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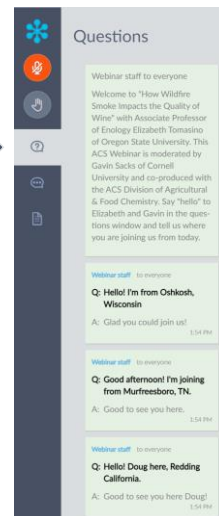


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"Why am I muted?"
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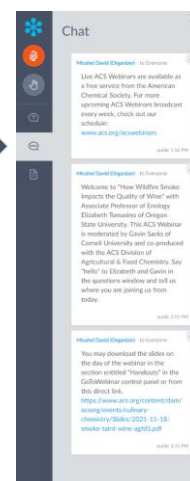
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Announcements and hyperlinks from our team



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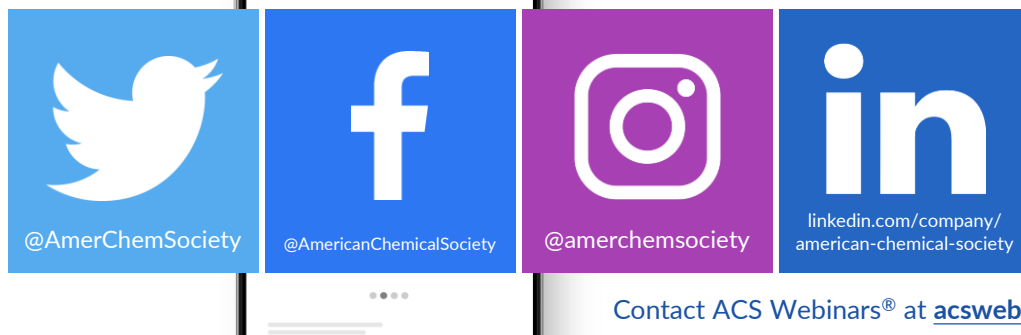


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A Career Planning Tool For Chemical Scientists



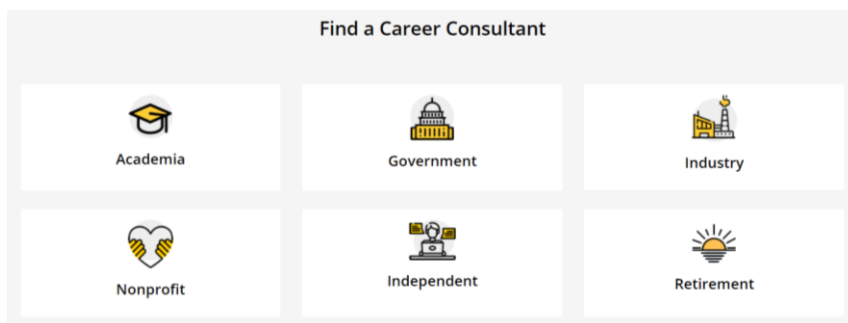
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<https://chemidp.acs.org>

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Career Consultant Directory



- ACS Member-exclusive program that allows you to arrange a one-on-one appointment with a certified ACS Career Consultant.
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ACS Bridge Program

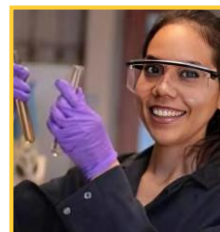


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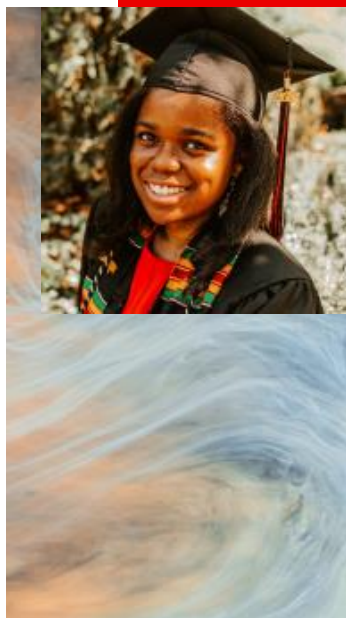
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ACS Scholar Adunoluwa Obisesan

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

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Advancing ACS' Core Value of Diversity, Equity, Inclusion and Respect



Resources

Inclusivity Style Guide Designed to help staff and members use language and images that respect diversity in all its forms. →	ACS Webinars on Diversity Covering diversity and inclusion at the workplace →
ACS Publications DEIR Hub See what ACS Publications is doing for fostering inclusivity in scholarly publishing →	ACS Volunteer and ACS Meetings Code of Conduct Fostering a positive and welcoming environment for attendees, volunteers and staff. →
C&EN Trailblazers C&EN highlights scientists from different backgrounds who are making an impact in chemistry. →	NEW! Download DEIR Educational Resources Download this educational guide for additional recommendations on videos, articles, books, podcasts, and more on diversity, inclusion, and related topics. →
Quick Guide: Inclusion Moments Learn more about what Inclusion Moments are and see ideas to host them during your meetings. →	Quick Guide: How to host inclusive in-person events Recommendations and best practices to ensure that your events can accommodate everyone. →

Diversity, Equity, Inclusion, and Respect

**Adapted from definitions from the Ford Foundation Center for Social Justice:

Equity**

Seeks to ensure fair treatment, equality of opportunity, and fairness in access to information and resources for all. We believe this is only possible in an environment built on respect and dignity. Equity requires the identification and elimination of barriers that have prevented the full participation of some groups.

Diversity**

The representation of varied identities and differences (race, ethnicity, gender, disability, sexual orientation, gender identity, national origin, tribe, caste, socio-economic status, thinking, and communication styles, etc.) collectively and as individuals. ACS seeks to proactively engage, understand, and draw on a variety of perspectives.

Inclusion**

Builds a culture of belonging by actively inviting the contribution and participation of all people. Every person's voice adds value, and ACS strives to create balance in the face of power differences. In addition, no one person can or should be called upon to represent an entire community.

Respect

Ensures that each person is treated with professionalism, integrity, and ethics underpinning all interpersonal interactions.

<https://www.acs.org/diversity>

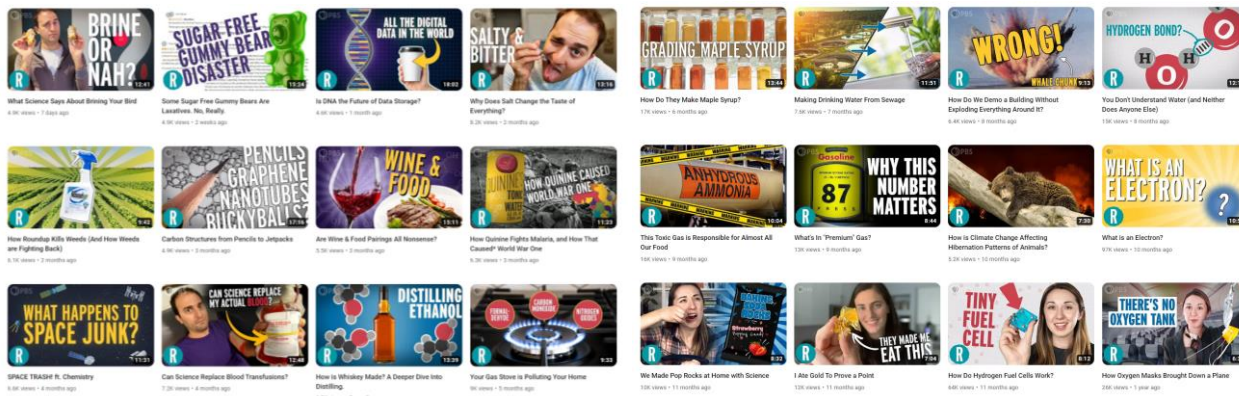
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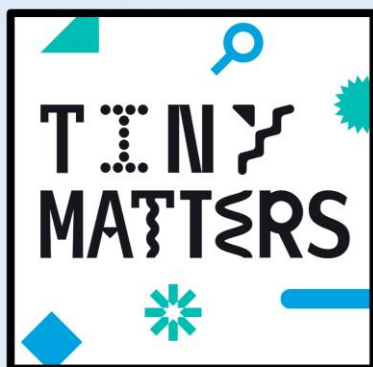
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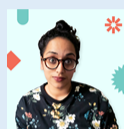
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c&en's STEREO CHEMISTRY



Bonus Episode
Carolyn Bertozzi and K. Barry Sharpless chat about sharing the 2022 Nobel Prize in Chemistry
December 6, 2022



Bonus Episode
Bioorthogonal, click chemistry clinch the Nobel Prize
October 9, 2022



Episode #40
Lithium mining's water use sparks bitter conflicts and novel chemistry
September 13, 2022



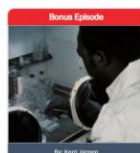
Bonus Episode
Happy 100th birthday, John Goodenough! Stereo Chemistry revisits a fan-favorite interview with the renowned scientist
July 25, 2022



Bonus Episode
Jess Wade on Wikipedia and work-life balance
June 21, 2022



Bonus Episode
The sticky science of why we eat so much sugar
May 31, 2022



Bonus Episode
There's more to James Harris's story
April 27, 2022



Bonus Episode
The helium shortage that wasn't supposed to be
March 24, 2022

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acsoncampus.acs.org

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ACS Career Resources



Virtual Office Hours



<https://www.acs.org/careerconsulting.html>

Personal Career Consultations

Jim Tung

Assistant
Lacamas Laboratories

S.S., Biochemistry, University of Oregon
Ph.D., Organic Chemistry, University of Notre Dame

Jim Tung works at Lacamas Laboratories in Portland, OR, currently as a business development manager. He has been with Lacamas for 10 years, working on developing new chemical manufacturing projects. Before that, he was a senior research chemist at Orlite Research in Champaign, IL, performing kilo-scale organic chemistry.

An Oregon native, Jim got his B.S. in biochemistry from the University of Oregon, his Ph.D. in organic chemistry from the University of Notre Dame, with postdoctoral experience at Pfizer's laboratories in La Jolla, CA. He is past chair of the Portland Section of the American Chemical Society and was 2019 general co-chair of NORM 2019. He has interests in process chemistry, labor economics, social media outreach and encouraging career exploration and development for younger chemists.

Ask me about:

- Working in industry
- Applying for academic jobs
- Getting your first job

Contact With Jim

<https://www.acs.org/careerconsulting.html>

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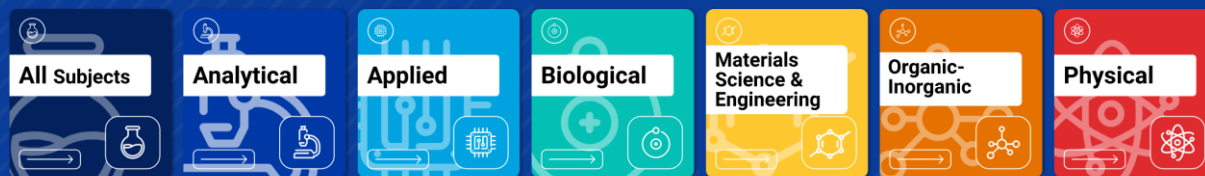
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TOMORROW!

Thursday, July 13, 2023 | 2-3pm ET

How Student Feedback Can Help Us Teach Better

Co-produced with ACS Education and the Society Committee on Education



NEXT WEEK!

Wednesday, July 19, 2023 | 2-3pm ET

Fundamentals of Intellectual Property for Scientists

Co-produced with ACS Division of Chemistry and the Law



Thursday, July 27, 2023 | 2-3pm ET

The Art of Securing Research Funding: Crafting Effective Grant Proposals

Co-produced with ACS Office of Research Grants and the ACS Petroleum Research Fund

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Chemistry and the Economy: 2023 Mid-Year Review



PAUL HODGES

Chairman,
New Normal Consulting



BILL CARROLL, PhD

Principal,
Carroll Applied Science

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Are we charging ahead into a brick wall?



12 July 2023

Paul Hodges, phodges@new-normal.com, +44 7785 354809



New Normal is a Swiss-based strategy consultancy advising Fortune 500 companies, investment banks and fund managers. **Paul Hodges** publishes *The pH Report*, and chairs the Advisory Board of Infinity Recycling. He is a Global Expert with the [World Economic Forum](#) and a regular speaker at international conferences



Are we charging ahead into a brick wall?

Helping you navigate the New Normal

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Are we charging ahead into a brick wall?



➤ *Global over-capacity means closures are inevitable*

➤ *Companies need to refocus on the wider landscape*

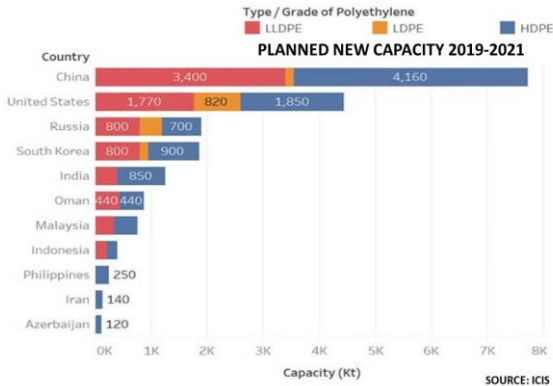
- *Central banks are now playing catch-up on inflation*
- *Geopolitics are important again e.g., Russia, China*
- *Regulators are becoming more active – PFAs, waste plastic*

➤ *Paradigm shifts will create Winners & Losers*

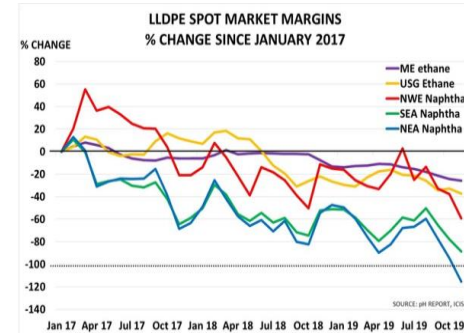
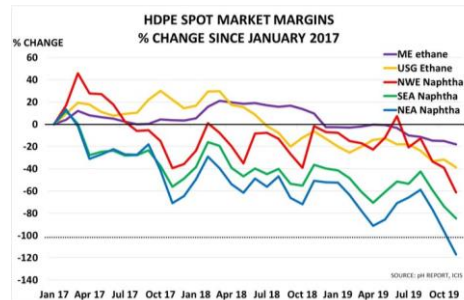
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What we said in the December 2019 webinar...

PE over-supply is continuing to increase



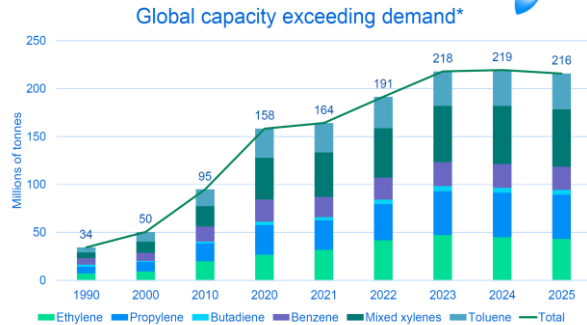
PE margins have begun a global collapse



26

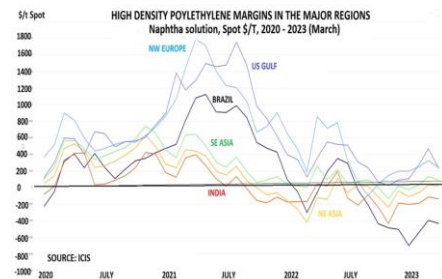
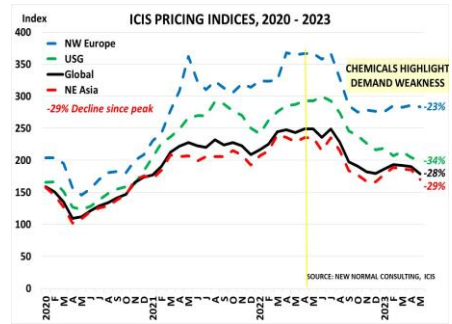
...What has happened since then

How did we end up in this situation?



*Equivalent demand for the monomers, meaning demand for all their downstream derivatives

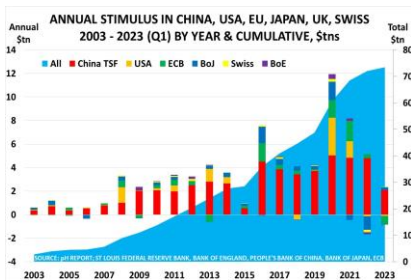
Chemicals are signaling a major downturn



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China's \$43tn stimulus led the world out of recession after 2009

But it was "subprime on steroids" - Pew data shows only 23m Chinese earn more than \$50/day



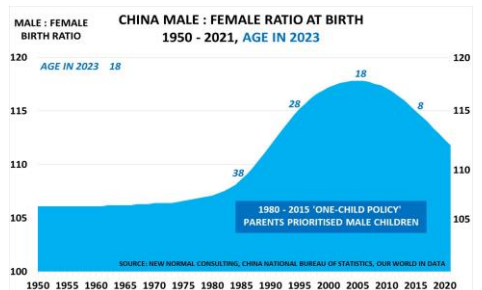
China has a larger middle class than India, where most people are low income

Estimated number of people in each income tier in 2020 before and after the global recession, in millions

Income Tier	India (Post-pandemic)	India (Pre-pandemic)	China (Post-pandemic)	China (Pre-pandemic)
High income	3	2	23	26
Upper-middle	18	22	242	260
Middle income	65	99	493	504
Low income	1,502	1,197	641	611
Poor	134	59	4	3

Notes: The poor live on \$2 or less daily, low income on \$2.01-\$10, middle income on \$10.01-\$20, upper-middle income on \$20.01-\$50, and high income on more than \$50. Figures expressed in 2015 purchasing power parities in 2015 prices. It is assumed there is no change in the income distribution from the benchmark year for the projection to 2020. The term "post-pandemic" refers to the period since the onset of the pandemic in January 2020. Source: Pew Research Center analysis of the World Bank's PovcalNet database.

PEW RESEARCH CENTER



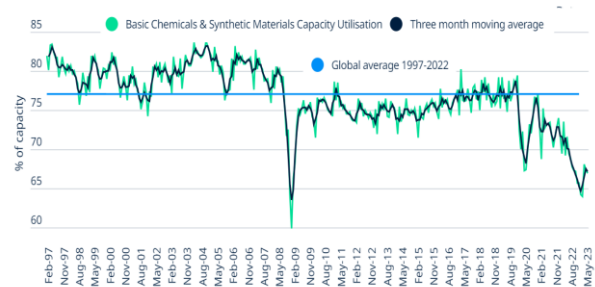
- Companies wanted to believe China had suddenly become "middle class" in 2009
- US invested \$200bn to supply this new demand, expanding ethylene supply by 40%
- President Trump's trade war added to over-supply as China moved to self-sufficiency
- But now China's real estate bubble, which had been 'subprime on steroids', is bursting
- The One Child Policy meant China "lost" 73m female births between 1980 – 2021; reducing the number of future mothers
- Deaths outnumbered births in 2022, further impacting household formation and apartment needs

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Kevin Swift's data is confirming the global recession risk

The former ACC Chief Economist says OR% has been falling for year as supply increases

Global chemicals capacity utilization



Basic chemicals and synthetic materials production

	Global	North America	Central & South America	Europe	Former USSR	Africa	Middle East	Northeast Asia	South Asia & Pacific
January	-2.0%	4.1%	0.3%	19.8%	-3.2%	-3.7%	-1.8%	-7.0%	-8.1%
February	-0.2%	0.2%	9.4%	-1.7%	3.7%	5.3%	-18.1%	2.4%	-2.8%
March	6.3%	2.8%	11.0%	6.1%	-2.0%	6.8%	5.2%	8.0%	3.5%
April	-1.0%	-0.1%	-8.8%	-10.1%	2.7%	-3.7%	12.6%	0.2%	-4.1%
% Δyly	-0.5%	2.3%	-7.2%	-21.0%	5.7%	-5.2%	-2.5%	6.5%	-6.3%
% Δytd	-4.5%	-0.9%	-9.6%	-21.5%	-5.2%	-3.1%	-12.1%	0.4%	-0.7%
Operating Rate (%)	67.3%	69.2%	62.9%	56.0%	63.9%	69.9%	63.2%	70.8%	67.6%

“Output has been falling generally since the first quarter of 2022 and it is clear that producers are struggling to match supply (which is increasing strongly globally on a nameplate capacity basis) to demand. The data highlight the uncertainty that prevails over the second half of this year – and, to some extent, the vague optimism for H1 2023”

Source: ICIS 13 June 2023

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Are we charging ahead into a brick wall?



➤ *Global over-capacity means closures are inevitable*

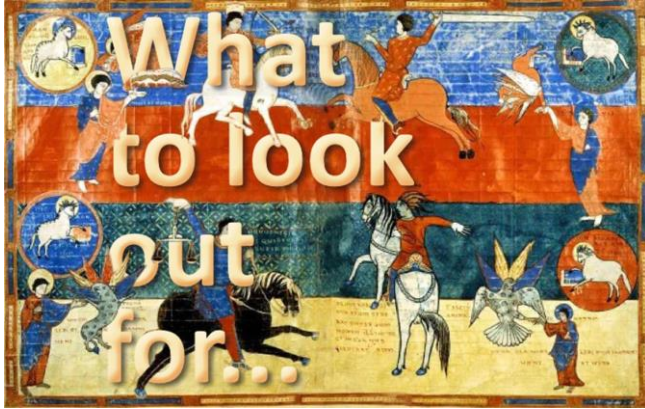
➤ **Companies need to refocus on the wider landscape**

- *Central banks are now playing catch-up on inflation*
- *Geopolitics are important again e.g., Russia, China*
- *Regulators are becoming more active – PFAs, waste plastic*

➤ *Paradigm shifts will create Winners & Losers*

30

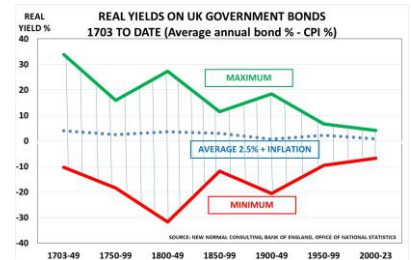
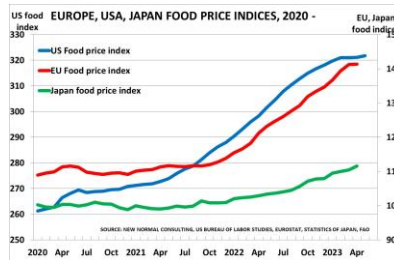
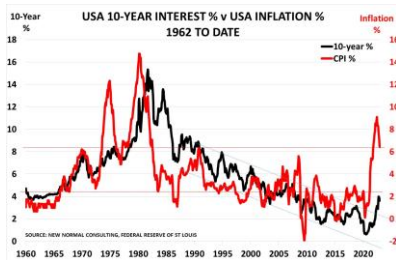
Risks are multiplying, and becoming more complex to anticipate



- High and volatile pricing environment for energy, food and other products
- Interest rates continue rising in response to rising inflation and US\$ strength
- Stock and housing market downturn reduces consumer spending power
- Corporate earnings start to reduce along the value chain and debt risks rise
- Plastics industry hit by over-capacity and growing environmental pressure

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Central banks have lost control of inflation and interest rates They preferred to believe their models, and didn't 'look out of the window'



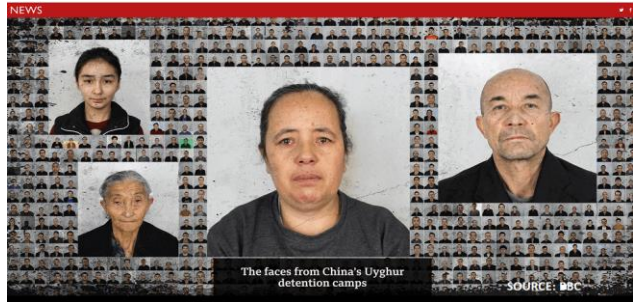
*A whole generation grew up believing interest rates are always close to zero
In reality, they average 2.5% + Inflation over the longer-term*

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Geopolitical tensions are rising again We have returned to the pre-Boomer SuperCycle world



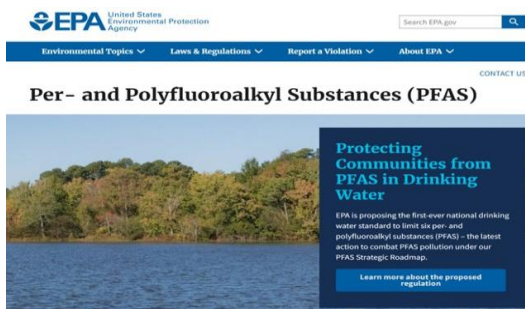
Russia's invasion has meant a return to the Cold War



China's treatment of the Uighurs is raising concerns

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Legislator and investor developments are impacting chemical and plastics demand



Extract from statement directed to FMCG and grocery retail companies, from 185 signatories with over USD \$10 trillion in assets



Investors call for urgent action to reduce plastics from intensive users of plastic packaging

3 May 2023

The whole plastics lifecycle poses a serious and growing threat to the environment, climate, biodiversity, human rights and public health. Accumulating research continues to emphasise the gravity of these impacts but the picture is already clear: intensive production and use of plastics is causing untold damage to the health of people and planet, with scientists affirming that "clean-up is futile" if production continues at current rates.¹

We, investors and their representatives, believe that companies must set their sights higher and act more swiftly to address the plastics crisis through reducing their dependence on single-use plastic packaging, working to bring production and consumption of plastics within the limits of the planetary boundaries and alignment with the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework. This statement is directed at companies in the fast-moving consumer goods and grocery retail sectors, including (non-exhaustively) those listed in the Appendix to this statement.

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Audience Survey Question

ANSWER THE QUESTION ON THE INTERACTIVE SCREEN IN ONE MOMENT

Have your consumption habits around single-use plastics changed in the last 5 years?

- Completely, I've eliminated all single-use plastics in my life
- Mostly, I've considerably reduced my use and recycle the rest
- Somewhat, I'm more aware and reduce and recycle when I can
- Not at all, my habits have not changed

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

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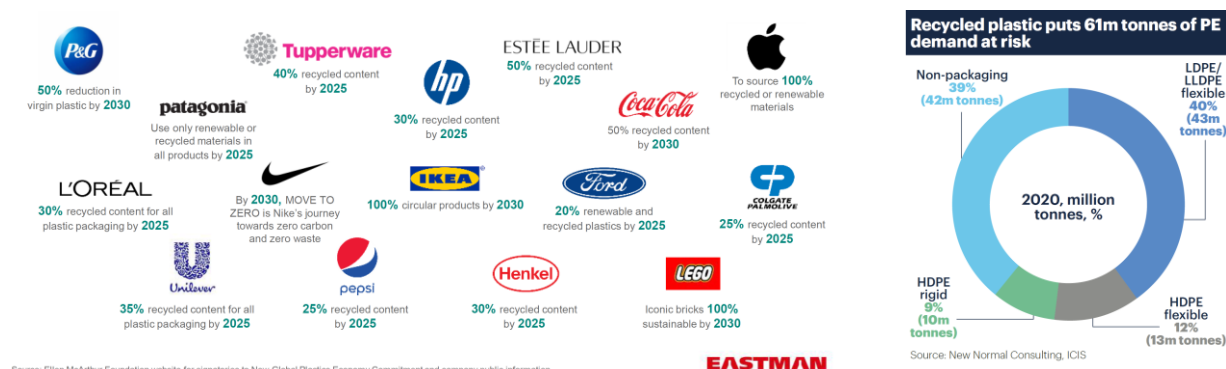
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Sustainability pressures combine with the need of aging populations' "to do more with less"

Global brands are committed to cutting use of virgin plastic packaging

Lyondell Basell "Recycled plastics is Europe's shale gas opportunity"

DOW "We're trying to drive the development of an entire ecosystem to make this happen"



Source: Ellen McArthur Foundation website for signatories to New Global Plastics Economy Commitment and company public information

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Scenario analysis has become essential



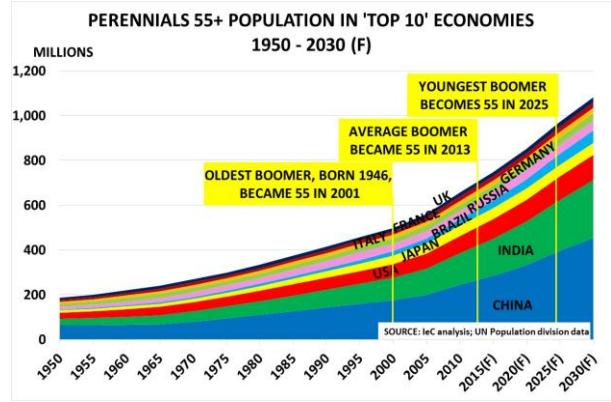
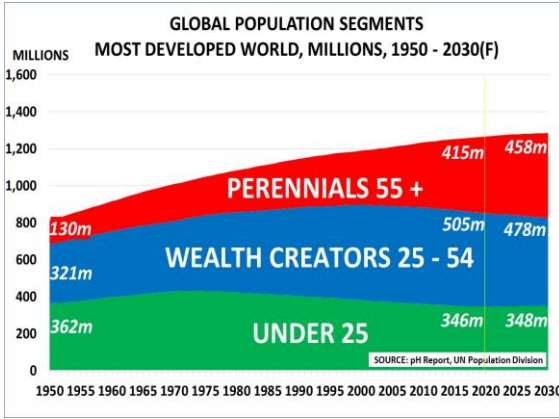
		THE 4 HORSEMEN	
GLOBAL GROWTH	Recession	Temporary Risks INFLATION PEAKS Today's rise in inflation leads to recession, and then a return to 'Business as Usual'	Permanent Risks NEW NORMAL The 4 Horsemen risks combine with recession & Net Zero to change the future landscape
	No Recession	BUSINESS AS USUAL Companies continue to face traditional risks	CHALLENGES AHEAD Economic recovery accentuates need to focus on new risks (Geopolitics, Energy, Demographics)

Are we charging ahead into a brick wall?



- *Global over-capacity means closures are inevitable*
- *Companies need to refocus on the wider landscape*
 - *Central banks are now playing catch-up on inflation*
 - *Geopolitics are important again e.g., Russia, China*
 - *Regulators are becoming more active – PFAs, waste plastic*
- *Paradigm shifts will create Winners & Losers*

The BabyBoomer SuperCycle has come to an end The low-spending Perennials 55+ are the only growth segment

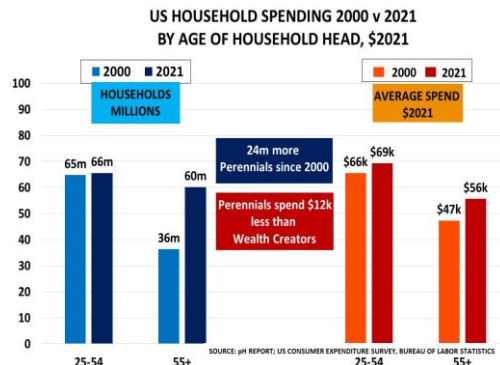
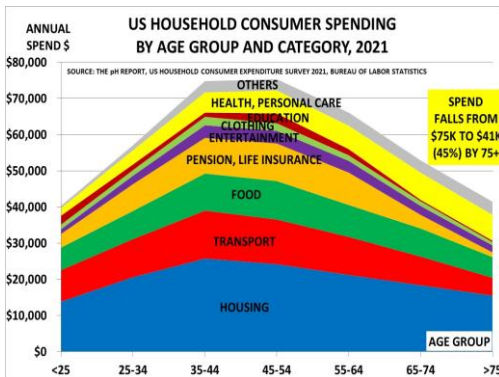


New business models need to focus on sustainability and "the value of services" rather than volume

39

Wealth Creators 25 – 54 dominate consumer spending

The Perennials are a replacement economy - they already own most of what they need - and consumption is 70% of US GDP



The rise of the Perennials means demand patterns are seeing major change

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Major paradigm shifts are now 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.



Many manufacturing operations still operate as they would have done 50 years ago, or even 500 years ago. Shakespeare might well feel at home if he visited many sites today.



Global supply chains have collapsed following 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 fossil fuel-based infrastructure with modern renewable-based power sources.



Governments are refocusing on fiscal policy. They are finally realising that 2 decades of central bank stimulus policies have created major asset bubbles.



Moves towards a circular economy are accelerating, with negotiations underway for a UN Treaty on Plastic Waste, and for new EU Regulations to restrict single use plastics in Packaging.



Audience Survey Question

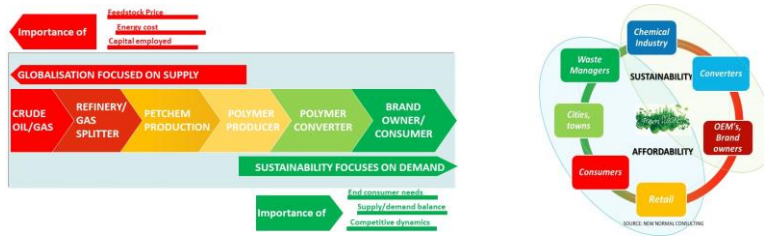
ANSWER THE QUESTION ON THE INTERACTIVE SCREEN IN ONE MOMENT

Which of these scenarios will have the MOST impact on the economy in 2023?

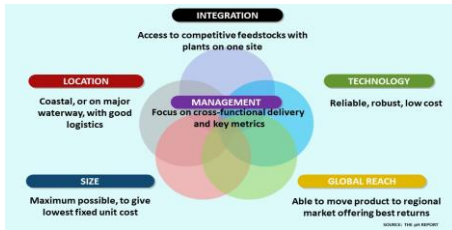
- Central Banks continue to raise interest rates
- Western countries impose sanctions on China and Russia
- Legislators pass legislation to regulate PFAs and single-use plastics
- Inflation continues and impacts consumer spending
- Other (Let us know more in the questions window)

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

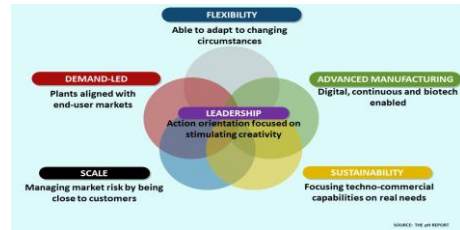
The paradigm shifts will create Winners and Losers as 'business as usual' strategies reach the end of the road



From supply driven and product focused



To demand driven and solution-oriented



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in the questions window!

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