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Stagflation: US experiences



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STAGFLATION: US EXPERIENCES

There is much concern about stagflation in market commentary at the moment. In this issue of *Infocus*, EFG Chief Economist Stefan Gerlach reviews the notion of stagflation and comments on the US experiences since 1970. In contrast to the 1970s, central banks now have legal mandates for price stability and explicit targets for inflation – requiring them to act forcefully to ensure that any unavoidable temporary increase in inflation does not become permanent.

Public concern about stagflation – an unfortunate combination of stagnating, or perhaps even negative, growth and high inflation – is rising because of the Covid-19 pandemic. Commentators are recalling the 1970s and early 1980s, a period associated in the US and many other countries with sharp declines in real GDP, inflation spikes above 10% per annum, the federal funds rate at almost 20% and volatile stock prices. This was not a happy episode for the US economy, and it is not surprising that the prospect of stagflation has caused concern.

In assessing the risk of stagflation, it is useful to take a step back and look at US economic data since the 1970s.

What is stagflation?

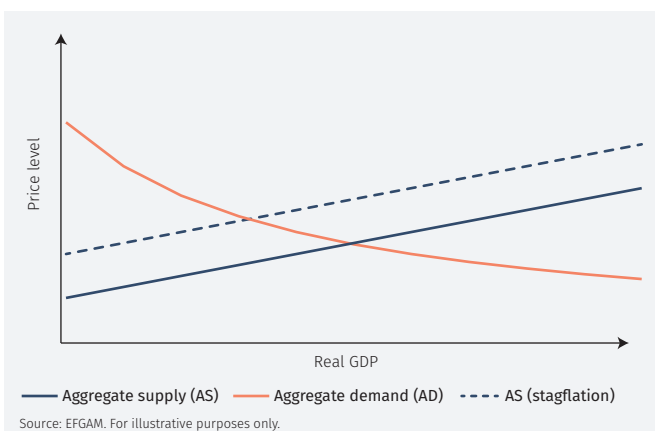
First, it is essential to understand what stagflation is. The simplest way to think about it is as a sharp contraction of the economy's ability to produce goods and services at the current price level. In the 1970s and 80s, the causal factors were the massive increases in oil prices in 1974 and 1980. Overall, oil prices rose from US\$3.90 per barrel in 1973 to US\$37.40 per barrel in 1980 – that is, almost by a factor of ten.

The increase in the price of oil led to a surge in the cost of energy and in firms' production costs. Higher oil prices eroded the purchasing power of wages and led to demand for compensatory wage increases. Since the oil price increase was relative to other prices, it could not be offset by economic policy. The result was an unavoidable decline in corporate profits – and therefore in stock prices – and in real wages.

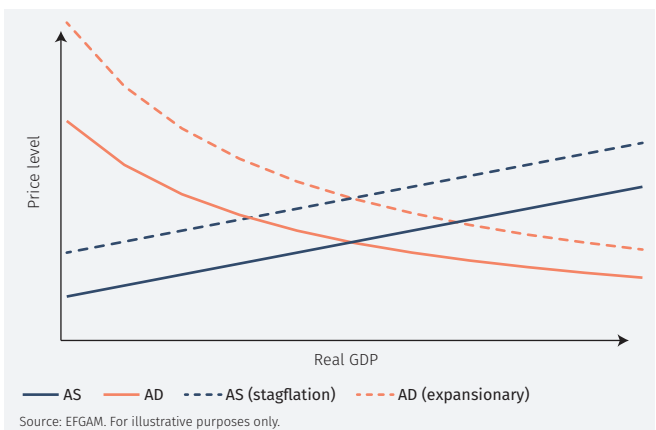
In terms of the familiar aggregate supply and demand analysis shown in Figure 1, one can think of a stagflation shock as entailing a shift of the economy's aggregate supply schedule to the left (which indicates that at the going price level, firms would like to supply less output). For a given aggregate demand curve, the net effect will be downward pressure on real GDP growth and upward pressures on prices:

But the demand curve is likely to shift too. One possibility is that fiscal and monetary policymakers worry that the slowing of the economy will lead to a rise in unemployment. This was the case

1. Stagflationary supply shock



2. Expansionary demand shock

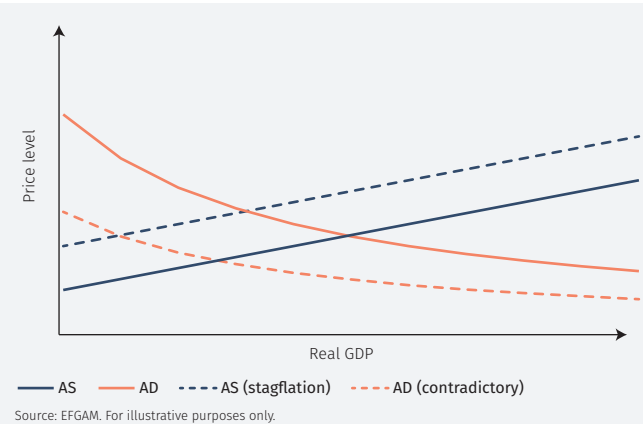


in the 1970s, when many policy makers responded by boosting aggregate demand. Such an expansionary policy will reduce or, depending on how strong it is, offset the decline in real GDP, at the cost of additional pressure on prices to rise, as shown in Figure 2.

Alternatively, policy makers can adopt a contractionary policy response by reducing aggregate demand. That reduces the pressure on prices to rise but amplifies the decline in real GDP (Figure 3).

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3. Contractionary policy response



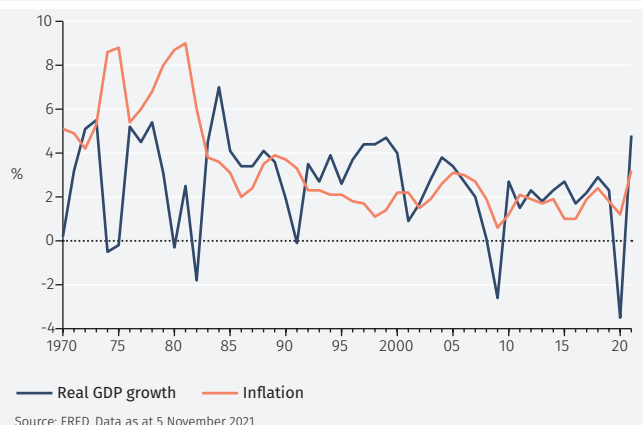
Of course, central banking has changed since the 1970s. One important difference is that inflation targets are now common. These limit the extent to which central banks can let inflation rise in response to a stagflationary contraction of aggregate supply.¹

Recent US economic history

Using data on real GDP growth and inflation, it is possible to construct estimates of how aggregate supply and demand schedules have impacted the economy over time.² Below we look at how aggregate supply and demand shocks have affected the economy, using annual data for the period 1970-2021.³

Figure 4 shows the growth rate of real GDP and inflation (as measured by the US GDP deflator) for the period 1970 to the

4. The US economy



first half of 2021. The oil price shocks between 1974 and 1980 lead to outright falls in real GDP and surges in inflation. It is this combination of stagnating growth and high inflation that is the defining characteristic of stagflation.

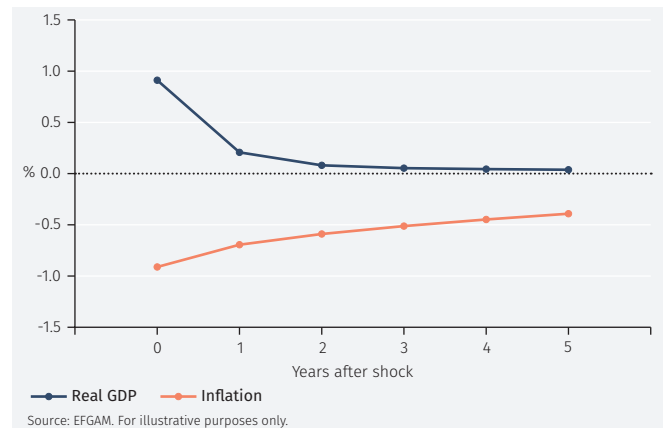
The figure also shows deep recessions in 1982, caused by the Fed adopting tight monetary policy to reduce inflation from the very high levels of the late 1970s and early 1980s; and in 2009 as the Global Financial Crisis struck and again in 2020 during the Covid-19 pandemic.

But, instead of looking at the fluctuations in real GDP growth and inflation, it is more interesting to look at the role played by shocks in aggregate supply and demand in causing these fluctuations.

The effects of shifts in aggregate supply and demand

Consider first an expansionary aggregate supply shock. Figure 5 shows that it raises real GDP growth by 0.9% and reduces inflation by the same amount.⁴ While real GDP growth returns to close to the starting level in the year after the shock, inflation only gradually rises back towards the initial level.⁵

5. Expansionary supply shock



Turning next to the effects of an aggregate demand shock, it is interesting that real GDP growth rises sharply the year of the shock, by 1.8%, and returns to its starting level two years after the shock (Figure 6 overleaf). In contrast, inflation rises by 0.5% and approaches the initial level only gradually.

¹ Two factors provide central banks with some leeway in responding to contractionary supply shocks. First, the inflation targets are generally surrounded by a band that provide some margin of manoeuvre. For instance, if the target is 2%, $\pm 1\%$, the central bank can let inflation rise to 3%. Second, price level shocks have generally a temporary effect on inflation. Central banks therefore sometimes disregard them in the expectation that the impact on inflation will have abated long before a monetary policy response would start to impact inflation.

² To do so, some identifying assumption is needed to separate the shocks. Here the assumption is that the price elasticity of aggregate demand is minus one; this assumption implies that nominal GDP growth is determined by aggregate demand growth, while aggregate supply determines how demand is divided into real GDP growth and inflation.

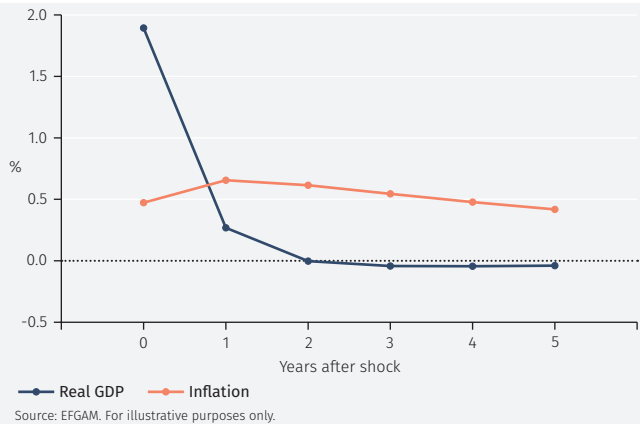
³ The observation for 2021 is for the first half of the year. The estimates stem from a structural VAR(1) model for real GDP growth and inflation, using the identifying restrictions described in the previous footnote.

⁴ The fact that the two variables respond equally strongly but by different signs reflects the identifying assumption.

⁵ While the response of real GDP growth is significant in the year in which the shock occurs, inflation is significantly different from zero for 3-4 years. The same is true in the case of aggregate demand shocks discussed below.

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6. Expansionary demand shock



The above figures show that aggregate demand disturbances have a much larger impact than aggregate supply surprises on real GDP. One would therefore expect that they are more important drivers of fluctuations in real economic activity than aggregate supply shocks. That conjecture turns out to be true: the results show that 80% of the variation in real GDP growth is due to aggregate demand factors, and the remaining 20% to aggregate supply developments.

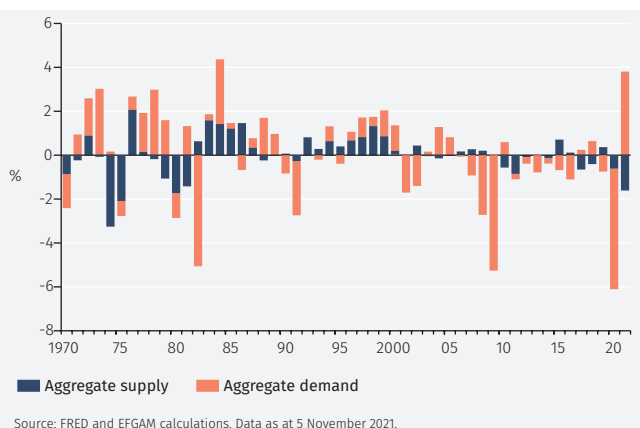
The figures also show that the aggregate supply shocks elicit greater responses in inflation than demand shocks. Not surprisingly, closer examination of the results indicates that 60-70% of the variation in inflation is due to aggregate supply shocks, and the remaining 30-40% to aggregate demand shocks.

Interpreting US data

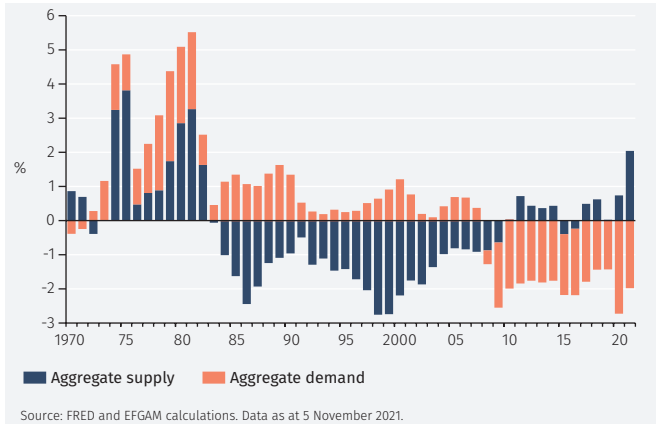
Figures 7 and 8 decompose real GDP growth and inflation, respectively, into the parts due to shifts in aggregate supply and demand. (Table A1 in the Appendix shows the estimated shocks.)

Looking first at the 1970s and early 80s, negative (that is, contractionary) aggregate supply shocks depressed real

7. Real GDP growth (relative to base line)



8. Inflation (relative to base line)



GDP growth in 1974-75 and 1980. These coincide with large increases in oil prices, which rose ten-fold between 1973 and 1980.

The oil price increases also led to increasing inflation in this period. However, since inflation responds much more sluggishly than real GDP growth to shocks, the effects of the different contractionary aggregate supply shocks accumulate and push up inflation for most of the 1970s. Demand also played a role, as illustrated by the demand shocks that were positive in 1976-79 and 1981.

It is interesting to compare the oil price shocks of 1974 and 1980. In 1974-5 the aggregate demand shocks were negative, amplifying the fall in real GDP. In 1980, the aggregate demand shock was also negative, but it turned positive in 1981 as the US authorities adopted expansionary policies. The net effect was to limit the fall in real GDP at the cost of a second surge in inflation. It soon became clear that inflation needed to be contained and tighter macroeconomic policies led to a sharp contraction in demand in 1982 and falling inflation.

Turning to the 1990s, the rapid productivity growth under President Clinton held down inflation. Following the financial crisis in 2008, weak aggregate demand appears to have been the main factor explaining low US inflation.

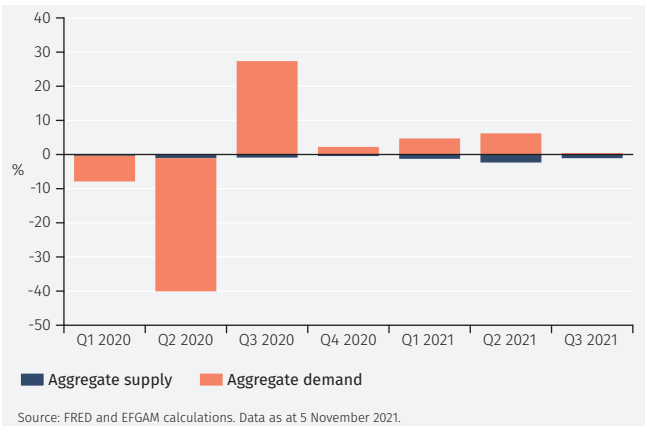
The Covid-19 pandemic

Unfortunately, using annual data does not provide much insight into the Covid-19 pandemic since the large quarterly changes in economic conditions in 2020 cancel out when annual data are considered. Redoing the analysis using quarterly data, the role of shifts to the aggregate supply and demand schedules in 2021 and the first half of 2021 can be studied in detail.

Figure 9 shows that the model attributes the collapse of real GDP growth in Q2 2020 and the surge in Q3 to swings in

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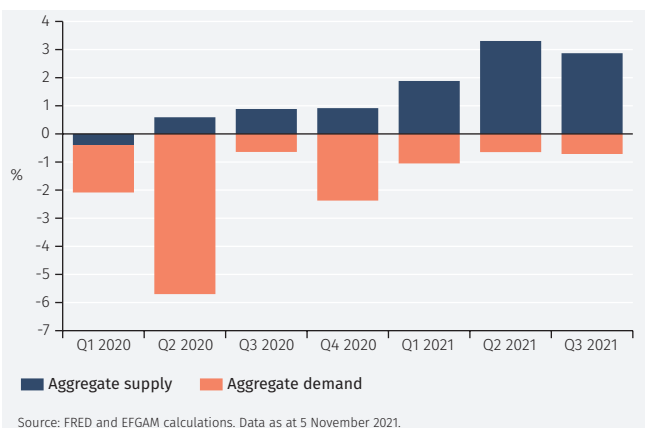
9. Real GDP growth (relative to base line)



aggregate demand. Indeed, aggregate supply factors appear not to have played much of a role for GDP growth.

Figure 10 turns to inflation. While the collapse in aggregate demand in Q2 2020 reduced inflation pressures and has continued to do so since, a contraction of aggregate supply has put increasing pressure on inflation to rise. While still small, this contraction provides some evidence of a stagflationary component of current economic conditions although the situation is very different from the 1970s, not least because of the scale of fiscal stimulus.

10. Inflation (relative to base line)



Conclusions

Much recent market and economic commentary recalls the 1970s and early 1980s, a period associated in the US and many other countries with sharp declines in real GDP, very high inflation and short-term interest rates, and collapsing stock prices. This was not a happy episode for the US economy, and it is therefore not surprising that the prospect of stagflation has caused concern.

However, the events of the last few quarters are small in comparison to the large and repeated contractionary shocks of the 1970s and 1980s. If the Covid-19 shock leads to a prolonged episode of stagflation, there is little sign of that yet in the data.

But more importantly, in contrast to in the 1970s, central banks now have legal mandates for price stability and explicit targets for inflation. This requires them to act forcefully to ensure that any unavoidable temporary increase in inflation does not become permanent. While inflation is uncomfortably high, and may remain so for some time to come, in the end central banks will act. The real questions are rather what actions they will take to ensure that inflation returns to target, and when they will act.

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APPENDIX

A1. Estimated supply and demand shocks

	Aggregate supply shocks	Aggregate demand shocks		Aggregate supply shocks	Aggregate demand shocks
1970	-0.9	-0.8	1996	0.6	0.3
1971	0.0	0.6	1997	0.7	0.4
1972	1.1	0.8	1998	1.2	0.2
1973	-0.3	1.5	1999	0.5	0.6
1974	-3.6	-0.1	2000	-0.1	0.5
1975	-1.5	-0.3	2001	-0.2	-1.0
1976	2.9	0.4	2002	0.3	-0.6
1977	-0.1	0.9	2003	-0.3	0.2
1978	-0.2	1.5	2004	-0.3	0.7
1979	-1.1	0.7	2005	-0.1	0.3
1980	-1.6	-0.6	2006	0.1	-0.1
1981	-1.0	0.9	2007	0.2	-0.5
1982	1.2	-2.7	2008	0.1	-1.3
1983	1.7	0.6	2009	-0.1	-2.6
1984	1.3	1.6	2010	-0.7	0.7
1985	1.0	-0.1	2011	-0.8	-0.3
1986	1.3	-0.3	2012	0.1	-0.2
1987	-0.1	0.3	2013	0.0	-0.5
1988	-0.5	0.9	2014	-0.1	-0.1
1989	0.0	0.4	2015	0.8	-0.4
1990	0.0	-0.5	2016	0.0	-0.6
1991	-0.4	-1.2	2017	-0.8	0.2
1992	0.9	0.2	2018	-0.3	0.3
1993	0.1	-0.1	2019	0.5	-0.5
1994	0.6	0.4	2020	-0.7	-2.9
1995	0.2	-0.2	2021	-1.6	2.4

Source: EFGAM calculations. Data as at 5 November 2021.

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