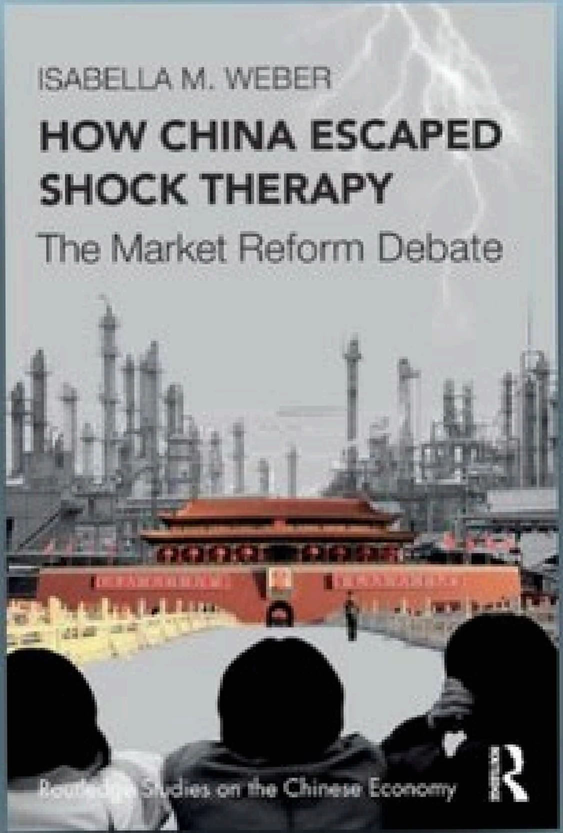
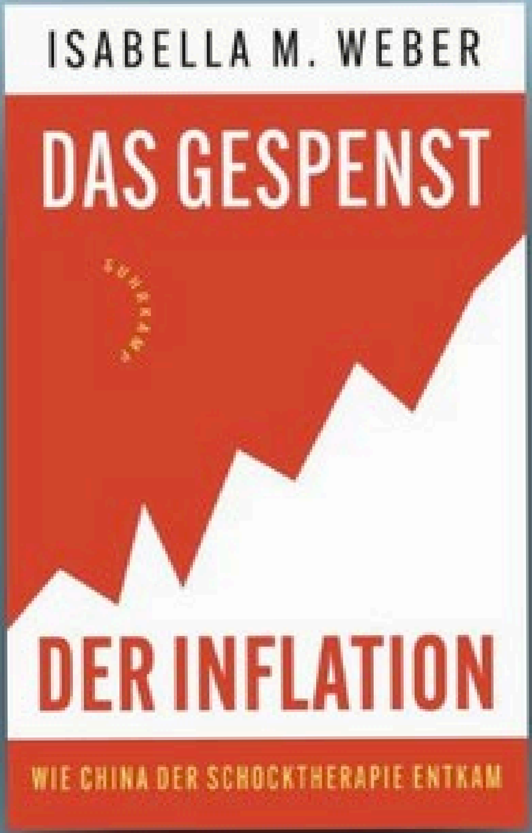
Inflation in Zeiten der Vielfachkrise

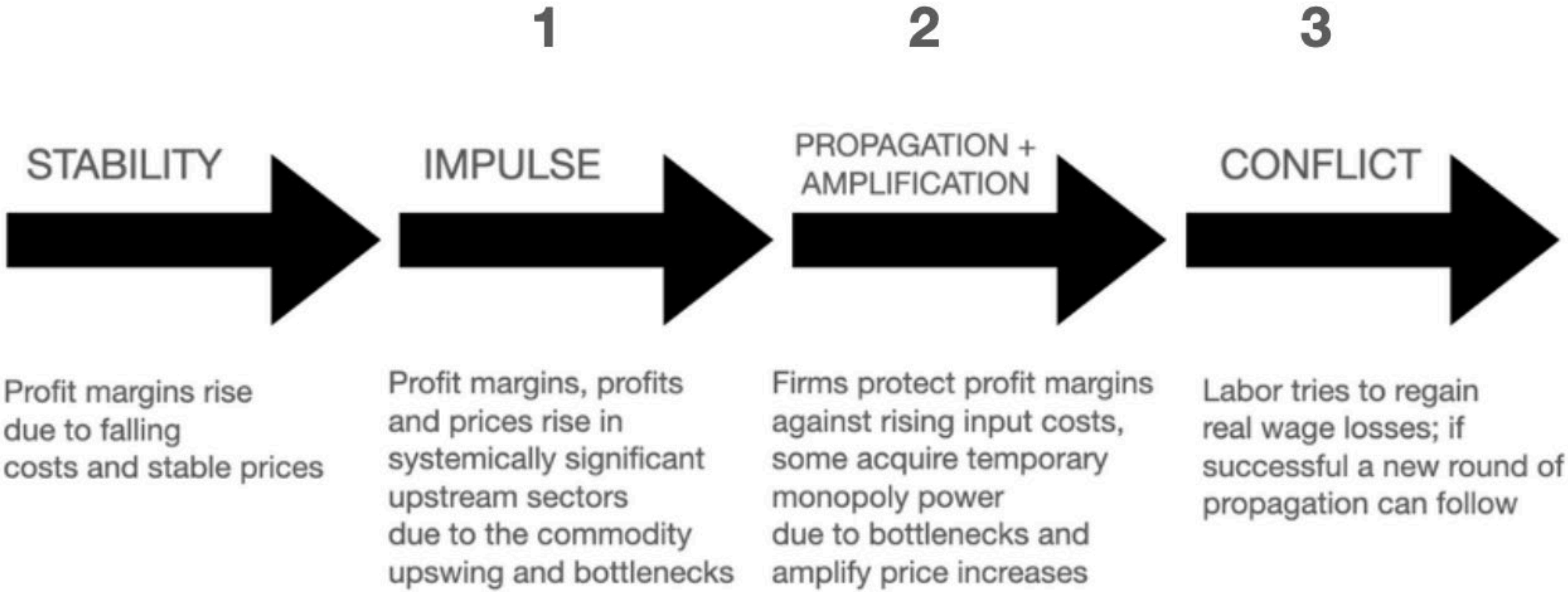
Warum wir wirtschaftspolitischen Katastrophenschutz und ein neues Stabilisierungsparadigma brauchen

Isabella M. Weber, University of Massachusetts Amherst

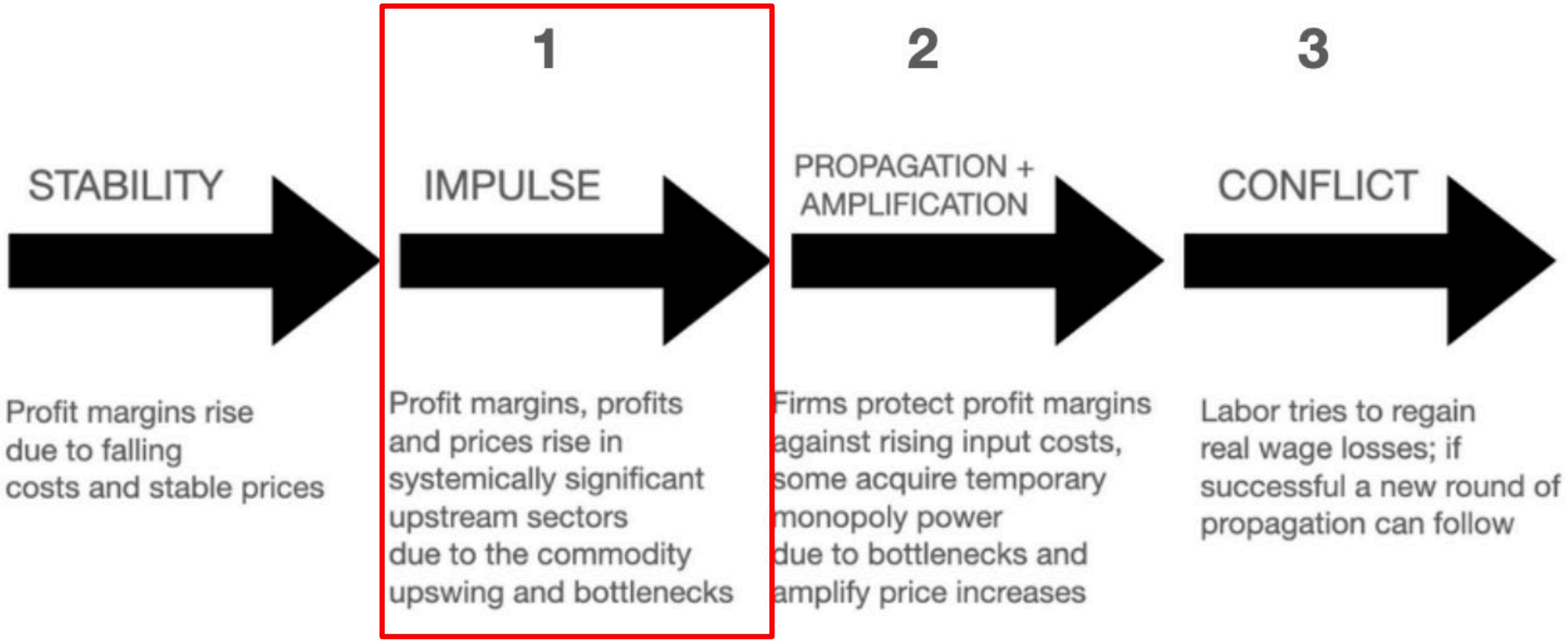
4. Mai 2023 IMK Forum


ISABELLA M. WEBER
HOW CHINA ESCAPED SHOCK THERAPY
The Market Reform Debate
Routledge Studies on the Chinese Economy


ISABELLA M. WEBER
DAS GESPENST DER INFLATION
WIE CHINA DER SCHOCKTHERAPIE ENTKAM



STAGES IN THE INFLATION PROCESS



STAGES IN THE INFLATION PROCESS

Was sind die Bereiche in der Wirtschaft, die das Potenzial haben die gesamte Preisstabilität aus dem Lot zu bringen, und als solches systematisch relevant sind?

Inflation in Times of Overlapping Emergencies: Systemically Significant Prices from an Input-output Perspective*

Isabella M. Weber† Jesús Lara Jauregui‡ Lucas Teixeira§ Luiza Nassif Pires¶

Die Wirtschaft als Kreislauf - Input-Output

“Far from being independent of each other, the cost-price structures of all the separate industries are nothing but links in a vast network which embraces the whole national economy.

…overall dependence among wage rates, profits earned, and taxes paid per unit of output in each of the many separate industries on the one hand and the prices of all different kinds of goods and services sold by these industries on the other.” (Leontief, 1947)

“The effect of an event at any one point is transmitted to the rest of the economy step by step via the chain of transactions that links the whole system together.” (Leontief, 1951)

Methode

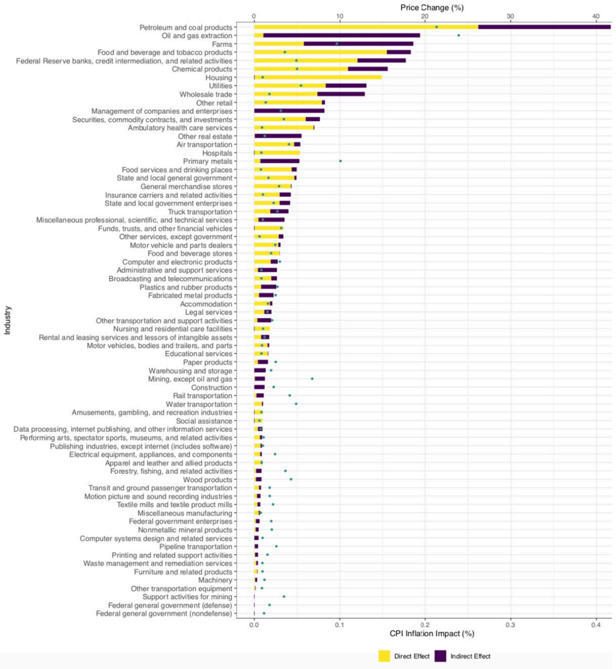
1. Leontief Preis Model
2. Simulation des Inflation Impacts eines Preisschocks für jeden der 72 Sektoren der US Input-Output Tabelle wobei die Größe des Schocks

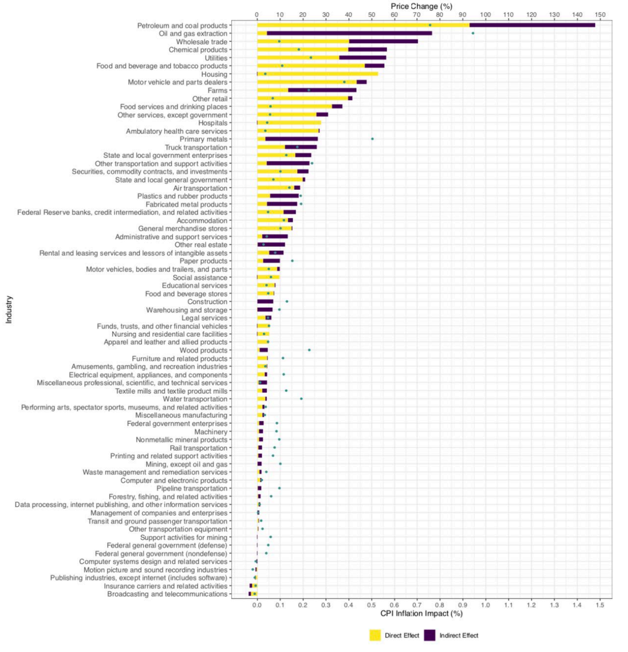
   a) der durchschnittlichen Preisbewegung vor der Pandemie (2000-2019),

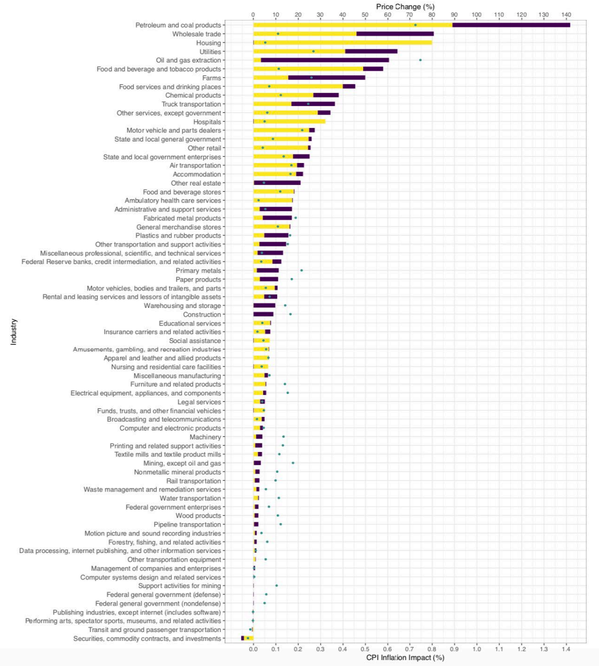
   b) der Preisveränderung im Übergang aus den Shutdowns (Q4 2021 gegenüber Vorjahr), oder

   c) der Preisveränderung nach dem Angriff auf die Ukraine (Q2 2022 gegenüber Vorjahr) entspricht
3. Ranking der Sektoren basierend auf ihrem Inflation Impact

Manche Sektoren sind sehr viel wichtiger als andere…







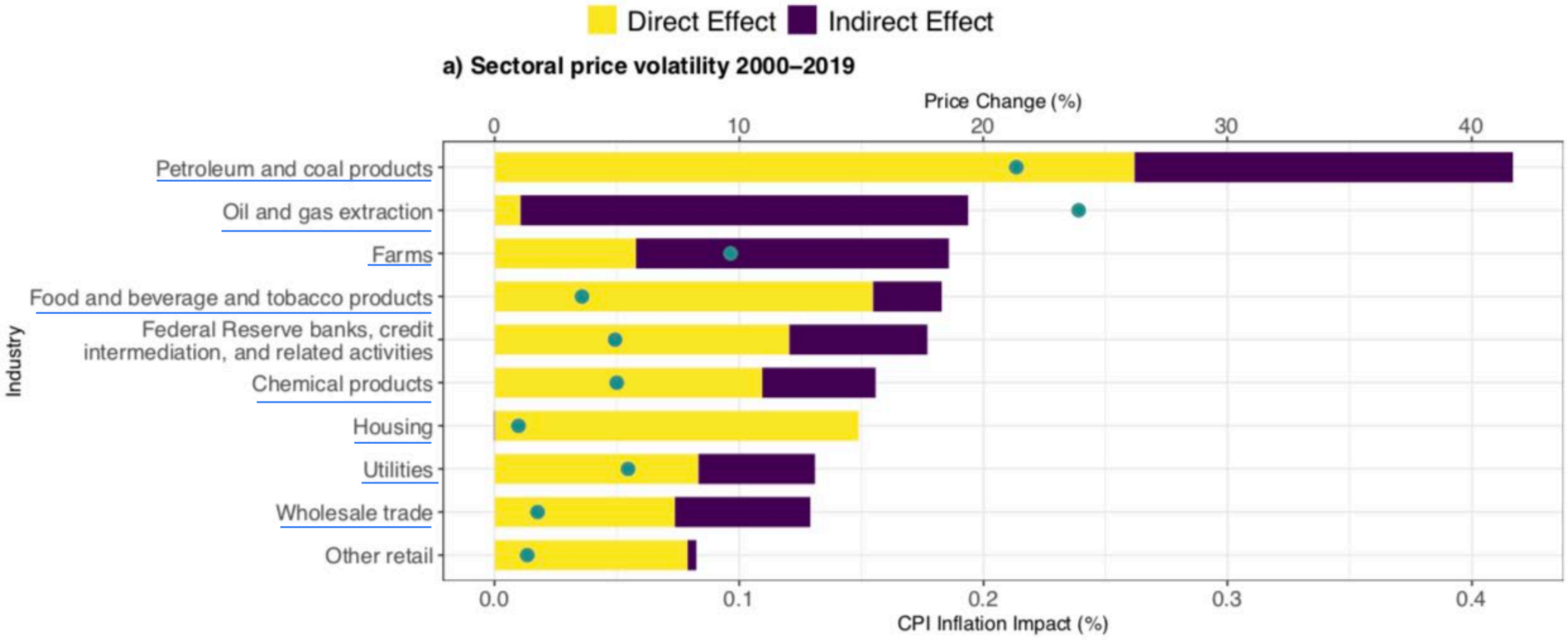
Drei Gruppen

1. Grundbedürfnisse
Housing, Food, Farms, Utilities, Petroleum and gas products

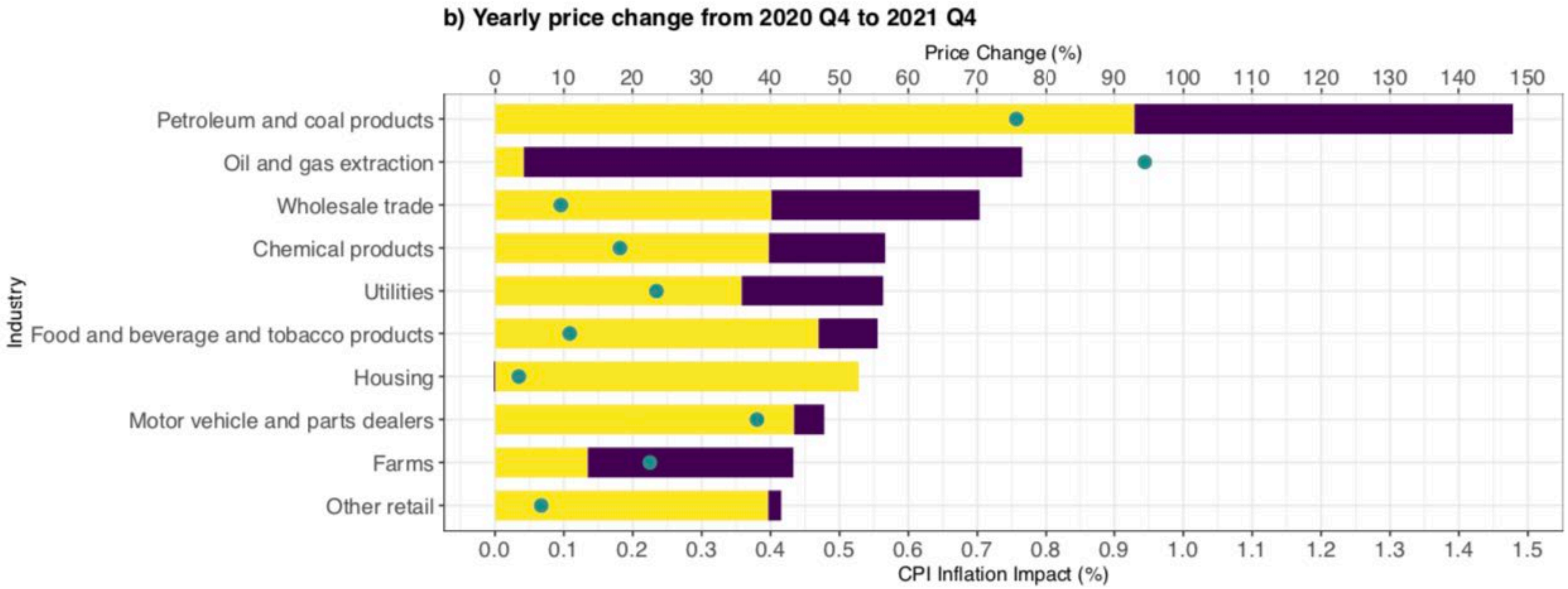
2. Wichtige Vorprodukte
Petroleum and gas products, Oil and gas extraction, Chemical products

3. Handel und Transport
Wholesale trade, (truck transportation)

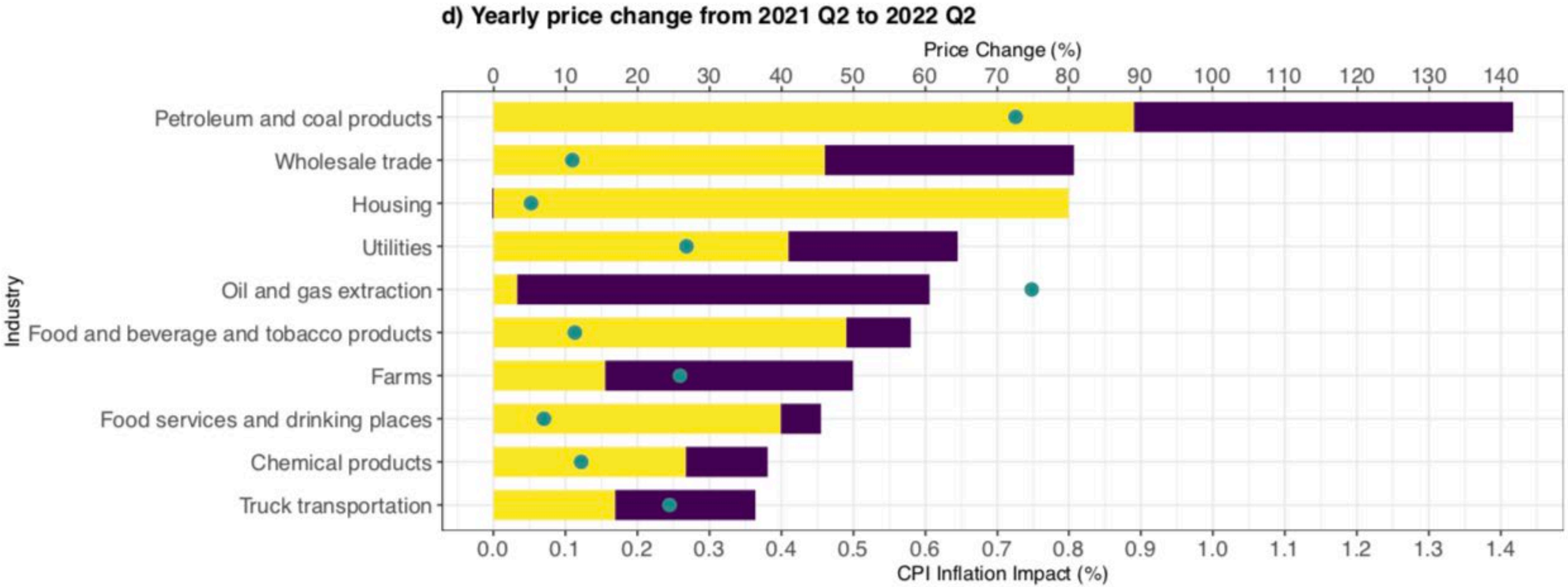
Latent systemisch relevante Sektoren



Systemisch relevante Sektoren in der post-shutdown Inflation

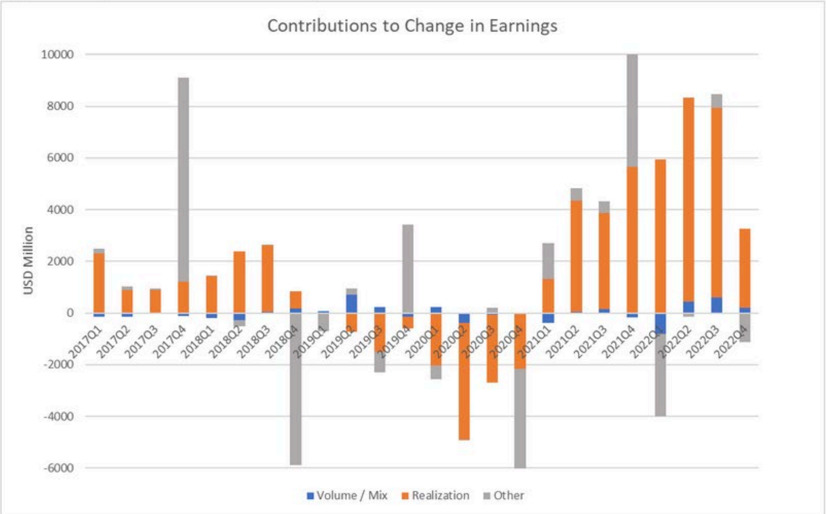


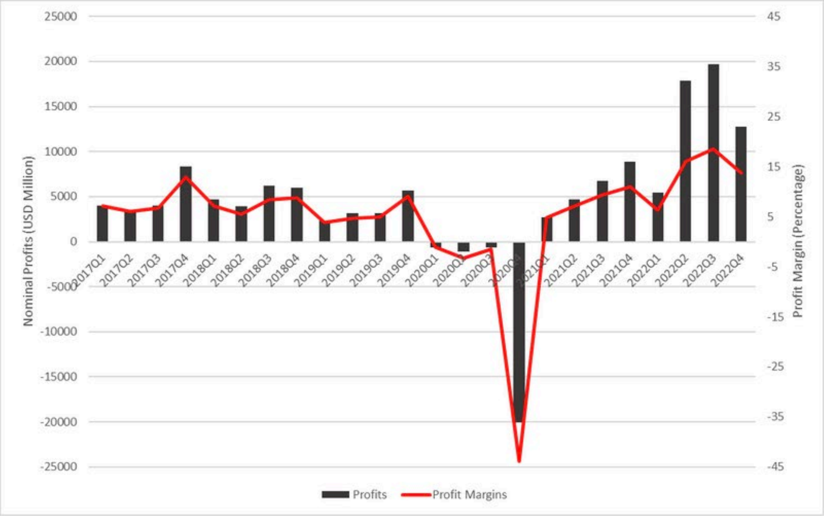
Systemisch relevante Sektoren in der Inflation seit dem Ukrainekrieg



Exxon Mobil

Chief Executive Officer, Darren Woods: ‘we’ve created this hole with a lot more capacity coming off-line without a whole lot of new capacity…. That capacity is not coming on. So we've got this gap, demand recovers, and we don't have the capacity to meet that, which has led to a record, record-high refining margins’

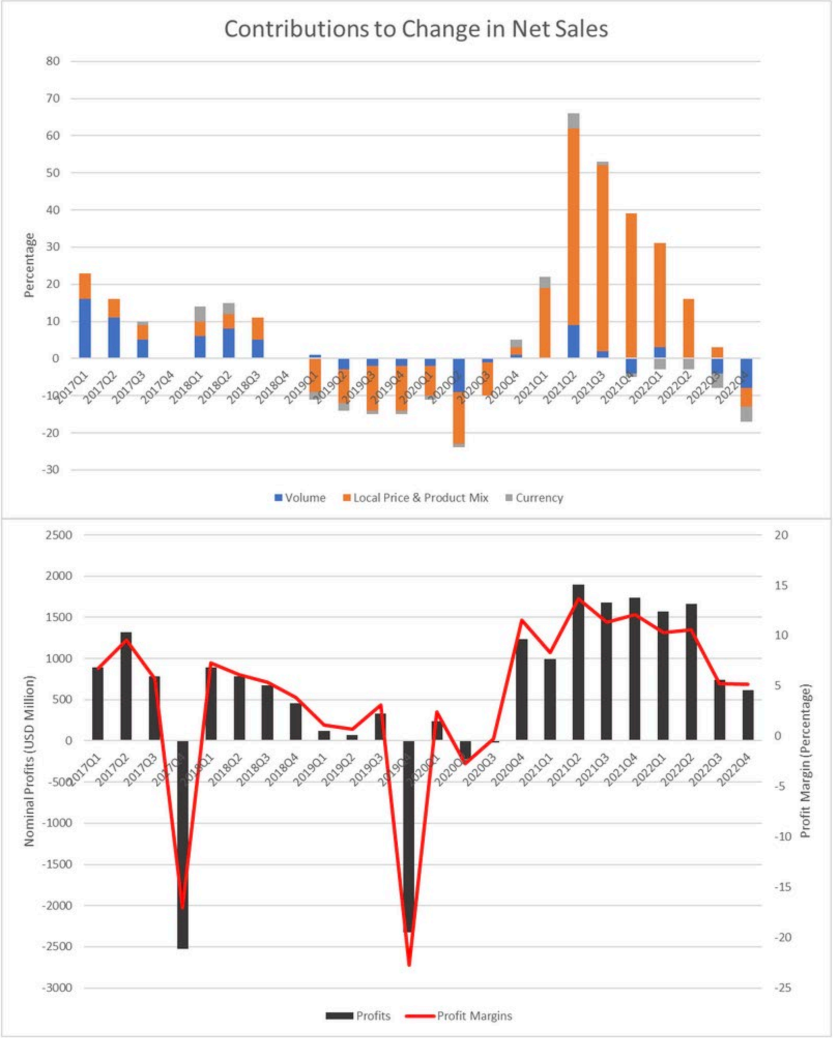




Dow chemicals

Q: '…do you think there's enough supply [disruption due to winter storm Elliot] to kind of rebalance the polyethylene market and move higher from here?'

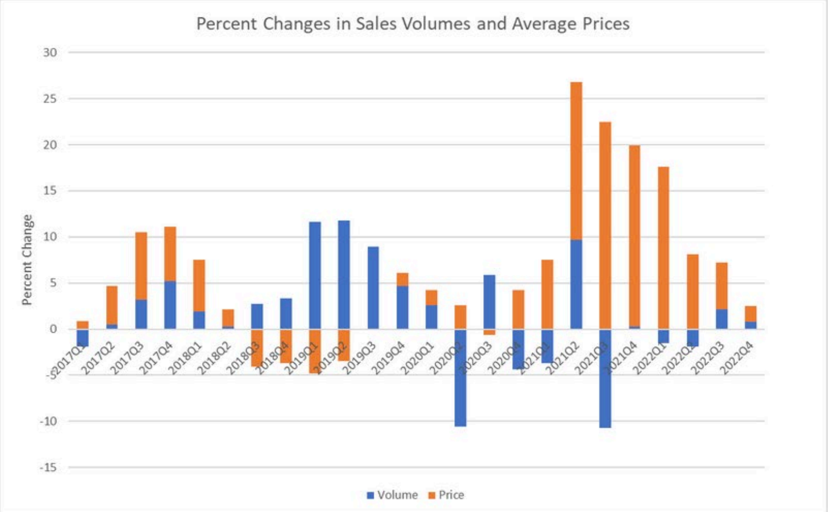
A: 'I think there has been enough, obviously, to give good momentum to these price increases in the first quarter. And so I think we will see the margins expand, as I mentioned earlier on one of the other questions.'

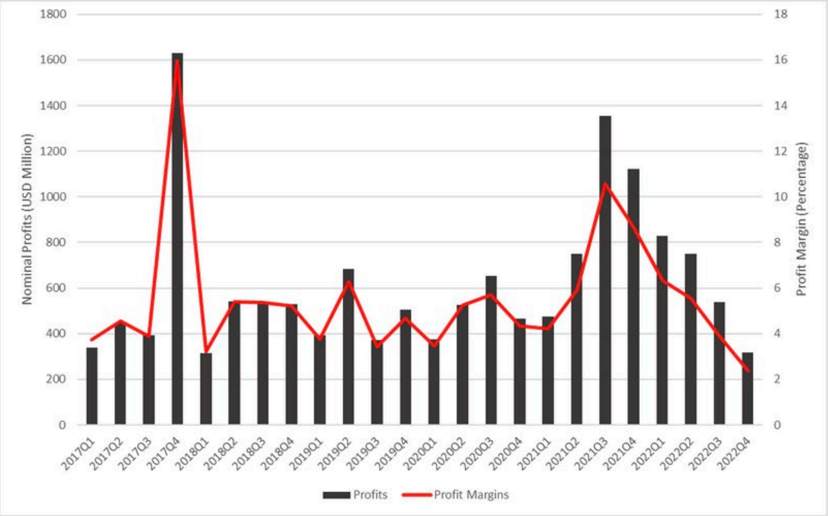


Tyson

‘we took various degrees of pricing in our key categories earlier this fiscal year … Recently, we have seen competitors followed by increasing their prices, nearing Tyson’s price gap relative to our competitors’

‘[we] play across the spectrum from the most value-added products to the most commodity of commodity products and we meet the consumer wherever they are on the value chain’



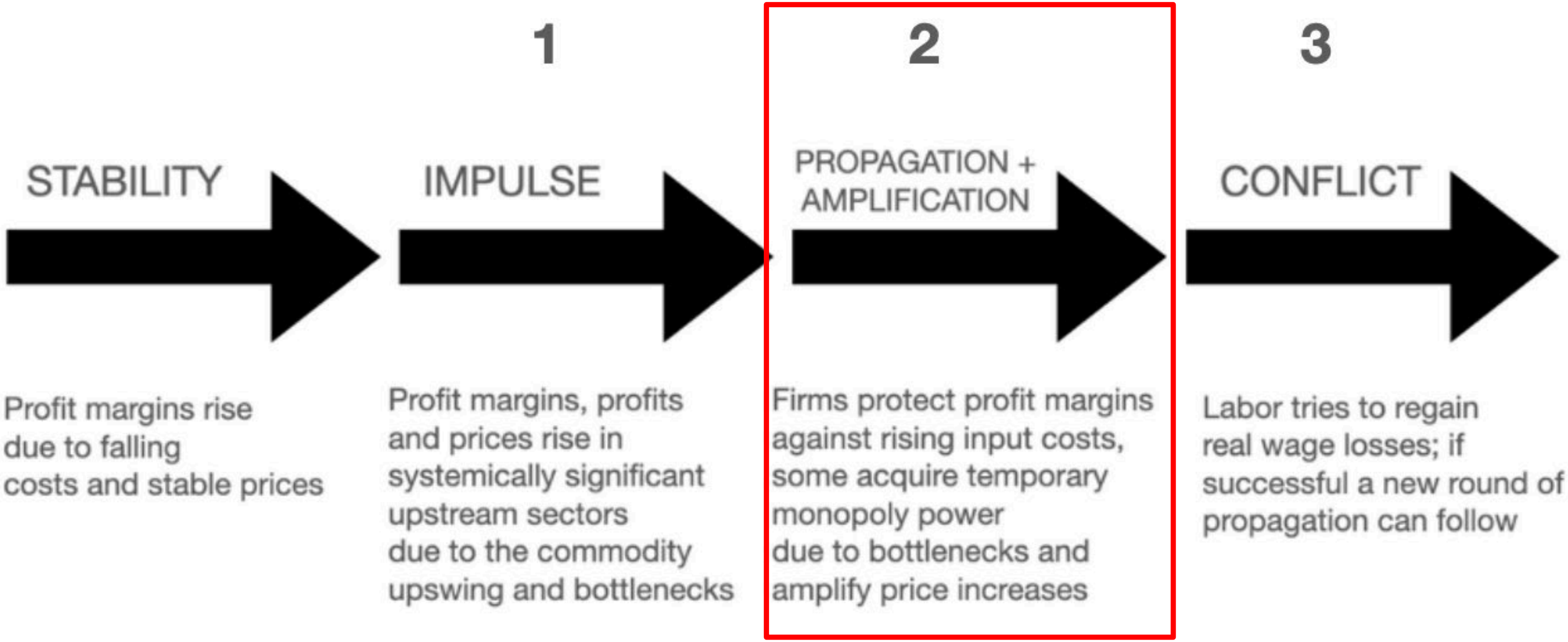


Warum können manche Firmen in Zeiten des Notstandes ihre Preise so erhöhen, dass die Profitmargen steigen?

Sellers' Inflation, Profits and Conflict:
Why can Large Firms Hike Prices in an Emergency?

Isabella M. Weber*, University of Massachusetts Amherst
Evan Wasner, University of Massachusetts Amherst

'...a couple of recent force majeures in the industry …[are] making the price environment even more conducive.'
(Lori Koch, CFO Dupont Nemours)



STAGES IN THE INFLATION PROCESS

Strategisches Preissetzen

- Firmen mit Preissetzungsmacht senken Preise normalerweise nicht, erhöhen die Preise aber auch nur wenn sie davon ausgehen, dass ihre Wettbewerber das gleiche tun.

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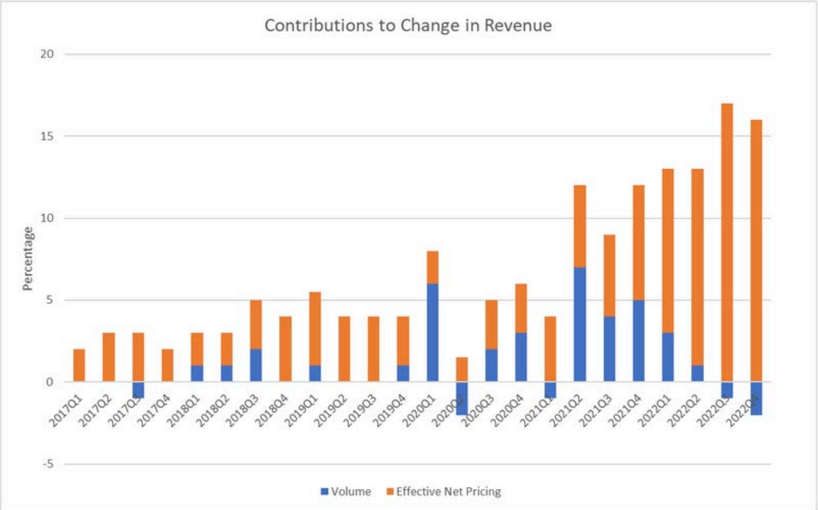
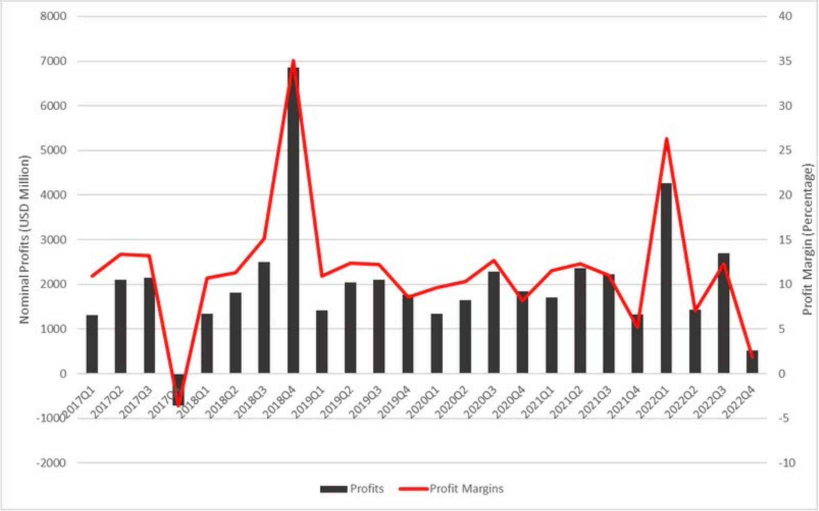
- Preise sind Teil einer sozialen Beziehung zwischen Verkäufern und Käufern. Nachrichten zu Kostenschocks z.B. aufgrund von Krieg können Preissteigerungen legitimieren.

Pepsico

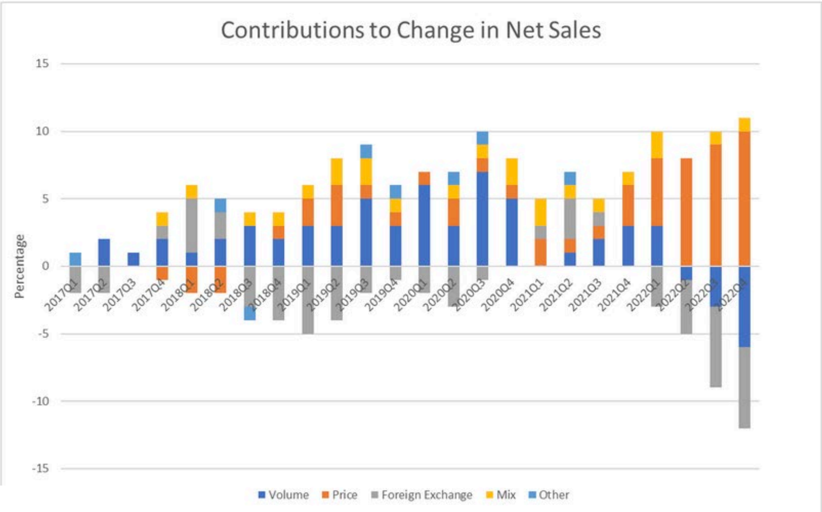
‘how we’re going to deal with pricing in the coming months, I would say obviously same as everybody else, we're seeing inflation in our business …across many of our raw ingredients and some of our inputs …We’re working with our partners …to make the right decisions in pricing to [keep] the consumers with us whilst we improve our margin’

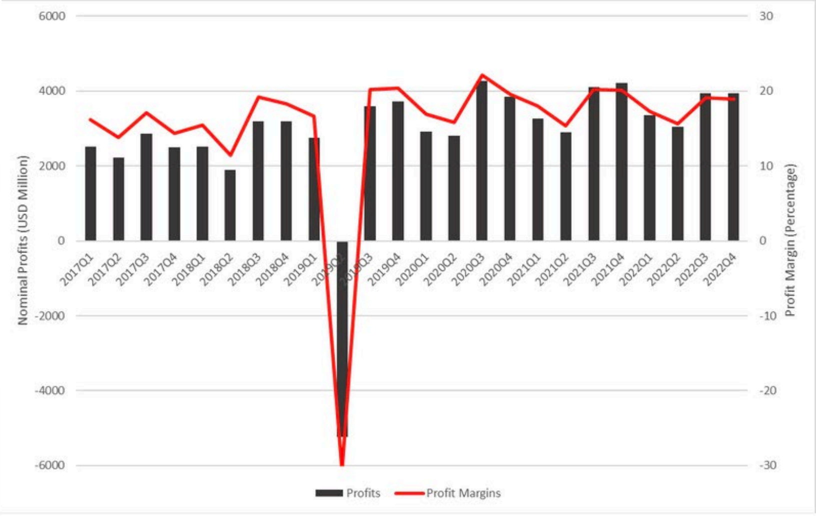




Procter and Gamble

‘we’re better positioned for dealing with an inflationary environment… than we’ve ever been before, starting with the portfolio that is is…focused on daily-use categories, health, hygiene, and cleaning, that are essential to the consumer versus discretionary categories which in these environments are the first ones to lose focus from the consumer’





Zone Europe

Sales	CHF 4.9 bn
Real internal growth	**-1.0%**
Pricing	**10.7%**
Organic growth	**9.7%**

- Strong organic growth led by pricing
- Growth supported by e-commerce momentum and out-of-home channels
- Purina PetCare, confectionery and coffee were the main growth contributors

Figure 1: After-tax profit margins of non-financial corporate business

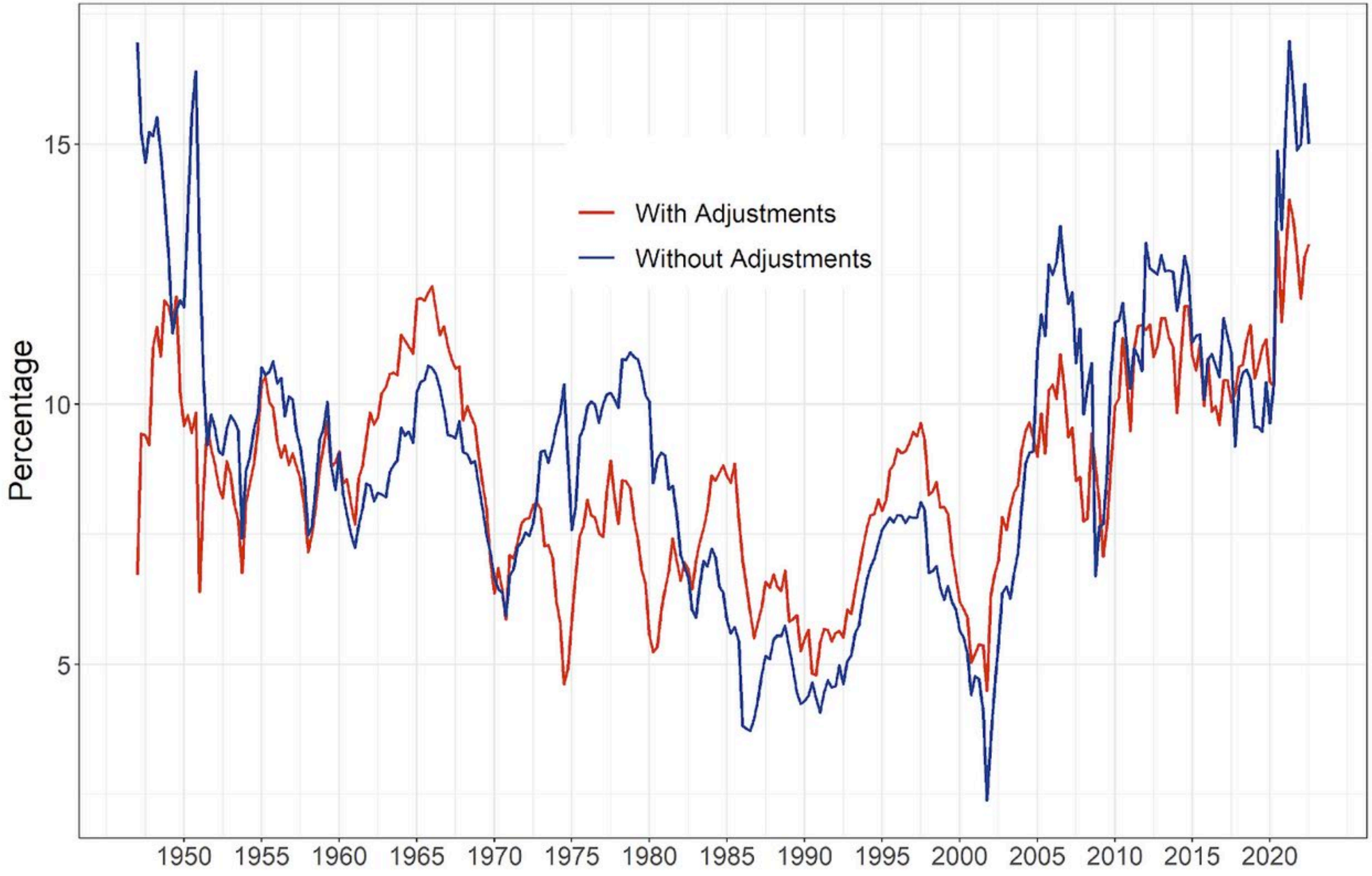


Figure 2: Capture of Annual and Quarterly Inflation by Profits and Wages

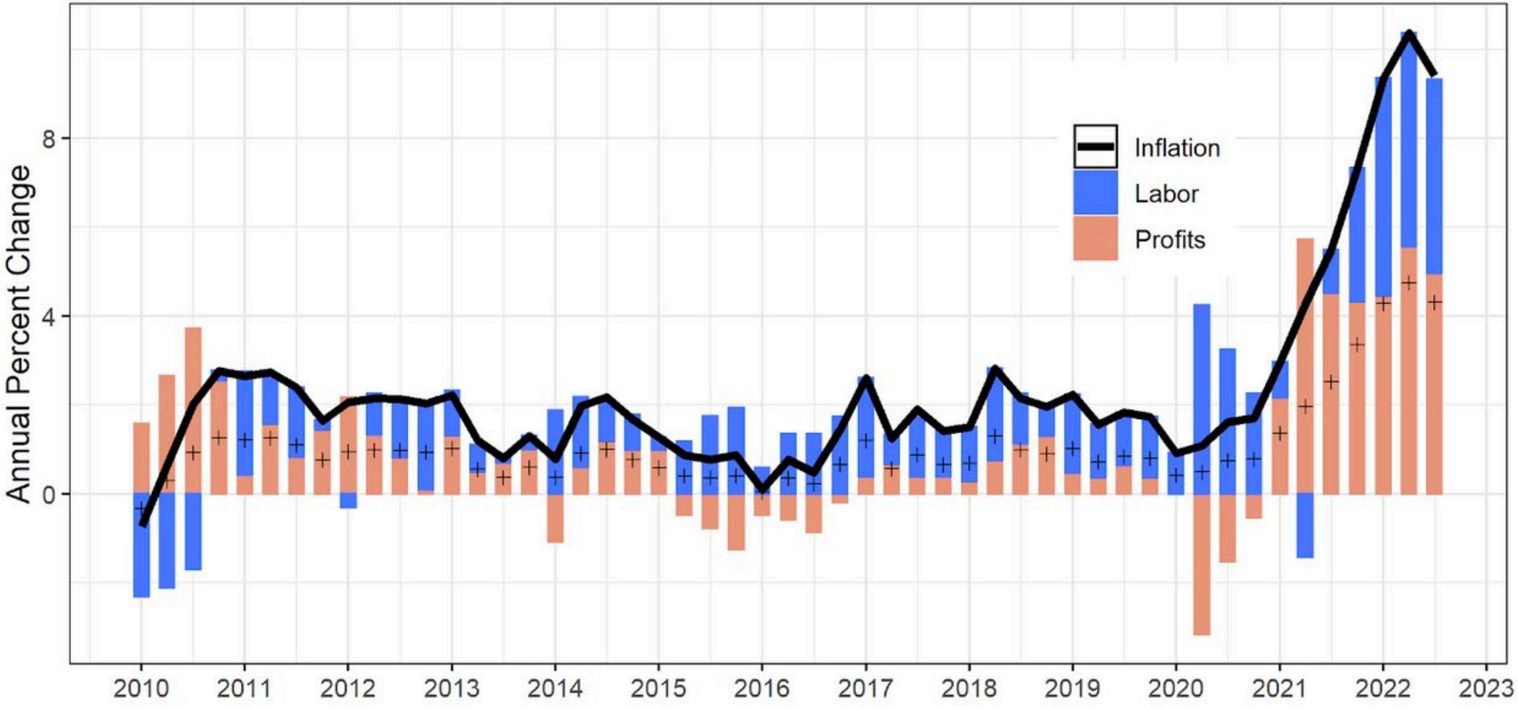
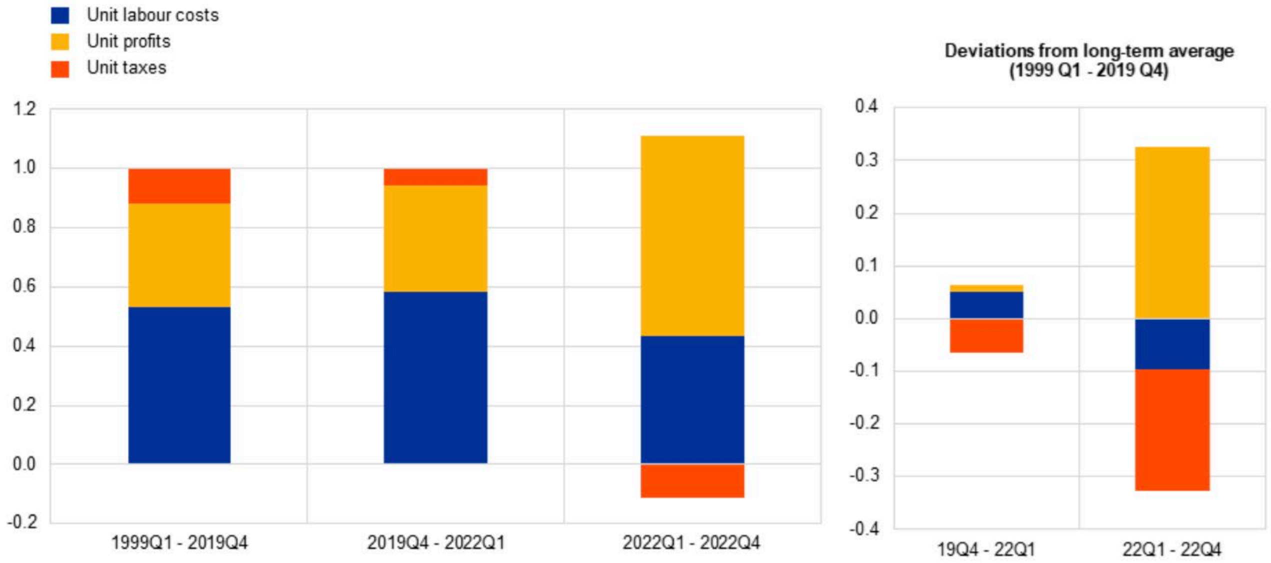


Chart 3

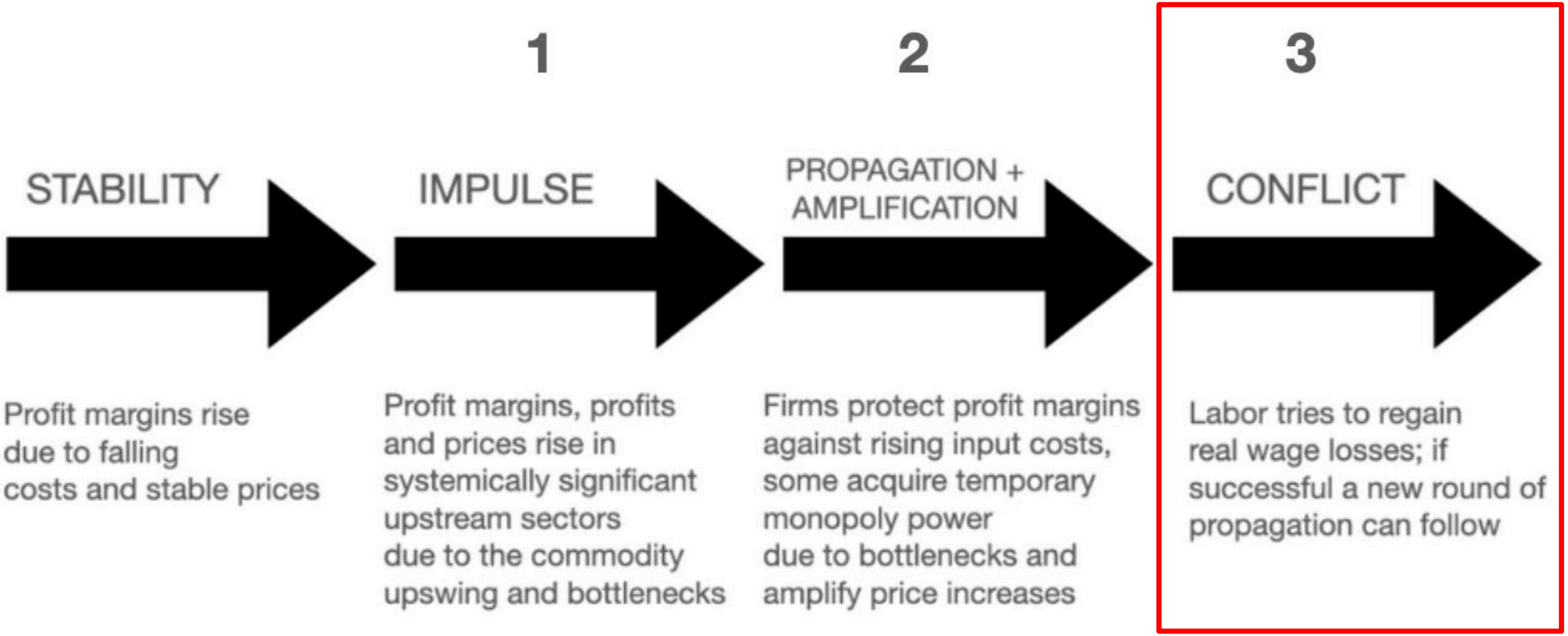
Contributions of unit profits and unit labour costs to domestic price pressures as reflected in the GDP deflator

(relative shares and deviations)



Sources: Eurostat and ECB calculations.

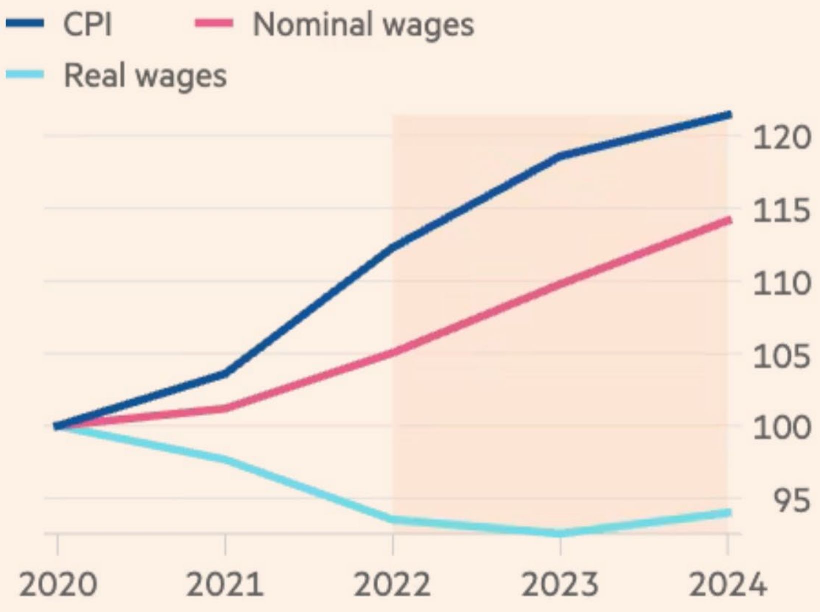
Notes: Unit taxes reflect taxes minus subsidies. In case the contribution of subsidies on products is larger than the contribution of indirect taxes, the unit tax contribution turns negative. In the right panel of Chart 3 unit taxes are negative as their contribution to the GDP deflator was smaller in the two periods 2019 Q4-2022 Q1 and 2022 Q1-2022 Q4 than in the long-term average (1999 Q1-2019 Q4).



STAGES IN THE INFLATION PROCESS

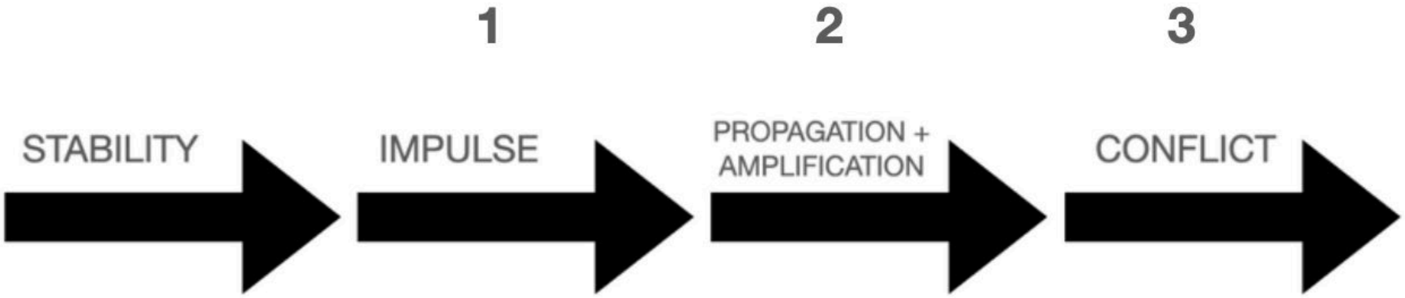
Eurozone households will continue to feel much poorer than before the pandemic, despite fall in inflation

Indices (2020 =100)



Shaded area indicates forecasts
Sources: Consensus Economics, Eurostat

Wirtschaftspolitischer Katastrophenschutz



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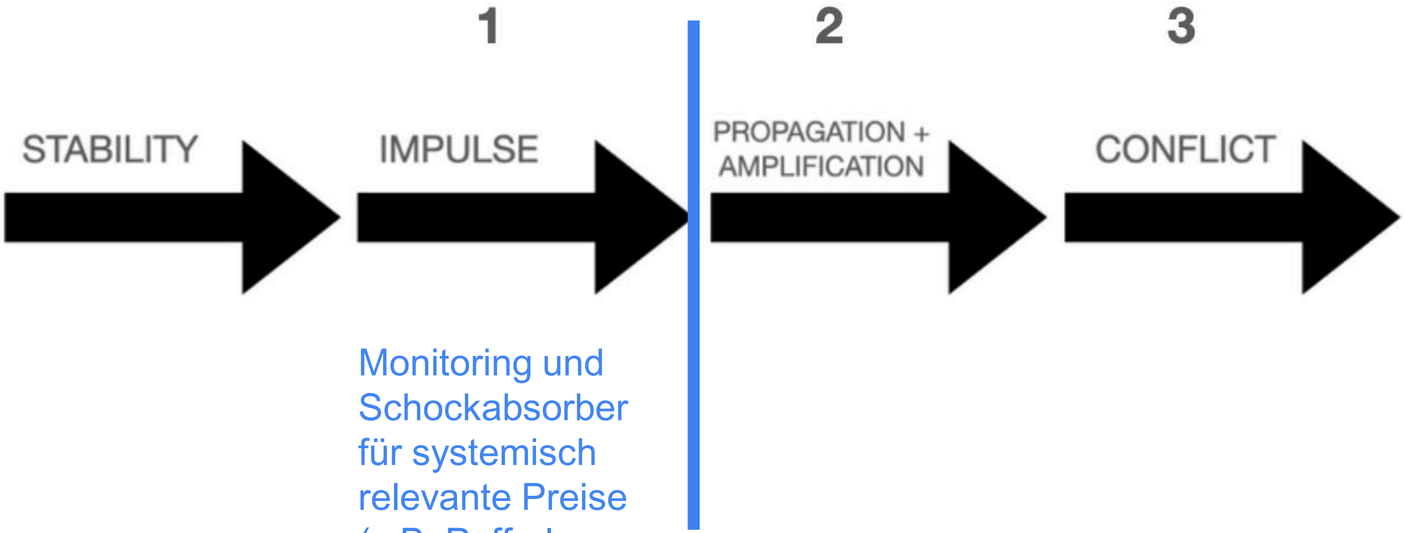
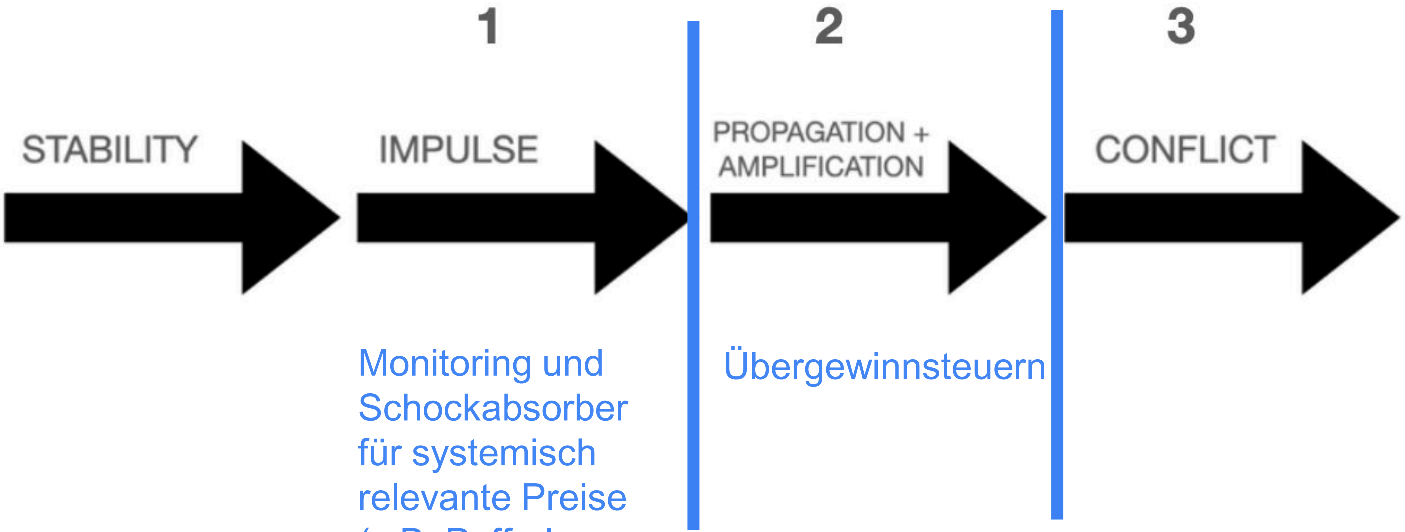


Monitoring und Schockabsorber für systemisch relevante Preise (z.B. Pufferlager, Verbot von Preistreiberei, Notfallpreisbremsen)

Wirtschaftspolitischer Katastrophenschutz

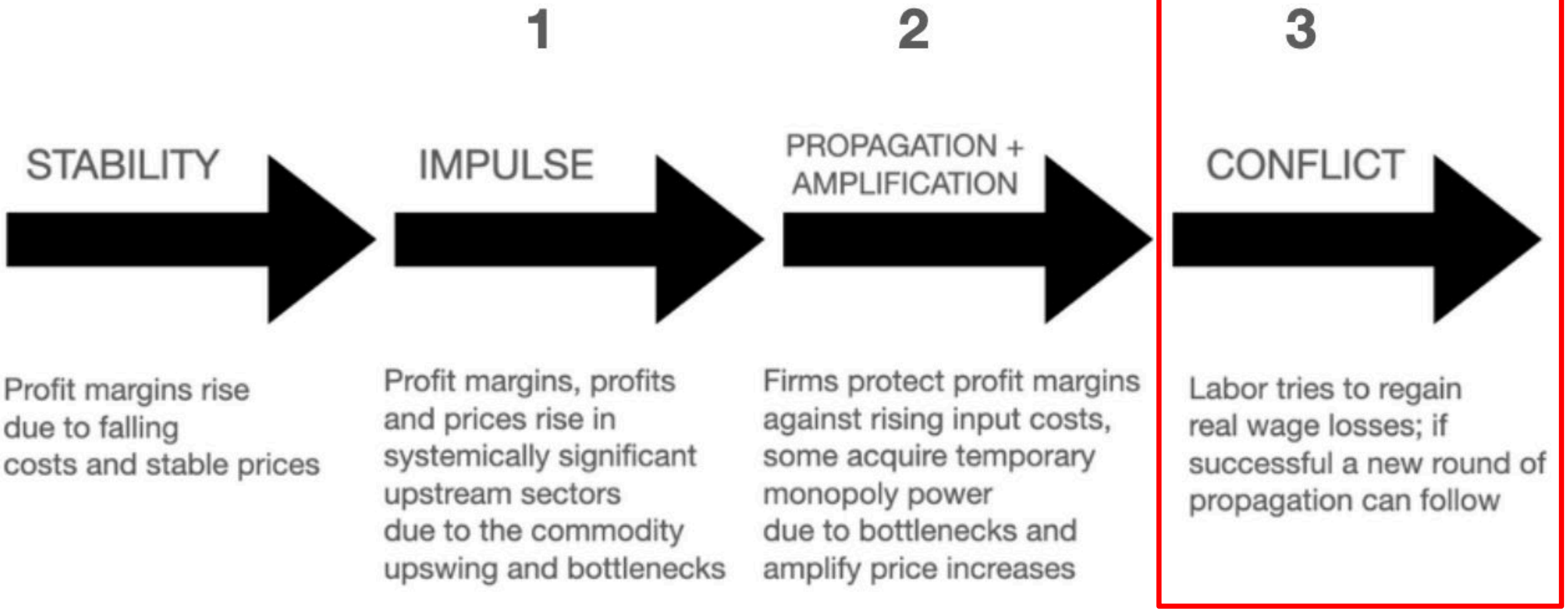


Monitoring und Schockabsorber für systemisch relevante Preise (z.B. Pufferlager, Verbot von Preistreiberei, Notfallpreisbremsen)

Übergewinnsteuern

Schluss

- Wenn Preisschocks systemisch werden, ist es nicht möglich jedes Mal mit Zinserhöhungen zu reagieren, insbesondere dann nicht wenn die Wirtschaft bereits kurz vor einer Rezession steht, eine Bankenkrise droht und in der Zukunft die Zinsen ggf. bereits hoch sind wenn der Schock eintritt.
- Es braucht ein neues wirtschaftliches Stabilisierungsparadigma, das vom Katastrophenschutz in anderen Bereichen lernen kann. Das heißt: Monitoring und Vorbereitung auf Shocks in systemisch relevanten Bereichen sowie Verbesserung der Resilienz (das muss nicht national sein!), so dass Schocks da absorbiert werden können wo sie treffen.
- Preiskontrollen sind ein Notfallmittel wenn der Katastrophenschutz versagt. Sie können Zeit kaufen für Maßnahmen, die den Schock ausbügeln. Ihre Effektivität kommt darauf an wie die gekaufte Zeit genutzt wird.



STAGES IN THE INFLATION PROCESS

Zone North America

Sales	CHF 6.3 bn
Real internal growth	-0.8%
Pricing	12.4%
Organic growth	**11.6%**

- Strong organic growth, driven by pricing. RIG recovering strongly versus Q4-22
- E-commerce momentum and recovery of out-of-home channels supported growth
- Purina PetCare, coffee creamers and frozen food were the key growth drivers

Opinion Inflation

This article is more than **1 year old**

Could strategic price controls help fight inflation?

Isabella Weber

To prevent inflation after World War II, America's leading economists recommended strategic price controls. Is there a case for doing so today, too?

Wed 29 Dec 2021 11.20 GMT

Today economists are divided into two camps on the inflation question: team Transitory argues we ought not to worry about inflation since it will soon go away. Team Stagflation urges for fiscal restraint and a raise in interest rates. But there is a third option: the government could target the specific prices that drive inflation instead of moving to austerity which risks a recession.

To use a metaphor: if your house is on fire, you would not want to wait until the fire eventually dies out. Neither do you wish to destroy the house by flooding it. A skillful firefighter extinguishes the fire where it is burning to prevent contagion and save the house. History teaches us that such a targeted approach is also possible for price increases.

Isabella M. Weber
@IsabellaMWeber

Gas prices are a key driver of inflation in Germany. @SDullien @IMKFlash & I propose a cap on the gas price for households' basic needs as an emergency measure @SZ_Wirtschaft (one of Germany's most important national newspapers). This thread shares some key points in English:

1:11 PM · Feb 12, 2022

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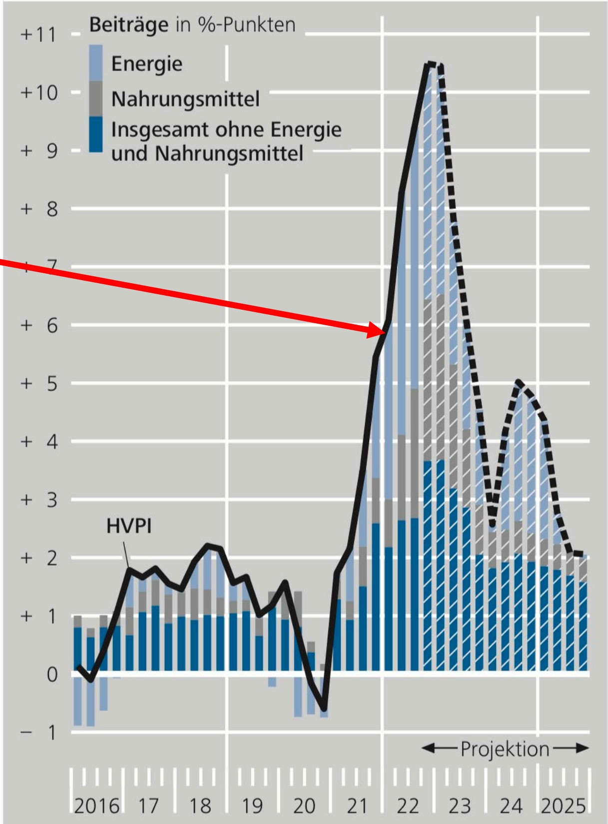
Beiträge der Komponenten zur HVPI-Gesamtrate

vierteljährlich, Veränderung gegenüber Vorjahr in %



Quelle: Statistisches Bundesamt, eigene Berechnungen und eigene Projektionen.

Deutsche Bundesbank

GASPREISBREMSE

ENDE DER GASPREISBREMSE

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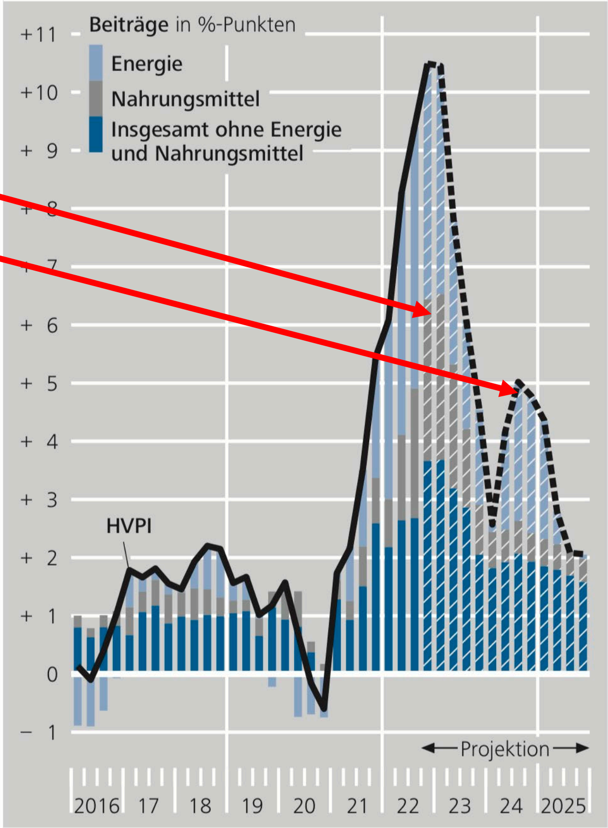
vierteljährlich, Veränderung gegenüber Vorjahr in %



Quelle: Statistisches Bundesamt, eigene Berechnungen und eigene Projektionen.

Deutsche Bundesbank

Gaspreisbremse

- Preissignale da wirken lassen wo sie wirken können und da Schutz bieten wo eine Anpassung nicht möglich ist
- Versicherungsprinzip: Früher wäre sehr viel besser gewesen, aber spät ist besser als nie
- Wirkung jenseits von Preisen: Planungssicherheit und Nachfrageeffekte

Beiträge der Komponenten zur HVPI-Gesamtrate

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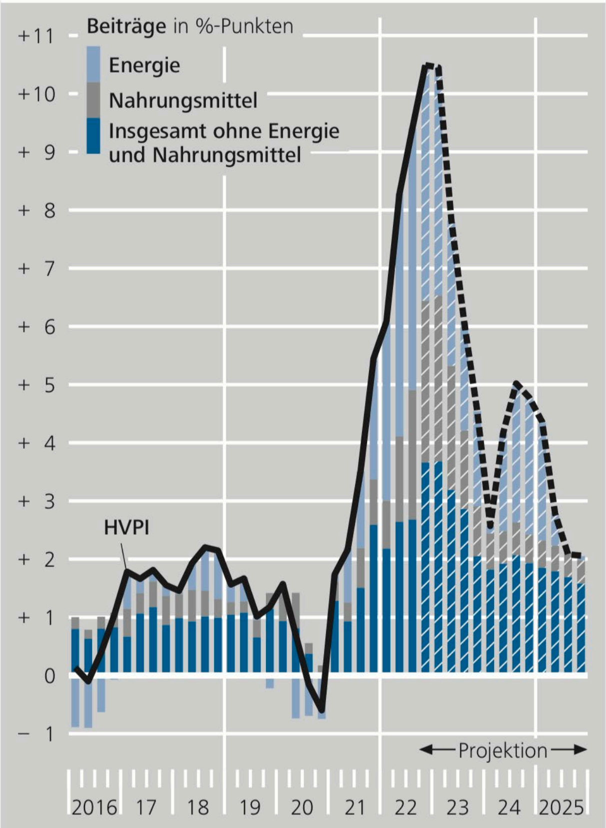


Quelle: Statistisches Bundesamt, eigene Berechnungen und eigene Projektionen.

Deutsche Bundesbank

Strategic pricing

First, firms typically do not lower prices and, aside from the case of new innovative product lines, raise prices only if they expect other firms to do the same – in other words, they stick to the pack.

Second, besides a formal cartel and norms of price leadership, sector-wide cost increases can function as a coordinating mechanism for price hikes within the industry, since all firms want to protect their profit margins and know that the other firms pursue the same goal. Firms that do not follow this rule can be penalized by financial investors.

Third, if demand outstrips existing capacity by a wide margin – either because of a supply or a demand shock or both – firms can gain temporary monopoly power which allows them to hike prices in ways that increase profit margins. Absent such a temporary monopoly, firms can increase profit margins by lowering costs.

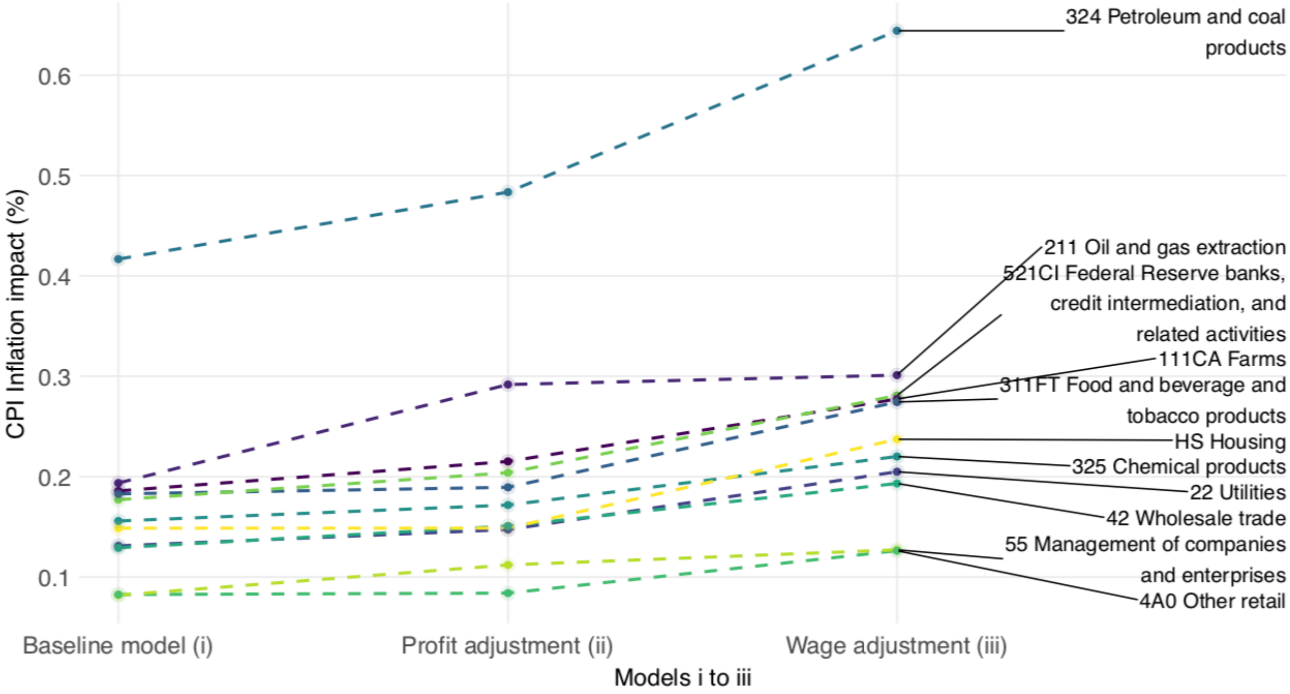
Modeling conflict inflation

The model outlined above assumes that nominal wages and profits remain constant through price adjustments in response to an increase in input costs due to a sector-specific price shock.

We can extend the model to incorporate a **conflict inflation scenario** in which firms and workers respond to the price shock and subsequent price adjustments by trying to regain their initial position. We develop three models:

(i) No profit or wage adjustment (this is the model outlined before)
(ii) Industries adjust their prices to keep the profit share of the value of their output constant
(iii) Wages adjust to keep real wages constant

Profit and wage adjustments to compensate for price rises



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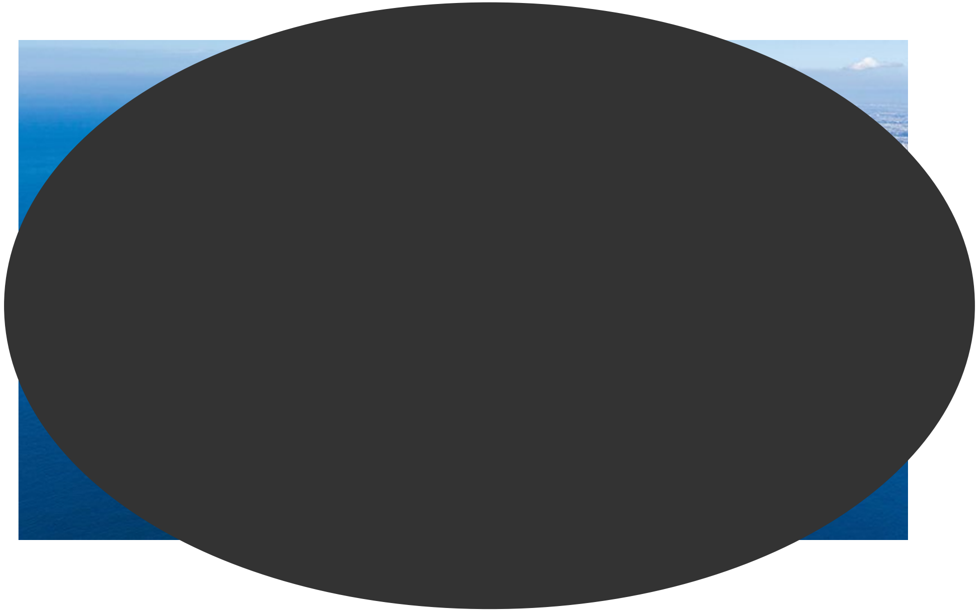
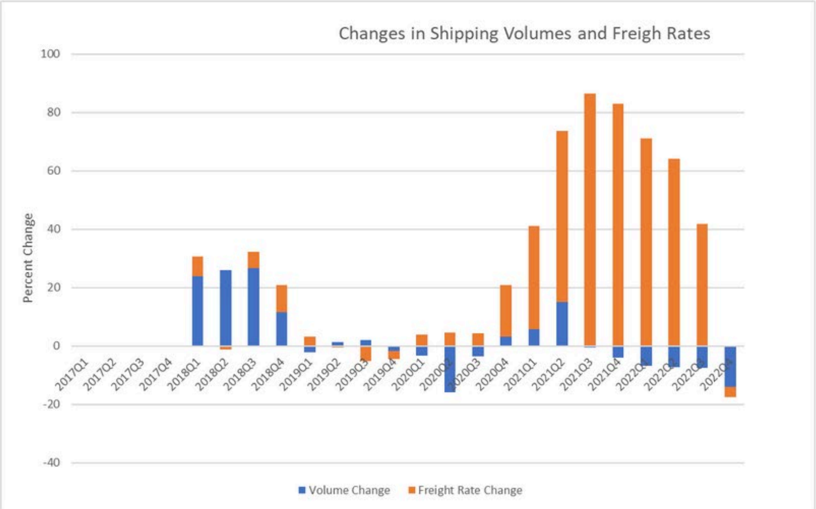
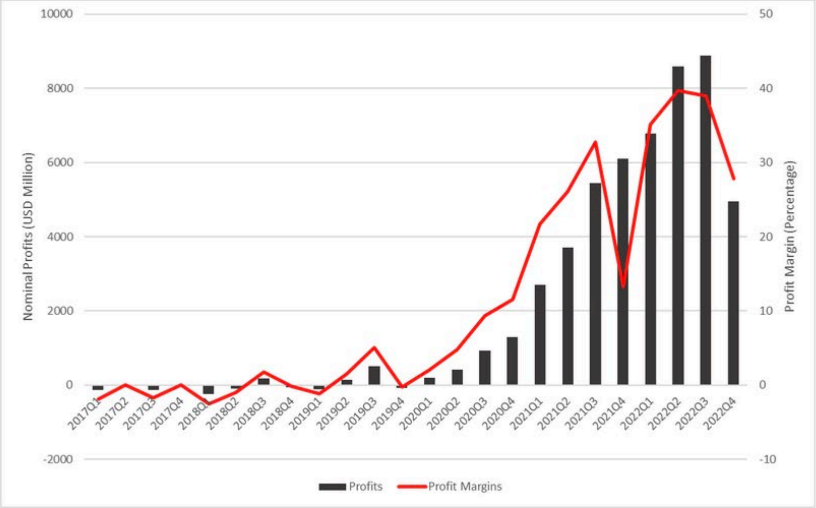
Mærsk

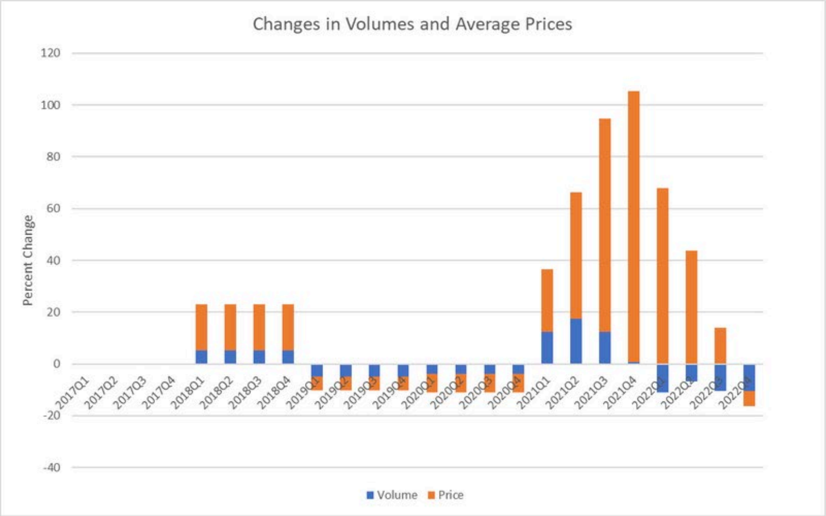


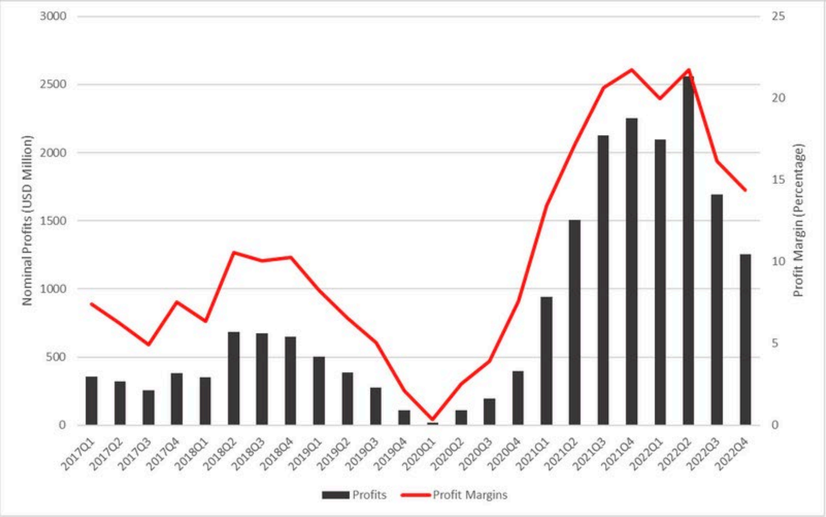

Changes in Shipping Volumes and Freigh Rates
Percent Change
100
80
60
40
20
0
-20
-40
2017Q1
2017Q2
2017Q3
2017Q4
2018Q1
2018Q2
2018Q3
2018Q4
2019Q1
2019Q2
2019Q3
2019Q4
2020Q1
2020Q3
2020Q4
2021Q1
2021Q2
2021Q3
2021Q4
Volume Change
Freight Rate Change


Nominal Profits (USD Million)
Profit Margin (Percentage)
10000
8000
6000
4000
2000
0
-2000
50
40
30
20
10
0
-10
2017Q1
2017Q2
2017Q3
2017Q4
2018Q2
2018Q3
2018Q4
2019Q1
2019Q2
2019Q3
2019Q4
2020Q1
2020Q2
2020Q3
2020Q4
2021Q1
2021Q2
2021Q3
2021Q4
2022Q1
2022Q2
2022Q3
2022Q4
Profits
Profit Margins

Nucor Steel

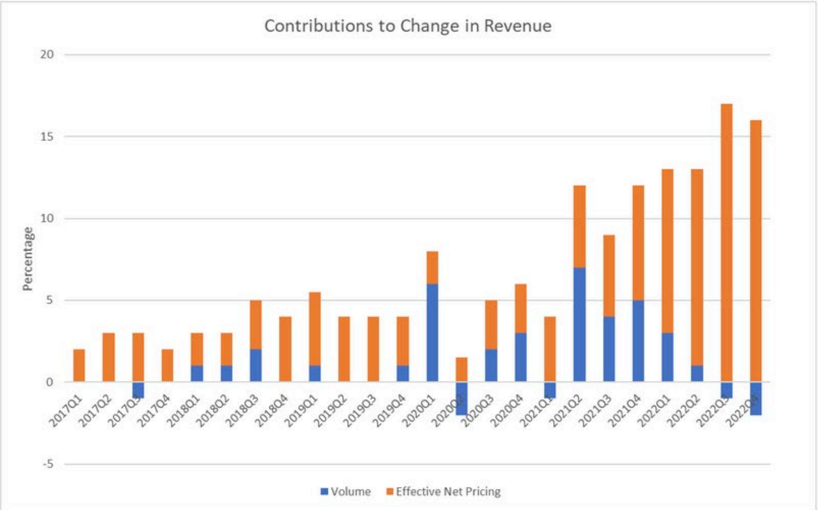
‘in 2021, when raw material prices were rising, we had inventory in the supply chain where we captured value. And so we made money’

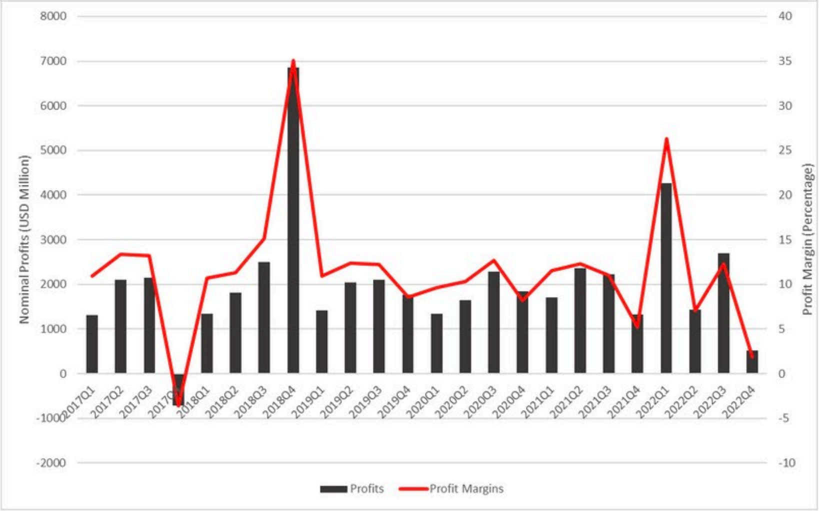




Pepsico

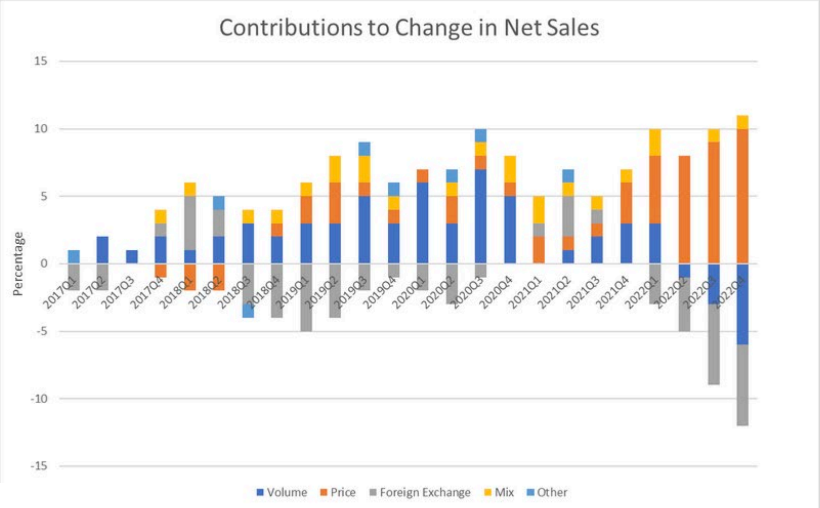
‘how we’re going to deal with pricing in the coming months, I would say obviously same as everybody else, we're seeing inflation in our business <u>…</u>across many of our raw ingredients and some of our inputs …We’re working with our partners …to make the right decisions in pricing to [keep] the consumers with us whilst we improve our margin’





Procter and Gamble

‘we’re better positioned for dealing with an inflationary environment… than we’ve ever been before, starting with the portfolio that is is…focused on daily-use categories, health, hygiene, and cleaning, that are essential to the consumer versus discretionary categories which in these environments are the first ones to lose focus from the consumer’



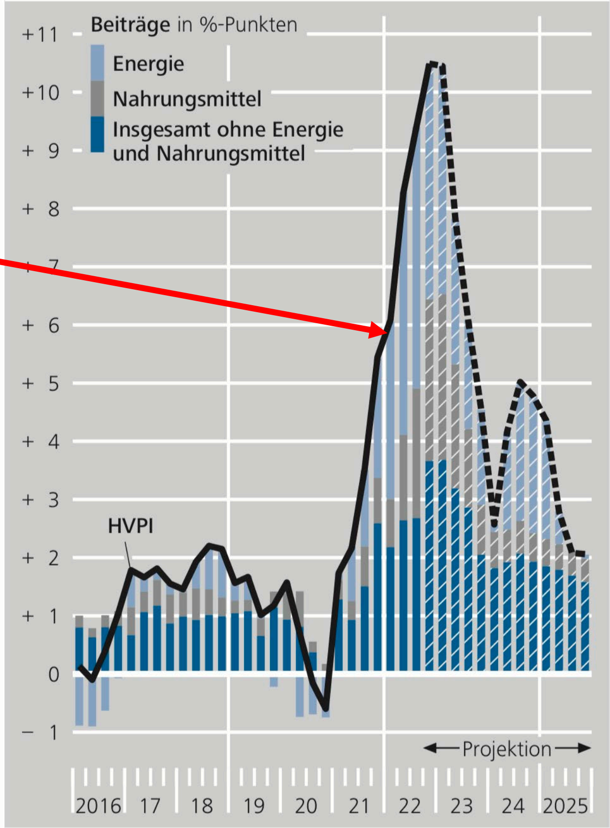
Isabella M. Weber
@IsabellaMWeber

Gas prices are a key driver of inflation in Germany. @SDullien @IMKFlash & I propose a cap on the gas price for households' basic needs as an emergency measure @SZ_Wirtschaft (one of Germany's most important national newspapers). This thread shares some key points in English:

1:11 PM · Feb 12, 2022

Beiträge der Komponenten zur HVPI-Gesamtrate

vierteljährlich, Veränderung gegenüber Vorjahr in %



Quelle: Statistisches Bundesamt, eigene Berechnungen und eigene Projektionen.

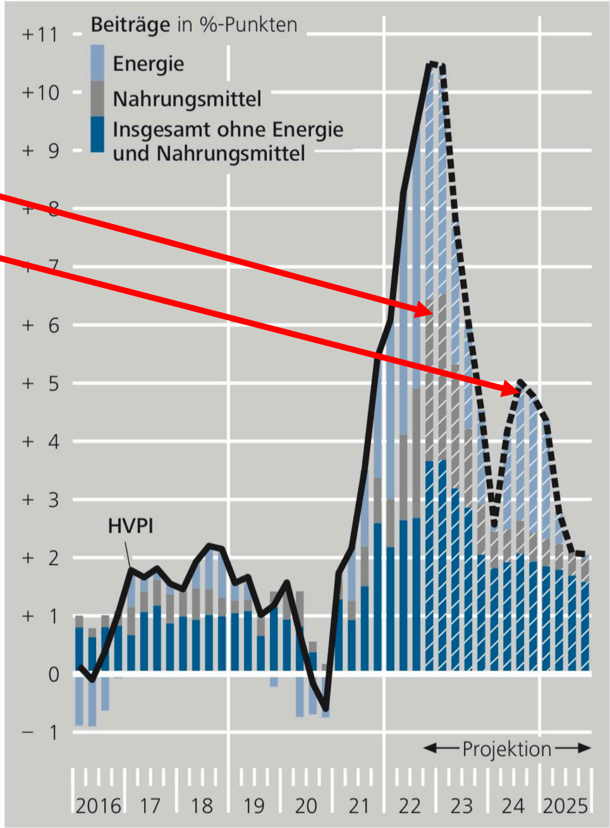
Deutsche Bundesbank

GASPREISBREMSE

ENDE DER GASPREISBREMSE

Beiträge der Komponenten zur HVPI-Gesamtrate

vierteljährlich, Veränderung gegenüber Vorjahr in %



Quelle: Statistisches Bundesamt, eigene Berechnungen und eigene Projektionen.

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Forum

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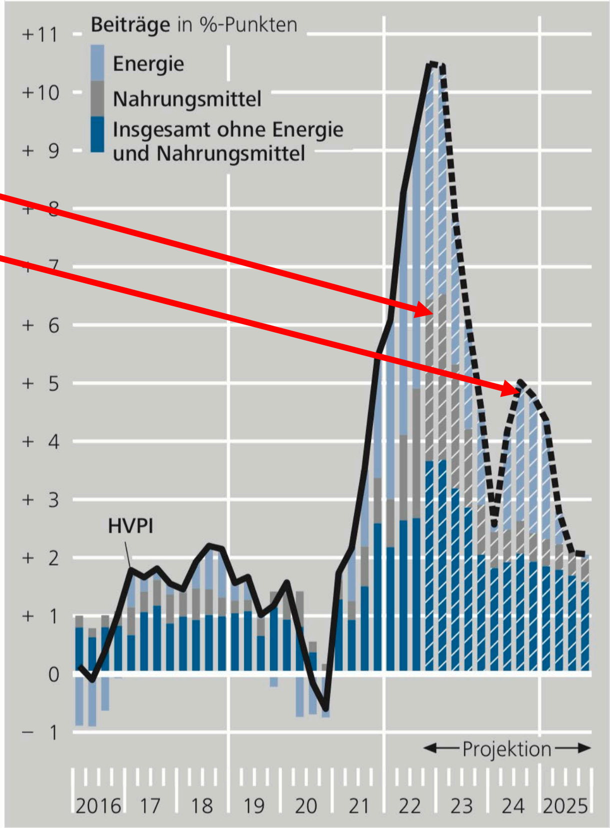

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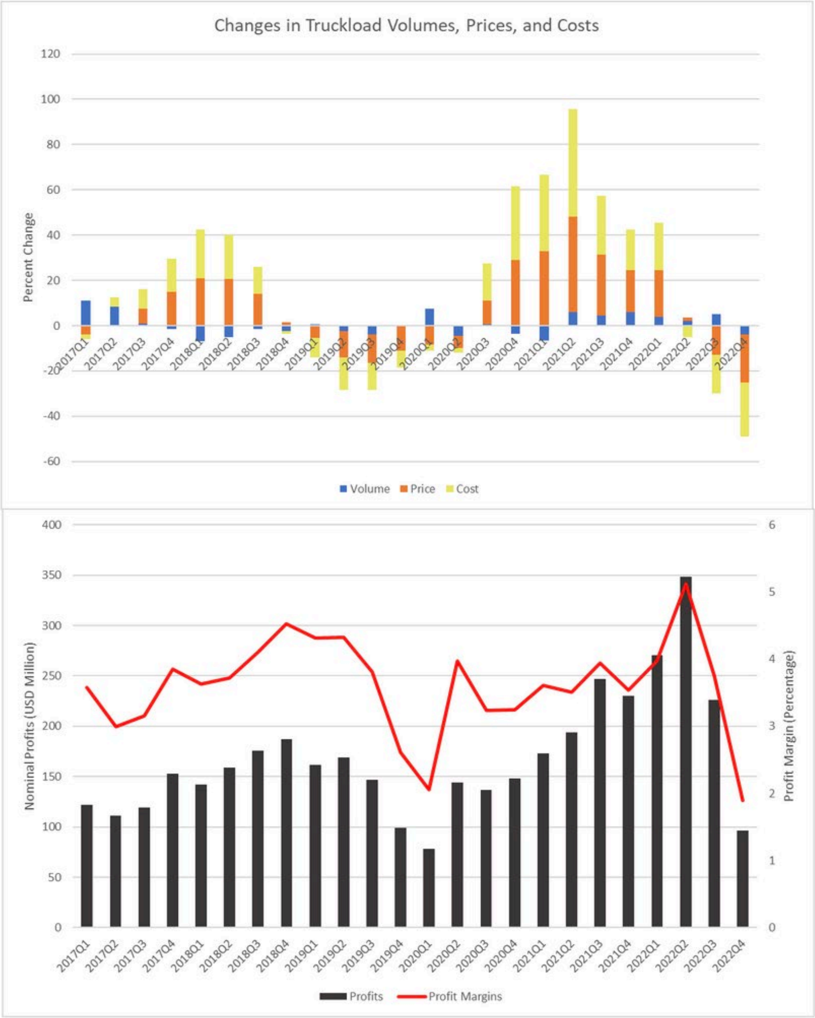
Appendix Figure 9: C.H. Robinson



The Leontief Price Model (I): The basic identity

value of output of each industry =
value of domestic inputs + value-added + value of imported inputs
where the value-added is composed of wages, profits, and taxes per unit of output

$$x_j P_j = x_j a_{1j} P_1 + \cdots + x_j a_{nj} P_n + V_j + M_j$$

$$\boldsymbol{\hat{X}P} = \quad \hat{X} A' P \quad + \quad V \quad + \quad M$$

The value of domestic inputs is the product of the unit-requirement of domestic inputs by each industry (A'), the output of each industry ($\hat{X}$) and the output price of each good (P).

The Leontief Price Model (II): Price determination

Dividing both sides by total industry output gives us the **price per unit of output**:

$$P = \underbrace{A'P}_{\text{Domestic inputs}} + \underbrace{v}_{\text{Value-added}} + \underbrace{m}_{\text{Imported inputs}}$$

Share of price:

Solving for P gives the **prices of all sectors**, which are endogenous and determined by the total requirements of inputs $(I - A')^{-1}$, value-added (v) and imported inputs per-unit of output (m):

$$P = (I - A')^{-1}(v + m)$$

Assuming that the prices of all domestic sectors take the same functional form, this implies that the ***price formation of all industries is interdependent***.

The Leontief Price Model (III): Exogenous sectors and price shocks

To **simulate the effect that price shocks have on the overall price level**, we expand the price equation to set the industry that receives a shock exogenous. P_X is the vector of prices of exogenous sectors. The vector of prices of endogenous sectors is then

$$P_E = \underbrace{(I - A'_{EE})^{-1} A'_{XE} P_X}_{\text{Share of price determined by exogenous sectors}} + \underbrace{(I - A'_{EE})^{-1} (v_E + m_E)}_{\text{Share of price determined endogenously}}$$

Assuming that value-added and imports remain constant, the **percentage change in the price of the endogenous sectors** caused by a **price shock ΔP_X** can be expressed as:

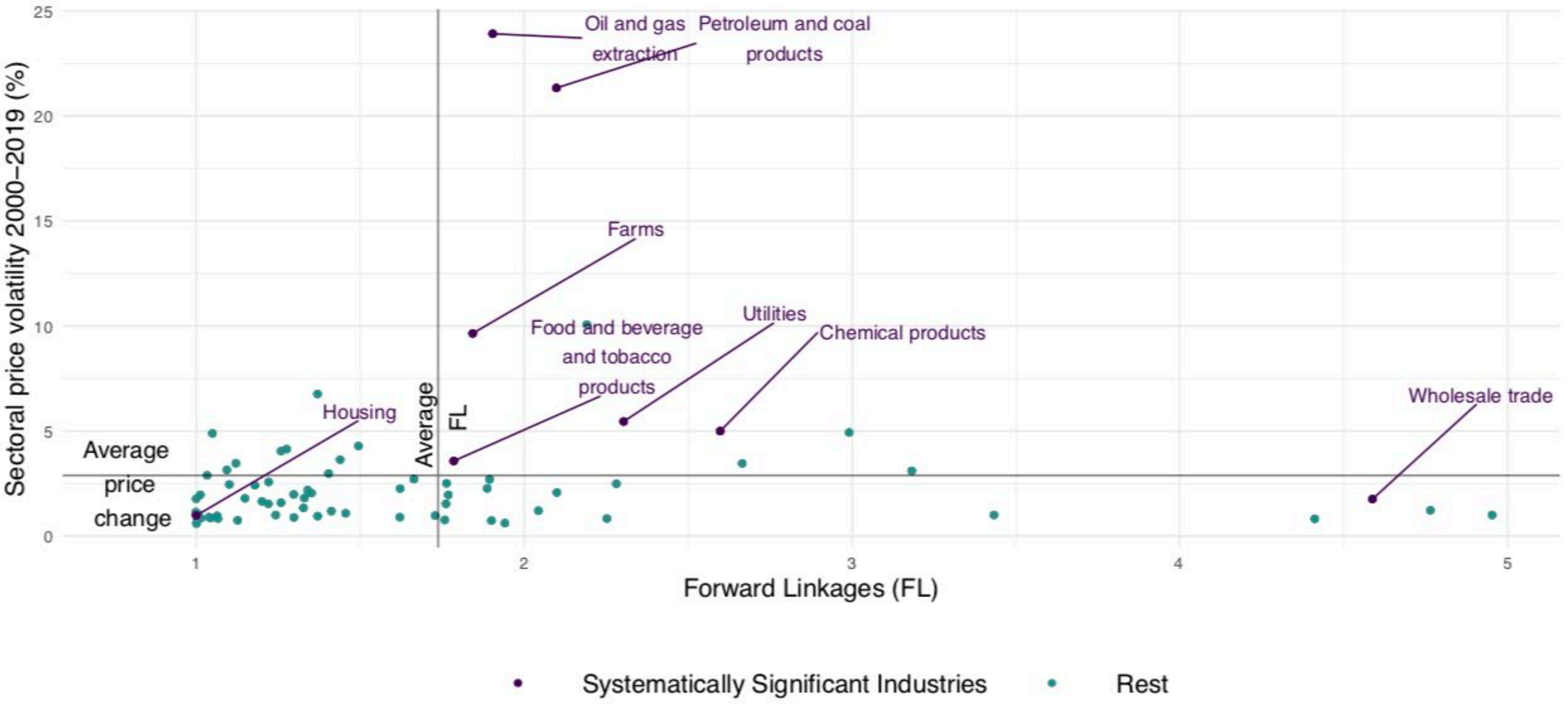
$$\Delta P_E = (I - A'_{EE})^{-1} A'_{XE} \Delta P_X$$

The Leontief Price Model (IV): Total inflation impact

In order to get a measure of the total impact of ΔP_X on the general price level (a "synthetic CPI"), we average ΔP_E using the shares of personal consumption of each industry to get:

$$IP_{tot} = IP_{dir} + IP_{ind} = c_x \Delta P_X + \sum_{i \neq x} c_i \Delta P_E^i$$

Pathways to systemic significance



Input-Output Table

		PRODUCERS AS CONSUMERS							
		Agric.	Mining	Const.	Manuf.	Trade	Transp.	Services	Other
PRODUCERS	Agriculture								
	Mining								
	Construction								
	Manufacturing								
	Trade								
	Transportation								
	Services								
	Other Industry								
VALUE ADDED	Employees	Employee compensation							
	Business Owners and Capital	Profit-type income and capital consumption allowances							
	Government	Indirect business taxes							

Figure 1.1 Input–Output Transactions Table

Figure 5: Sectoral Commodity Prices and Nominal Aggregate Profits