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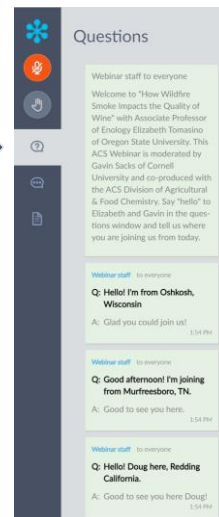
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Type them into the questions box!



"Why am I muted?"

Don't worry. Everyone is muted except the Presenter and the Host. Thank you and enjoy the show.



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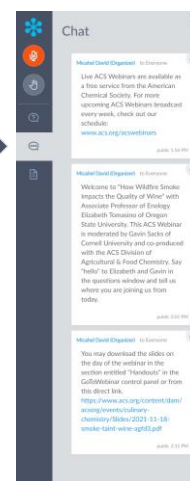
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Announcements and hyperlinks from our team



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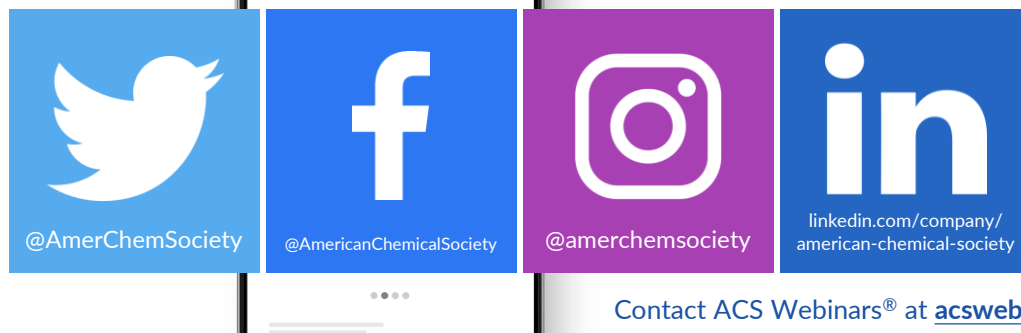


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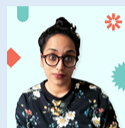
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<https://chemidp.acs.org>

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ACS Scholar Adunoluwa Obisesan


BS, Massachusetts Institute of Technology, June 2021
(Chemical-biological Engineering, Computer Science & Molecular Biology)

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Free webinars and networking opportunities for mid-career chemistry professionals.



ACS 5th Campaign
Five ways where students can measure with the resources, learn your strengths from ACS editors and get career tips.



Podcasts for Faculty
An archive podcasting for job seekers to find interesting or newly positions in the chemical industry.



Career Kick-Starters
A one-day career development workshop for graduate students and postdoctoral fellows.

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ACS Bridge Program

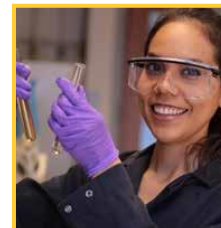


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Please do not hesitate to reach out to the Office of DEIR at diversity@acs.org

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Chemistry and the Economy: 2022 Mid-Year Review



Paul Hodges

Chairman, New Normal Consulting



Bill Carroll, PhD

Principal, Carroll Applied Science

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Helping you navigate the New Normal



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29 June 2022

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New Normal is a Swiss-based strategy consultancy advising Fortune 500 and FTSE 100 companies, investment banks and fund managers

Our consulting work focuses on the major paradigm shifts taking place in the global economy as a result of today's ageing populations.



DEMAND PATTERNS: The lockdowns have broken down the inertia surrounding work and home-based routines. Travel, leisure, construction, real estate and other industries will likely see major change as a result.



RESHORING SUPPLY CHAINS: Global supply chains have proved very fragile during the pandemic. They have collapsed not only because of the uncoordinated nature of the lockdowns around the world, but also due to volatility in demand patterns.



RENEWABLE ENERGY: The war in Ukraine is already accelerating plans to increase energy security in the EU, UK and USA and elsewhere. The aim is to replace import-dependent, fossil fuel-based infrastructure with modern renewable-based power sources.



CIRCULAR ECONOMY: The need to reshore supply chains in a world seeing major energy market disruption suggests that moves towards a circular economy will accelerate. We need new business models to be created, covering the entire value chain from collection to resale.



ADVANCED MANUFACTURING: Many manufacturing operations still operate as they would have done 50 years ago. It makes no sense to reshore using centuries-old equipment when digital, continuous & biotech-enabled technology is safer, greener, faster and cheaper.



Paul Hodges is a trusted adviser to major companies and investors. He publishes The pH Report, and serves as chairman of NiTech Solutions and the Advisory Board of Infinity Recycling. He is a Global Expert with the [World Economic Forum](#) and a regular speaker at international conferences, and appears regularly on Real Vision, Forward Guidance and other leading media.

Major paradigm shifts are reshaping the business world



The lockdowns have broken down the inertia surrounding work and home-based routines. Travel, leisure, construction, real estate and other industries are already seeing major change.



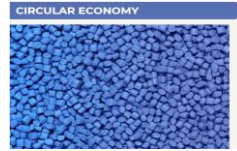
Global supply chains have collapsed because of the uncoordinated nature of the lockdowns around the world, and the rising volatility in demand patterns.



The war in Ukraine is accelerating plans to increase energy security. The aim is to replace import-dependent, fossil fuel-based infrastructure with modern renewable-based power sources.



Many manufacturing operations still operate as they would have done 500 years ago, or even 50 years ago. A visitor from then, would feel at home if they visited many sites today.



The need to reshore supply chains in a world seeing major energy market disruption suggests that moves towards a circular economy will accelerate.

The 3 Horsemen of the Apocalypse

- China's Zero-Covid strategy, Russia's invasion and potential famine
- Rising levels of inflation, and asset market bubbles in stocks and housing
- Surviving the downturn, and rethinking business models for the New Normal



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Audience Survey Question

ANSWER THE QUESTION ON THE INTERACTIVE SCREEN IN ONE MOMENT

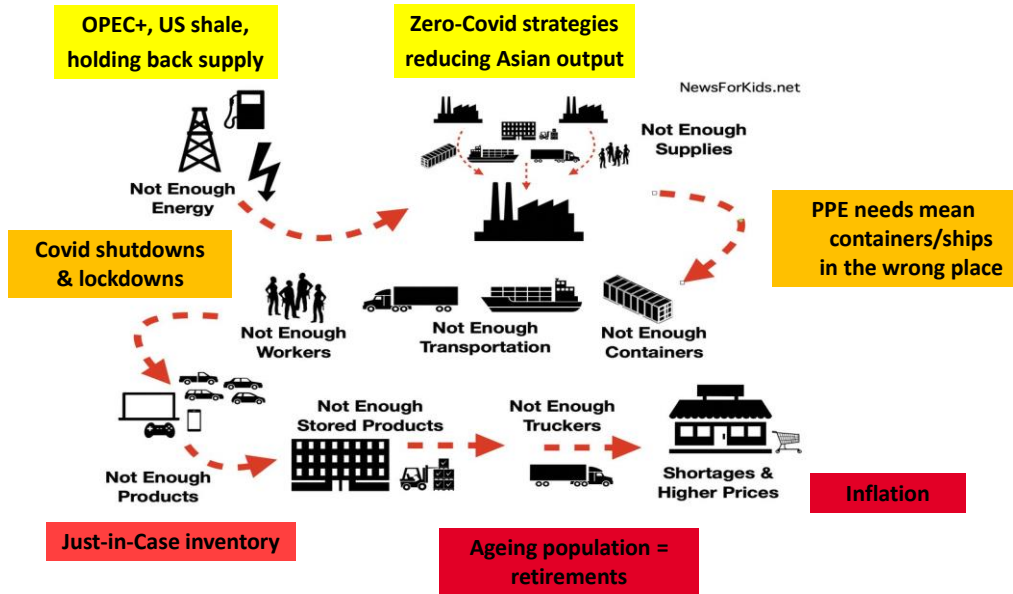
Which global issue will have the most impact over the chemical economy in the next 5 years?

- Global pandemics
- The war in Ukraine and geopolitical impact
- Supply chain issues
- Climate change and independence from fossil fuels
- Other (Let us more in the questions window)

* If your answer differs greatly from the choices above **tell us in the chat!**

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Supply-chain outages have created major disruption



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China's Zero-Covid policy continues to disrupt economy

Jilin - a city of 24m people in NE China - was completely locked down for 3 days on Monday last week after recording just 1 Covid case.



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Russia's invasion has meant a return to the Cold War

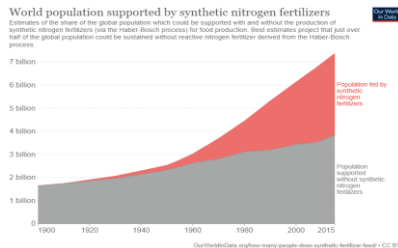
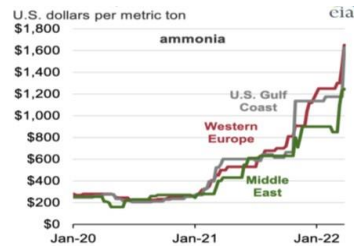
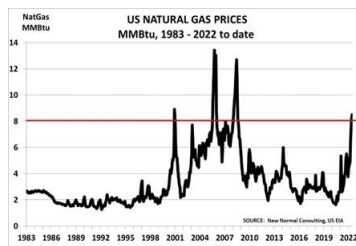


SOURCE: FINANCIAL TIMES

Soaring natural gas prices are already impacting global food supplies

IMF says global economy faces 'confluence of calamities' in biggest test since World War II

PUBLISHED MON, MAY 23 2022 6:41 AM EDT | UPDATED MON, MAY 23 2022 12:31 PM EDT



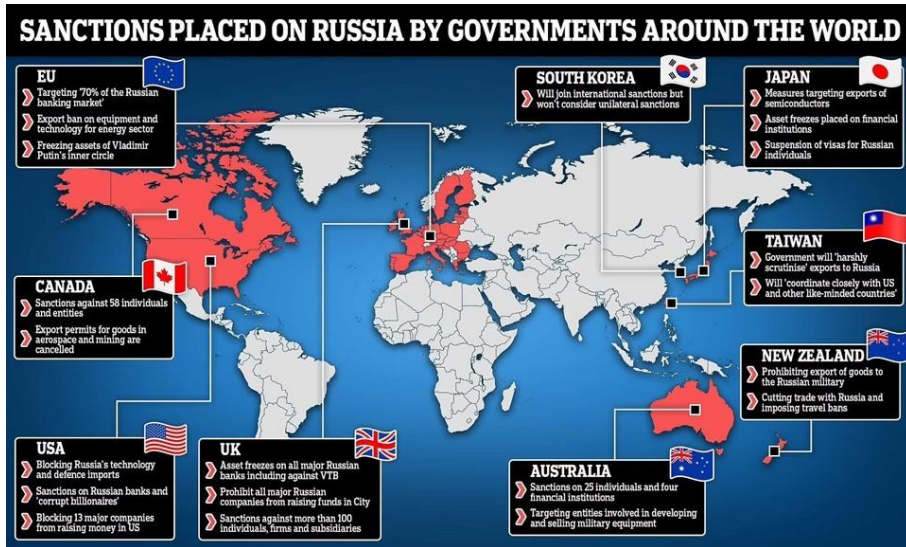
Over half a billion people live in countries that rely heavily on Russian and Ukrainian wheat
(% of total wheat imports from Russia and Ukraine, 2021)



Source: EIU. *Data exclude Kazakhstan, which is a net wheat exporter.

The end of globalisation is seeing a return to a more divided world

Less than half of the world's population have imposed sanctions on Russia



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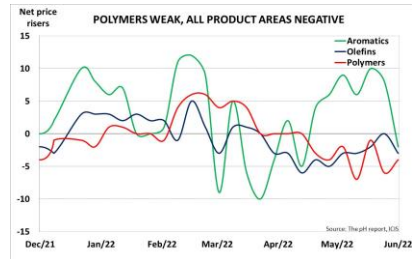
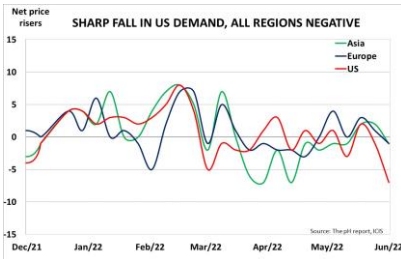
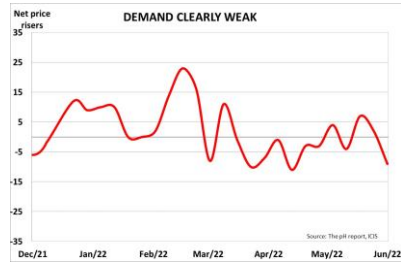
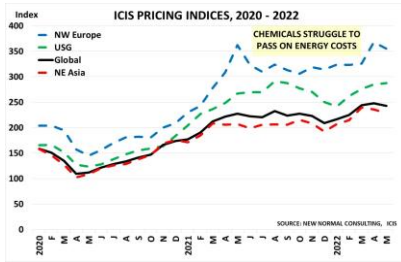
The 3 Horsemen of the Apocalypse

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- **Rising levels of inflation, and asset market bubbles in stocks and housing**
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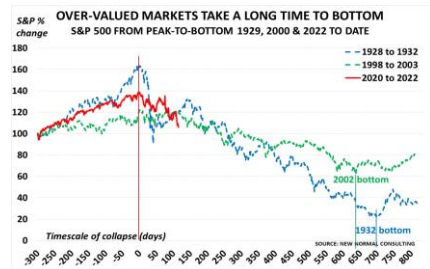
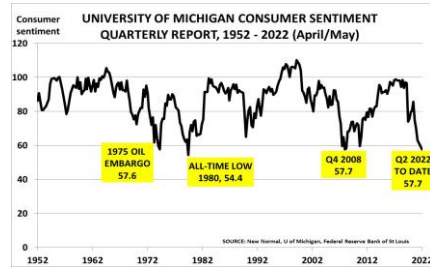
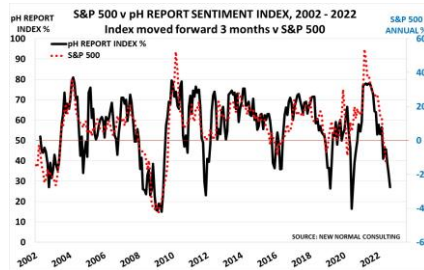
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Chemicals has correctly warned of recession risk



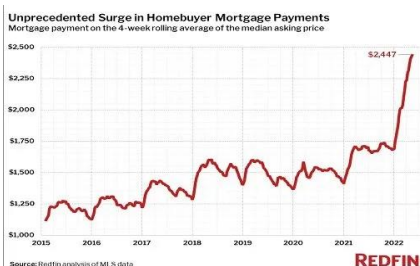
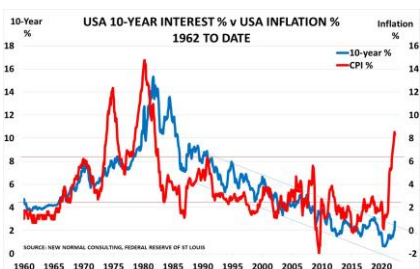
Recession risks now impacting stock markets as Fed's bubbles burst

Our Sentiment Index has been correctly warning of S&P 500 downturn since December



Rising inflation and interest rates start to impact stocks, housing

19 countries, inc USA, have price-to-rent/price-to-income ratios higher than prior to 2008



New Zealand at Top of Risk Ranking
Five gauges of property risk for OECD member and accession countries

Rank	Price-to-Rent Ratio	Price-to-Income Ratio	Real Price Growth (%)	Nominal Price Growth (%)	Credit Growth (%)
New Zealand	156.8	143.8	20.1	27.8	1.5
Czech Republic	149.7	140.8	20.2	25.8	2.4
Hungary	139.8	131.8	11.2	19.2	-0.5
Australia	141.5	119.7	23.8	23.2	-3.3
Canada	154.9	143.8	12.2	17.8	-4.7
Portugal	156.0	136.8	9.4	11.0	-2.0
US	139.2	136.8	11.7	18.2	-2.5
Austria	134.1	109.8	11.9	14.9	-1.3
Russia	157.9	99.8	11.6	22.8	-1.4
Luxembourg	106.9	103.2	8.2	12.1	-5.7
Netherlands	148.8	137.8	7.8	16.2	-3.3
Germany	147.0	135.9	7.2	12.2	-0.9
Sweden	129.2	116.3	8.0	11.1	-1.2
Switzerland	121.7	121.2	7.0	8.3	-1.7
UK	126.8	120.1	6.0	10.2	-4.1
Chile	132.3	124.5	6.9	11.9	-7.8
South Korea	113.5	100.4	6.7	9.9	-1.1
Japan	114.8	109.1	7.4	7.3	1.3
France	121.3	112.8	4.5	7.2	-2.3
Spain	129.5	124.2	2.2	6.3	-6.4
Poland	121.4	108.2	3.4	12.1	-6.4
Greece	129.6	103.7	6.4	7.8	-7.0
Ireland	124.6	114.8	7.0	13.9	-12.8
Colombia	121.8	114.1	2.2	7.7	-8.2
Denmark	128.4	114.1	0.6	4.1	-6.4
Belgium	117.3	108.3	1.4	6.0	-5.6
Norway	122.4	111.0	4.3	8.1	-13.8
Finland	101.0	101.6	0.7	3.9	-2.3
Italy	103.0	94.7	0.9	4.1	-3.3
South Africa	103.8	100.0	-2.2	3.4	-7.1

Sources: Bloomberg Economics; BIS; OECD
Notes: Bloomberg Economics ranking obtained by taking an average of the z-scores of each of the five measures. The higher the score, the greater the risk of a price correction. Annual house-price and credit growth are based on Q1 2022 or latest quarterly data available.

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Audience Survey Question

ANSWER THE QUESTION ON THE INTERACTIVE SCREEN IN ONE MOMENT

Are we entering a recession?

- No, we are just in a temporary correction
- Yes, but we will recover before the end of the year
- Yes, this will most likely last a few years
- Yes, this will be worse than 1929

* If your answer differs greatly from the choices above **tell us in the chat!**

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The 3 Horsemen of the Apocalypse

- ✓ China's Zero-Covid strategy, Russia's invasion and potential famine
- ✓ Rising levels of inflation, and asset market bubbles in stocks and housing
- **Surviving the downturn, and rethinking business models for the New Normal**



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Oil companies are already planning for Net Zero and the New Normal

Naphtha supplies will disappear as Electric Vehicles replace gasoline/diesel



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BP is investing in battery-swapping in China

New opportunities are now developing very fast



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Major new challenges and opportunities are emerging in agchems

Sustainability goals and Net Zero are rising up the agenda



Concerns are rising over monocultures, paralleling issues with supply chains



Healthy eating is linking to sustainability and plant-based food

36

Paradigm changes are uncomfortable

"What I like doing best is Nothing," said Christopher Robin.

"How do you do Nothing?" asked Pooh.

"Well, it's when people call out at you, 'What are you going to do, Christopher Robin?' and you say 'Oh, nothing,' and then you go and do it." ~A.A.Milne



As Machiavelli reminds us, there is a need to carefully manage any change process:

"It must be remembered that there is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than a new system. For the initiator has the enmity of all who would profit by the preservation of the old institution and merely lukewarm defenders in those who gain by the new ones."

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Areas of impact: The circular economy



The International Energy Agency has reported that "Net Zero means a huge decline in the use of fossil fuels. They fall from ~80% of total energy supply today to ~ 20% by 2050."



The need to reshore supply chains in a time of war and recession suggest that moves towards a circular economy will accelerate. Net Zero and sustainability needs also mean we "need to do more with less".

New business models will therefore have to be created, to enable the move from the traditional Value Chain to a Value Circle. This creates a major opportunity for forward thinking companies to roll out the new model.

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