



What will Chemicals' Role be in the Capital Markets to the End of the Decade

Morgan Stanley

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Discussion Today

What are the Capital markets focused on today?

What threatens chemicals' relevance in the capital markets?

Are these threats real or perceived?

What matters for continued capital formation?



First, what has happened historically?

Materials and energy have shrunk in terms of S&P 500 relevance

S&P 500 Market Cap weight by sector



Source: Morgan Stanley Research

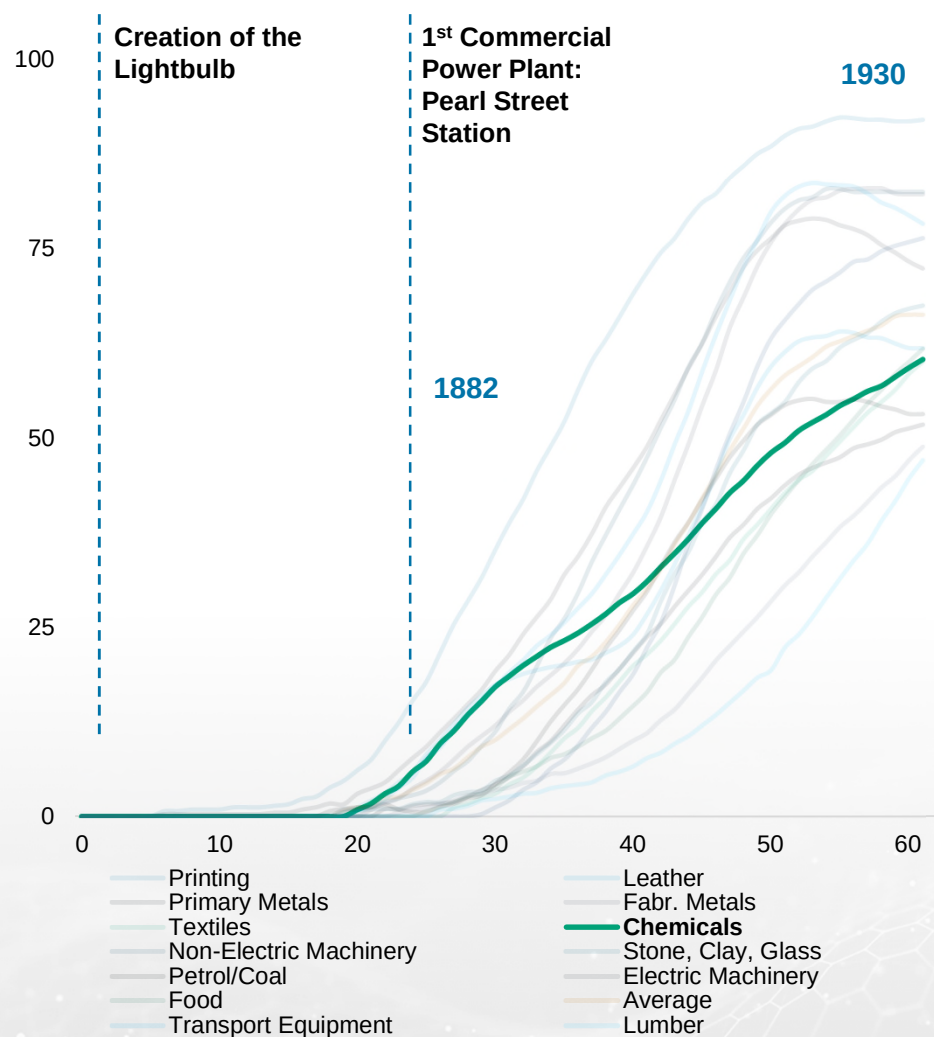
Morgan Stanley



The market is always focused on growth

Chemicals had two historic growth phases

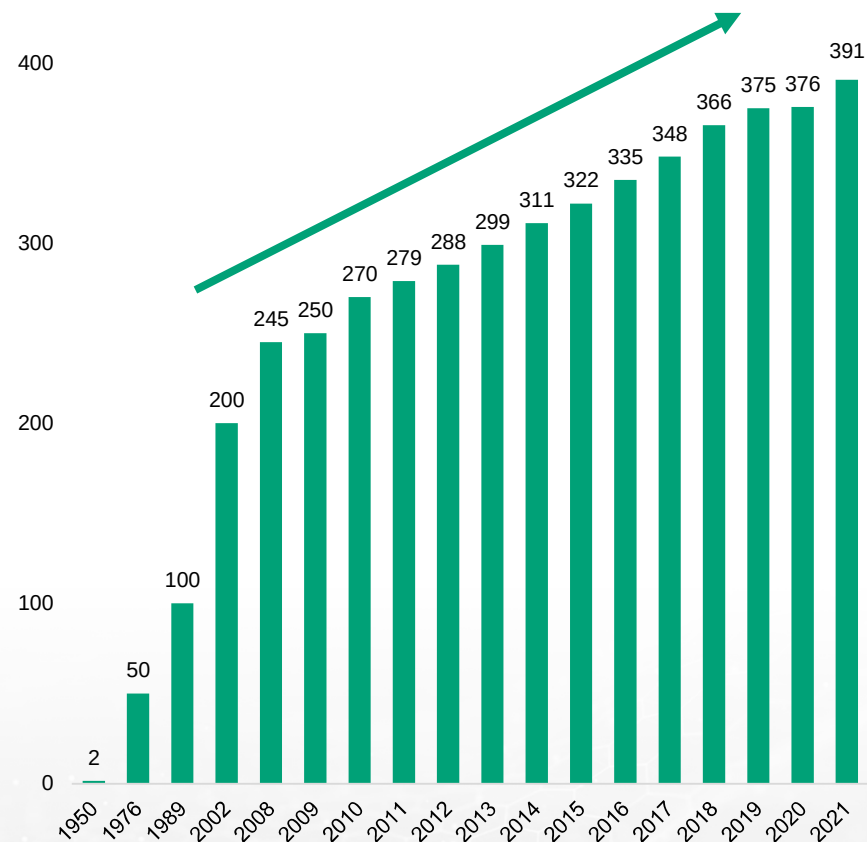
Electricity Breakthroughs, Catalysts, & Adoption by Industry



Source: OurWorldinData, Morgan Stanley Research

Annual production of plastics worldwide from 1950 to 2021

(MM Metric Tons)



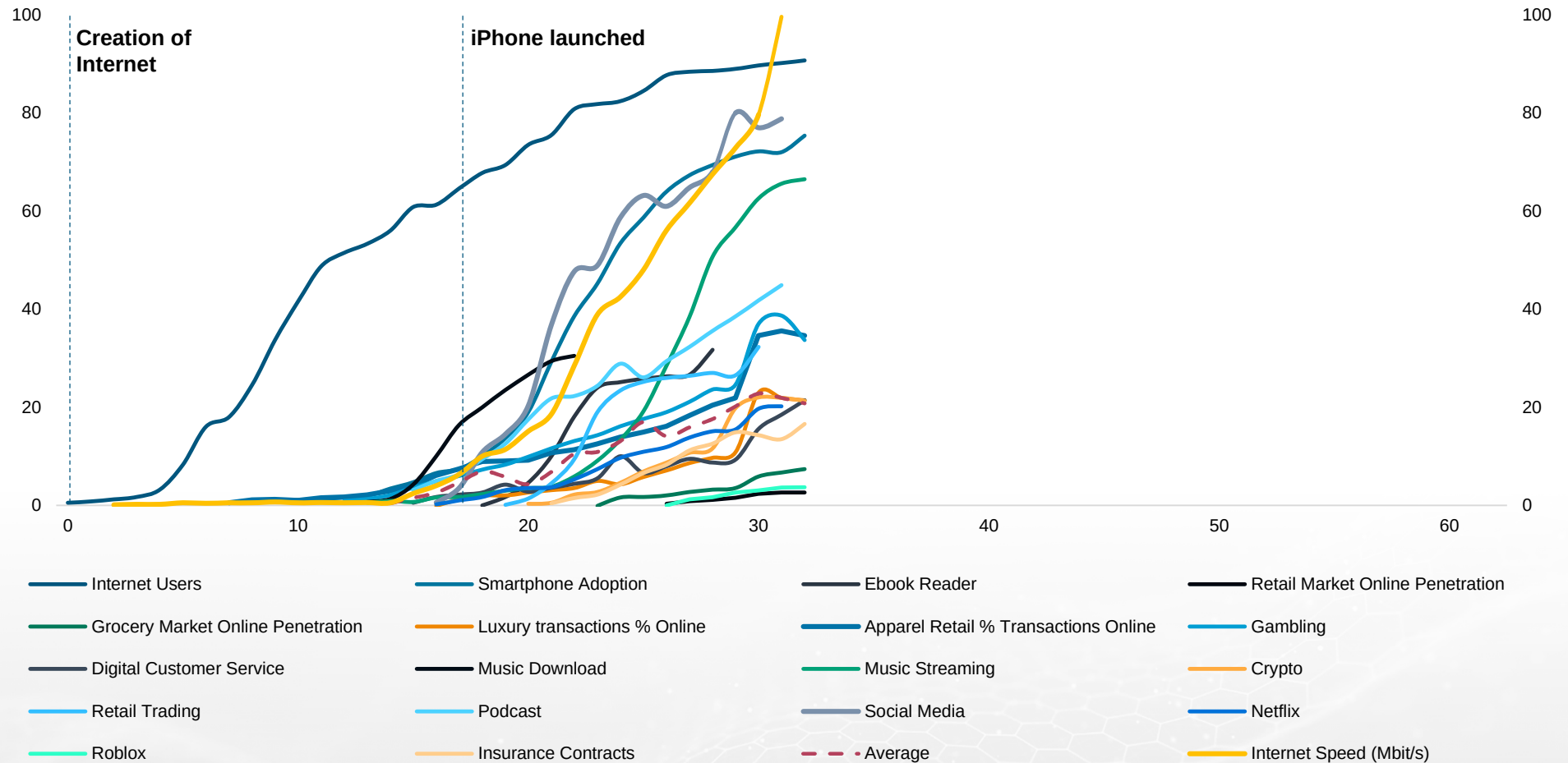
Statista, as of 2022



The market is always focused on growth

We have witnessed the recent internet growth wave, hence 30% of the S&P 500

Internet Catalysts, Consumer Adoption & Internet Speed

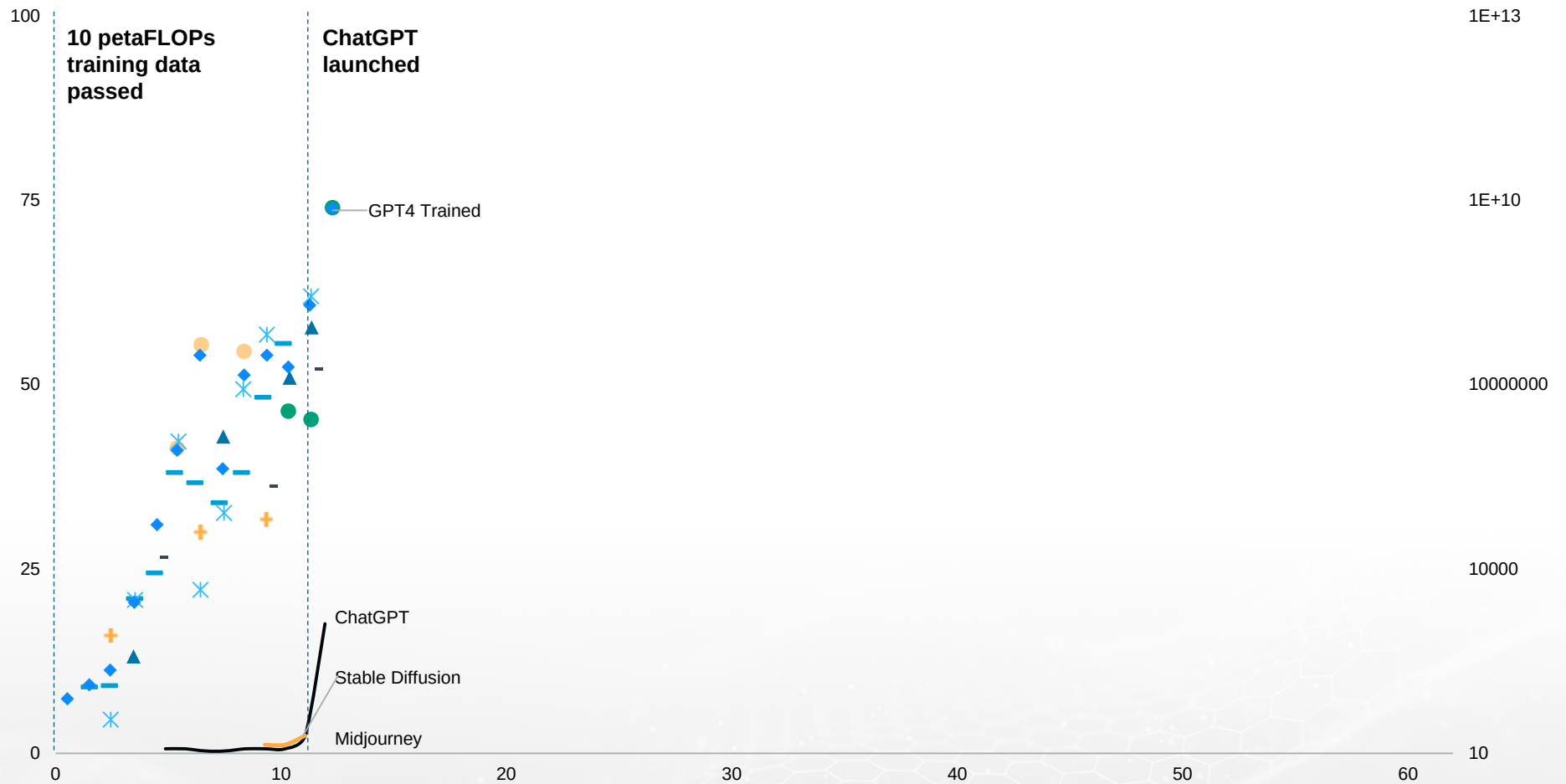


Source: OurWorldinData, Morgan Stanley Research

The market is always focused on growth

And now all we read about is AI; what will that portend?

Artificial Intelligence Training Intensity, Catalysts & Consumer Adoption



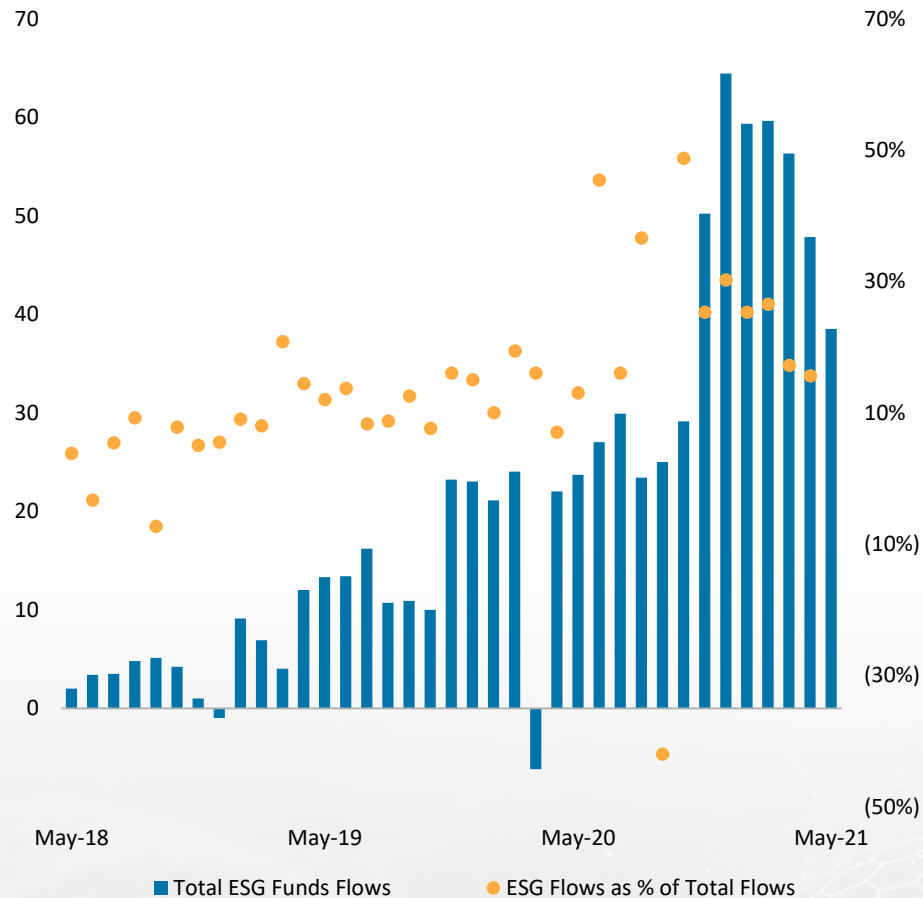
Source: OurWorldinData, Morgan Stanley Research



Capital markets are focused on threats versus growth

Global ESG Fund Flows

(\$ Bn)



Source: Morningstar, Morgan Stanley Research

Threats

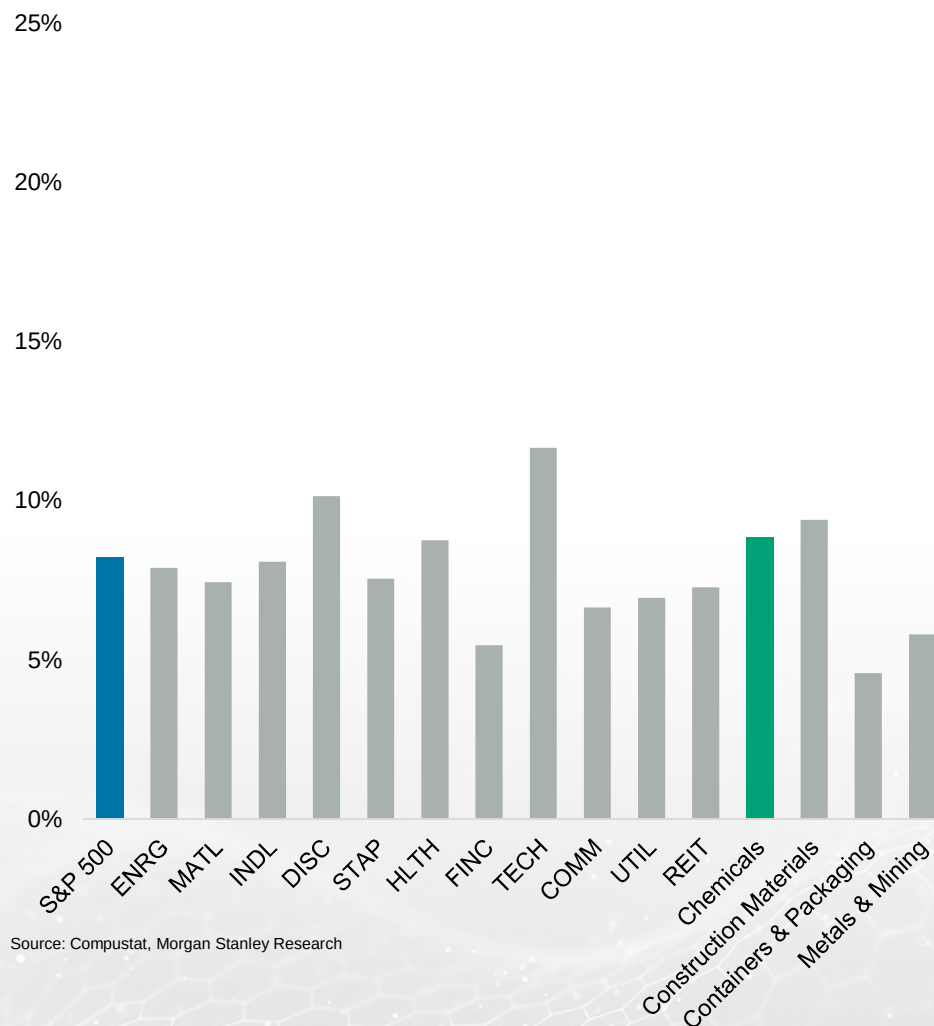
- Single-use and general plastic bans
- Non-renewable vs. renewable
- Sustainability requirements / goals
- Carbon Intensity
- Energy Intensity
- Water Intensity

However, Chemicals still matter in the capital markets

Chemicals have been good investments

Sub-sector S&P 500 Annualized returns since 1998

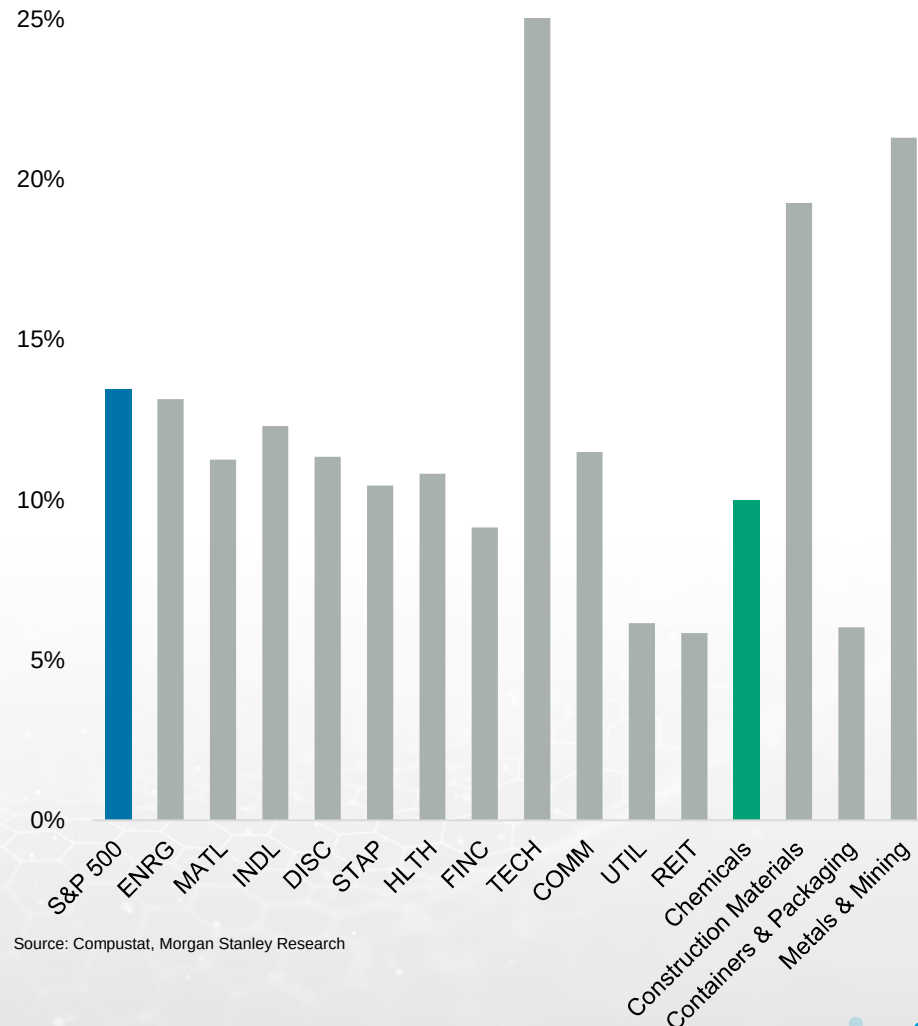
(%)



Source: Compustat, Morgan Stanley Research

Sub-sector S&P 500 Annualized returns since 2019

(%)



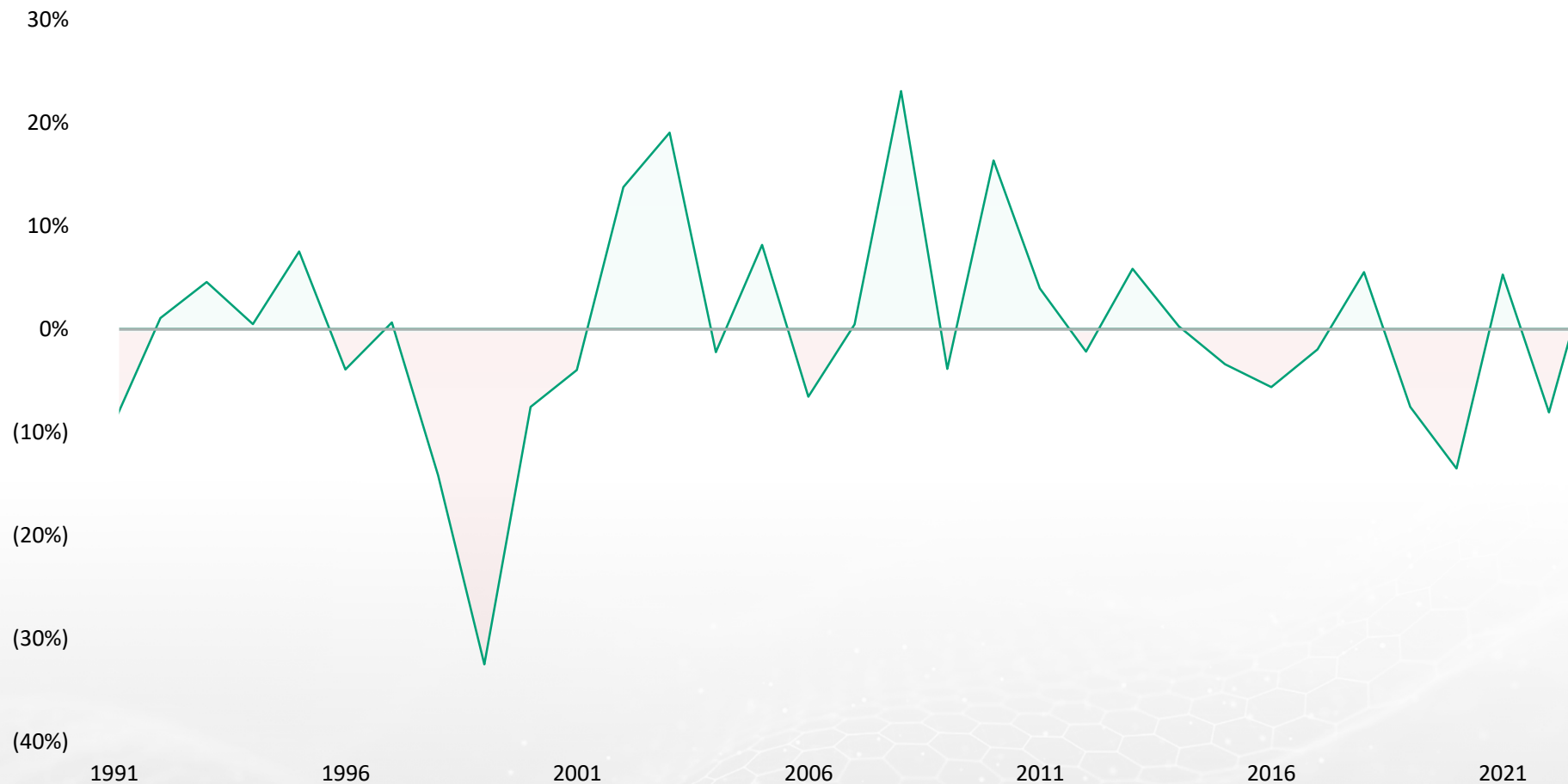
Source: Compustat, Morgan Stanley Research

Chemicals outperform the S&P 500 periodically

Chemicals are a critical investing sector

Chemicals Sector Performance Relative to the S&P 500

Annual performance of the S&P 500 Chemicals index relative to the S&P 500



Source: Capital IQ

What is the case for chemicals future growth?

Chemicals are essential for global growth trends

Energy Transition



Housing



Mobility



Infrastructure



Technology



Consumer



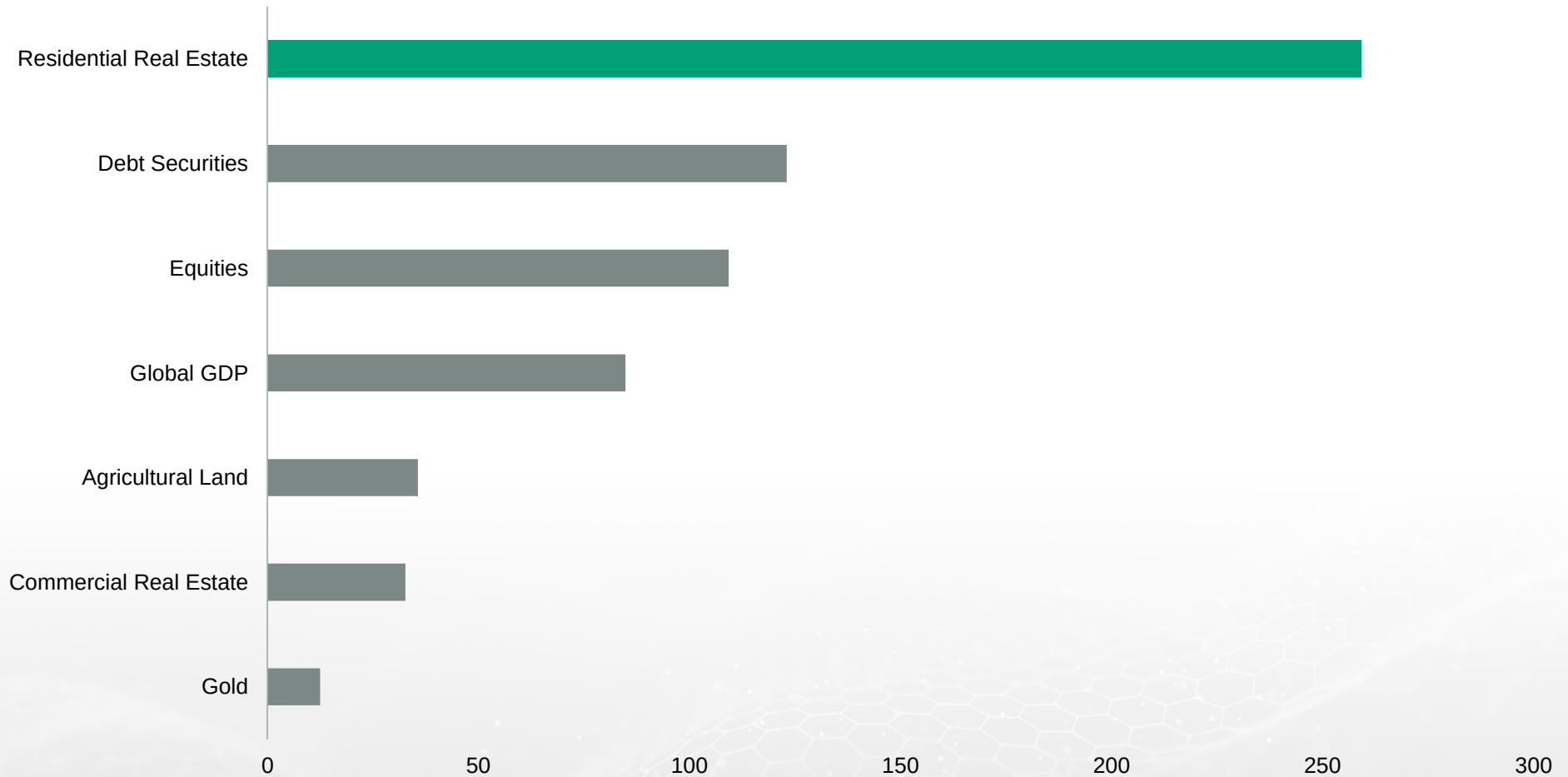
Follow the trends and adapt the products

Housing is a critical asset

We still need a house to use all our tech

Residential housing is the world's largest asset class and a central driver of monetary policy and the business cycle

Value of Asset Classes in 2020 (\$ Tn)



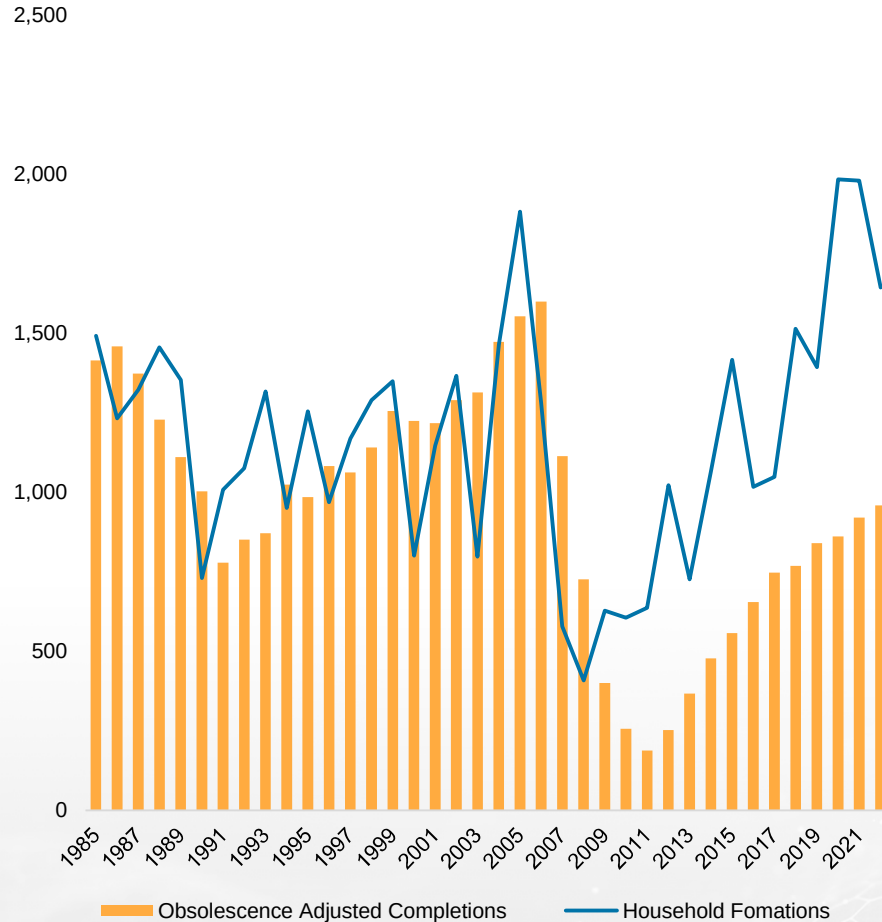
Source: Savills, Morgan Stanley Research

But we aren't building enough

This deficit is a global phenomenon

Marginal demand for shelter has been outpacing supply

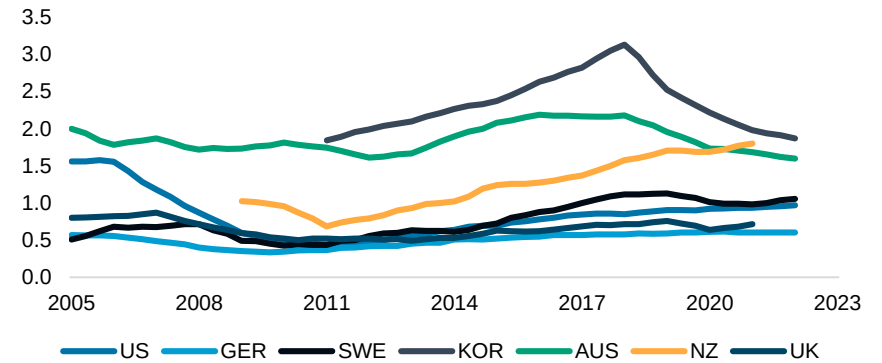
(Thousands)



Source: US Census Bureau, Urban Institute, Morgan Stanley Research

Housing supply did not lift significantly during the post-Covid price lift, given significant disruptions and shortages

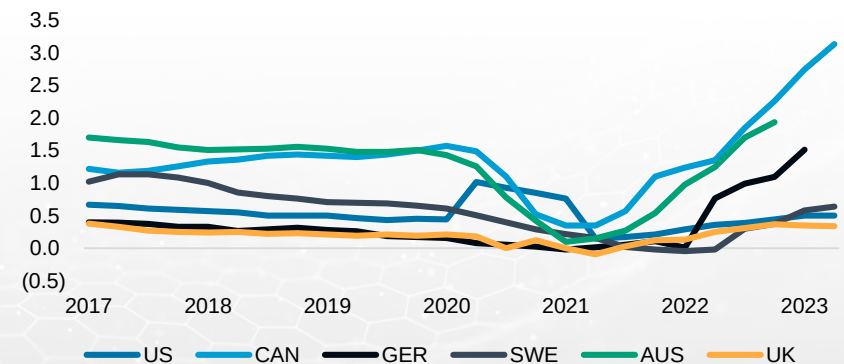
Annual housing completions (% of housing stock)



Source: Haver, Bloomberg, Morgan Stanley Research

At the same time, population growth is accelerating in many developed market economies as migration recovers

Population growth (%Y)

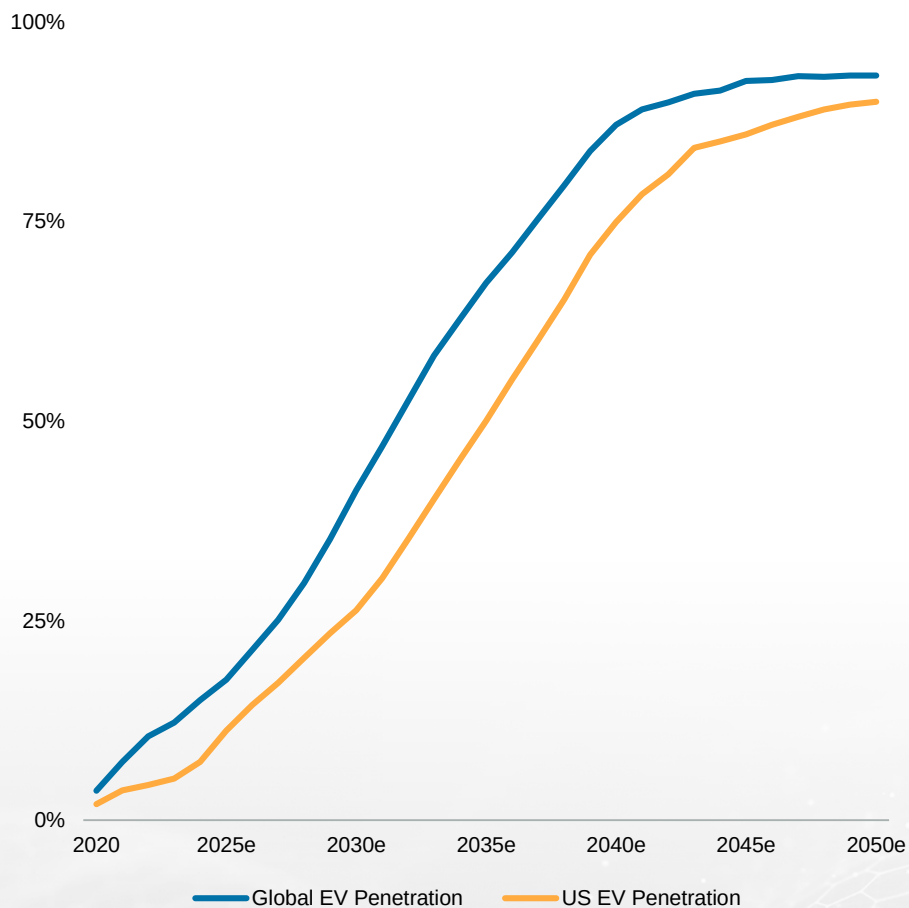


Source: Source: Haver, Bloomberg, Morgan Stanley Research

The EV revolution cannot happen without chemicals

The sector is positioned to capitalize on opportunities in the EV supply chain

US Global vs. Global EV Penetration



Source: Morgan Stanley Equity Research

Chemicals



Light-weighting



Tires



Electrolytic Materials



Extraction



Protective Materials



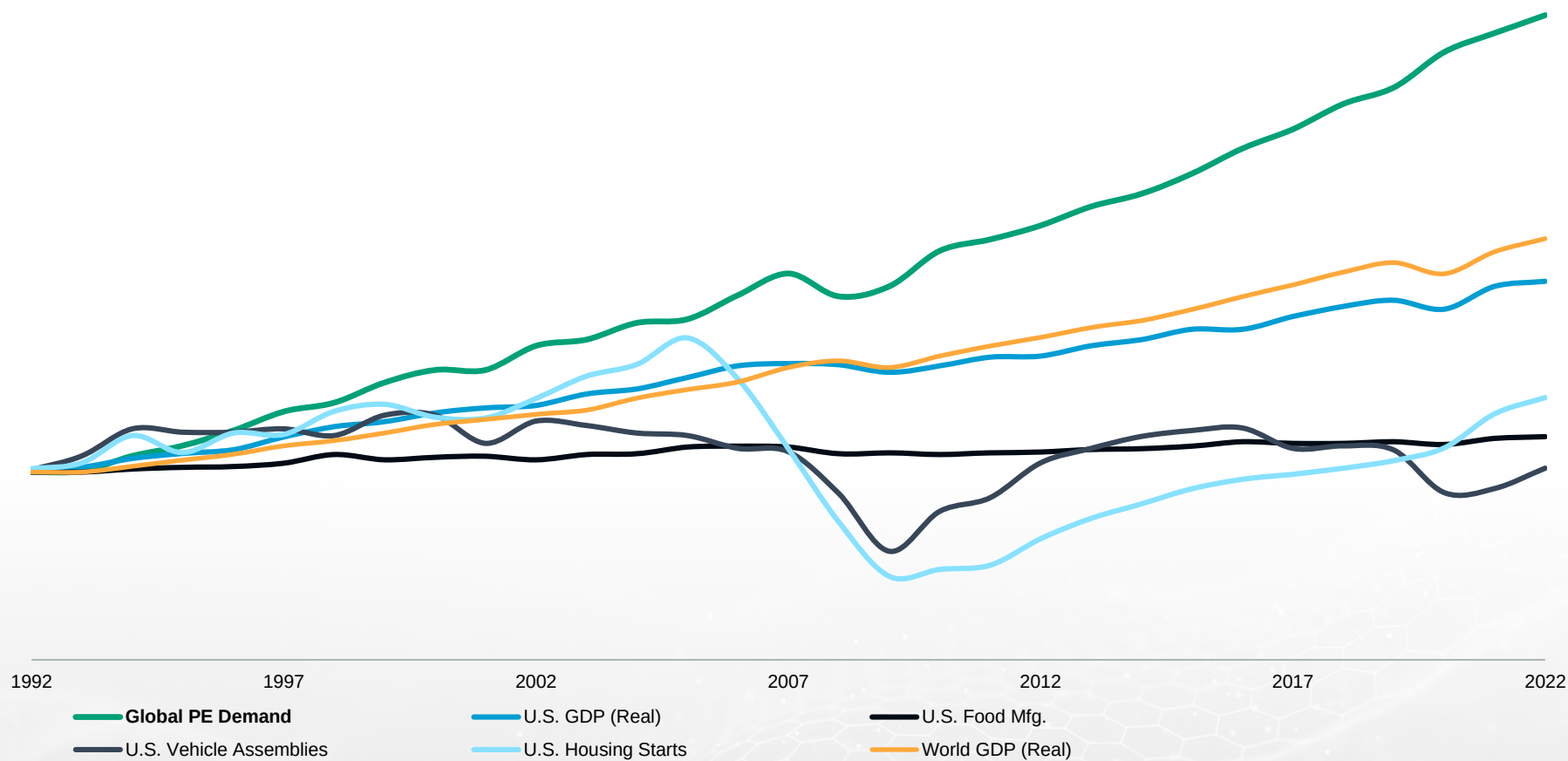
Wire and Cable

Plastics are still a growth market

Consumer demand continues to grow

Key macro trends driving polyolefin demand

Values indexed to 1992



Source: IHS Markit (Lyondellbasell Investor Presentation)

What else do the capital markets care about

Capital Markets Focus

Supply / Demand

- Long term capacity growth is needed
 - Need continued innovation around less carbon and energy intensity
 - Pacing is critical
 - Markets move on both cycles and existential shifts
 - It's never as good or as bad as the market thinks
-

Cost Position

- Regions will play different roles over time
 - Temporary vs. permanent effects
 - Markets often get this wrong
 - Market is expecting a geographic rebalancing needed over time
-

Sustainability

- Expects commitments to be made despite the specific path not being pinned down
 - New technology sounds exciting, but comes with risk and time for adoption / tech curves
-

These affect profit over time and capital allocation: Returns are Critical

Returns are Critical

Can't address growth and sustainability at all costs

Weighted Average Cost of Capital (WACC) of S&P 500 Chemicals over the last 20 years

(%)

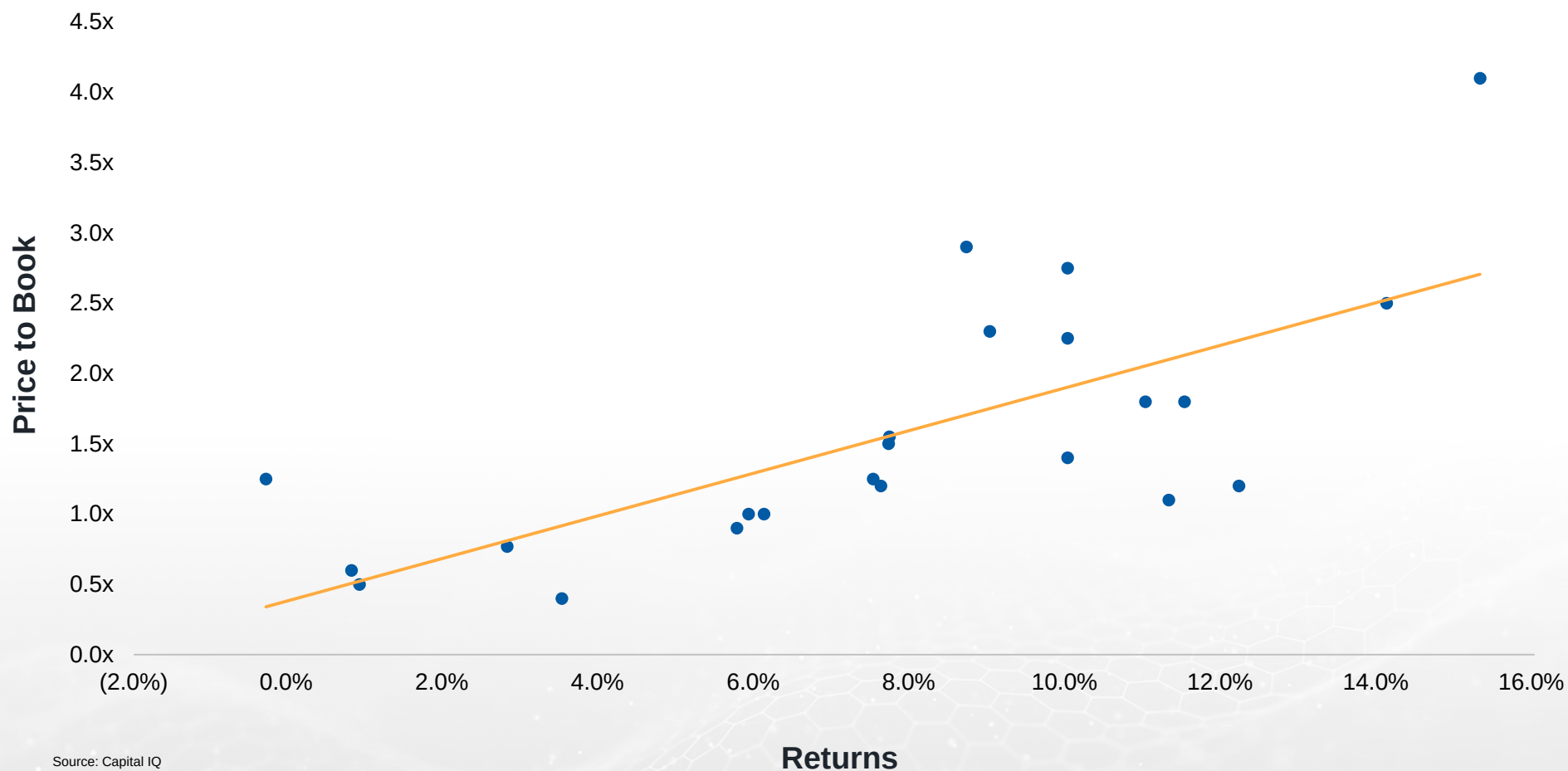


Source: Capital IQ, as of August 27th, 2023

Returns are Critical

Markets value how much you can make over the capital you employ

Multi-sector Chemical Players



Source: Capital IQ

Markets reward financial discipline

Earnings growth comes from:

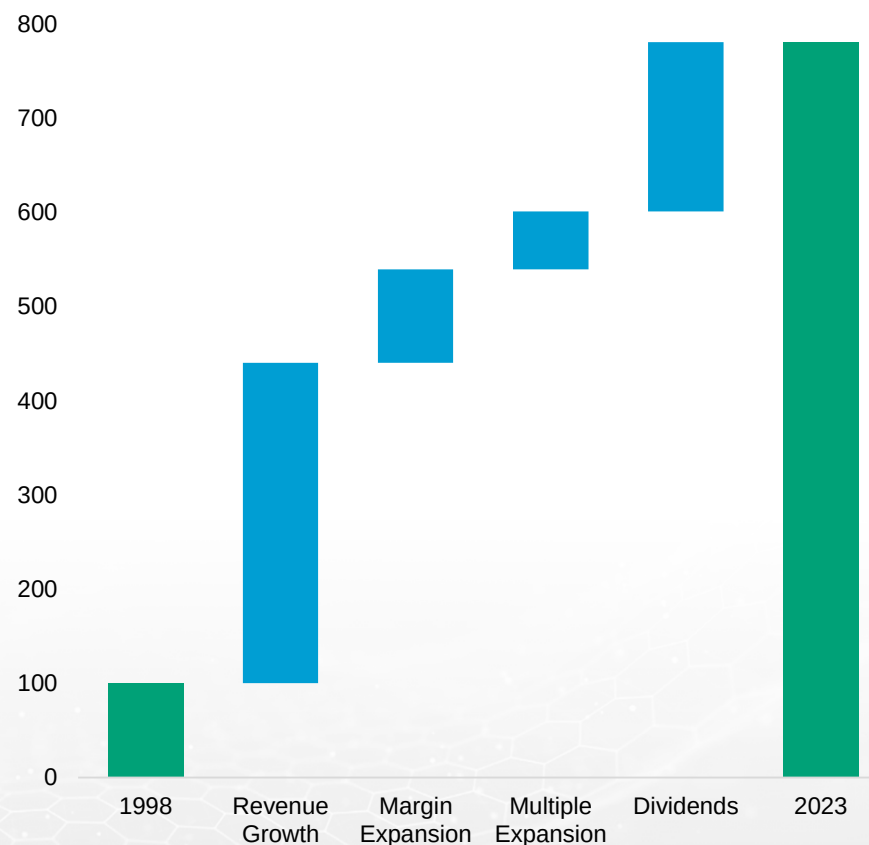
- More Volume
 - Discipline: there is a “price” for more volume
- More profit per volume
 - Discipline: dollars over the long term matter overall
- M&A
 - Discipline: key tool to grow and broaden
- Share buybacks
 - Discipline: sometimes the best investment is your own stock

Dividends come from:

- Free cash flow
 - Discipline: **profit doesn't always equal cash**

Route to S&P 500 Chemicals Returns

Total shareholder return components, indexed to 100

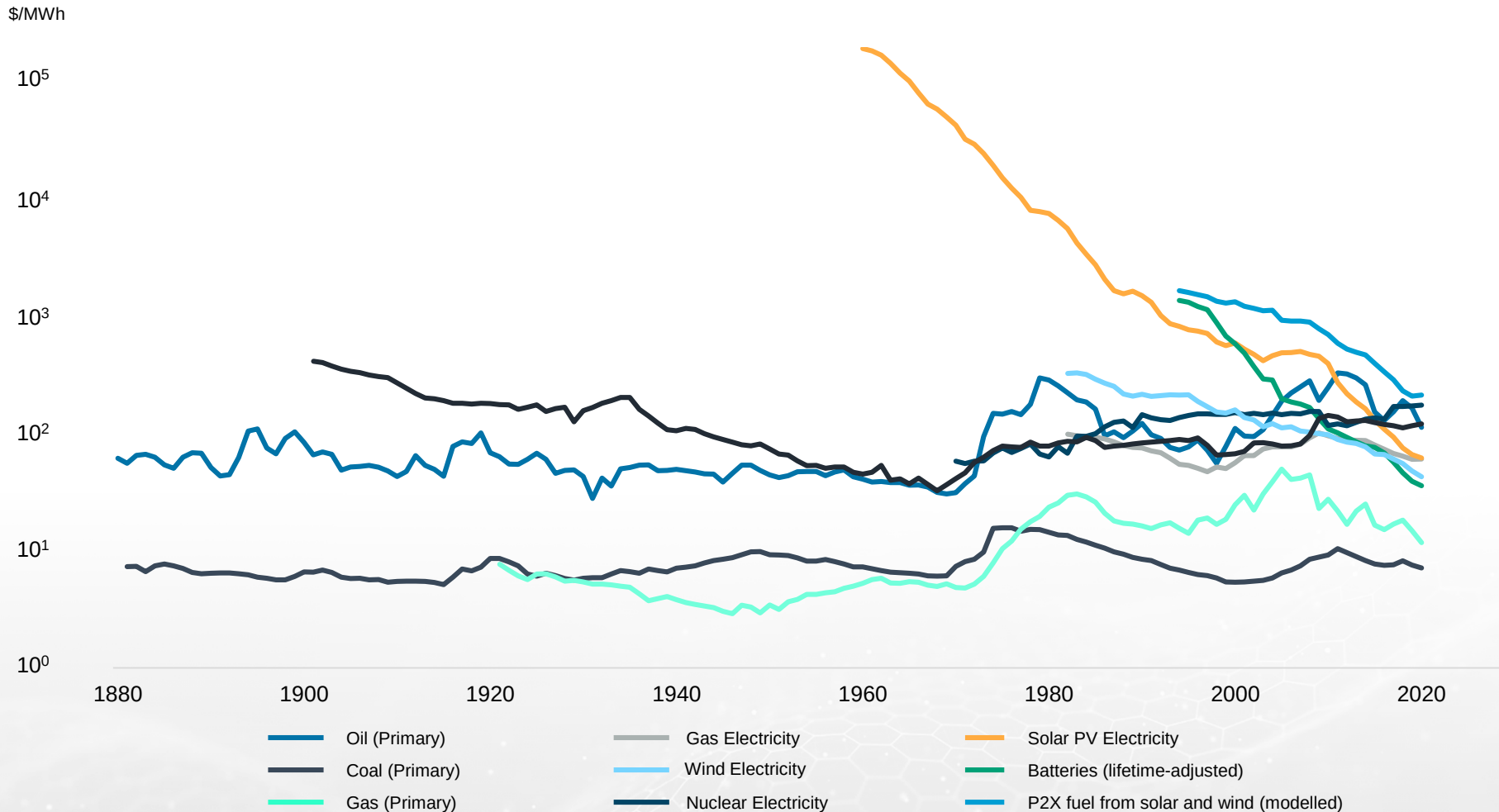


Source: Compustat, Morgan Stanley Research

Shifting our energy and carbon intensity will take time

Innovations are critical

Energy cost and production over time by traditional and alternative energy sources



Source: DOI

Besides the equity markets, debt markets demand the same discipline

Why even deal with public capital investors?

- Hard to get credit for growth projects...

“Where’s the money?”

- ... especially new technologies

“I’ll believe it when I see it”

- Energy / Carbon transition is just cost and no benefit

“Cost of doing business”

- Products under threat

“Low growth / declining growth story”

But... you will have debt investors:

- Private companies
- Financial sponsors
- Sovereign wealth
- Funds

All have debt investing that requires the same growth, returns, and resulting cash flow

- Investment Grade
- Project Financing
- High Yield

Still a low cost of capital source

Cash flow is debt market obsession

What can you do?

Growth

- Market is growing fundamentally
 - Choose the growth lanes to participate in
 - Ride out cycles – things can change quickly
 - Segments in decline exist
- Consumers are demanding a different type of product set
 - Innovation is paramount
 - Recognize the journey and economize the ambition
- Adoption curves and cost of technology takes time
 - Corporate actions and policy demands should be forgiving

Returns

- There is a well established “cost of capital”
 - Returns on that capital are driven by incremental profit (over the cycle)
- Engineer the required returns through getting the industry’s fair share
- Sustainability doesn’t happen overnight, and we shouldn’t shoulder a disproportionate cost
- Demand a return on the investments required for the future of our industry

Closing thoughts

- We can't let people forget that the chemical sector is vital to the global economy
- As such, growth vectors are plentiful even with some of our products declining or transitioning routes of production
- Innovation is as important as ever to evolve the industry, but there is no “network” effect— it takes time and capital
- Not only growth, but cash flow is also a critical element to attract debt and equity investors
- Routes to cash flow are through the discipline of getting adequate returns that are warranted given our essential materials

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