

Digitalisation and Monetary Policy

21st Monetary Policy Workshop



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Optimal Monetary Policy After Shocks of Natural Resource Prices and Experiences form the 1970s

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Structure

1. The present situation in Germany / European Monetary Union

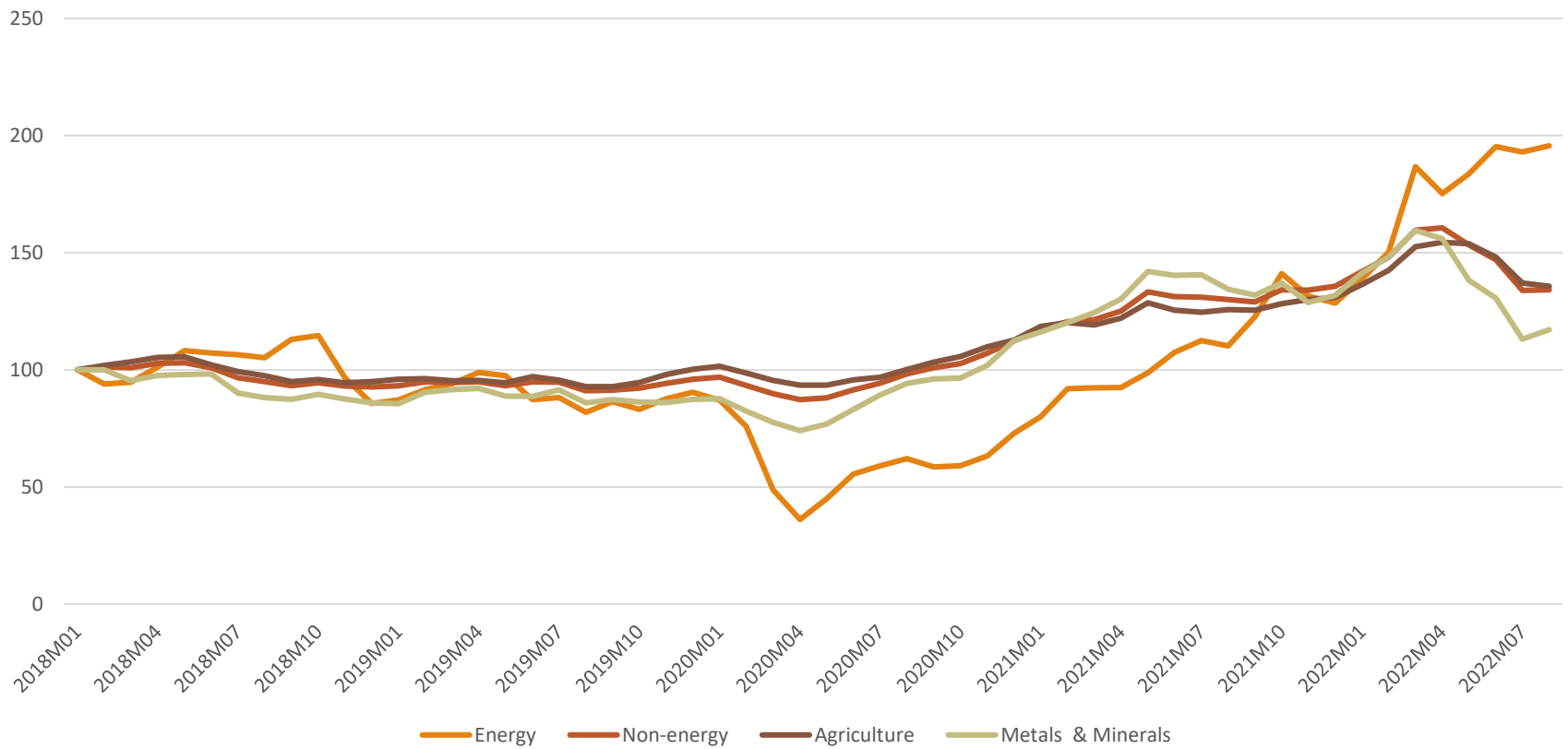
- Danger of wage-price spiral
- Danger of recession
- Monetary policy reaction

2. Optimal macroeconomic policy after price shock

3. Experiences form the 1970s

1. The present situation in Germany / European Monetary Union

Development of natural resource prices after 2018



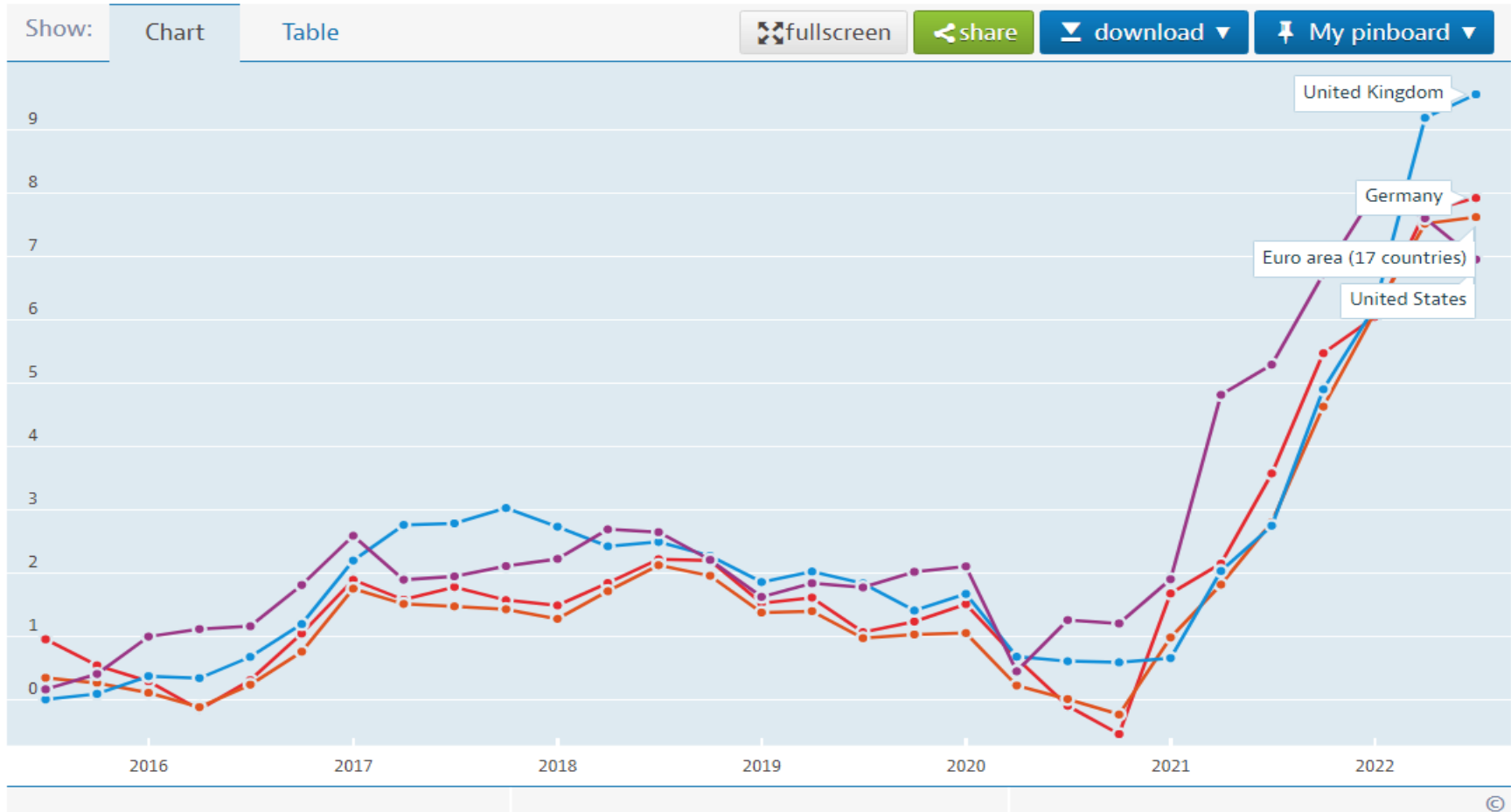
Source: World Bank

Economic effects of energy price shock

- Price level increases
- Real income and real wages decrease
- Danger of a wage-price spiral – if a policy of real wage stabilisation is followed
- Decrease of real demand – recession follows and stagflation
- Monetary policy – what to do?

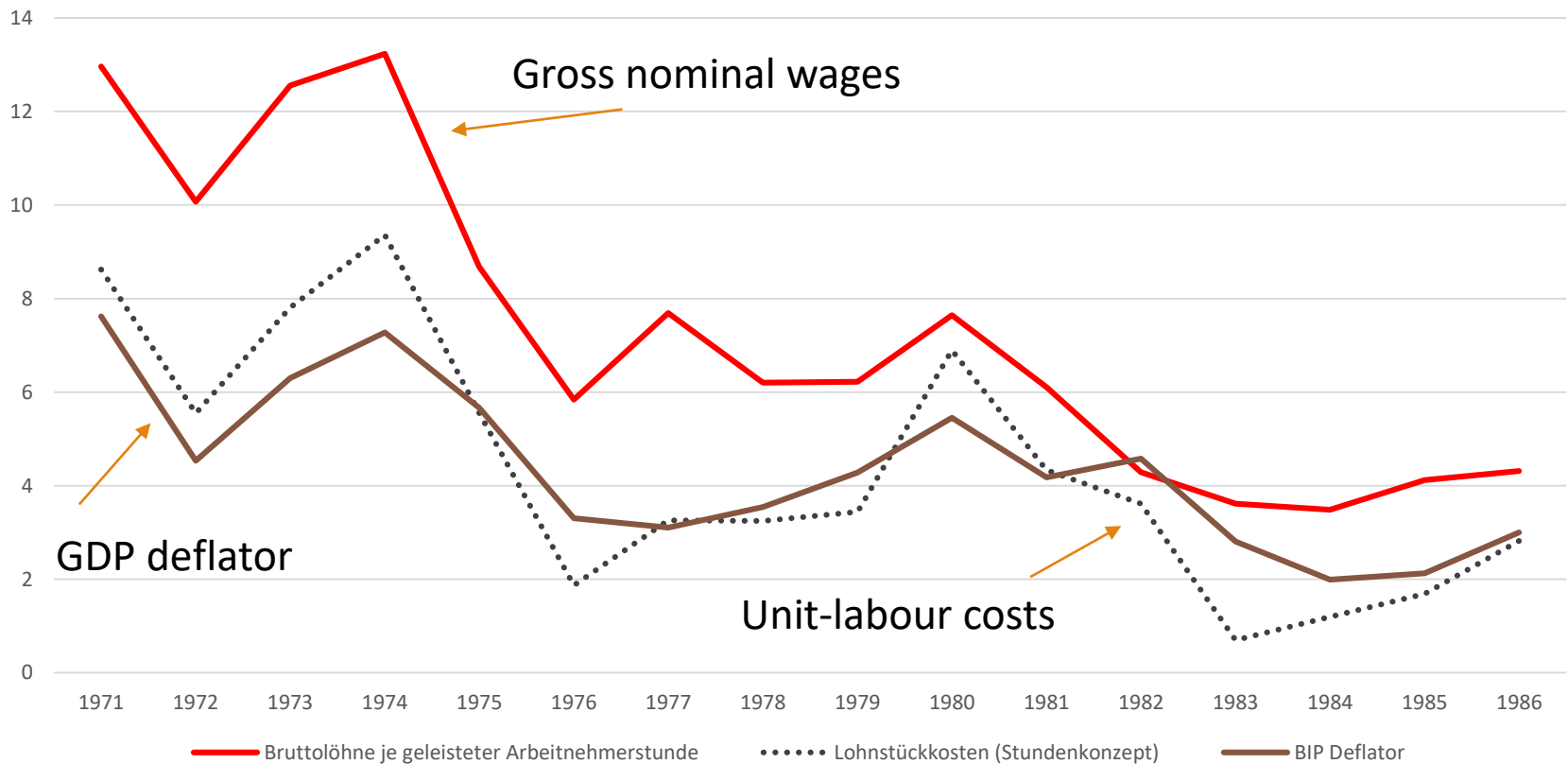
Danger of wage-price spiral

Inflation rate

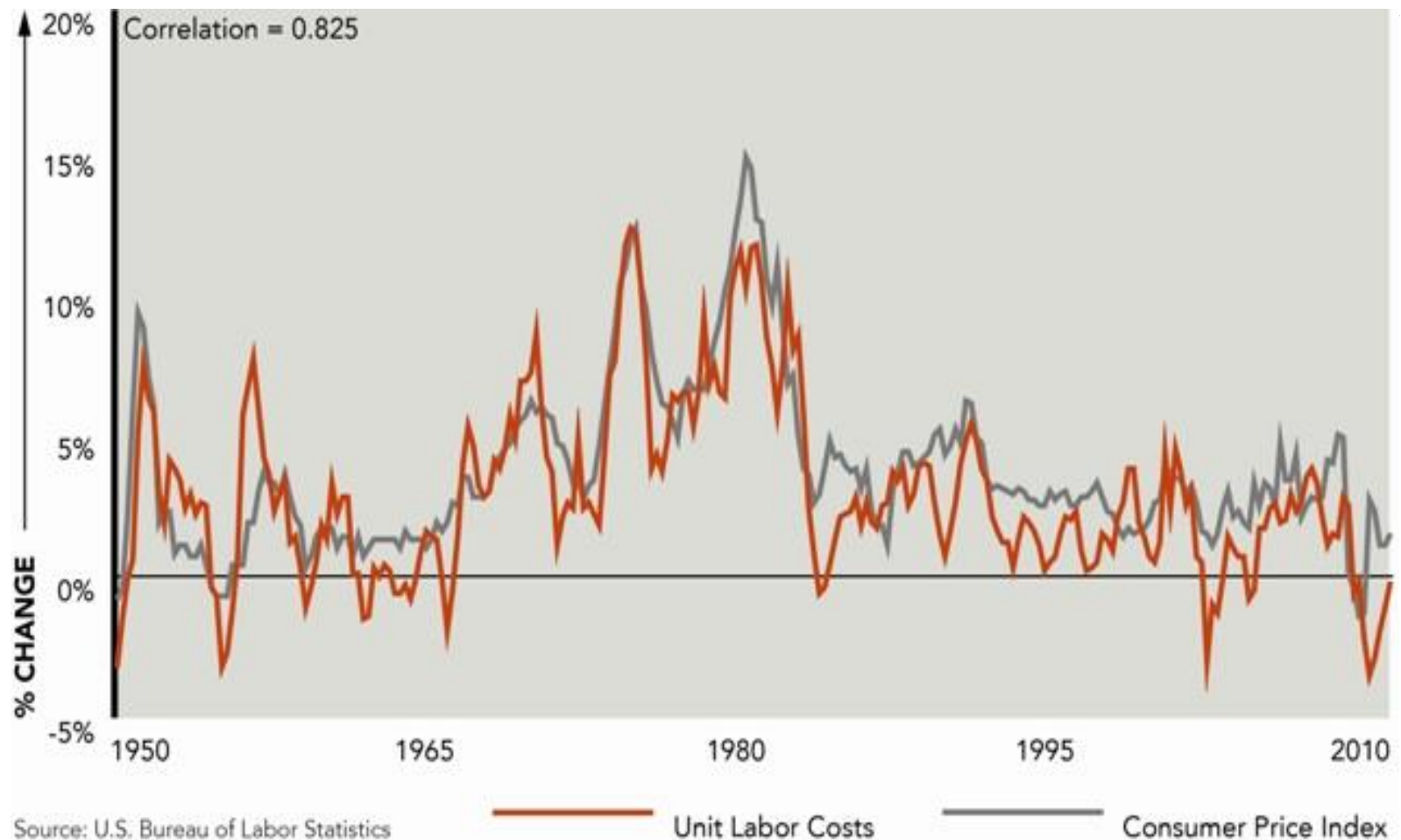


Source: OECD

Germany: gross nominal wages, unit-labour costs and GDP-deflator



USA: unit labour costs and consumer price index



High correlation between unit-labour costs and inflation

Between 1971 and 2020 in **Germany** the correlation between development of wages and development of GDP deflator is 0.85 and between unit-labour costs and GDP deflation 0.76

(Based Statistisches Bundesamt (German Statistical Office) 2022).

Between 1950 and 2010 in **USA** the correlation between unit labour cost and consumer price index was 0.825.

Spychalski, M. (2011): Labor Costs and Inflation, <https://www.marquetteassociates.com/research/labor-costs-and-inflation>, accessed 09.09.2022.

Theoretical foundation

John Maynard Keynes, Treatise on Money, 1930

Nominal anchor Nr. 1: Changes in unit-labour costs are the main factor to influence price level changes

In spite of

- exogenous price shocks (natural resources, food, etc.)
- excess demand inflation

Nominal anchor Nr. 2: Exchange rates can trigger a depreciation-inflation-wage-price-spiral

Source: M. Heine, H. Herr, The European Central Bank, Agenda Publishing 2021

In a closed economy without “external” factors

$$Y = W + Q$$

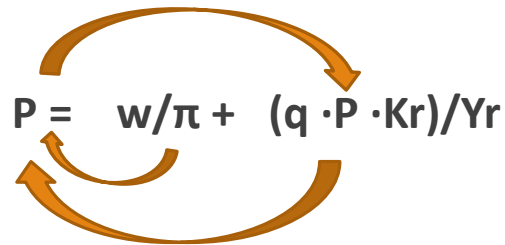
$$Y_r \cdot P = W + Q$$

$$P = (W/Y_r) + (Q/Y_r)$$

remember $Y_r = Y/P$

$$Q = q \cdot P \cdot K_r$$

$$W/Y_r = (W/H)/(Y_r/H) = w/\pi$$


$$P = w/\pi + (q \cdot P \cdot K_r)/Y_r$$

Y_r : real income, here real net domestic product

Y : nominal income, here nominal net domestic product

W : wage sum

w : wage per hour

P : price index

Q : profit

q : profit rate,

K_r : real capital stock

π : productivity

It follows:

1. round: when unit labour costs increase the price level according to the share of wage costs increases
2. round: capital goods and intermediate goods increase
3. The outcome is a proportional development between price changes and unit labour costs. The profit rate is assumed to be unchanged (this will be discussed later)

$$P = w/\pi$$

Danger of recession

For example: The Kiel Institute for the World Economy (IfW) calculated:

Real disposable income decreased in Germany

in 2022 9.4% plus

in 2023 4.1%

Conclusion: Fiscal stimulation is needed

IfW Kiel (2022): Herbstprognose IfW Kiel: Hohe Energiepreise drücken deutsche Wirtschaft in Rezession, 08.09.2022, <https://www.ifw-kiel.de>

2. Optimal macroeconomic policy after price shock

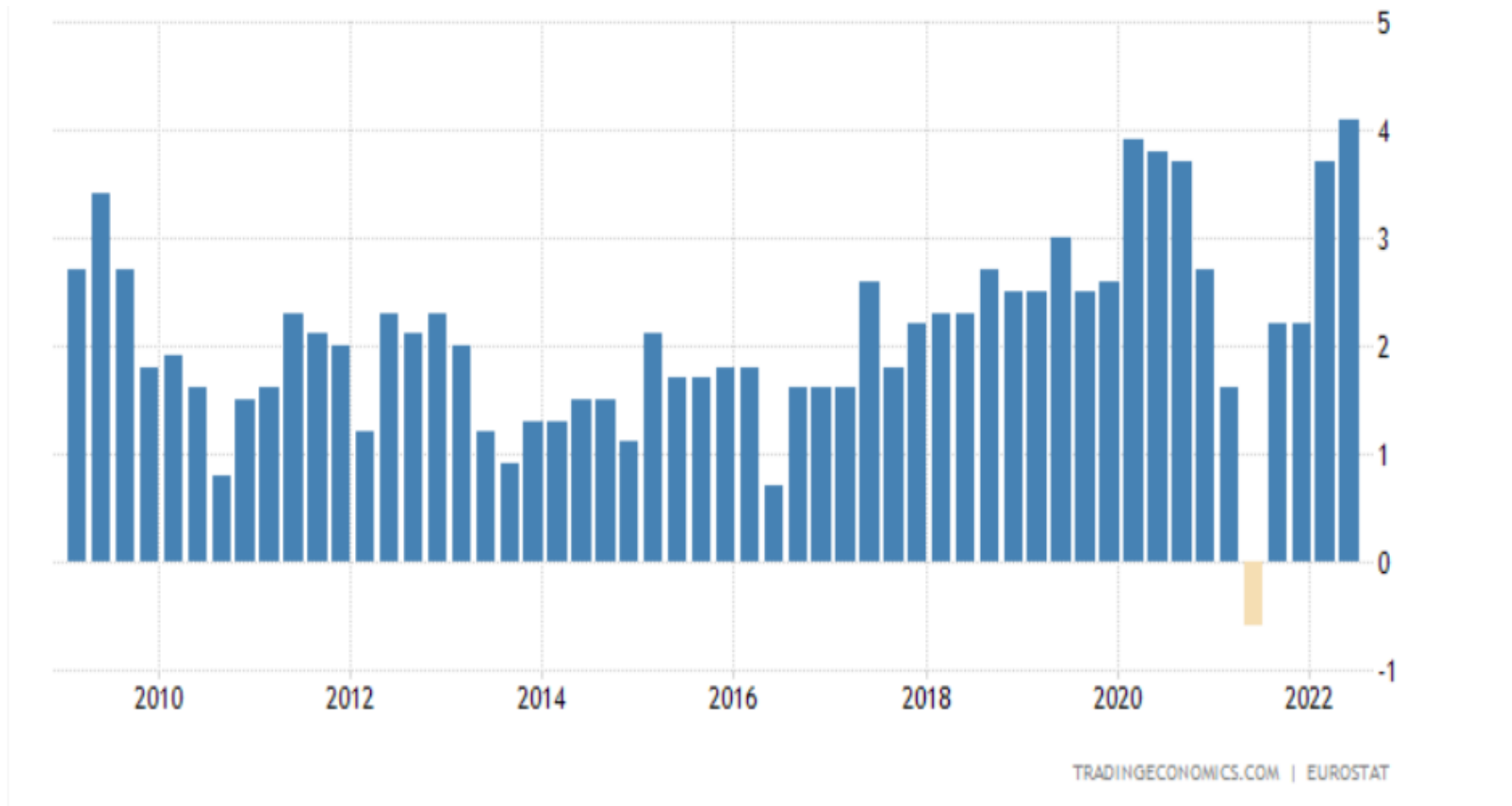
1. Income policy to guarantee nominal wage increases according to trend productivity development plus target inflation rate of central bank

2. Fiscal stimulation to compensate loss of real income

3. Monetary policy

- Under the condition that income policy works no restrictive monetary policy – led the inflation wave work through the economy
- Defend the exchange rate anchor – in the ideal case without using the interest rate

Wage growth euro area



Fiscal stimulation

Seasonally adjusted* surplus (+) /deficit (-)											
	% of GDP									Change on 1	
	2020Q2	2020Q3	2020Q4	2021Q1	2021Q2	2021Q3	2021Q4	2022Q1 ^P	2022Q2 ^P	2020Q3	2020Q4
Euro area	-11.9	-6.5	-7.4	-6.8	-6.4	-4.1	-3.3	-2.5	-2.1	5.4	-0.9
EU	-11.5	-6.1	-6.9	-6.2	-5.7	-3.7	-3.1	-2.3	-1.8	5.4	-0.8
Belgium	-15.7	-6.1	-8.7	-5.3	-7.3	-6.8	-3.0	-5.1	-4.0	9.7	-2.6
Bulgaria	-5.2	-2.5	-6.9	-2.5	-2.3	-0.9	-8.2	-4.3	-3.3	2.7	-4.4
Czechia	-8.4	-5.4	-7.0	-7.4	-4.4	-4.6	-4.1	-3.2	-2.3	2.9	-1.6
Denmark	-1.4	0.1	1.3	4.1	4.5	4.1	2.0	1.3	1.2	1.5	1.2
Germany	-7.9	-6.1	-4.4	-4.6	-5.0	-3.4	-2.0	-1.1	-1.1	1.8	1.7
Estonia	-9.1	-3.9	-5.8	-3.6	-3.7	-2.4	-0.3	-1.1	1.8	5.1	-1.8
Ireland	-7.2	-5.1	-5.8	-4.5	-1.6	-1.0	0.0	1.8	-0.5	2.2	-0.8
Greece	:	:	:	:	:	:	:	:	:	:	:
Spain	-20.3	-8.5	-7.9	-9.1	-7.9	-7.2	-3.7	-4.0	-4.2	11.8	0.6
France	-14.5	-5.7	-10.3	-8.8	-8.3	-4.6	-4.6	-4.1	-3.9	8.8	-4.7

Source Eurostat, October 2022

Weak euro – euro-dollar exchange rate



Wage growth USA

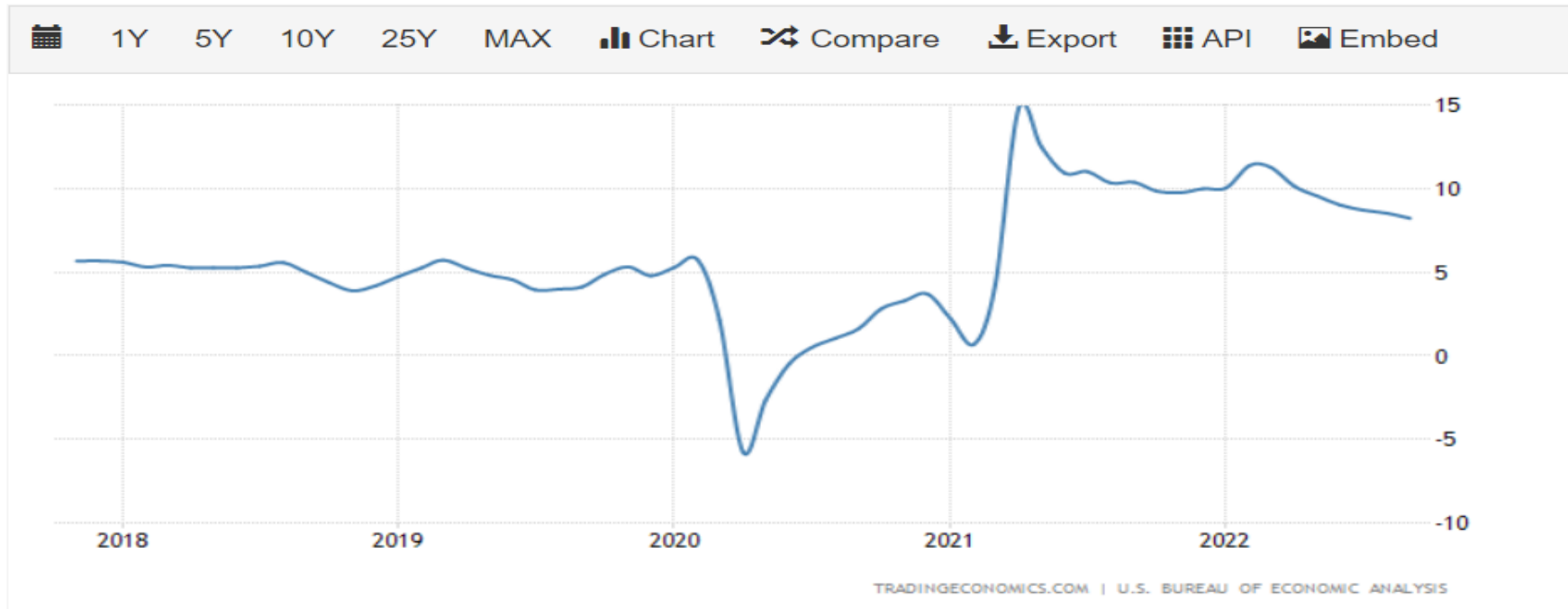
United States Wages and Salaries Growth

Summary

Forecast

Stats

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United Kingdom Average Weekly Earnings Growth

Summary

Calendar

Forecast

Stats

Alerts

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Dein Regal Konfigurator

deinSchränk.de



1Y

5Y

10Y

25Y

MAX



Chart



Compare



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API



Embed



Macroeconomic constellation 2022

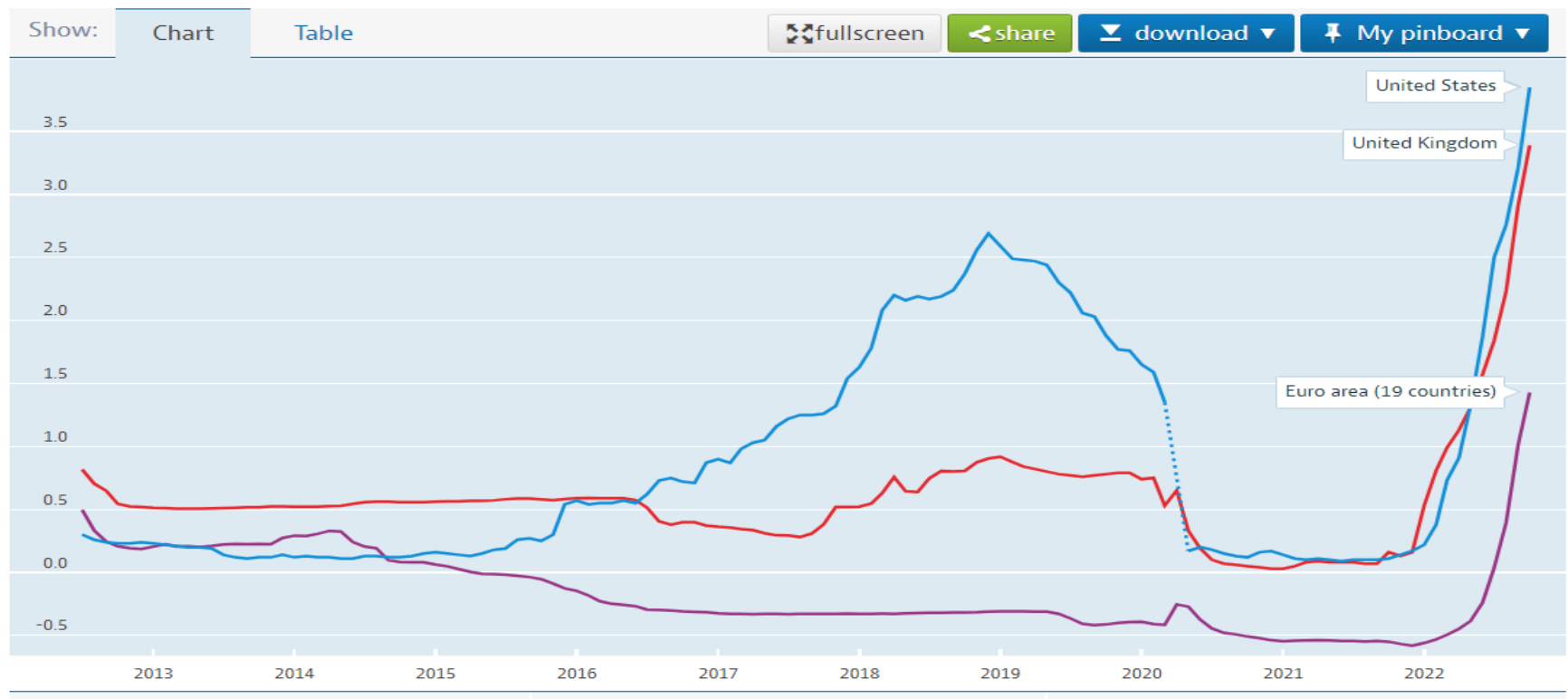
- In Euro area no wage-price spiral yet
- Fiscal stimulation not sufficient – recession will come
- Weak euro, caused by higher interest rates in the US which has a higher danger of a wage-price-spiral
- No good instrument to stabilise the euro except interest rate
- Overall cautious policy of ECB has to be judged as good

Short-term interest rates

three month money market rates

Short-term interest rates Total, % per annum, Jul 2012 – Oct 2022

Source: Finance

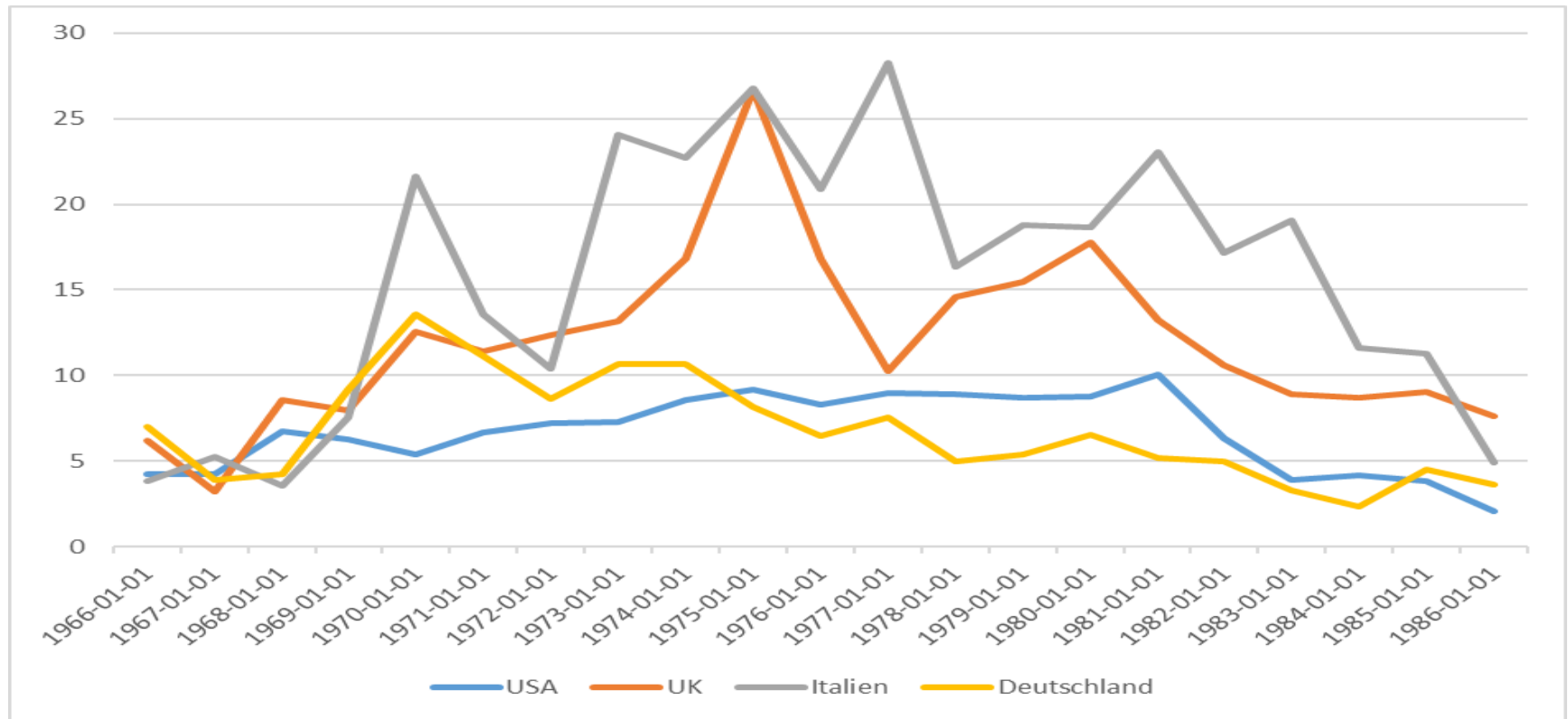


Source: OECD

3. Experience from the 1970s in Western Europe and the US

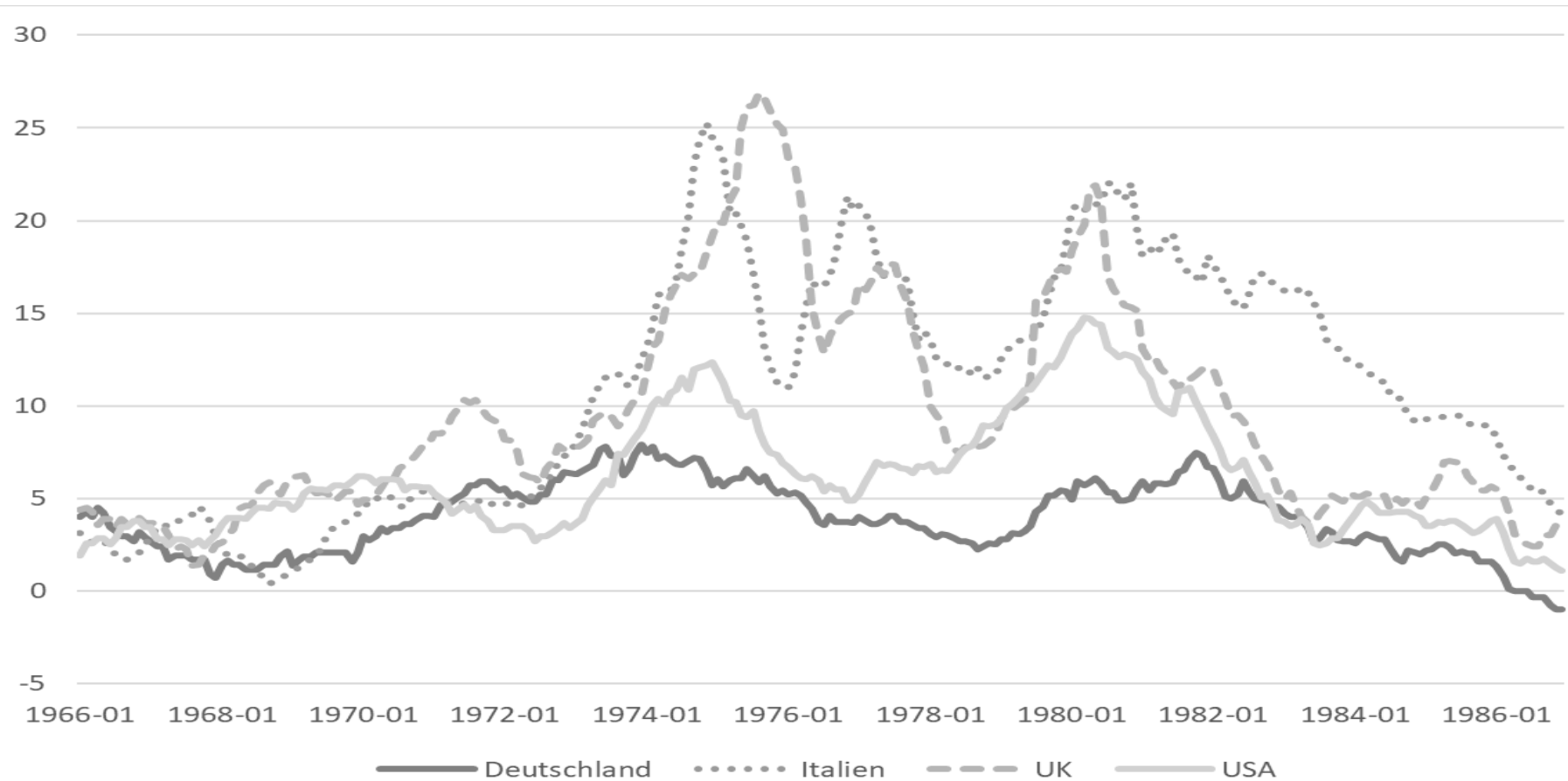
- Oil price shocks 1973 and 1979
- Sharp recessions followed
- Wage-price-spirals existed even before the first oil price shock – attempts of income policy did not work
- Fiscal policy not sufficient to prevent substantial decrease in aggregate demand
- Exchange rate substantially added to inflationary dynamic
- In the end all central banks had to implement restrictive monetary policy

Wages in the manufacturing sector, annual percentage changes



Source: OECD data

Consumer price index, annual changes

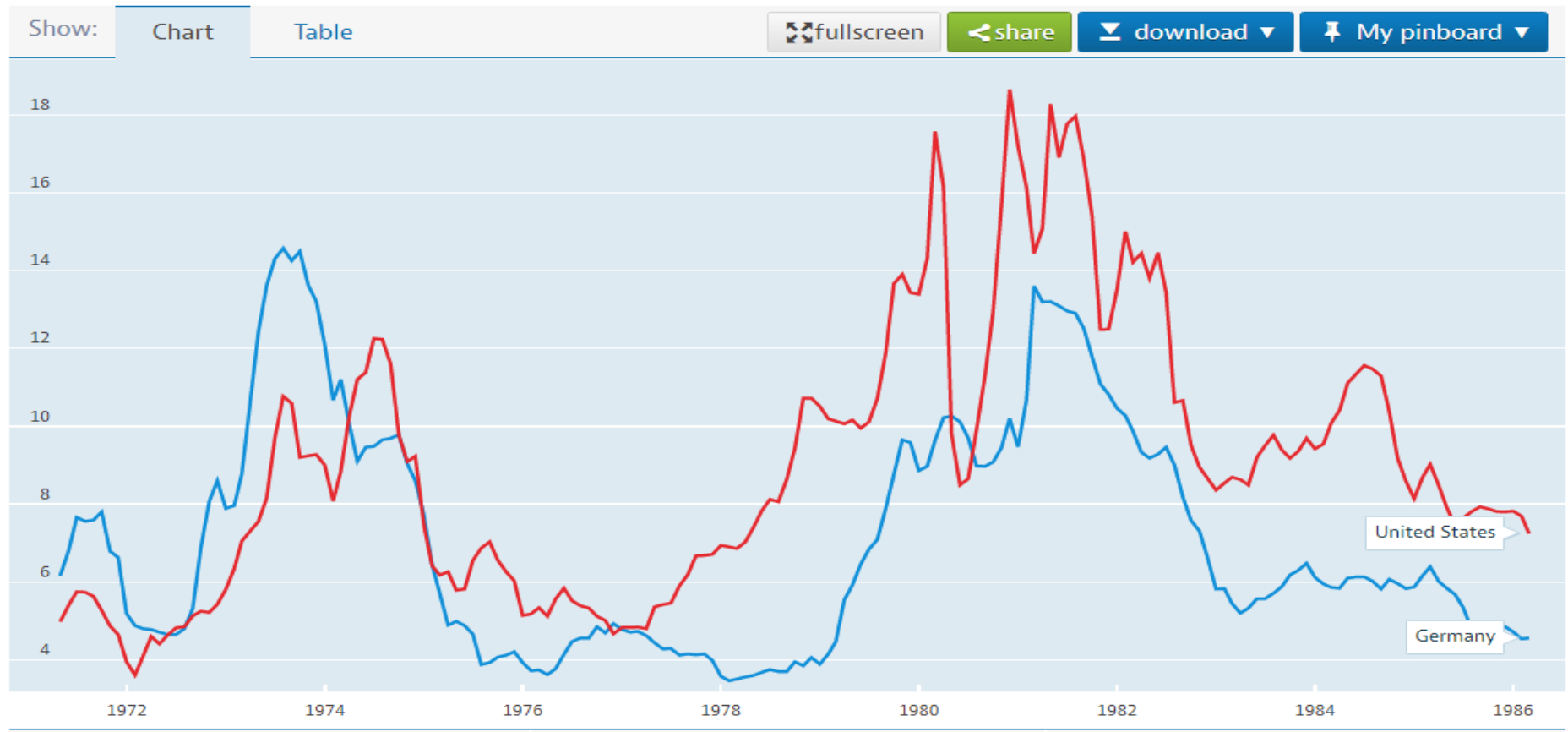


Source: OECD data

Short-term interest rates (money market interest rates)

Short-term interest rates Total, % per annum, May 1971 – Mar 1986

Source: Finance



Source: OECD data

Real GDP growth rates



Source: OECD data

Thanks
