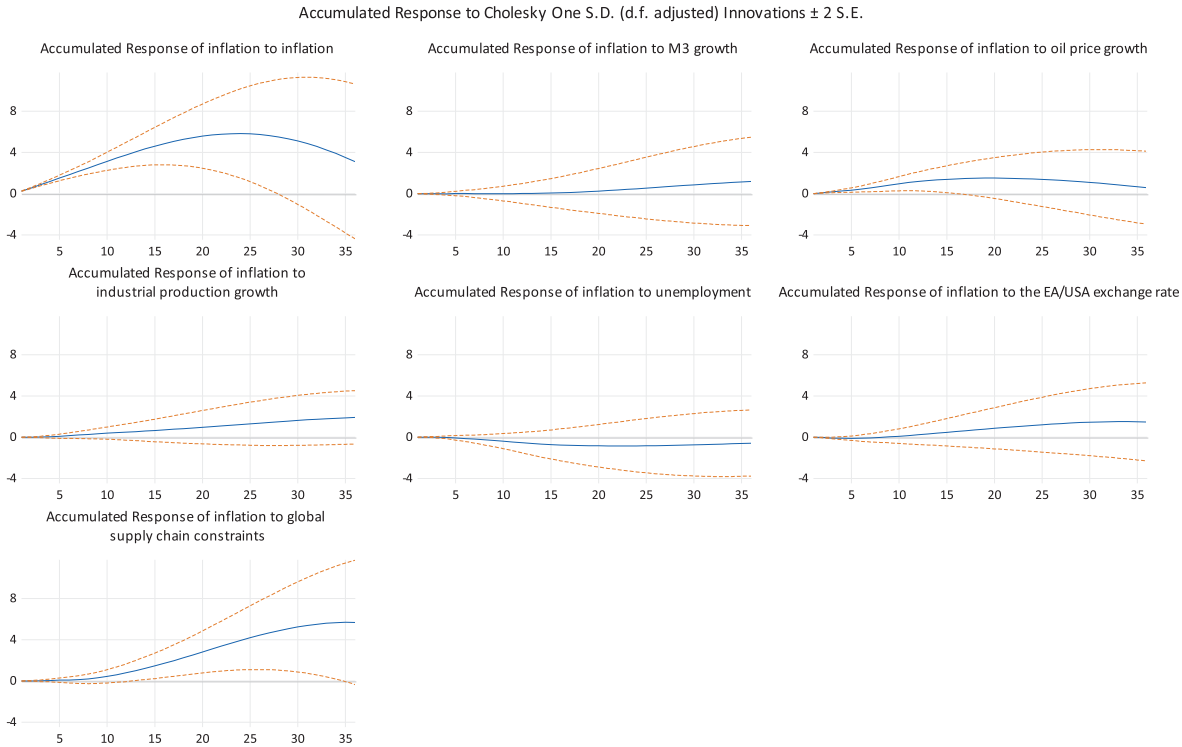

Fig. 5. Standard Impulse Response Analysis for the Euro Area.

Table 2
The medium term effects on the price level of the realistic shocks to the euro area.

	After 24 months	Peak effect
M3	0.4	1.0 % (after 18 months)
Oil price	0.4	1.1 % (after 6 months)
Change in industrial production	−3.2	−3.3 % (after 18 months)
Increase unemployment	−0.4	1.1 % (after 11 months
Exchange rate revaluation	0.14	0.14 % (after 24 months)
Supply constraints	9.5	16.8 (after 38 months)

4. Wage growth in 2019 was around 3 to 4 percent. The early months of the pandemic saw a decrease in nominal wages. Wage growth then started to rise, reaching 8.5 percent in May 2021. We calibrate a shock to wages that produces a rise in wage growth of this order.
5. The government deficit as a percentage of GDP during 2019 was around 2.5 percent in 2019. (It had peaked at 10.1 percent of GDP in 2009 before starting a steady decline). The U.K. fiscal response to the Covid crisis led to a rise in the deficit so that the ratio of the deficit to GDP was 24.3 percent in the second quarter of 2020. We calibrate a shock to the deficit which mimics this change.
6. The supply chain shock is the same as that assumed in the case of the U.S.

Table 3 reports the results based on the realistic shocks. The results indicate that M3 growth had the largest impact on the U.K. the price level: after 24 months, M3 growth contributed a cumulative 8.2 percentage points to the rise in the price level, and after 36 months the impact of M3 growth peaked at 38 percentage points. Wage growth and supply constraints were also major contributors to the price level, with peak effects of 8.6 percentage points and 7.2 percentage points, respectively (both after 42 months). The rise in the government deficit had a peak effect of 4.2 percentage points (after 42 months).

6. A spatial perspective on the transmission of inflation

Thus far, we have treated each of our three regions in isolation from each other. But there are obvious possibilities of spatial spillovers among the regions. To investigate this possibility, we take our three VARs, as specified above, then add inflation in the other two regions into them, and re-estimate the expanded VAR models. This is very much in the spirit of a spatial

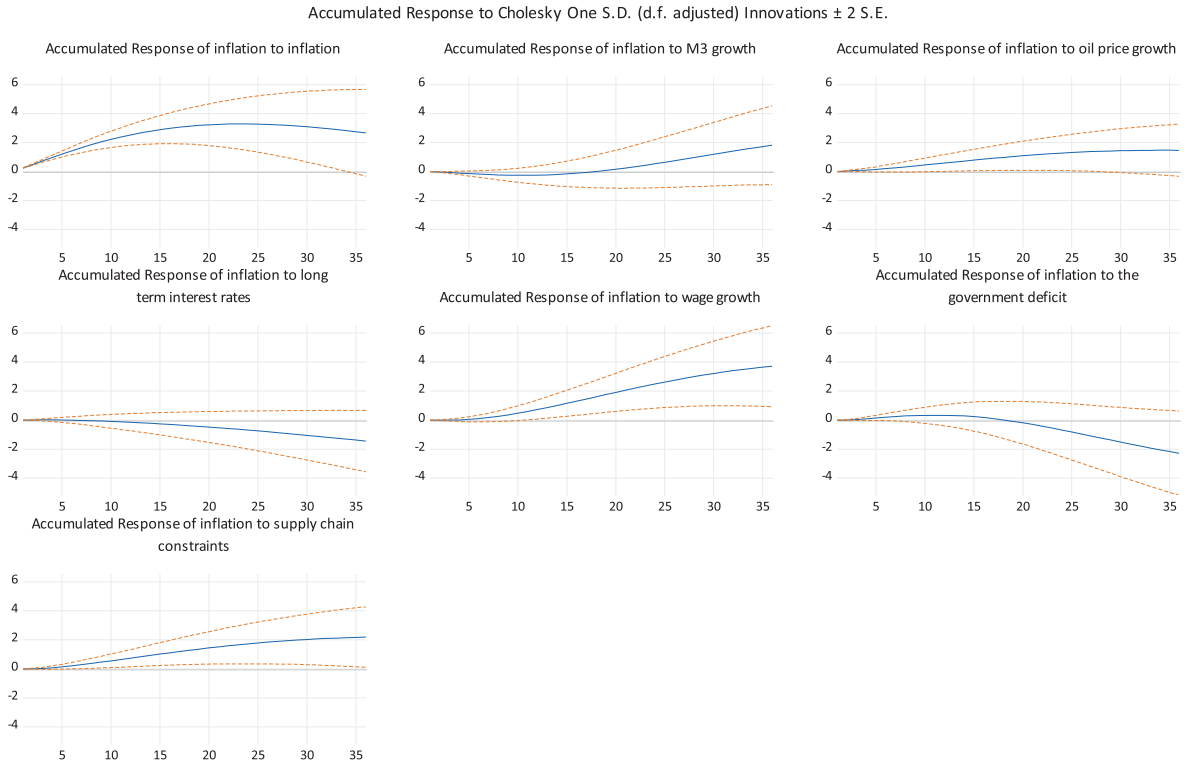

Fig. 6. Standard Impulse Response Analysis for the U.K.

Table 3
The medium term effects on the price level of the realistic shocks to the U.K.

	After 24 months	Max effect
M3	8.2	38.0 % (after 36 months)
Oil Price	0.8	1.0 % (after 32 months)
Long-term interest rate	−0.2	−1.1 % (after 48 months)
Wage growth	5.3	8.6 % (after 42 months)
Government deficit	1.7	4.2 % (after 42 months)
Supply constraints	4.4	7.2 % (after 42 months)

autoregressive model in which a panel of n cross-section variables interact with each other through a fixed spatial weighting matrix. This matrix may often be based on geographical distance or contiguity or some other common features that link the variables together. In many applications, the number of cross-sectional units, n is large and so it is impossible to freely estimate the spatial weighting matrix. A VAR extension of a standard autoregressive spatial model is as follows:

$$Y_{it} = A_0^{-1}B + A_0^{-1}A(L)Y_{it-1} + \gamma WY_t + u_{it} \tag{5}$$

where the subscript i refers to the regions, W is the spatial weighting matrix which is row normalised and with zero on the leading diagonal as usual, Y_t is the vector of variables in all regions, and γ is a vector of parameters. This model can easily become extremely large and complex to estimate and so we have chosen to address the question of inflation spillovers in a tractable way. Specifically, we augment each of the three regional VARs with lagged inflation in the other two regions. Thus, the model we estimate is:

$$Y_t = A_0^{-1}B + A_0^{-1}A(L)Y_{t-1} + A_0^{-1}B(L)Y^*_{t-1} + u_t \tag{6}$$

where Y^*_{t-1} is inflation in the other two regions. This is a relatively simple extension of the standard VAR which allows us to freely estimate the spatial spillover effects as a part of a spatially augmented VAR.

We apply standard VAR impulse response analysis – that is, we apply a one standard deviation shock to each of the variables in the first period and then the effect is fully worked through the complete VAR. We are primarily interested in the effect of a shock to inflation in each of the regions; for our sample, this means that the shock to the U.S. is 0.3 percent and the shocks to the U.K. and the euro area are both 0.2 percent. These are relatively small shocks, but they build up through

the VAR. For example, when we shock the inflation in the euro area by 0.2 percent in the first month, this quickly builds up inside the euro area so that after 12 months inflation has risen by 1.3 percent. Of course, all the other variables in the VAR also change as well. This means that, as the initial shock to the inflation in the euro area builds up in the euro area, it transmits to the U.S. and the U.K. as an increasing shock which then continues to build up in those regions over time through their own inflationary response. Thus, there are strong feedback effects within each region as well as among them.

Fig. 7 reports the spillover effects on the U.S. price levels of a shock to inflation in the U.K. and the euro area. As shown in the figure, spillover effects on the U.S. price level from inflation shocks in the euro area and the U.K. are both small. The effect from the shock to the U.K. inflation rate is, for the most part, not significantly different from zero. It has a small initial positive effect, which is significant, but then the effect becomes insignificant, and after 2 years it becomes negative although highly insignificant. It is fair to say that the effect of a shock to inflation in the UK on the US price level is for practical purposes zero. The effect from the shock in the euro area is similar for the first year to that from the UK. It is also significant for the first 12 months. After 12 months, the effect on the US price level stabilises at a small positive but insignificant effect. Given both the small size and its insignificance, it is reasonable to conclude that this effect is also effectively zero.

Fig. 8 reports spillover effects of inflation shocks in the U.S. and the U.K. to the euro area price level. As shown in Fig. 8, a shock to U.S. inflation produces a large and sustained impact on the euro area price level; after 36 months, euro area price level is more than 4 percentage points higher. This effect is statistically significant for the first two and a half years and seems to have stabilised after the full three years. It is, of course, common that the standard error bands of VAR simulations rise steadily as they are extended into the future; eventually they inevitably become insignificant. Given both the long period of significance and the relatively large and stable effect on euro area inflation, it is fair to conclude that the U.S. has an important spillover into the euro area price system. In contrast, the effect of a shock to the U.K. inflation rate has a very small effect on the euro area prices and it is statistically insignificant at any point in the simulation. A reasonable conclusion from this impulse response is that there is effectively no effect on the euro area price system from shocks to inflation in the UK.

Fig. 9 shows the effects on the U.K. prices from inflation shocks in the U.S. and the euro area price level. Again, there is very strong and significant effect on the U.K. price level from a shock to the U.S. inflation rate, with the effect peaking at over 4 % percentage points after 3 years. This effect is significant along the whole path and is actually still increasing at the end of the simulation, although it seems to be close to stabilising. The effect of a shock to the euro area inflation rate on U.K. prices peaks at about 2 percentage point after two years and it is significant for the first 2 years. It then becomes insignificant and declines a little. The effect from the US on the UK is approximately twice as large as that of the EA on the UK, but both are large enough to be of economic significance.

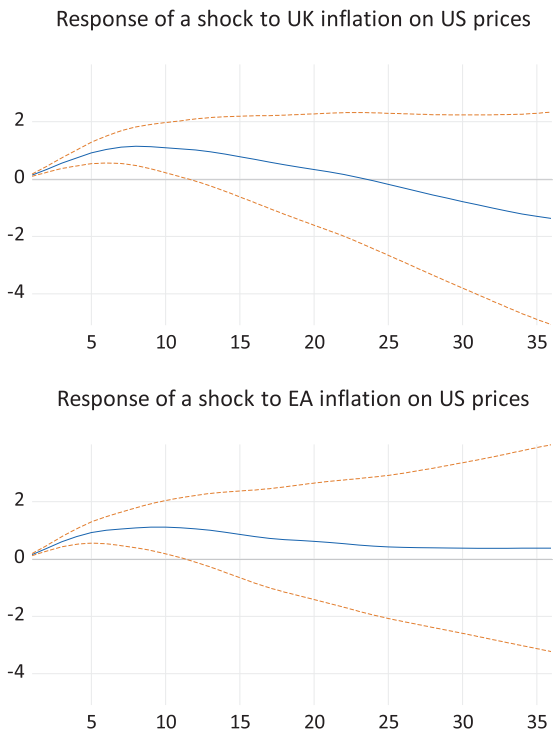

Fig. 7. The Spatial Effects on Inflation in the U.S.

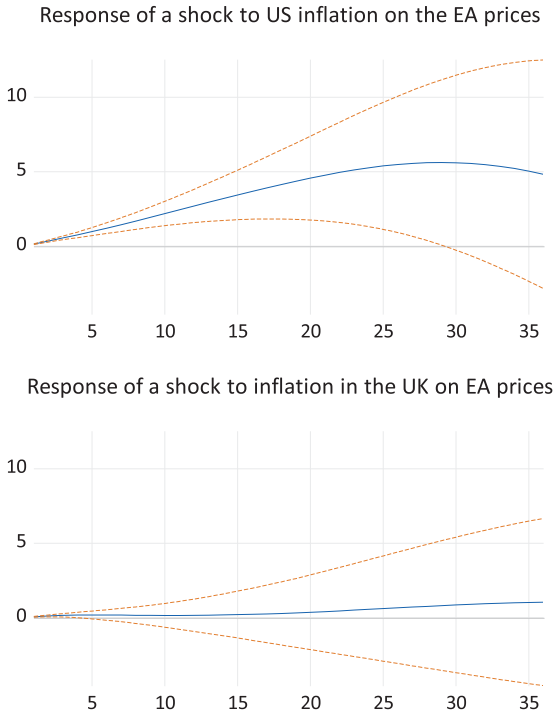

Fig. 8. The Spatial Effects on Inflation in the Euro Area.

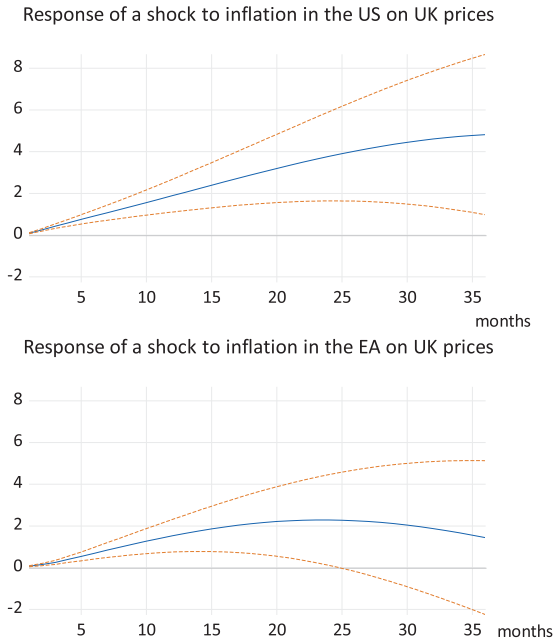

Fig. 9. The Spatial Effects on Inflation in the U.K.

In sum, the results indicate that inflationary shocks in the U.S. get transmitted to the U.K. and the euro area in a powerful and consistent way. Inflation shocks in the U.K. have little effect on the other two regions. The euro area does transmit inflation to the other regions but to a much lesser extent than the shocks in the U.S. do.

Why are shocks to the U.S. inflation so dominant? Apart from the large share of global exports being comprised of U.S. exports, which can help explain part of the transmission of U.S. inflation to other regions, it is the case that about 45 percent of global exports are invoiced in U.S. dollars (Gopinath, 2015; Boz et al., 2020). Thus, a large and sustained rise in U.S. inflation may lead to, for example, a rise in oil prices, which are denominated in U.S. dollars. This factor, along with the expansionary regional macroeconomic policies and supply side disruptions that occurred during the Covid crisis, help explain the synchronous rise in inflation in the period studied in this paper.

7. Conclusions

We examined the drivers of inflation surges during 2021 and early 2022 in three currency areas – the U.S., the euro area and the U.K., using VARs in structural form with both a set of (1) standard and (2) actually realized shocks. The standard shocks were calculated using the Cholesky decomposition. As we pointed out, the shocks derived from the standard composition are subject to several drawbacks when the actual shocks are idiosyncratic and powerful. To deal with this issue, we introduced a method of estimating the actual shocks that occurred in 2020–22. Our proposed method captures the realized shocks by solving the VAR backwards. For the U.S., the main impact on inflation derived from shocks to the money supply, a large increase in government expenditure, and disruptions to the supply chain. For the euro area, supply chain disruptions were the main driver of inflation. For the U.K., the main inflationary impulse came from expansionary monetary policy, supply chain constraints, and wages.

We then added inflation in the other two regions into the VARs and re-estimated the expanded spatial VAR models to examine the existence of spillover effects of one currency area to the others. We found that the inflationary shocks in the U.S. were transmitted to the euro area and the U.K. in a powerful and consistent way. While the euro area transmitted some inflation to the other regions, it did so to a much lesser extent than the U.S. The inflation in the U.K. had little effect on the other two regions.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A:. Data definitions

Data for the U.S.

CPI	Consumer Price Index: Total All Items for the United States, Index 2015 = 100, Monthly, Seasonally Adjusted, https://fred.stlouisfed.org/series/CPALTT01USM661S
Ex. EUUS	Euro to US dollar exchange rate, Average https://sdw.ecb.europa.eu/browseTable.do?org.apache.struts.taglib.html
Ex. UKUS	U.S. Dollars to U.K. Pound Sterling exchange rate, average https://sdw.ecb.europa.eu/browseTable.do?org.apache.struts.taglib.html
expinf	Inflation forecast is measured in terms of the conseumer price index (CPI). Source expected inflation, OECD, https://data.oecd.org/price/inflation-forecast.htm
govdef	U.S. Government deficit as a percentage of nominal GDP https://fred.stlouisfed.org/series/FGLBAFQ027S
govspend	Final Government expenditure as a percentage of nominal GDP, https://fred.stlouisfed.org/series/W068RCQ027SBEA
ip	Industrial Production: Total Index, Index 2017 = 100, Seasonally Adjusted, https://fred.stlouisfed.org/series/INDPRO
ltir	Market Yield on U.S. Treasury Securities at 10-Year Constant Maturity, Percent, https://fred.stlouisfed.org/series/GS10
m2	U.S., M2, Billions of Dollars, Monthly, https://fred.stlouisfed.org/series/M2NS
nairu_lt	Noncyclical Rate of Unemployment, Percent, Quarterly, Not Seasonally Adjusted https://fred.stlouisfed.org/series/NROU
nairu_st	Natural Rate of Unemployment (Short-Term) (DISCONTINUED), Percent, Quarterly, Not Seasonally Adjusted https://fred.stlouisfed.org/series/NROUST
oil_brent	Crude Oil Prices: Brent – Europe, Dollars per Barrel, Monthly, https://fred.stlouisfed.org/series/DCOILBRENTEU
oil_wti	Crude Oil Prices: West Texas Intermediate (WTI) – Cushing, Oklahoma, Dollars per Barrel, Monthly, https://fred.stlouisfed.org/series/DCOILWTICO
outgap	The output gap. Estimated by Kathryn Holston, Thomas Laubach, and John C. Williams, Journal of International Economics, 2017, "Measuring the Natural rate of Interest: International Trends: International Trends and Determinants"
rgdp	National Accounts, Expenditure, Gross Domestic Product, Real, Seasonally Adjusted, Domestic Currency, in millions, https://data.imf.org/?sk=4C514D48-B6BA-49ED-8AB9-52B0C1A0179B&sId=1390030341854
stir	3-Month Treasury Bill Secondary Market Rate, Percent, Monthly, Not Seasonally Adjusted, https://fred.stlouisfed.org/series/TB3MS
supply chain index	A supply chain index constructed by the Federal Reserve Bank of New York. It measures the level of disruption in the world's supply chain: Federal Reserve Bank of New York, Global Supply Chain Pressure Index, https://www.newyorkfed.org/research/gscpi.html
unrate	Unemployment Rate, Percent, Monthly, Seasonally Adjusted, https://fred.stlouisfed.org/series/UNRATE
wage	Employed full time: Median usual weekly nominal earnings (second quartile): Wage and salary workers: 16 years and over, Dollars, Quarterly, Interpolated to monthly, https://fred.stlouisfed.org/series/LES1252881500Q

Data for the Euro Area.

CPI	Consumer Price Index: Harmonized Prices: Total All Items for the Euro Area, Index 2015 = 100, Monthly, Not Seasonally Adjusted, https://fred.stlouisfed.org/series/CP0000EZ19M086NEST
Ex. EUUK	Euro to UK pound sterling exchange rate, Average, https://sdw.ecb.europa.eu/browseTable.do?org.apache.struts.taglib.html
Ex. EUUS	Euro to US dollar, Average, https://sdw.ecb.europa.eu/browseTable.do?org.apache.struts.taglib.html
Expinf	Inflation forecast is measured in terms of the consumer price index (CPI). Source expected inflation, OECD, https://data.oecd.org/price/inflation-forecast.htm

govdef	Euro area 19 (fixed composition) as of 1 January 2015 – Net lending (pos) / net borrowing (neg) – Balance (Credits minus Debits) – ratio to the annual moving sum of gross domestic product, Neither seasonally adjusted nor calendar adjusted – ESA 2010 https://sdw.ecb.europa.eu
govspend	Final consumption expenditure – Euro area 19 (fixed composition) – World (all entities, including reference area, including IO), General government, Euro, Current prices, Non transformed data, % of nominal GDP, https://sdw.ecb.europa.eu
ip	Euro area 19 (fixed composition) – Industrial Production Index, Total Industry – NACE Rev2; Eurostat; Working day adjusted, https://sdw.ecb.europa.eu
ltir	Long-Term Government Bond Yields: 10-year: Main (Including Benchmark) for Germany, Percent, Monthly, Not Seasonally Adjusted, https://fred.stlouisfed.org/series/IRLTLT01DEM156N
m3	M3 for the Euro Area, National Currency, Monthly, Not Seasonally Adjusted, https://fred.stlouisfed.org/series/MABMM301EZM189N
oil_brent	Crude Oil Prices: Brent – Europe, Dollars per Barrel, Monthly, https://fred.stlouisfed.org/series/DCOILBRENTEU
oil_wti	Dollars per Barrel, Monthly, https://fred.stlouisfed.org/series/DCOILWTICO
outgap	The output gap. Estimated by Kathryn Holston, Thomas Laubach, and John C. Williams, Journal of International Economics, 2017, "Measuring the Natural rate of Interest: International Trends: International Trends and Determinants"
stir	Euro area (moving concept in the Real Time database context) – Rate – 3-month Euribor (Euro interbank offered rate) – Euro, Average of observations through period, https://sdw.ecb.europa.eu
supply chain index	A supply chain index constructed by the Federal Reserve Bank of New York. It measures the level of disruption in the world's supply chain: Federal Reserve Bank of New York, Global Supply Chain Pressure Index, https://www.newyorkfed.org/research/gscpi.html
unrate	Euro area 19 (fixed composition) as of 1 January 2015; European Labor Force Survey; Unemployment rate; Total; Age 15 to 74; Total; Seasonally adjusted, not working day, https://sdw.ecb.europa.eu

Data for the U.K.

CPI	Consumer Price Index of All Items in the United Kingdom, Index 2015 = 100, Monthly, Not Seasonally Adjusted, https://fred.stlouisfed.org/series/GBRCPIALLMINMEI
Ex. EUUK	Euro to UK pound sterling exchange rate, Average, https://sdw.ecb.europa.eu/browseTable.do?org.apache.struts.taglib.html
Ex. UKUS	U.S. Dollars to U.K. Pound Sterling exchange rate, Average, https://sdw.ecb.europa.eu/browseTable.do?org.apache.struts.taglib.html
expinf	Inflation forecast is measured in terms of the consumer price index (CPI). Source expected inflation, OECD, https://data.oecd.org/price/inflation-forecast.htm
govdef	Government deficit, Net lending (+)/net borrowing (-) as a percentage of GDP – General government, https://www.ons.gov.uk/economy/grossdomesticproductgdp/timeseries/ct8o/ukea
govspend	Nominal General Government Final Consumption Expenditure for Great Britain, Domestic Currency, Quarterly, interpolated to monthly and expressed as a percentage of nominal GDP, https://fred.stlouisfed.org/series/NCGGSAXDCGBQ
ip	Production of Total Industry in the United Kingdom, Index 2015 = 100, Monthly, Seasonally Adjusted, https://fred.stlouisfed.org/series/GBRPROINDMISMEI
ltir	Long-Term Government Bond Yields: 10-year: Main (Including Benchmark) for the United Kingdom, Percent, Monthly, Not Seasonally Adjusted, https://fred.stlouisfed.org/series/IRLTLT01GBM156N
m0	Monthly average amount outstanding of total sterling notes and coin in circulation, excluding backing assets for commercial banknote issue in Scotland

(*continued on next page*)

	and Northern Ireland, https://www.bankofengland.co.uk/boeapps/database/BankStats.asp
m1	Monthly amounts outstanding of monetary financial institutions' sterling and all foreign currency M1 (UK estimate of EMU aggregate) liabilities to private and public sectors (in sterling millions) not seasonally adjusted, https://www.bankofengland.co.uk/boeapps/database/BankStats.aspMonthly amounts outstanding of monetary financial institutions' sterling and all foreign currency M1 (UK estimate of EMU aggregate) liabilities to private and public sectors, https://www.bankofengland.co.uk/boeapps/database/BankStats.asp
m2	Monthly amounts outstanding of monetary financial institutions' sterling and all foreign currency M2 (UK estimate of EMU aggregate) liabilities to private and public sectors (in sterling millions) not seasonally adjusted https://www.bankofengland.co.uk/boeapps/database/BankStats.asp
m3	Monthly amounts outstanding of monetary financial institutions' sterling and all foreign currency M3 (UK estimate of EMU aggregate) liabilities to private and public sectors (in sterling millions) not seasonally adjusted https://www.bankofengland.co.uk/boeapps/database/BankStats.asp
oil_brent	Crude Oil Prices: Brent – Europe, Dollars per Barrel, Monthly, https://fred.stlouisfed.org/series/DCOILBRENTEU
oil_wti	Dollars per Barrel, Monthly, https://fred.stlouisfed.org/series/DCOILWTICO
outgap	The output gap. Estimated by Kathryn Holston, Thomas Laubach, and John C. Williams, Journal of International Economics, 2017, "Measuring the Natural rate of Interest: International Trends: International Trends and Determinants"
rgdp	Real GDP, National Accounts, Expenditure, Gross Domestic Product, Real, Seasonally Adjusted, Domestic Currency, in millions, https://data.imf.org
stir	Short term interest rate, 3-Month or 90-day Rates and Yields: Interbank Rates for the United Kingdom, Percent, Monthly, Not Seasonally Adjusted, https://fred.stlouisfed.org/series/IR3TIB01GBM156N
supply chain index	A supply chain index constructed by the Federal Reserve Bank of New York. It measures the level of disruption in the world's supply chain: Federal Reserve Bank of New York, Global Supply Chain Pressure Index, https://www.newyorkfed.org/research/gscpi.html
unrate	Unemployment rate (aged 16 and over, seasonally adjusted), https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/unemployment/timeseries/mgsx/lms
wage	Average Weekly Earnings: Whole Economy Level (£): Seasonally Adjusted Total Pay Excluding Arrears, https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/timeseries/kab9/emp

Appendix B:. The VAR results

The VAR for the U.S.

	INFA	DLM2_D11	DLOIL	DLRGDP	LTIR_US	GOVSPEND_NGDP_US	SUPPLY
INFA(-1)	1.246307	−0.001975	0.007974	−0.000334	0.105522	0.010826	−0.004698
	(0.07322)	(0.00107)	(0.01960)	(0.00021)	(0.04202)	(0.03613)	(0.07047)
	[17.0222]	[-1.84120]	[0.40687]	[-1.61986]	[2.51133]	[0.29967]	[-0.06666]
INFA(-2)	−0.601983	0.000573	−0.043220	0.000383	−0.171803	−0.014063	−0.069842
	(0.11630)	(0.00170)	(0.03113)	(0.00033)	(0.06674)	(0.05739)	(0.11194)
	[-5.17620]	[0.33605]	[-1.38839]	[1.17059]	[-2.57413]	[-0.24507]	[-0.62393]
INFA(-3)	0.178476	0.003192	0.013300	−0.000371	0.035750	0.036597	0.194021
	(0.11979)	(0.00175)	(0.03207)	(0.00034)	(0.06875)	(0.05911)	(0.11530)
	[1.48987]	[1.81900]	[0.41478]	[-1.10200]	[0.52001]	[0.61914]	[1.68273]

The VAR results (*continued*)

	INFA	DLM2_D11	DLOIL	DLRGDP	LTIR_US	GOVSPEND_NGDP_US	SUPPLY
INFA(-4)	0.194277	−0.002051	0.051009	0.000362	0.071711	−0.048735	−0.184522
	(0.11863)	(0.00174)	(0.03175)	(0.00033)	(0.06808)	(0.05854)	(0.11418)
	[1.63764]	[-1.18008]	[1.60634]	[1.08337]	[1.05330]	[-0.83256]	[-1.61600]
INFA(-5)	−0.318552	0.001679	−0.080016	−0.000199	−0.050102	0.041638	0.118145
	(0.11881)	(0.00174)	(0.03180)	(0.00033)	(0.06818)	(0.05862)	(0.11435)
	[-2.68127]	[0.96468]	[-2.51614]	[-0.59456]	[-0.73483]	[0.71026]	[1.03317]
INFA(-6)	0.164712	−0.000800	0.040666	−2.19E-05	−0.045928	0.000177	−0.075409
	(0.11555)	(0.00169)	(0.03093)	(0.00033)	(0.06631)	(0.05701)	(0.11121)
	[1.42551]	[-0.47242]	[1.31482]	[-0.06750]	[-0.69261]	[0.00310]	[-0.67805]
INFA(-7)	−0.044703	−0.001290	−0.009503	−0.000103	0.072696	−0.022565	0.035756
	(0.07009)	(0.00103)	(0.01876)	(0.00020)	(0.04023)	(0.03459)	(0.06747)
	[-0.63775]	[-1.25612]	[-0.50651]	[-0.52337]	[1.80716]	[-0.65243]	[0.52998]
DLM2_D11(-1)	1.795591	1.068811	−1.667428	−0.003160	−2.689199	1.607359	−1.099030
	(5.07765)	(0.07439)	(1.35915)	(0.01429)	(2.91401)	(2.50547)	(4.88726)
	[0.35363]	[14.3682]	[-1.22682]	[-0.22117]	[-0.92285]	[0.64154]	[-0.22488]
DLM2_D11(-2)	−1.128745	−0.167874	3.662070	−0.002817	1.692200	−0.912782	−7.810965
	(7.32952)	(0.10738)	(1.96191)	(0.02062)	(4.20634)	(3.61661)	(7.05470)
	[-0.15400]	[-1.56341]	[1.86658]	[-0.13662]	[0.40230]	[-0.25239]	[-1.10720]
DLM2_D11(-3)	0.762876	0.359825	−1.943823	0.035765	3.190268	0.256187	16.58238
	(7.29917)	(0.10693)	(1.95379)	(0.02054)	(4.18892)	(3.60164)	(7.02549)
	[0.10452]	[3.36498]	[-0.99490]	[1.74159]	[0.76160]	[0.07113]	[2.36032]
DLM2_D11(-4)	−3.835426	−0.344823	2.405858	0.008232	−1.510567	0.092680	−11.26327
	(7.12062)	(0.10432)	(1.90600)	(0.02003)	(4.08645)	(3.51353)	(6.85363)
	[-0.53864]	[-3.30555]	[1.26226]	[0.41089]	[-0.36965]	[0.02638]	[-1.64340]
DLM2_D11(-5)	12.09073	0.221788	−3.419043	−0.040258	−1.602125	−1.958910	0.973273
	(7.24304)	(0.10611)	(1.93877)	(0.02038)	(4.15671)	(3.57394)	(6.97146)
	[1.66929]	[2.09017]	[-1.76351]	[-1.97558]	[-0.38543]	[-0.54811]	[0.13961]
DLM2_D11(-6)	−15.52481	−0.049640	0.247304	0.013149	−0.277201	1.827477	−2.914441
	(7.46208)	(0.10932)	(1.99740)	(0.02099)	(4.28241)	(3.68202)	(7.18228)
	[-2.08049]	[-0.45408]	[0.12381]	[0.62633]	[-0.06473]	[0.49632]	[-0.40578]
DLM2_D11(-7)	8.264684	−0.115990	0.543886	−0.007276	0.875240	−1.645213	7.765305
	(4.75359)	(0.06964)	(1.27241)	(0.01337)	(2.72804)	(2.34557)	(4.57535)
	[1.73862]	[-1.66558]	[0.42745]	[-0.54401]	[0.32083]	[-0.70141]	[1.69720]
DLOIL(-1)	0.629737	−0.000525	0.134828	0.001638	0.026921	−0.102583	0.199077
	(0.27970)	(0.00410)	(0.07487)	(0.00079)	(0.16051)	(0.13801)	(0.26921)

(*continued on next page*)

The VAR results (*continued*)

	INFA	DLM2_D11	DLOIL	DLRGDP	LTIR_US	GOVSPEND_NGDP_US	SUPPLY
	[2.25150]	[-0.12810]	[1.80089]	[2.08116]	[0.16772]	[-0.74330]	[0.73949]
DLOIL(-2)	0.250768	0.004610	−0.113316	0.001106	0.143628	−0.188553	0.086174
	(0.27527)	(0.00403)	(0.07368)	(0.00077)	(0.15797)	(0.13583)	(0.26495)
	[0.91099]	[1.14305]	[-1.53790]	[1.42750]	[0.90919]	[-1.38819]	[0.32525]
DLOIL(-3)	1.094360	0.001964	0.095480	−0.000202	0.130951	0.219856	−0.226665
	(0.27537)	(0.00403)	(0.07371)	(0.00077)	(0.15803)	(0.13588)	(0.26505)
	[3.97409]	[0.48687]	[1.29535]	[-0.26082]	[0.82863]	[1.61804]	[-0.85518]
DLOIL(-4)	0.160453	0.002563	−0.192544	−0.002010	−0.257952	0.375161	−0.042198
	(0.28569)	(0.00419)	(0.07647)	(0.00080)	(0.16395)	(0.14097)	(0.27498)
	[0.56163]	[0.61231]	[-2.51786]	[-2.50046]	[-1.57332]	[2.66131]	[-0.15346]
DLOIL(-5)	0.475964	−0.001380	0.099143	0.000678	−0.078838	−0.040012	−0.023105
	(0.29101)	(0.00426)	(0.07789)	(0.00082)	(0.16701)	(0.14359)	(0.28009)
	[1.63558]	[-0.32379]	[1.27279]	[0.82871]	[-0.47207]	[-0.27865]	[-0.08249]
DLOIL(-6)	0.692708	0.000327	−0.059163	0.001969	0.186778	−0.427403	−0.364448
	(0.26951)	(0.00395)	(0.07214)	(0.00076)	(0.15467)	(0.13299)	(0.25941)
	[2.57023]	[0.08272]	[-0.82010]	[2.59717]	[1.20759]	[-3.21391]	[-1.40493]
DLOIL(-7)	0.571209	0.000666	0.025902	0.001716	0.035007	−0.284606	0.012278
	(0.26318)	(0.00386)	(0.07045)	(0.00074)	(0.15104)	(0.12986)	(0.25331)
	[2.17041]	[0.17278]	[0.36769]	[2.31762]	[0.23178]	[-2.19162]	[0.04847]
DLRGDP(-1)	−42.28114	−0.690810	1.616347	3.025780	8.205477	−27.00505	16.91626
	(30.6090)	(0.44842)	(8.19319)	(0.08612)	(17.5662)	(15.1034)	(29.4613)
	[-1.38133]	[-1.54055]	[0.19728]	[35.1356]	[0.46712]	[-1.78801]	[0.57419]
DLRGDP(-2)	84.85081	1.606898	−29.58762	−3.811357	−6.991305	80.64202	−8.715135
	(93.9033)	(1.37567)	(25.1354)	(0.26419)	(53.8901)	(46.3348)	(90.3824)
	[0.90360]	[1.16808]	[-1.17713]	[-14.4264]	[-0.12973]	[1.74042]	[-0.09643]
DLRGDP(-3)	8.964122	−2.313751	96.19783	2.319899	2.872684	−185.7522	−64.56365
	(136.966)	(2.00654)	(36.6621)	(0.38535)	(78.6034)	(67.5832)	(131.830)
	[0.06545]	[-1.15311]	[2.62390]	[6.02026]	[0.03655]	[-2.74849]	[-0.48975]

The VAR results (*continued*)

	INFA	DLM2_D11	DLOIL	DLRGDP	LTIR_US	GOVSPEND_NGDP_US	SUPPLY
DLRGDP(-4)	−188.1429	2.151084	−146.1029	−0.469819	−31.25002	360.0990	199.7539
	(143.360)	(2.10021)	(38.3736)	(0.40334)	(82.2728)	(70.7382)	(137.985)
	[-1.31238]	[1.02422]	[-3.80738]	[-1.16483]	[-0.37983]	[5.09059]	[1.44765]
DLRGDP(-5)	273.0557	−1.514673	128.4131	−0.168716	57.35850	−425.6088	−267.6686
	(127.059)	(1.86140)	(34.0102)	(0.35748)	(72.9178)	(62.6948)	(122.295)
	[2.14905]	[-0.81373]	[3.77572]	[-0.47196]	[0.78662]	[-6.78858]	[-2.18871]
DLRGDP(-6)	−192.3785	1.179395	−64.55414	0.127470	−43.97147	267.6497	180.1537
	(79.7965)	(1.16901)	(21.3594)	(0.22450)	(45.7944)	(39.3740)	(76.8045)
	[-2.41086]	[1.00888]	[-3.02229]	[0.56779]	[-0.96019]	[6.79762]	[2.34561]
DLRGDP(-7)	60.77608	−0.412023	13.10762	−0.045855	12.69755	−72.85348	−46.43340
	(25.1308)	(0.36816)	(6.72684)	(0.07070)	(14.4223)	(12.4003)	(24.1886)
	[2.41839]	[-1.11913]	[1.94855]	[-0.64855]	[0.88041]	[-5.87512]	[-1.91964]
LTIR_US(-1)	0.057474	−0.001723	−0.016437	2.86E-05	1.107114	−0.003374	0.097632
	(0.12410)	(0.00182)	(0.03322)	(0.00035)	(0.07122)	(0.06124)	(0.11945)
	[0.46311]	[-0.94764]	[-0.49481]	[0.08203]	[15.5445]	[-0.05511]	[0.81734]
LTIR_US(-2)	−0.025703	−0.000954	0.051922	0.000329	−0.247876	−0.070956	0.091914
	(0.18586)	(0.00272)	(0.04975)	(0.00052)	(0.10666)	(0.09171)	(0.17889)
	[-0.13829]	[-0.35051]	[1.04365]	[0.63000]	[-2.32388]	[-0.77369]	[0.51379]
LTIR_US(-3)	−0.147284	0.000169	−0.038844	−0.000327	0.156813	0.075112	−0.237764
	(0.18357)	(0.00269)	(0.04914)	(0.00052)	(0.10535)	(0.09058)	(0.17669)
	[-0.80233]	[0.06268]	[-0.79053]	[-0.63329]	[1.48851]	[0.82924]	[-1.34568]
LTIR_US(-4)	0.138488	0.001732	0.022704	0.000587	−0.061285	−0.042053	−0.081732
	(0.18118)	(0.00265)	(0.04850)	(0.00051)	(0.10398)	(0.08940)	(0.17438)
	[0.76438]	[0.65266]	[0.46816]	[1.15221]	[-0.58942]	[-0.47041]	[-0.46869]
LTIR_US(-5)	−0.056448	0.000712	−0.053795	−0.000863	−0.063956	0.077863	−0.023105
	(0.17905)	(0.00262)	(0.04793)	(0.00050)	(0.10275)	(0.08835)	(0.17233)
	[-0.31527]	[0.27144]	[-1.12246]	[-1.71282]	[-0.62243]	[0.88133]	[-0.13407]
LTIR_US(-6)	0.034562	5.04E-05	0.001489	0.000871	0.022535	−0.100055	0.113725
	(0.17664)	(0.00259)	(0.04728)	(0.00050)	(0.10137)	(0.08716)	(0.17001)

(*continued on next page*)

The VAR results (*continued*)

	INFA	DLM2_D11	DLOIL	DLRGDP	LTIR_US	GOVSPEND_NGDP_US	SUPPLY
	[0.19567]	[0.01949]	[0.03150]	[1.75199]	[0.22231]	[-1.14797]	[0.66892]
LTIR_US(-7)	0.053902	0.000192	0.050326	−0.000471	0.052088	0.049579	0.026373
	(0.11726)	(0.00172)	(0.03139)	(0.00033)	(0.06729)	(0.05786)	(0.11286)
	[0.45970]	[0.11165]	[1.60345]	[-1.42627]	[0.77405]	[0.85692]	[0.23368]
GOVSPEND_NGDP_US(-1)	0.009738	−0.004194	−0.016318	−0.002192	−0.120485	3.192522	0.823760
	(0.17885)	(0.00262)	(0.04787)	(0.00050)	(0.10264)	(0.08825)	(0.17214)
	[0.05445]	[-1.60062]	[-0.34085]	[-4.35576]	[-1.17386]	[36.1758]	[4.78529]
GOVSPEND_NGDP_US(-2)	−0.580331	0.016131	−0.265859	0.005139	0.265730	−4.155914	−1.908528
	(0.57648)	(0.00845)	(0.15431)	(0.00162)	(0.33083)	(0.28445)	(0.55486)
	[-1.00668]	[1.91010]	[-1.72292]	[3.16854]	[0.80321]	[-14.6102]	[-3.43964]
GOVSPEND_NGDP_US(-3)	1.663954	−0.016887	0.909109	0.001607	−0.137256	1.326401	1.686809
	(0.93236)	(0.01366)	(0.24957)	(0.00262)	(0.53507)	(0.46006)	(0.89740)
	[1.78467]	[-1.23636]	[3.64273]	[0.61258]	[-0.25652]	[2.88313]	[1.87966]
GOVSPEND_NGDP_US(-4)	−1.913638	−0.002695	−1.228140	−0.019083	−0.240500	3.674862	0.283208
	(1.06873)	(0.01566)	(0.28607)	(0.00301)	(0.61333)	(0.52734)	(1.02866)
	[-1.79057]	[-0.17215]	[-4.29315]	[-6.34662]	[-0.39212]	[6.96862]	[0.27532]
GOVSPEND_NGDP_US(-5)	1.135026	0.015849	0.853816	0.027498	0.315073	−5.861422	−2.068373
	(1.00954)	(0.01479)	(0.27023)	(0.00284)	(0.57937)	(0.49814)	(0.97169)
	[1.12430]	[1.07162]	[3.15962]	[9.68149]	[0.54382]	[-11.7666]	[-2.12863]
GOVSPEND_NGDP_US(-6)	−0.383984	−0.009107	−0.319536	−0.017602	−0.084469	3.749949	1.851008
	(0.67837)	(0.00994)	(0.18158)	(0.00191)	(0.38931)	(0.33473)	(0.65293)
	[-0.56604]	[-0.91641]	[-1.75975]	[-9.22271]	[-0.21697]	[11.2030]	[2.83492]
GOVSPEND_NGDP_US(-7)	0.061508	0.001291	0.060151	0.004629	−0.011867	−0.946556	−0.616186
	(0.22045)	(0.00323)	(0.05901)	(0.00062)	(0.12651)	(0.10877)	(0.21218)
	[0.27902]	[0.39986]	[1.01938]	[7.46389]	[-0.09380]	[-8.70199]	[-2.90407]
SUPPLY(-1)	0.050444	0.001596	0.028926	0.000181	0.073014	−0.049416	0.759285
	(0.07269)	(0.00106)	(0.01946)	(0.00020)	(0.04172)	(0.03587)	(0.06997)
	[0.69396]	[1.49825]	[1.48664]	[0.88415]	[1.75025]	[-1.37772]	[10.8523]
SUPPLY(-2)	0.137663	−0.002132	0.040065	−0.000242	0.046658	0.086801	−0.013534
	(0.09061)	(0.00133)	(0.02425)	(0.00025)	(0.05200)	(0.04471)	(0.08721)
	[1.51927]	[-1.60600]	[1.65187]	[-0.94753]	[0.89725]	[1.94140]	[-0.15518]
SUPPLY(-3)	−0.182729	0.000711	−0.035521	8.48E-05	−0.018484	−0.047632	0.049189

The VAR results (*continued*)

	INFA	DLM2_D11	DLOIL	DLRGDP	LTIR_US	GOVSPEND_NGDP_US	SUPPLY
	(0.09095)	(0.00133)	(0.02435)	(0.00026)	(0.05220)	(0.04488)	(0.08754)
	[-2.00905]	[0.53396]	[-1.45902]	[0.33132]	[-0.35411]	[-1.06133]	[0.56188]
SUPPLY(-4)	−0.024392	−0.000362	−0.013065	−1.82E-05	−0.060979	0.026134	−0.098325
	(0.09149)	(0.00134)	(0.02449)	(0.00026)	(0.05251)	(0.04515)	(0.08806)
	[-0.26659]	[-0.27031]	[-0.53350]	[-0.07065]	[-1.16135]	[0.57888]	[-1.11654]
SUPPLY(-5)	−0.182752	0.001342	−0.012920	3.94E-05	−0.072226	−0.062485	0.043214
	(0.08852)	(0.00130)	(0.02369)	(0.00025)	(0.05080)	(0.04368)	(0.08520)
	[-2.06449]	[1.03475]	[-0.54525]	[0.15833]	[-1.42173]	[-1.43054]	[0.50719]
SUPPLY(-6)	0.352179	−0.002039	0.074347	−1.47E-05	0.083405	0.056162	0.135007
	(0.09015)	(0.00132)	(0.02413)	(0.00025)	(0.05174)	(0.04448)	(0.08677)
	[3.90644]	[-1.54408]	[3.08090]	[-0.05806]	[1.61206]	[1.26250]	[1.55586]
SUPPLY(-7)	0.026997	0.000659	−0.029506	8.01E-05	−0.041383	0.000169	−0.014428
	(0.07846)	(0.00115)	(0.02100)	(0.00022)	(0.04503)	(0.03872)	(0.07552)
	[0.34406]	[0.57370]	[-1.40488]	[0.36295]	[-0.91900]	[0.00435]	[-0.19104]
C	0.243947	−0.011155	0.259897	0.000419	0.577083	0.847716	−2.119141
	(0.69199)	(0.01014)	(0.18523)	(0.00195)	(0.39713)	(0.34145)	(0.66604)
	[0.35253]	[-1.10038]	[1.40313]	[0.21520]	[1.45315]	[2.48271]	[-3.18169]
R-squared	0.958856	0.987011	0.454171	0.998665	0.981982	0.998374	0.919690
Adj. R-squared	0.949256	0.983980	0.326811	0.998354	0.977778	0.997994	0.900950
Sum sq. resids	22.82562	0.004899	1.635428	0.000181	7.517601	5.557442	21.14601
S.E. equation	0.329687	0.004830	0.088248	0.000928	0.189204	0.162678	0.317325
F-statistic	99.87804	325.6648	3.566040	3206.588	233.5725	2630.832	49.07864
Log likelihood	−52.66025	1045.403	290.0170	1474.408	91.72248	130.9967	−42.72405
Akaike AIC	0.789694	−7.656949	−1.846285	−10.95698	−0.320942	−0.623051	0.713262
Schwarz SC	1.474441	−6.972202	−1.161538	−10.27224	0.363804	0.061695	1.398008
Mean dependent	2.245368	0.069597	0.005416	0.019010	3.128769	35.16826	0.023619
S.D. dependent	1.463552	0.038160	0.107557	0.022861	1.269221	3.632252	1.008273

Determinant resid covariance (dof adj.)	6.84E-19
Determinant resid covariance	1.53E-19
Log likelihood	3049.355
Akaike information criterion	−20.76427
Schwarz criterion	−15.97105
Number of coefficients	350

The VAR for the Euro Area.

	INFA	DLM3	DLOIL	DLIP	UNRATE_EA	LEXUS	SUPPLY
INFA(-1)	1.024191	0.064485	0.016701	0.211067	0.025084	−0.007908	0.137148
	(0.07505)	(0.16644)	(0.03053)	(0.71678)	(0.01834)	(0.00633)	(0.10643)
	[13.6459]	[0.38744]	[0.54712]	[0.29447]	[1.36794]	[-1.24931]	[1.28859]
INFA(-2)	0.052124	0.010207	−0.028306	0.139047	−0.055425	−0.005180	−0.034636
	(0.10320)	(0.22885)	(0.04197)	(0.98556)	(0.02521)	(0.00870)	(0.14634)
	[0.50508]	[0.04460]	[-0.67438]	[0.14108]	[-2.19827]	[-0.59516]	[-0.23668]
INFA(-3)	−0.101183	−0.226718	0.018007	2.638439	0.066262	0.012456	0.041184
	(0.10410)	(0.23084)	(0.04234)	(0.99412)	(0.02543)	(0.00878)	(0.14762)
	[-0.97201]	[-0.98214]	[0.42531]	[2.65403]	[2.60547]	[1.41875]	[0.27899]
INFA(-4)	0.097918	0.238014	−0.013481	−5.074987	−0.043830	0.002345	−0.123012
	(0.10709)	(0.23748)	(0.04356)	(1.02272)	(0.02616)	(0.00903)	(0.15186)
	[0.91434]	[1.00224]	[-0.30952]	[-4.96223]	[-1.67523]	[0.25967]	[-0.81003]
INFA(-5)	−0.197482	−0.001193	0.017929	2.519490	0.049957	−0.003679	−0.066468
	(0.11463)	(0.25421)	(0.04662)	(1.09476)	(0.02801)	(0.00967)	(0.16256)
	[-1.72272]	[-0.00469]	[0.38456]	[2.30141]	[1.78376]	[-0.38053]	[-0.40889]
INFA(-6)	0.118457	−0.129594	−0.013563	−0.774231	−0.023085	0.001145	−0.076374
	(0.08320)	(0.18451)	(0.03384)	(0.79460)	(0.02033)	(0.00702)	(0.11799)
	[1.42371]	[-0.70237]	[-0.40080]	[-0.97437]	[-1.13564]	[0.16310]	[-0.64730]
DLM3(-1)	0.007484	1.026263	−0.011013	−0.929768	−0.001768	−0.006449	−0.011320
	(0.03075)	(0.06819)	(0.01251)	(0.29364)	(0.00751)	(0.00259)	(0.04360)
	[0.24340]	[15.0509]	[-0.88061]	[-3.16630]	[-0.23538]	[-2.48679]	[-0.25963]
DLM3(-2)	−0.006285	−0.060694	0.006146	1.627251	0.017181	0.012173	0.008332
	(0.04488)	(0.09953)	(0.01825)	(0.42863)	(0.01097)	(0.00379)	(0.06365)
	[-0.14004]	[-0.60981]	[0.33667]	[3.79640]	[1.56689]	[3.21584]	[0.13092]
DLM3(-3)	0.020530	0.096584	0.004140	0.072033	−0.023601	−0.007340	−0.036047
	(0.04728)	(0.10485)	(0.01923)	(0.45154)	(0.01155)	(0.00399)	(0.06705)
	[0.43421]	[0.92117]	[0.21528]	[0.15953]	[-2.04312]	[-1.84072]	[-0.53763]
DLM3(-4)	0.039560	−0.023402	0.015712	−0.285468	0.009455	0.000350	−0.081586
	(0.04709)	(0.10442)	(0.01915)	(0.44968)	(0.01150)	(0.00397)	(0.06677)
	[0.84014]	[-0.22412]	[0.82045]	[-0.63482]	[0.82186]	[0.08806]	[-1.22186]
DLM3(-5)	−0.145338	0.022158	−0.021124	−0.582648	0.003745	0.003883	0.194133
	(0.04653)	(0.10319)	(0.01893)	(0.44439)	(0.01137)	(0.00392)	(0.06599)
	[-3.12337]	[0.21473]	[-1.11614]	[-1.31113]	[0.32946]	[0.98928]	[2.94203]
DLM3(-6)	0.089762	−0.120570	0.006758	0.140965	−0.007185	−0.002375	−0.075850
	(0.03232)	(0.07167)	(0.01315)	(0.30866)	(0.00790)	(0.00273)	(0.04583)
	[2.77727]	[-1.68223]	[0.51410]	[0.45670]	[-0.90996]	[-0.87124]	[-1.65494]

The VAR results (*continued*)

	INFA	DLM3	DLOIL	DLIP	UNRATE_EA	LEXUS	SUPPLY
DLOIL(-1)	0.904671	−0.525371	0.219090	5.941419	−0.060926	0.003925	−0.279950
	(0.19549)	(0.43352)	(0.07951)	(1.86695)	(0.04776)	(0.01649)	(0.27722)
	[4.62768]	[-1.21188]	[2.75552]	[3.18241]	[-1.27565]	[0.23803]	[-1.00985]
DLOIL(-2)	−0.093757	−0.213382	−0.142551	0.475001	−0.078465	0.026815	−0.180611
	(0.20271)	(0.44953)	(0.08245)	(1.93592)	(0.04953)	(0.01710)	(0.28746)
	[-0.46251]	[-0.47468]	[-1.72900]	[0.24536]	[-1.58435]	[1.56837]	[-0.62830]
DLOIL(-3)	−0.121419	−0.080754	−0.025637	−1.942355	−0.063651	0.019502	−0.484400
	(0.20211)	(0.44820)	(0.08220)	(1.93020)	(0.04938)	(0.01705)	(0.28661)
	[-0.60074]	[-0.18017]	[-0.31188]	[-1.00630]	[-1.28904]	[1.14405]	[-1.69010]
DLOIL(-4)	−0.008227	−0.298524	−0.158416	4.859676	−0.099296	0.011206	−0.426257
	(0.20357)	(0.45143)	(0.08279)	(1.94408)	(0.04973)	(0.01717)	(0.28867)
	[-0.04042]	[-0.66129]	[-1.91337]	[2.49973]	[-1.99654]	[0.65267]	[-1.47662]
DLOIL(-5)	0.098776	−0.358694	0.019825	0.867193	−0.015448	−0.003168	0.008172
	(0.20483)	(0.45423)	(0.08331)	(1.95616)	(0.05004)	(0.01728)	(0.29047)
	[0.48223]	[-0.78967]	[0.23797]	[0.44331]	[-0.30870]	[-0.18338]	[0.02813]
DLOIL(-6)	0.067575	−0.410240	−0.145026	1.960005	0.118720	0.004195	0.049144
	(0.18538)	(0.41110)	(0.07540)	(1.77041)	(0.04529)	(0.01564)	(0.26288)
	[0.36452]	[-0.99791]	[-1.92347]	[1.10709]	[2.62127]	[0.26827]	[0.18694]
DLIP(-1)	0.000392	0.001235	0.000636	0.943780	−0.000426	0.000448	0.001562
	(0.00725)	(0.01609)	(0.00295)	(0.06928)	(0.00177)	(0.00061)	(0.01029)
	[0.05409]	[0.07675]	[0.21565]	[13.6217]	[-0.24024]	[0.73224]	[0.15178]
DLIP(-2)	0.010375	0.001701	−0.001684	−0.351694	−0.006636	−0.000923	−0.006362
	(0.00986)	(0.02187)	(0.00401)	(0.09417)	(0.00241)	(0.00083)	(0.01398)
	[1.05220]	[0.07777]	[-0.41989]	[-3.73475]	[-2.75461]	[-1.10969]	[-0.45496]
DLIP(-3)	−0.009496	−0.002070	0.003768	0.348558	0.002575	0.000162	−0.012693
	(0.00969)	(0.02148)	(0.00394)	(0.09249)	(0.00237)	(0.00082)	(0.01373)
	[-0.98050]	[-0.09636]	[0.95661]	[3.76849]	[1.08822]	[0.19828]	[-0.92420]
DLIP(-4)	0.007091	0.023115	−0.003208	−0.167028	−3.99E-05	−0.000141	0.028995

(*continued on next page*)

The VAR results (*continued*)

	INFA	DLM3	DLOIL	DLIP	UNRATE_EA	LEXUS	SUPPLY
	(0.00957)	(0.02122)	(0.00389)	(0.09140)	(0.00234)	(0.00081)	(0.01357)
	[0.74089]	[1.08906]	[-0.82416]	[-1.82735]	[-0.01706]	[-0.17518]	[2.13636]
DLIP(-5)	−0.000906	−0.033141	0.000619	0.220587	0.000105	0.000337	−0.004580
	(0.00915)	(0.02029)	(0.00372)	(0.08737)	(0.00224)	(0.00077)	(0.01297)
	[-0.09908]	[-1.63353]	[0.16628]	[2.52470]	[0.04705]	[0.43622]	[-0.35305]
DLIP(-6)	−0.006383	0.033779	0.000427	−0.239346	−0.000738	0.000244	0.008322
	(0.00690)	(0.01531)	(0.00281)	(0.06594)	(0.00169)	(0.00058)	(0.00979)
	[-0.92439]	[2.20608]	[0.15195]	[-3.62968]	[-0.43742]	[0.41883]	[0.84997]
UNRATE_EA(-1)	0.082450	−0.276185	0.266369	3.534411	1.336704	−0.007680	−0.275700
	(0.27048)	(0.59980)	(0.11001)	(2.58307)	(0.06608)	(0.02281)	(0.38355)
	[0.30483]	[-0.46046]	[2.42137]	[1.36830]	[20.2283]	[-0.33664]	[-0.71880]
UNRATE_EA(-2)	−0.562354	−0.838142	−0.578541	−4.519559	−0.096849	0.009462	0.560175
	(0.44956)	(0.99693)	(0.18284)	(4.29330)	(0.10983)	(0.03792)	(0.63750)
	[-1.25091]	[-0.84072]	[-3.16415]	[-1.05270]	[-0.88179]	[0.24955]	[0.87870]
UNRATE_EA(-3)	0.633919	0.543986	0.165495	1.198771	−0.255515	−0.011917	0.158217
	(0.45317)	(1.00495)	(0.18431)	(4.32784)	(0.11072)	(0.03822)	(0.64263)
	[1.39884]	[0.54131]	[0.89790]	[0.27699]	[-2.30783]	[-0.31179]	[0.24620]
UNRATE_EA(-4)	−0.265737	1.393160	0.290665	1.849294	−0.042803	0.017433	−0.797716
	(0.43893)	(0.97337)	(0.17852)	(4.19184)	(0.10724)	(0.03702)	(0.62244)
	[-0.60542]	[1.43128]	[1.62818]	[0.44117]	[-0.39915]	[0.47090]	[-1.28160]
UNRATE_EA(-5)	−0.101497	0.279831	−0.017416	−9.639476	0.076373	0.008495	0.906647
	(0.43487)	(0.96436)	(0.17687)	(4.15305)	(0.10624)	(0.03668)	(0.61668)
	[-0.23340]	[0.29017]	[-0.09847]	[-2.32106]	[0.71884]	[0.23160]	[1.47022]
UNRATE_EA(-6)	0.226145	−1.217720	−0.124648	7.916552	−0.020856	−0.016169	−0.608970
	(0.25903)	(0.57442)	(0.10535)	(2.47376)	(0.06328)	(0.02185)	(0.36732)
	[0.87304]	[-2.11991]	[-1.18316]	[3.20021]	[-0.32956]	[-0.74010]	[-1.65786]
LEXUS(-1)	−1.447067	2.400130	0.325071	−2.746108	0.595876	1.311353	0.483311
	(0.84033)	(1.86349)	(0.34178)	(8.02518)	(0.20530)	(0.07087)	(1.19164)
	[-1.72203]	[1.28797]	[0.95113]	[-0.34219]	[2.90243]	[18.5024]	[0.40558]

The VAR results (*continued*)

	INFA	DLM3	DLOIL	DLIP	UNRATE_EA	LEXUS	SUPPLY
LEXUS(-2)	0.602514	−1.624265	−0.168811	5.878207	−0.985148	−0.422575	−0.252266
	(1.33340)	(2.95693)	(0.54232)	(12.7341)	(0.32577)	(0.11246)	(1.89085)
	[0.45186]	[-0.54931]	[-0.31128]	[0.46161]	[-3.02408]	[-3.75750]	[-0.13341]
LEXUS(-3)	2.471375	0.243532	0.457317	4.852148	0.383473	0.017648	−0.350687
	(1.37367)	(3.04623)	(0.55870)	(13.1187)	(0.33561)	(0.11586)	(1.94796)
	[1.79910]	[0.07995]	[0.81854]	[0.36987]	[1.14263]	[0.15232]	[-0.18003]
LEXUS(-4)	−2.659902	−0.152788	−0.634657	−10.65172	0.342201	0.168792	1.899580
	(1.37867)	(3.05731)	(0.56073)	(13.1664)	(0.33683)	(0.11628)	(1.95504)
	[-1.92933]	[-0.04997]	[-1.13185]	[-0.80901]	[1.01596]	[1.45161]	[0.97163]
LEXUS(-5)	2.555288	−2.134160	0.445913	9.069206	−0.429664	−0.132656	−1.837945
	(1.31300)	(2.91168)	(0.53402)	(12.5392)	(0.32078)	(0.11074)	(1.86192)
	[1.94615]	[-0.73297]	[0.83501]	[0.72327]	[-1.33943]	[-1.19790]	[-0.98713]
LEXUS(-6)	−1.631946	1.264851	−0.438062	−7.201817	0.161422	0.037769	0.181754
	(0.80809)	(1.79200)	(0.32866)	(7.71731)	(0.19743)	(0.06816)	(1.14592)
	[-2.01951]	[0.70583]	[-1.33286]	[-0.93320]	[0.81763]	[0.55416]	[0.15861]
SUPPLY(-1)	−0.005233	−0.239543	−0.006976	−0.720876	0.019001	0.001652	0.916595
	(0.04904)	(0.10875)	(0.01995)	(0.46833)	(0.01198)	(0.00414)	(0.06954)
	[-0.10671]	[-2.20271]	[-0.34978]	[-1.53924]	[1.58596]	[0.39947]	[13.1806]
SUPPLY(-2)	0.064536	0.261351	0.032324	0.739885	−0.001076	−0.001779	−0.117043
	(0.06616)	(0.14671)	(0.02691)	(0.63181)	(0.01616)	(0.00558)	(0.09382)
	[0.97548]	[1.78140]	[1.20131]	[1.17105]	[-0.06658]	[-0.31888]	[-1.24757]
SUPPLY(-3)	−0.039943	−0.135421	−0.004133	−0.400643	0.003405	0.002802	0.101149
	(0.06603)	(0.14643)	(0.02686)	(0.63060)	(0.01613)	(0.00557)	(0.09364)
	[-0.60492]	[-0.92482]	[-0.15388]	[-0.63534]	[0.21105]	[0.50314]	[1.08024]
SUPPLY(-4)	0.017499	0.055703	−0.001729	1.676053	−0.021745	−0.004374	−0.142990
	(0.06593)	(0.14619)	(0.02681)	(0.62959)	(0.01611)	(0.00556)	(0.09349)
	[0.26544]	[0.38102]	[-0.06448]	[2.66213]	[-1.35006]	[-0.78664]	[-1.52953]
SUPPLY(-5)	−0.091435	0.056550	−0.032164	−1.713175	0.007065	0.003100	0.051702
	(0.06716)	(0.14893)	(0.02731)	(0.64136)	(0.01641)	(0.00566)	(0.09523)
	[-1.36151]	[0.37971]	[-1.17755]	[-2.67117]	[0.43061]	[0.54734]	[0.54289]

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The VAR results (*continued*)

	INFA	DLM3	DLOIL	DLIP	UNRATE_EA	LEXUS	SUPPLY
SUPPLY(-6)	0.156551	−0.079820	0.031625	0.334607	−0.015113	−0.002063	0.102257
	(0.05037)	(0.11170)	(0.02049)	(0.48104)	(0.01231)	(0.00425)	(0.07143)
	[3.10802]	[-0.71460]	[1.54370]	[0.69560]	[-1.22811]	[-0.48558]	[1.43161]
C	−0.105776	1.459054	−0.008583	−2.678085	−0.007417	0.007297	0.740536
	(0.22730)	(0.50405)	(0.09245)	(2.17070)	(0.05553)	(0.01917)	(0.32232)
	[-0.46536]	[2.89467]	[-0.09285]	[-1.23374]	[-0.13357]	[0.38061]	[2.29750]
R-squared	0.956507	0.973145	0.238152	0.870254	0.998390	0.979019	0.894552
Adj. R-squared	0.948127	0.967971	0.091374	0.845257	0.998080	0.974977	0.874236
Sum sq. resids	13.80814	67.90362	2.284120	1259.353	0.824188	0.098225	27.76690
S.E. equation	0.251675	0.558108	0.102360	2.403507	0.061487	0.021227	0.356891
F-statistic	114.1491	188.0876	1.622534	34.81454	3218.824	242.2008	44.03263
Log likelihood	13.23079	−194.6337	248.0365	−575.7281	381.0599	658.6519	−77.93477
Akaike AIC	0.228117	1.820948	−1.571161	4.741212	−2.590497	−4.717639	0.926703
Schwarz SC	0.815375	2.408206	−0.983902	5.328470	−2.003239	−4.130381	1.513961
Mean dependent	1.740361	5.420976	0.005248	0.512163	9.250759	0.181288	0.023078
S.D. dependent	1.105018	3.118512	0.107384	6.109992	1.403206	0.134188	1.006371
Determinant resid covariance (dof adj.)	1.51E-10						
Determinant resid covariance	4.29E-11						
Log likelihood	523.0583						
Akaike information criterion	−1.701596						
Schwarz criterion	2.409211						
Number of coefficients	301						

The VAR for the U.K.

	INFA	DLM3	DLOIL	LTIR_UK	DLWAGE	GOVDEF_UK	SUPPLY
INFA(-1)	0.964688	−0.026154	−0.034477	−0.007368	0.453119	−0.102701	0.020495
	(0.06798)	(0.02645)	(0.02638)	(0.04156)	(0.25874)	(0.07048)	(0.09336)
	[14.1902]	[-0.98893]	[-1.30671]	[-0.17727]	[1.75124]	[-1.45711]	[0.21952]
INFA(-2)	0.064535	0.083490	0.007907	0.007188	−0.310523	0.204249	0.112214
	(0.09537)	(0.03710)	(0.03702)	(0.05831)	(0.36299)	(0.09888)	(0.13098)

The VAR results (*continued*)

	INFA	DLM3	DLOIL	LTIR_UK	DLWAGE	GOVDEF_UK	SUPPLY
	[0.67665]	[2.25023]	[0.21362]	[0.12328]	[-0.85545]	[2.06559]	[0.85671]
INFA(-3)	0.023177	−0.011856	0.007057	−0.027453	−0.474426	−0.167421	−0.121456
	(0.09731)	(0.03786)	(0.03777)	(0.05949)	(0.37035)	(0.10089)	(0.13364)
	[0.23818]	[-0.31319]	[0.18687]	[-0.46149]	[-1.28101]	[-1.65950]	[-0.90885]
INFA(-4)	−0.095881	−0.061672	0.015810	0.029408	0.154311	0.030900	−0.029773
	(0.07155)	(0.02783)	(0.02777)	(0.04374)	(0.27231)	(0.07418)	(0.09826)
	[-1.34009]	[-2.21570]	[0.56937]	[0.67235]	[0.56667]	[0.41656]	[-0.30300]
DLM3(-1)	−0.243669	0.927459	−0.112855	−0.001243	0.232525	−0.066206	0.060613
	(0.17098)	(0.06651)	(0.06636)	(0.10452)	(0.65073)	(0.17726)	(0.23481)
	[-1.42517]	[13.9439]	[-1.70073]	[-0.01190]	[0.35733]	[-0.37349]	[0.25814]
DLM3(-2)	0.158223	0.038002	0.090676	−0.059839	−0.227614	0.127018	−0.252397
	(0.23263)	(0.09050)	(0.09029)	(0.14222)	(0.88540)	(0.24119)	(0.31949)
	[0.68014]	[0.41992]	[1.00432]	[-0.42077]	[-0.25708]	[0.52664]	[-0.79001]
DLM3(-3)	0.033832	−0.049074	−0.030358	0.182973	−0.726145	−0.099501	−0.082522
	(0.22737)	(0.08845)	(0.08824)	(0.13900)	(0.86538)	(0.23573)	(0.31226)
	[0.14879]	[-0.55480]	[-0.34402]	[1.31635]	[-0.83911]	[-0.42209]	[-0.26427]
DLM3(-4)	0.072138	0.029780	0.099987	−0.047668	1.069901	0.070537	0.338696
	(0.17015)	(0.06619)	(0.06604)	(0.10402)	(0.64760)	(0.17641)	(0.23368)
	[0.42396]	[0.44989]	[1.51410]	[-0.45826]	[1.65210]	[0.39985]	[1.44941]
DLOIL(-1)	0.343110	0.112170	0.149180	0.247744	−0.016908	−0.348184	0.447859
	(0.17687)	(0.06881)	(0.06865)	(0.10813)	(0.67317)	(0.18338)	(0.24291)
	[1.93988]	[1.63021]	[2.17321]	[2.29123]	[-0.02512]	[-1.89874]	[1.84375]
DLOIL(-2)	0.085384	−0.033660	−0.127439	−0.181318	0.565515	0.107178	−0.091565
	(0.18159)	(0.07064)	(0.07048)	(0.11101)	(0.69112)	(0.18827)	(0.24938)
	[0.47021]	[-0.47648]	[-1.80828]	[-1.63335]	[0.81826]	[0.56929]	[-0.36717]
DLOIL(-3)	−0.213758	−0.056723	−0.019092	0.219544	0.550809	0.268142	−0.453133
	(0.17835)	(0.06938)	(0.06922)	(0.10903)	(0.67882)	(0.18491)	(0.24494)
	[-1.19850]	[-0.81752]	[-0.27582]	[2.01355]	[0.81143]	[1.45010]	[-1.84995]

(*continued on next page*)

The VAR results (*continued*)

	INFA	DLM3	DLOIL	LTIR_UK	DLWAGE	GOVDEF_UK	SUPPLY
DLOIL(-4)	0.377407	−0.004245	−0.081400	−0.242296	0.774138	0.063432	0.059907
	(0.17599)	(0.06847)	(0.06830)	(0.10759)	(0.66984)	(0.18247)	(0.24170)
	[2.14442]	[-0.06200]	[-1.19172]	[-2.25201]	[1.15571]	[0.34764]	[0.24785]
LTIR_UK(-1)	0.060304	−0.053958	0.014240	1.315178	−0.165473	0.104832	−0.116071
	(0.11025)	(0.04289)	(0.04279)	(0.06740)	(0.41961)	(0.11430)	(0.15141)
	[0.54698]	[-1.25808]	[0.33281]	[19.5136]	[-0.39435]	[0.91714]	[-0.76660]
LTIR_UK(-2)	−0.026847	0.108656	−0.008516	−0.496189	0.837115	−0.206096	0.480713
	(0.17760)	(0.06909)	(0.06893)	(0.10857)	(0.67593)	(0.18413)	(0.24390)
	[-0.15117]	[1.57270]	[-0.12355]	[-4.57024]	[1.23847]	[-1.11932]	[1.97093]
LTIR_UK(-3)	−0.180876	−0.055517	0.002949	0.201263	−1.169159	−0.022594	−0.552755
	(0.17853)	(0.06945)	(0.06929)	(0.10914)	(0.67949)	(0.18510)	(0.24518)
	[-1.01314]	[-0.79935]	[0.04256]	[1.84407]	[-1.72065]	[-0.12207]	[-2.25444]
LTIR_UK(-4)	0.142643	0.001461	−0.007599	−0.036253	0.552631	0.140633	0.094912
	(0.11039)	(0.04295)	(0.04284)	(0.06749)	(0.42015)	(0.11445)	(0.15161)
	[1.29215]	[0.03403]	[-0.17736]	[-0.53720]	[1.31531]	[1.22876]	[0.62604]
DLWAGE(-1)	−0.012271	−0.006729	−0.004585	0.025960	0.642708	−0.011361	0.030497
	(0.01776)	(0.00691)	(0.00689)	(0.01086)	(0.06760)	(0.01841)	(0.02439)
	[-0.69090]	[-0.97381]	[-0.66512]	[2.39086]	[9.50751]	[-0.61695]	[1.25026]
DLWAGE(-2)	0.035048	0.013910	0.010603	−0.020656	−0.019399	0.023645	−0.023834
	(0.02058)	(0.00801)	(0.00799)	(0.01258)	(0.07835)	(0.02134)	(0.02827)
	[1.70262]	[1.73706]	[1.32724]	[-1.64142]	[-0.24760]	[1.10794]	[-0.84308]
DLWAGE(-3)	−0.029178	−0.006988	−0.008150	−0.006916	0.011521	−0.023178	0.008511
	(0.02051)	(0.00798)	(0.00796)	(0.01254)	(0.07807)	(0.02127)	(0.02817)
	[-1.42252]	[-0.87576]	[-1.02373]	[-0.55155]	[0.14757]	[-1.08990]	[0.30215]
DLWAGE(-4)	0.039320	0.005716	−0.000463	0.004938	0.083246	0.000763	0.088265
	(0.01731)	(0.00673)	(0.00672)	(0.01058)	(0.06587)	(0.01794)	(0.02377)
	[2.27204]	[0.84900]	[-0.06889]	[0.46674]	[1.26387]	[0.04250]	[3.71373]
GOVDEF_UK(-1)	0.036232	−0.079585	0.121882	0.057588	0.285996	2.970457	−0.276875
	(0.05179)	(0.02015)	(0.02010)	(0.03166)	(0.19712)	(0.05370)	(0.07113)
	[0.69958]	[-3.95005]	[6.06366]	[1.81888]	[1.45090]	[55.3205]	[-3.89269]

The VAR results (*continued*)

	INFA	DLM3	DLOIL	LTIR_UK	DLWAGE	GOVDEF_UK	SUPPLY
GOVDEF_UK(-2)	−0.063767	0.166509	−0.266908	−0.141454	−0.445917	−3.723919	0.441307
	(0.12829)	(0.04991)	(0.04979)	(0.07843)	(0.48826)	(0.13300)	(0.17618)
	[-0.49707]	[3.33640]	[-5.36079]	[-1.80367]	[-0.91328]	[-27.9984]	[2.50482]
GOVDEF_UK(-3)	0.050182	−0.142299	0.224925	0.151024	0.356704	2.352177	−0.273129
	(0.13137)	(0.05111)	(0.05098)	(0.08031)	(0.49999)	(0.13620)	(0.18041)
	[0.38199]	[-2.78443]	[4.41159]	[1.88052]	[0.71343]	[17.2701]	[-1.51389]
GOVDEF_UK(-4)	−0.023404	0.052757	−0.077486	−0.065033	−0.147060	−0.612827	0.066888
	(0.05464)	(0.02125)	(0.02120)	(0.03340)	(0.20794)	(0.05665)	(0.07503)
	[-0.42837]	[2.48213]	[-3.65422]	[-1.94705]	[-0.70721]	[-10.8187]	[0.89144]
SUPPLY(-1)	0.022184	−0.059002	0.025670	0.038606	−0.025548	0.077669	0.785797
	(0.04783)	(0.01861)	(0.01856)	(0.02924)	(0.18203)	(0.04959)	(0.06568)
	[0.46383]	[-3.17108]	[1.38293]	[1.32038]	[-0.14035]	[1.56632]	[11.9632]
SUPPLY(-2)	0.008759	0.048992	0.010681	0.013352	−0.101065	0.020961	−0.040822
	(0.06168)	(0.02399)	(0.02394)	(0.03771)	(0.23475)	(0.06395)	(0.08471)
	[0.14201]	[2.04181]	[0.44621]	[0.35411]	[-0.43053]	[0.32779]	[-0.48193]
SUPPLY(-3)	0.013786	−0.011171	−0.013450	5.49E-05	0.469863	−0.072906	0.093441
	(0.06131)	(0.02385)	(0.02379)	(0.03748)	(0.23333)	(0.06356)	(0.08420)
	[0.22487]	[-0.46840]	[-0.56527]	[0.00146]	[2.01370]	[-1.14702]	[1.10981]
SUPPLY(-4)	0.007547	0.017441	−0.004740	−0.058625	−0.049885	0.001084	−0.067630
	(0.04880)	(0.01899)	(0.01894)	(0.02983)	(0.18574)	(0.05060)	(0.06702)
	[0.15465]	[0.91867]	[-0.25023]	[-1.96501]	[-0.26857]	[0.02143]	[-1.00906]
C	−2.047623	5.404572	−4.734117	−7.422562	−33.76418	−3.231221	−6.644591
	(5.77358)	(2.24606)	(2.24076)	(3.52956)	(21.9742)	(5.98590)	(7.92915)
	[-0.35465]	[2.40625]	[-2.11273]	[-2.10297]	[-1.53653]	[-0.53981]	[-0.83800]
R-squared	0.946239	0.934528	0.341779	0.992586	0.769008	0.995899	0.906381
Adj. R-squared	0.939458	0.926270	0.258760	0.991651	0.739874	0.995382	0.894573
Sum sq. resids	12.66896	1.917313	1.908282	4.734701	183.5178	13.61788	23.89481
S.E. equation	0.238888	0.092933	0.092714	0.146039	0.909207	0.247673	0.328077

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The VAR results (*continued*)

	INFA	DLM3	DLOIL	LTIR_UK	DLWAGE	GOVDEF_UK	SUPPLY
F-statistic	139.5499	113.1704	4.116886	1061.507	26.39546	1925.402	76.76135
Log likelihood	18.62678	255.5997	256.1923	142.1485	−316.8544	9.562149	−61.00371
Akaike AIC	0.082655	−1.805576	−1.810297	−0.901582	2.755812	0.154883	0.717161
Schwarz SC	0.489978	−1.398252	−1.402974	−0.494258	3.163135	0.562207	1.124484
Mean dependent	2.045440	100.4330	0.006053	2.953620	2.917361	−5.079523	0.054059
S.D. dependent	0.970884	0.342255	0.107688	1.598292	1.782669	3.644520	1.010416

Determinant resid covariance (dof adj.)	4.11E-10
Determinant resid covariance	1.74E-10
Log likelihood	327.0276
Akaike information criterion	−0.988267
Schwarz criterion	1.862995
Number of coefficients	203

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