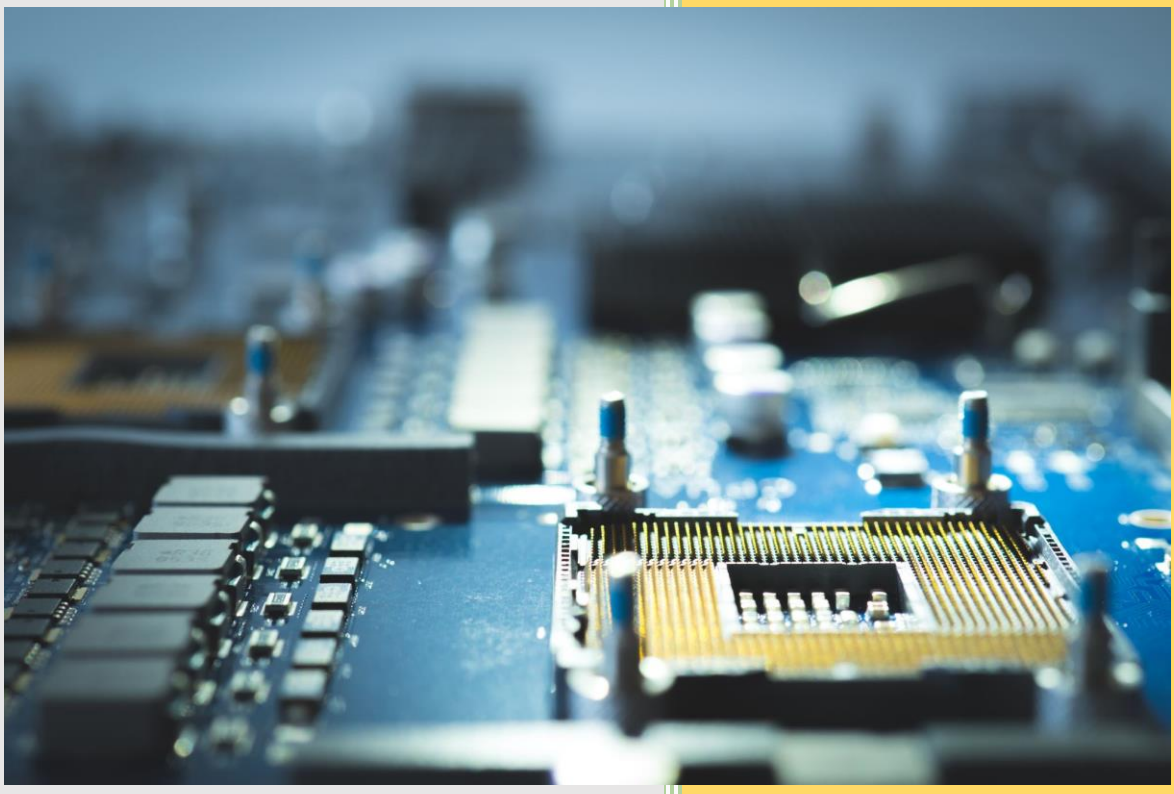
EEG
Evans Economics Group

September 2023

Global Macro & Manufacturing Monitor



Transitioning To A New Global Economy

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Executive Summary

*The Evans Economics Group (EEG) is proud to announce we are launching the **Global Macro & Manufacturing (GMMM)** newsletter in collaboration with Custer Consulting Group (CCG). We will need a critical mass to continue publishing, so please contact us, ASAP, if you are interested in subscribing.*

Prophetic Insights: Previously at CCG, we made accurate forecasts on the global economy and electronics manufacturing.

Early COVID Warning: We warned of the economic risks posed by COVID in January 2020, months before it spread widely.

Accurate Inflation Prediction: While many feared deflation at time, we accurately predicted an increase in inflation due to central banks' monetary policies.

Continuing Uncertainty: The global economy and electronics manufacturing sectors still face significant turbulence and structural changes.

Economic Drivers: The protracted contraction in global manufacturing is mainly due to a combination of global consumer preferences shiting away from durable goods, which were pulled forward during the pandemic, to services amidst several macroeconomic challenges.

Consumer Electronics Challenged: The consumer electronics industry faces a difficult next few quarters, possibly until mid-2024, when central banks start to reverse their restrictive policies and drop interest rates.

Thriving Sectors: Some non-cyclical sectors like electric vehicles, healthcare tech, renewable energy, and cloud computing are performing well in the current economic landscape.

Manufacturing vs. Services: Manufacturing dominates headlines, but services contribute over 70% of GDP in OECD nations, playing a vital role in economic growth.

Consumption Trends: Real personal consumption or unit demand of durable goods in the U.S. remains 4 percent below its COVID peak, depressing global manufacturing.

Price Dynamics: Relative prices of durables and services are shifting, with services still showing an upward trend and durable prices reversing its secular decline during the pandemic and still grappling to find their equilibrium.

Geopolitical Risks: We highlight the rising geopolitical tensions between the U.S. and China in our Thucydiides's piece, emphasizing the need for careful diplomacy to avoid conflict.

We're Back!

It has been a little over a year since stepping down as Custer Consulting's chief economist, where we made some prophetic, and actionable calls on the global economy and the electronics manufacturing industry.

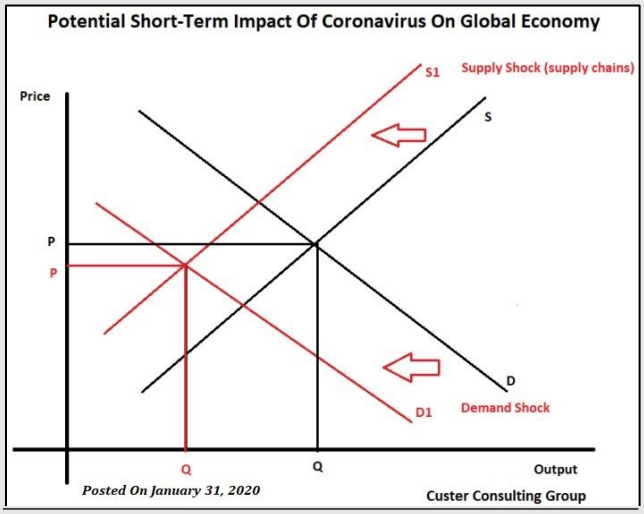
We are now back, and the Evans Economics Group (EEG) is pleased to announce the launch of its Global Macro & Manufacturing (GMMM) newsletter. It will be published monthly with timely weekly updates. We will continue to work closely with Jon at Custer Consulting Group (CCG) to maximize our value to our readers and customers.

Timely Actionable Research

During my tenure at CCG, we wrote timely and actionable analysis on the global economy and the COVID-19 crisis. Our insights helped our readers understand and navigate the most treacherous economic environment since the Great Depression.

Though the pandemic has primarily faded, the global economy and electronics manufacturing sector is still amidst one of its most tumultuous and disorderly periods of structural change in modern history.

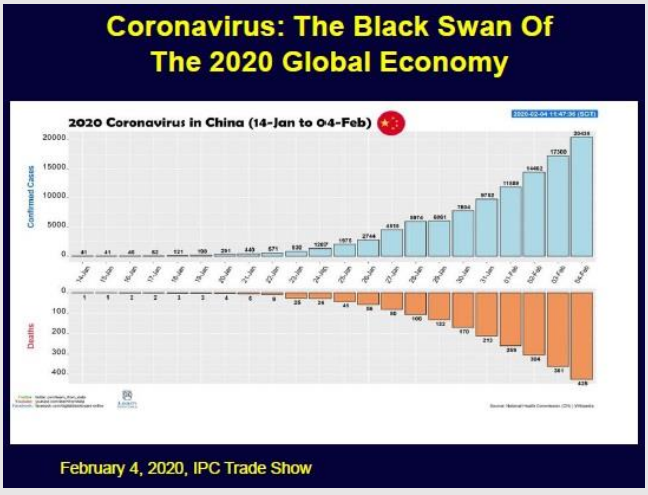
We are back to help our readers pilot the uncertain path to the new world economic order, which is now emerging.



"There is a supply shock to global manufacturing as many factories in the world's supply chain will be shuttered for longer…increasing price and production pressures. Ergo component shortages, higher prices, and lower production." *Custer Consulting, January 2020*

Way Ahead of COVID

We were all alone warning of the economic risks posed by COVID when we posted our piece, *The Global Supply & Demand Shock Of The Coronavirus*, in January 2020. We presented our concerns at the February 2020 IPC Apex conference, one month before the first non-travel COVID case was reported in the United States.



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"I skate to where the puck is going to be, not where it has been" – Wayne Gretzky

Early With the Right Inflation Call

We were also very early and accurate with our inflation call. While most were fretting over a deflationary collapse we worried about a spike in inflation over the medium-term in our May 2020 post, *Depression Data But Depression Not The Base Case*, as the global central banks printing presses were working overtime. As we wrote our piece, the year-on-year CPI inflation rate was troughing with the May 2020 data coming in at 0.2 percent. Our business philosophy is to provide you with a solid analysis signaling to where we believe "the puck is going, not where it has been."

"While many fret over temporary deflationary pressures, some of which are just relative price changes as the economy begins to adjust to the post-COVID new normal, we fear more about a potential wave of higher inflation over the medium-term, which absolutely nobody is expecting… We also believe the economy has already troughed and the employment data will bottom in May allowing GDP to realize a fairly sharp snapback in Q3, which will most likely exceed the 3.9 percent largest Q/Q GDP increase in the post-WWII period, realized in Q1 1950." – Custer Consulting, May 2020

Actionable Research

Our research is actionable and provides insight to our readers, helping them to plan and make strategic decisions. We found business opportunities even during the depths of the pandemic.

What To Do Now?

Manufacturers can take advantage of this crisis by: 1) re-accessing and developing a rigorous mapping of their supply chains; 2) using the weakness in commodities to lock-in longer-term contracts or hedge price increases, 3) taking advantage of the collapse in interest rates by refinancing outstanding debt, locking in long-term financing, or hedging a future increase in interest rates.

…We also suspect protectionism will rise and pressure to as well as the desire to onshore a larger portion of supply chains will increase on the other side of the crisis. Over the longer-term companies with the ability to move to a more vertical supply chain will probably do so.

Finally, we believe the dominance of the just in time inventory management model will begin to fade. Almost all companies throughout the supply chain will begin to carry larger inventories, which will require storage and financing thus pressuring profit ***margins.*** *– Custer Consulting, April 2020*

The Custer Electronic News Word Cloud

The following is a cloud of the Top 100 words from all of Jon's August CCG Electronic Manufacturing Daily News Headlines. It's a decent lookback to gain of sense of what has dominated the headlines in the electronics manufacturing sector during the past month.

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> ***[the] consumer electronics industry… remains challenged due to the pull-forward of demand in prior years and the various macroeconomic factors that we are all too familiar with…Our industry continues to experience lower consumer demand due to the pandemic pull-forward of tech purchases and the shift back into services spend outside the home like travel and entertainment… – Best Buy Earning Release & Conference Call, Aug 30th.***

Current Outlook

Durables vs. Services

Economies worldwide have thus far managed to steer clear of a recession, but the ongoing sustained decline in the global manufacturing sector paints a more complex picture. This phenomenon is succinctly explained by the above statement from Best Buy's CEO.

On a global scale, consumers are still navigating the transition from the significant surge in durable goods purchases during the COVID era back towards services. Furthermore, consumers are facing various macroeconomic challenges, including elevated inflation rates, mounting interest rates, a tightening monetary policy, and slowing economic growth.

Moreover, the growing weakness of the global consumer is another driving force behind the prolonged downturn in the consumer electronics industry. We anticipate that this sector will continue to face challenges until mid-2024 when central banks begin to reverse their restrictive monetary policies and initiate interest rate cuts to stimulate demand.

It's worth noting, however, that many non-cyclical sectors are thriving within the electronics industry thanks to ongoing secular growth trends. These include electric vehicles, healthcare technology, renewable energy infrastructure, and cloud computing. These sectors are faring considerably better in the current economic landscape

The Swiftie/Barbie Economy

In his Axios article titled "The Economy Runs on Girl Power," Felix Salmon argues that Taylor Swift's "Eras" tour, along with the record-breaking box office sales of the "Barbie" movie, is giving a significant boost to spending on services and helping the U.S. economy steer clear of a recession.

Salmon also observes that "among the 69 markets monitored by Moody's for hotel performance, those that featured a stop on the 'Eras' tour witnessed a notable upswing in revenue per available room compared to the same month in the previous year."

He further posits the U.S. economy during the summer was driven by a novel equation:

Taylor Swift + Barbie = Goldilocks

The equation alludes to an economy characterized as "Goldilocks," where conditions are neither excessively hot nor excessively cold, which fairly portrays the current economic climate in the United States.

Undoubtedly, the Swiftie/Barbie economy was reflected in the latest ISM services PMI, which unexpectedly jumped to 54.5 in August 2023, indicating the most robust growth in the services sector in six months. The price component came in quite hot, putting a dent in Goldilocks theme, however.

Manufacturing vs. Services

Manufacturing of durable goods typically dominates economic headlines, owing to its tangible nature and the availability of extensive historical data. For instance, the straightforward process of tallying durable goods production on an assembly line starkly contrasts the intricate challenge of quantifying services. While dentists can quantify filled

teeth, measuring the output of customer service reps or auto mechanics performing a range of tasks is far from straightforward. Services like housekeeping, investment advice, teaching, and writing present complexities in output measurement.

Nonetheless, it's essential to recognize that services constitute the lion's share of economic activity, contributing over 70 percent of GDP in OECD nations. As we are currently observing, services play a pivotal role in driving economic growth and often serve as a vital counterbalance to a weakened manufacturing sector.

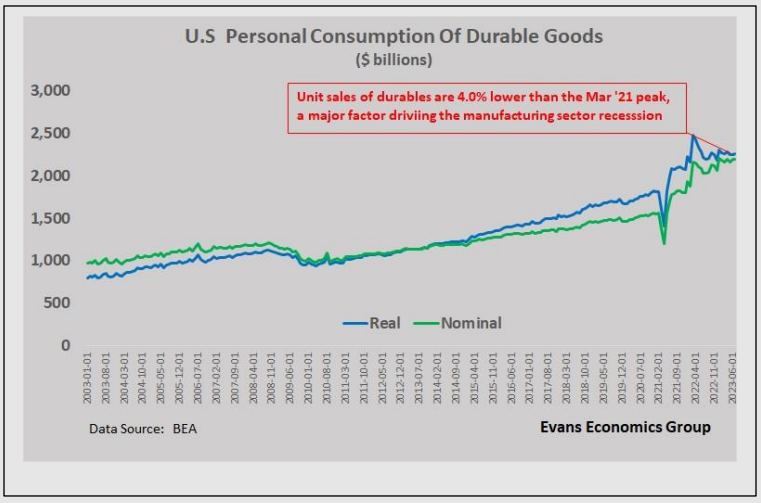
The service sector in the United States continues to display relative robustness. Conversely, the Eurozone recently experienced its first contraction in the services Purchasing Managers Index (PMI) since the preceding December. This contraction rate is the swiftest since February 2021, with all four major Eurozone economies reporting declines.

Consumption of Durable Goods

Real personal consumption of durable goods in the United States still lags, remaining 4 percent below the pre-COVID peak of March '21.

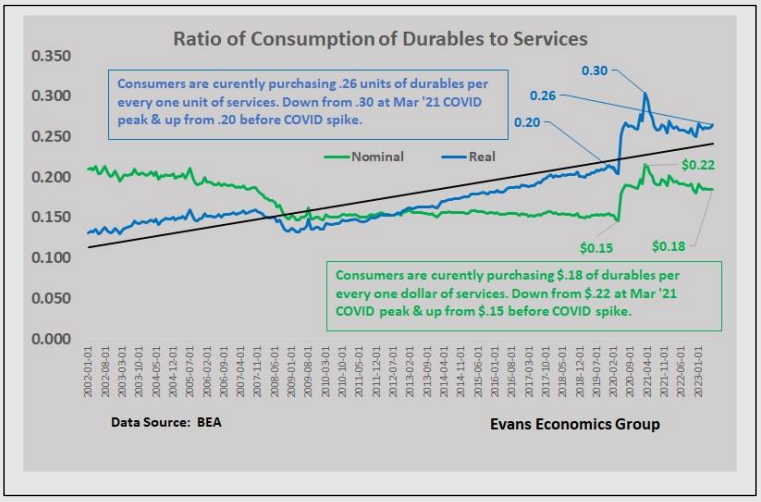
We believe this is the primary catalyst for the ongoing global manufacturing recession. It's highly plausible that a similar scenario is unfolding across Europe, Japan, China, and the broader Asian region. Having comparable monthly data from these countries would significantly enhance our ability to document and substantiate this trend.

Our chart, ***U.S. Personal Consumption of Durable Goods***, highlights the trend that real personal consumption of durable goods reached its zenith in March '21. The pattern does not hold when considering nominal spending, which includes price inflation



It is crucial to recognize that factories are driven primarily by actual unit sales, not the nominal dollar spending figures.

The ***Ratio of Consumption of Durables to Services*** chart further underscores this trend, revealing that in July, .26 units of durables were consumed for every unit of services, a decline from the peak of .30 but still an increase from the pre-COVID level of .20. When considering nominal consumption of durables, which accounts for prices, it currently stands at $.18 for every $1.00 spent on services. This marks a decrease from the peak of $.22 for every dollar of services consumed but is an improvement from the pre-pandemic figure of $.15.



The chart also highlights that the consumer preference mix between durables and services, as depicted by the ratio, requires some further adjustment to return to its long-term trendline.

Price Trends

Both charts above implicitly depict the shifting dynamics in relative prices between durables and services, a trend further illustrated in our chart***, Implicit Price Deflator Index: Durables vs. Services.***

Notably, the price of services exhibits a persistent upward trajectory, while the extended downward trend in durable prices saw a reversal during the pandemic and continues to seek its equilibrium levels

To underscore the contrasting trajectory of durable and service prices, we've assembled a table comparing the inflation rates of computers and televisions with those of medical services and college tuition. The findings are pretty remarkable: there has been an almost 100 percent price reduction for durables and a corresponding 100 percent increase for services since 2005.

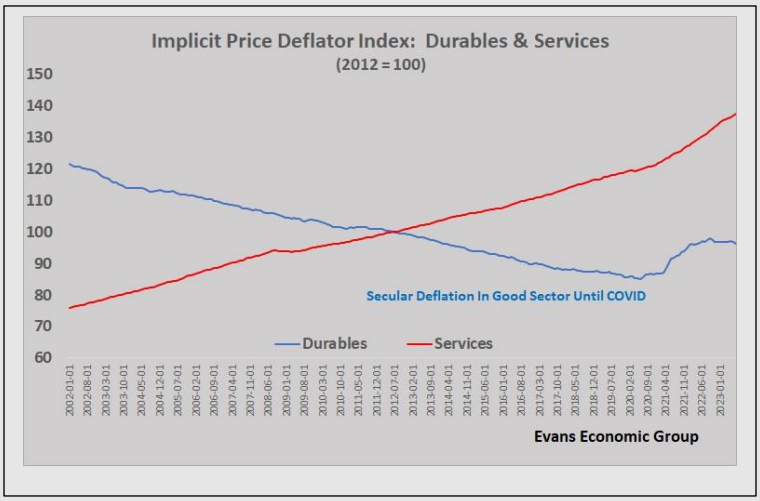
Upshot

Our analysis concludes that the ongoing shift in consumer preferences toward favoring services over durables has yet to run its course fully.

Compelling Examples of Durables vs Services Inflation
(Base Year: Jan 2005)

Durables	
Computers	-76.4%
Televisions	-96.0%
Services	
College Tuition	100.5%
Medical Services	79.3%

Source: BLS, CPI — Evans Economics Group



More importantly, a critical factor in revitalizing the manufacturing sector is reversing the macroeconomic headwinds confronting global consumers, a topic we delve into further in our country-specific outlooks below.

Country Outlooks **

United States – No Recession

In Q2, the US economy saw a 2.4% growth in GDP, outpacing the previous quarter's 2.0% expansion. This uptick was primarily driven by a resurgence in fixed investment, spurred by government incentives. However, there were signs of deceleration in consumer and government spending, and exports faced contraction. Despite having the highest Federal Reserve policy rates since the early 2000s, Q3 is demonstrating remarkable economic resilience. Retail sales, industrial production, and consumer sentiment all surpassed expectations.

Economic forecasts for 2023 have been upgraded, reflecting the stronger-than-anticipated performance in year-to-date data. Nonetheless, there are risks associated with the potential for higher-than-expected interest rates and the evolving dynamics of US-China relations. Our expectation is for economic

economic growth to reach approximately 1.6% GDP for 2023, with a gradual slowing to slightly below 1% in 2024, avoiding an outright recession.

Furthermore, we anticipate the Federal Reserve to initiate interest rate cuts by mid-2024, which should provide a boost to the consumer electronics industry.

United States

LONG-TERM TRENDS | 3-year averages

	2019-21	2022-24	2025-27
Population (million):	331	336	342
GDP (USD bn):	21,919	26,744	30,377
GDP per capita (USD):	66,272	79,675	88,728
GDP growth (%):	1.8	1.5	2.1
Fiscal Balance (% of GDP):	-10.6	-5.5	-5.6
Public Debt (% of GDP):	123	122	127
Inflation (%):	2.6	4.9	2.2
Current Account (% of GDP):	-2.8	-3.4	-2.7

Source Focus Economics

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Eurozone - Stable With Risks To The Downside

In the second quarter, the Eurozone's economy displayed sequential growth of 0.3%, an improvement from the flat performance in Q1. Growth was driven by a combination of factors, including declining but still relatively elevated inflation, reduced supply chain pressures, and lower energy costs. However, rising interest rates and a restrictive monetary policy acted as a growth constraint.

Among Eurozone nations, France and Spain both experienced 0.5% sequential growth,

Among Eurozone nations, France and Spain both experienced 0.5% sequential growth, while Germany's GDP remained unchanged. Italy's economy unexpectedly contracted by 0.3%.

The decline in economic sentiment in July can be attributed, at least in part, to the European Central Bank's (ECB) aggressively stirct monetary policy. The composite Purchasing Managers' Index (PMI) readings declined during July and August, with manufacturing still in a prolonged contraction.

In mid-August, Europe's gas storage levels reached more than 90% capacity, providing some protection against potential global energy shocks. Nonetheless, the overall economic outlook for the year remains subdued due to factors including elevated inflation, heightened interest rates, and global economic headwinds.

While acknowledging downside risks, we anticipate Eurozone GDP growth of approximately 0.5% in 2023, with a slight uptick to 1% in 2024.

Harmonized inflation in the Eurozone dipped to 5.3% in July, down from June's 5.5%, mainly attributable to a more significant decline in

Euro Area

LONG-TERM TRENDS | 3-year averages

	2019-21	2022-24	2025-27
Population (million):	337	339	341
GDP (EUR bn):	11,932	14,020	15,519
GDP per capita (EUR):	35,372	41,314	45,539
GDP growth (%):	0.3	1.7	1.5
Fiscal Balance (% of GDP):	-4.3	-3.3	-1.9
Public Debt (% of GDP):	92.3	90.8	88.2
Inflation (%):	1.3	5.6	2.1
Current Account (% of GDP):	2.3	0.9	2.0

Source: Focus Economics

energy prices. We expect this downward trend in inflation to persist as rising interest rates pressure domestic demand. As a result, we foresee harmonized inflation averaging around 5.6% in 2023 and gradually declining to approximately 3% in 2024. This trajectory should position the European Central Bank to commence interest rate reductions by mid-2024.

Japan – Improving outlook

In Q2, the Japanese economy exhibited remarkable resilience, with GDP surging by an impressive 6.0%. The growth data significantly surpassed market expectations and was chiefly propelled by a surge in exports driven by the recovery in the tourism sector.

However, amidst this positive export performance, private spending, a substantial component of Japan's GDP, contracted by 2.1%. This decline suggests that the initial post-pandemic spending momentum has dissipated. As export growth stabilizes and private spending continues to lag, we anticipate a slowdown in GDP growth to 0.2% in the third quarter.

The government is gearing up to introduce new economic stimulus measures in September, focusing on bolstering wages and investments in new technology. These measures hold the potential to sustain economic momentum.

Inflation stood at 3.3% in July, with core inflation dipping slightly to 3.1%. We foresee a cooling down of inflation in the coming months, although it will likely remain above the Bank of Japan's (BoJ) 2.0% target until the second quarter of 2024.

In a surprising move, the BoJ raised the ceiling on 10-year government bond yields to 1.00% in July while maintaining its policy rate at -0.10%. This adjustment aims to make the yield curve control policy more sustainable by attracting increased private investor interest in government debt.

We expect Japan's economy to grow by 1.5% in 2023, gradually decelerating to 0.9% in 2024.

Japan

LONG-TERM TRENDS | 3-year averages

	2019-21	2022-24	2025-27
Population (million):	126	125	123
GDP (USD bn):	5,059	4,427	5,327
GDP per capita (USD):	40,191	35,530	43,395
GDP growth (%):	-0.8	1.2	1.0
Fiscal Balance (% of GDP):	-6.1	-5.6	-3.0
Public Debt (% of GDP):	250.2	256.2	250.2
Inflation (%):	0.1	2.4	1.1
Current Account (% of GDP):	3.4	2.4	3.1

Source: Focus Economics

China – Deteriorating

In the second quarter, GDP growth increased due to a favorable base effect. However, third-quarter data paints a darker picture. The economy grapples with a beleaguered property sector, subdued consumer sentiment, escalating trade tensions with the West, and dwindling external demand.

Crucial economic indicators for July, including industrial production, retail sales, fixed investment, credit provision, and exports, all fell short of market expectations. The nation faces deflation, signaling a decline in domestic demand, while housing prices and property investments continue their descent. Country Garden, one of China's largest property developers, missed bond interest payments and reported substantial losses for the year's first half. Concerns about contagion in the $3 trillion shadow banking sector are rising, although a Lehman-like scenario is improbable in this centrally planned economy.

The economy is projected to outpace its 2022 performance this year. Nevertheless, the growth rate is still expected to be among the lowest in decades, prompting ongoing downward revisions in GDP forecasts for 2023. Downside risks persist, including the potential for further deterioration in the property sector and financial instability within the shadow banking system.

We anticipate economic growth of approximately 5.1% in 2023 and a GDP growth rate of 4.5% in 2024. While this is lower than the recent historical average, it still surpasses the Western economies by a significant margin.

China

LONG-TERM TRENDS | 3-year averages

	2019-21	2022-24	2025-27
Population (million):	1,412	1,412	1,407
GDP (USD bn):	15,594	18,675	23,039
GDP per capita (USD):	11,046	13,228	16,378
GDP growth (%):	5.5	4.3	4.3
Fiscal Balance (% of GDP):	-5.0	-4.6	-4.0
Public Debt (% of GDP):	67.5	81.5	-
Inflation (%):	2.1	1.7	2.0
Current Account (% of GDP):	1.5	1.7	1.2
External Debt (% of GDP):	15.4	14.7	16

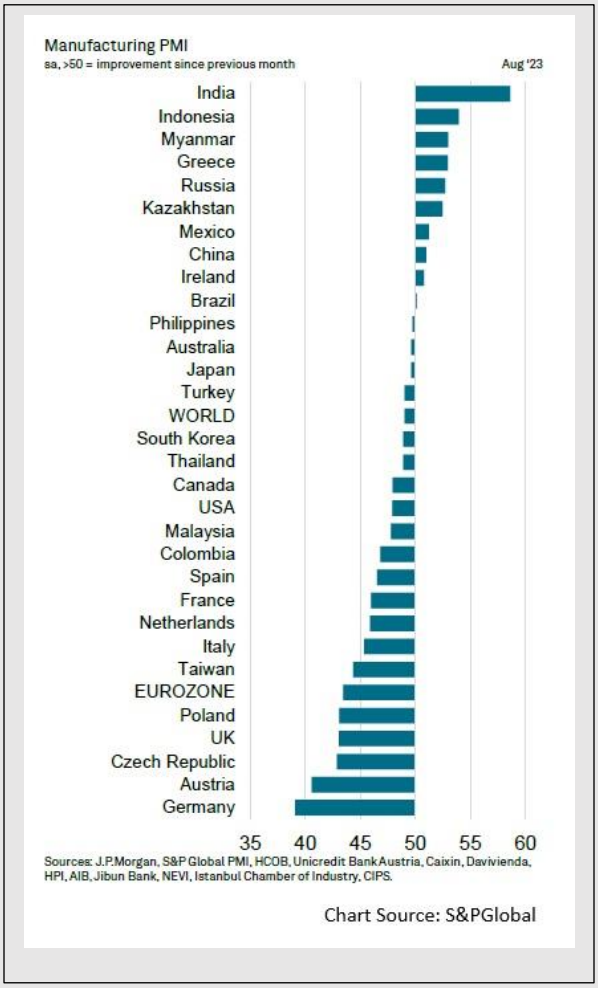
Source: Focus Economics

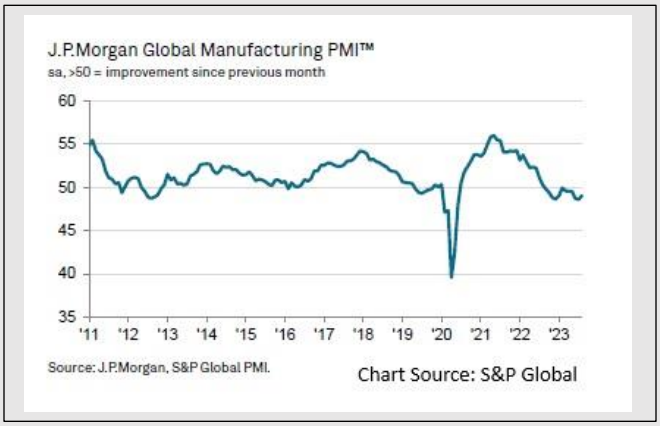
**** The country outlooks are a A.I. generated summary of FocusEconomics Consensus forecast – Major Economies, along with some of our edits and tweaks.**

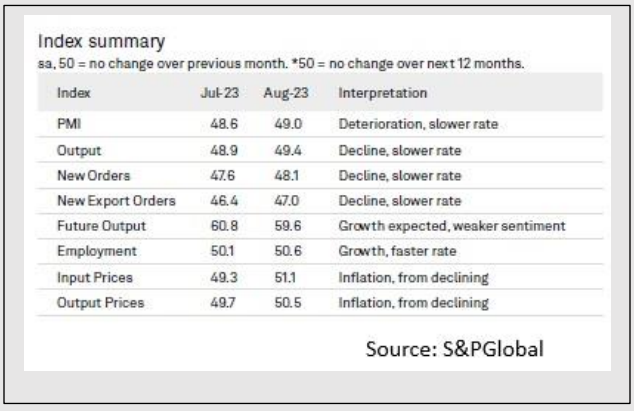
Global PMI Summary

In August, despite ongoing global manufacturing sector downturn, signs of easing contraction emerged from the PMI data:

- August PMIs indicated slight easing in global manufacturing contraction.
- J.P. Morgan Global Manufacturing PMI™ reached 49.0 (3-month high), remaining below 50.0 for 12 months.
- Production, new orders, and new export business declines slowed.
- Employment slightly increased.
- Manufacturing production declined for the third month; consumer goods saw mild growth.
- Euro area contracted, China grew, US returned to decline, Japan's downturn continued.
- Manufacturers adjusted to weaker conditions by reducing purchasing, stocks, and finished goods.
- Output and new orders rose due to China's 2.4-point increase.
- Excluding China, global output PMI declined, showing limited momentum.
- Other challenges included a 1.2-point future output index drop and a consistent new orders-to-inventory ratio signaling output decline.







Index summary

sa, 50 = no change over previous month. *50 = no change over next 12 months.

Index	Jul-23	Aug-23	Interpretation
PMI	48.6	49.0	Deterioration, slower rate
Output	48.9	49.4	Decline, slower rate
New Orders	47.6	48.1	Decline, slower rate
New Export Orders	46.4	47.0	Decline, slower rate
Future Output	60.8	59.6	Growth expected, weaker sentiment
Employment	50.1	50.6	Growth, faster rate
Input Prices	49.3	51.1	Inflation, from declining
Output Prices	49.7	50.5	Inflation, from declining

Source: S&PGlobal

Can The U.S. and China Avoid the Thucydides's Trap?

The world's liberal geopolitical order led by the United States, which has driven the global economy for more than 70 years, is now under severe stress. Based on rules-based international cooperation, the post-war order ushered in decades of relative peace and prosperity. However, it is now morphing into a world of uncertainty, with the rise of economic nationalism reflected in the proliferation of country-specific and even supranational industrial policies.

More importantly, the competition between the world's two dominant powers, the United States and China, is resetting cross-border trade and investment flow. Whatever future world economic order emerges, it will almost certainly result in a relatively lower trajectory of economic growth, higher inflation, and lower global prosperity in its steady-state equilibrium if one is ever to be obtained.

China's PPP GDP Exceeds The U.S.

Figure 1 illustrates the rapid rise of the Chinese economy, which is now 23 percent larger than U.S. GDP on a purchasing power parity (PPP) basis. The PPP exchange rate attempts to level the purchasing power of both countries. Think of the PPP as the exchange rate that equates the price of a Big Mac in New York and Beijing in dollars, for example.

Many are now speaking of "Peak China" and believe its about to enter a long period of Japanification. Not so fast!

No doubt the country has some enormous structural problems, but its tech sector continues to rapidly advance as exhibited by Huawei's recent release of the Mate 60 Pro, powered by SMIC's 7nm advanced processor.

Whoever becomes the leader in this sphere [A.I.] will become the ruler of the world – Vladimir Putin

Figure 1
The Rise of China's Economy

GDP - Nominal $ billions	1990	% of U.S.	2023	% of U.S.
China	397	6.7%	19,374	72.1%
U.S.	5,963		26,855	
GDP - PPP $ billions *				
China	1,108	18.6%	33,015	122.9%
U.S.	5,963		26,855	
GDP per capita Nominal $				
China	347	1.5%	13,721	17.1%
U.S.	23,848		80,035	
GDP per capita PPP $ *				
China	969	4.1%	23,382	29.2%
U.S.	23,848		80,035	
Memo Item:				
Share of World GDP Nominal $	**1990**	**2023**		
China	1.8%	18.4%		
U.S.	26.4%	25.5%		

* Purhasing power parity exchange rate

The release surprised many in the West, who underestimated China's ability to make the more advanced chips. It was also a shock to many that China was able to circumvent U.S. efforts to block China's access to the technology for advanced chip making.

Electronic Manufacturing Sector

The competition between the two superpowers is reshaping the global order, causing seismic shifts and significant dislocations in the electronics manufacturing industry. The superpower competition will be a major driver of the electronics manufacturing industry for many years to come.

The desire of both powers to gain a global technological advantage currently drives much of the competition, especially in the field of Artificial Intelligence

That puts the electronics sector squarely in the middle of the conflict. The shifting tectonic plates of investment and trade flows, driven by a rethinking and de-risking of the global supply chain, will increase the uncertainty about how this plays out. It will also provide many new opportunities for companies that can remain flexible. We will have more to say on this in future newsletters.

But first, we need to put some historical context to the changing geopolitics and expand more on its existential threat.

The Thucydides' Trap

The most critical issue concerning the emerging new international order is whether the confrontation between China and the United States can avoid the "Thucydides's Trap."

Named after the ancient Greek historian, the Thucydides's Trap is a cautionary concept, highlighting the perils that arise when a rising ascendant power seeks to challenge an existing superpower. Notable historical instances of this dynamic include the age-old rivalry between Athens and Sparta in ancient Greece and the analogous comparison between Germany and Britain in the last century.

Drawing insights from historical narratives, a group affiliated with the Harvard Belfer Center for Science and International Affairs, under the leadership of Harvard history professor Graham Allison, calculated that most of the similar historic rivalries concluded unfavorably.

Their research showed that twelve of sixteen analogous scenarios spanning the past five centuries culminated in armed conflicts (see Figure 2). The four cases where a significant conflict was averted necessitated concessions by both the ascendant and established power, which required compromises and often painful adjustments in both actions and perceptions.

Figure 2
Thucydides Case Studies Source: The Atlantic

	Period		Ruling Power	Rising Power		Result
1	First half of 16th century		France	Hapsburgs		War
2	16th–17th centuries		Hapsburgs	Ottoman Empire		War
3	17th century		Hapsburgs	Sweden		War
4	17th century		Dutch Republic	England		War
5	Late 17th–early 18th centuries		France	Great Britain		War
6	Late 18th–early 19th centuries		United Kingdom	France		War
7	Mid-19th century		United Kingdom, France	Russia		War
8	19th century		France	Germany		War
9	Late 19th–early 20th centuries		Russia, China	Japan		War
10	Early 20th century		United Kingdom	United States		No war
11	Early 20th century		Russia, U.K., France	Germany		War
12	Mid-20th century		Soviet Union, U.K. France	Germany		War
13	Mid-20th century		United States	Japan		War
14	1970s–1980s		Soviet Union	Japan		No war
15	1940s–1980s		United States	Soviet Union		No war
16	1990s–present		United Kingdom, France	Germany		No war

Complacency

Given the present trajectory, the likelihood of a future conflict between the United States and China is considerably higher than currently recognized or priced in the markets. Based on historical precedents, the empirical probability of conflict tilts more toward a major confrontation. As Allison points out, what many believe as "inconceivable" is not a fundamental statement about the possible state of future geopolitics but more about what our limited minds can conceive.

This past January, for example, the four-star Air Force general, Mike Minihan, sent a memo to his officers predicting the U.S. would be at war with China in two years. The general's logic was based on his perception that the Taiwan and the U.S. presidential elections in 2024 will increase the risk that the U.S. is distracted and may be an opening for President Xi Jinping to move on Taiwan.

Moreover, the recent and relatively rapid deterioration of the Chinese economy may give the Chinese Communist Party (CCP) an excuse to lash out at the U.S. and blame the country's economic woes on America's imposition of trade and investment restrictions.

Not Likely

Call us optimists – we prefer realists – but a war between the two powers is certainly not inevitable, and we believe it to be unlikely. Due to both countries' size and global economic integration, a Sino-U.S. hot war would be immensely costly for both nations and East Asia, as well as the rest of the world.

In their 2016 study (Figure 3), the Rand Corporation estimated the direct economic costs of a year-long conflict in both countries. We believe their estimates of a 5-10 percent decline in U.S. GDP and a 25-35 percent fall in China's economy are much too conservative.

Given the integrated global supply chain, a hot war would push the world economy into a vicious feedback loop. The nonlinearity of such an event makes it impossible to estimate just how bad the carnage would be. And we are just talking economics here, folks.

Nevertheless, underestimating and misinterpreting the inherent risks in the U.S.-China relationship can ironically contribute to and increase the risk of conflict.

The relationship between the two major powers, including their bilateral relations with other nation-states, must be managed carefully and thought through with great diligence, combining a delicate balance of deterrence and diplomacy.

Careful Vigilance

Finally, one aspect related to Thucydides's Trap is that it's not just some big, extraordinary event that can instigate a significant conflict, such as an invasion or blockade of Taiwan. Even unremarkable occurrences can do so.

When a rising power poses a challenge to a reigning power, routine or minor crises that could typically be contained, such as the assassination of the archduke in 1914, can trigger a chain of events, causing unexpected and devastating outcomes that would take decades to recover from.

Time to stop sleepwalking.

Figure 3

Estimated Economic Costs After One Year of Severe War

Category	U.S. Costs	Chinese Costs
Trade	90 percent decline in bilateral trade	90 percent decline in bilateral trade 80 percent decline in regional trade 50 percent decline in global trade
Consumption	4 percent decline	4 percent decline
Income from foreign direct investment (asset loss excluded)	$9 billion loss	$500 million loss
Effects on GDP	Could decline by 5–10 percent	Could decline by 25–35 percent

Source: The Rand Corporaton

What Is Mr. Market Saying?

While historical economic data holds value, its timeliness often lags by nearly two months before reaching publication. Alternatively, and whenever possible, we prioritize real-time or forward-looking indicators that offer insights into future business conditions. Real-time stock prices are pivotal indicators that can signal future business prospects due to their responsiveness to market sentiment, investor projections, and economic patterns.

Stock prices dynamically reflect the real-time perceptions of countless intelligent investors and traders regarding a company and sector's growth potential, profitability, and overall prospects. Integrating information from earnings reports, news, and economic data, they serve -- to paraphrase Winston Churchill -- as the "worst forward-looking indicators, except for all others." Nobody knows the future, folks, not even Mr. Market.

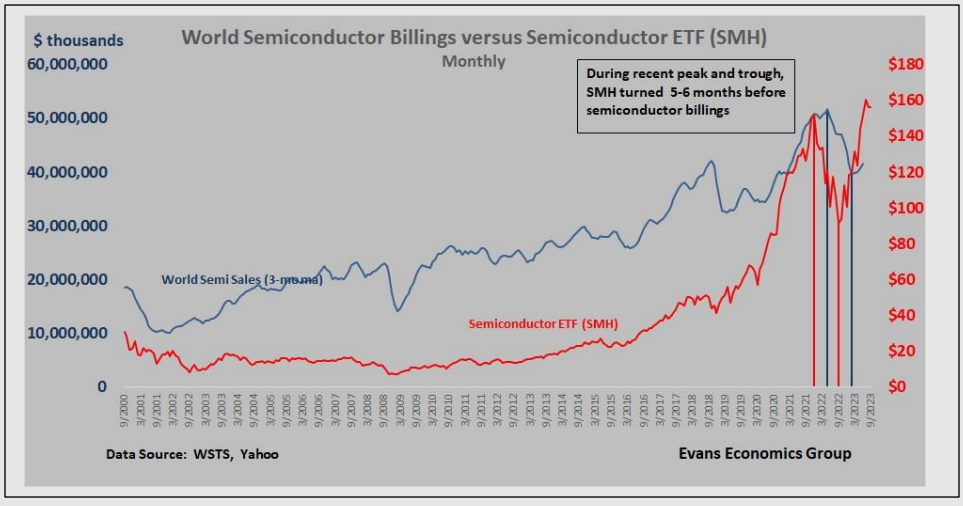
Equally, stock indices function as reliable macro indicators, shedding light on a national economy's future growth prospects.

Nevertheless, stock prices are not infallible but can offer valuable insights that we can gather insight into future trends and turning points within specific industries.

SMH Top 15 Holdings	
NVIDA	20.3%
Taiwan Semi	10.7%
Broadcom	5.3%
Intel	4.8%
Texas Instruments	4.8%
ASML	4.7%
Lam Research	4.7%
Applied Materials	4.5%
Advanced Micro	4.5%
Analog Devices	4.4%
QUALCOMM	4.2%
Synopsys	3.5%
Micron	3.5%
KLA	3.3%
Cadence Design	3.0%

World Semi Billings vs. Semiconductor ETF

In the chart, *World Semiconductor Billings versus Semiconductor ETF (SMH),* we've juxtaposed global semiconductor billings against the VanEck Semiconductor exchange-traded fund (ETF), traded on the New York Stock Exchange (NYSE) under the ticker SMH. The stock data represent the closing price on each month's final day, while worldwide semiconductor sales, sourced from the World Semiconductor Trade Statistics (WSTS), are compiled monthly. We dampen the data noise by using a three-month moving average of semiconductor sales.



The data demonstrate that the semiconductor ETF tracks and anticipates semiconductor sales relatively well, particularly during significant inflection points. For instance, during the recent peak and trough (indicated by thin vertical red and blue lines), SMH reached its zenith in December 2021, five months before global semiconductor sales started declining in May 2022.

Similarly, the ETF hit its nadir in September 2022, five months ahead of the recovery in declining semiconductor sales in February 2023. Using the three-month moving average can complicate the analysis, but the issue is mainly academic, given how early the ETF anticipates the big moves in sales.

Despite its informative and predictive nature, the ETF's pricing is also influenced by short-term volatility, market speculation, the vagaries of monetary policy, and other external factors. A more comprehensive outlook on future business conditions necessitate a blend of stock prices, economic indicators, and diverse data sources.

Eyeing the $160 Level on SMH

Nevertheless, a breakout and sustained hold above the $160 mark for SMH would signify a positive signal for the semiconductor industry and the electronics manufacturing sector in general. Watch this space, folks!

Performance Analysis of Major EMS Companies

This month, we also delve into the stock performance of the world's largest electronic manufacturing services (EMS) companies in absolute and relative terms.

With few exceptions, most EMS stocks are outperforming their national benchmark indices by significant margins. Some are experiencing breakouts, while a few exhibit parabolic surges

"…our growth and improved profitability this year continues to be driven by areas of our business benefiting from secular growth like electric vehicles, healthcare, renewable energy infrastructure, and cloud." – Jabil Earnings Call, June '23

Stock Performance of Largest Electronics Manufactuing Service (EMS) Companies

Company	Home *	Staus **	% > 200-day m.a
Foxcon	Taiwan	Uptrend/Basing	6.80%
Pegaton	Taiwan	Uptrend	16.0%
Jabil	U.S.	Uptrend	32.1%
Wistron	Taiwan	Uptrend	85.2%
Flex	U.S.	Uptrend	15.3%
BYD Electronics	China/H.K.	Uptrend	43.7%
Universal Scientific	China	Downtrend	-4.4%
Luxshare Precision	China	Sideways/Basing	7.1%
Sanmina	U.S.	Sideways	-3.9%
Celestica	Canada	Uptrend	72.30%
Memo Item:			
S&P500	U.S.	Uptrend	8.6%
Taiwan Stock Exchange	Taiwan	Uptrend	5.8%
Shanghai Compoisite	China	Uptrend/Basing	-2.7%
Hang Seng (Hong Kong)	China/HK	Sideways/Basing	-6.3%
Toronto Stock Exchange Index	Canada	Uptrend	2.0%

* Home country and where stock trades

** Based on slope of 200-day moving average

Evans Economics Group

Stock Price Performance of Largest EMS Companies

EMS Company	Benchmark Stock Index	Stock Price Change 1-mo	6-mo	12-mo	24-mo
Foxcon	Taiwan Stock Exchange	-0.9%	8.4%	3.4%	6.8%
Pegaton	Taiwan Stock Exchange	1.7%	17.7%	29.0%	36.8%
Jabil	S&P500	4.4%	31.2%	92.2%	88.6%
Wistron	Taiwan Stock Exchange	-23.0%	167.1%	303.5%	345.2%
Flex	S&P500	0.5%	19.6%	54.5%	48.1%
BYD Electronics	Hang Seng	21.6%	50.1%	75.2%	3.8%
Universal Scientific	Shanghai	2.4%	-13.7%	-8.2%	12.4%
Luxshare Precision	Shanghai	1.2%	8.4%	-12.4%	-2.7%
Sanmina	S&P500	-8.8%	-8.1%	15.5%	41.9%
Celestica	Toronto	10.3%	83.4%	135.9%	167.0%
Memo Item:					
S&P500		-1.6%	9.9%	14.2%	-0.2%
Taiwan Stock Exchange		-2.9%	4.9%	10.3%	-4.8%
Shanghai Compoisite		-4.8%	-4.3%	-2.2%	-11.6%
Hang Seng (Hong Kong)		-8.5%	-9.9%	-7.9%	-29.0%
Toronto Stock Exchange Index		-0.4%	2.2%	6.3%	-0.2%
Outpeformance vs. Benchmark Index					
Foxcon		0.7%	-1.5%	-10.8%	6.9%
Pegaton		4.6%	12.8%	18.7%	41.7%
Jabil		6.0%	21.3%	78.0%	88.7%
Wistron		-20.0%	162.2%	293.2%	350.1%
Flex		23.2%	40.2%	61.1%	3.9%
BYD Electronics		30.0%	60.0%	83.1%	32.8%
Universal Scientific		7.2%	-9.5%	-6.1%	24.0%
Luxshare Precision		6.0%	12.6%	-10.3%	8.9%
Sanmina		-7.2%	-18.0%	1.3%	42.1%
Celestica		10.7%	81.1%	129.6%	167.2%

Source: Yahoo, Barchart **Evans Economics Group**

Top 10 EMS Companies ($ millions)

Company	2022	Share
Foxcon	222,410	39.6%
Pegaton	44,220	7.9%
Jabil	34,546	6.2%
Wistron	33,045	5.9%
Flex	29,720	5.3%
BYD Electronics	15,929	2.8%
Universal Scientific Ind	10,182	1.8%
Luxshare Precision	9,542	1.7%
Sanmina	8,495	1.5%
Celestica	7,250	1.3%
Others	145,757	26.0%
TOTAL	**561,096**	**100.0%**

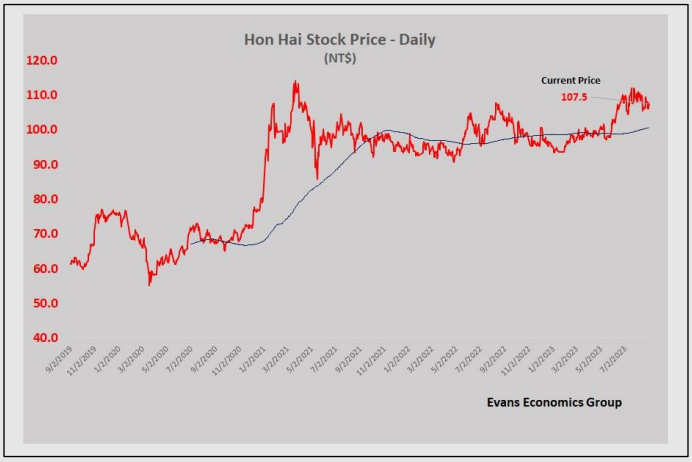
Source: MMI

(see charts). The subpar-performing EMS stocks predominantly originate from China.

Only two stocks are below their 200-day moving average, as most are significantly higher. All are in uptrends, as denoted by a positive sloping 200-day moving average.

Hon Hai's Relatively Flat Performance

Surprisingly, Hon Hai, the world's largest EMS company by a wide margin, remains confined within a narrow trading range (see chart). Its lagging performance compared to most of its peers can be attributed, in our opinion, to its vulnerability to a weaker consumer market. During the company's recent earnings presentation, management disclosed that 49 percent of its product portfolio comprises smart consumer electronics. We expect the global consumer to remain weak in the coming quarters until global central banks ease their restrictive monetary policies.



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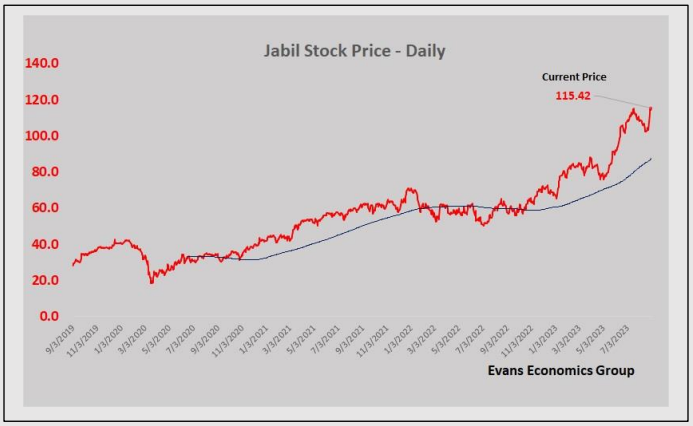
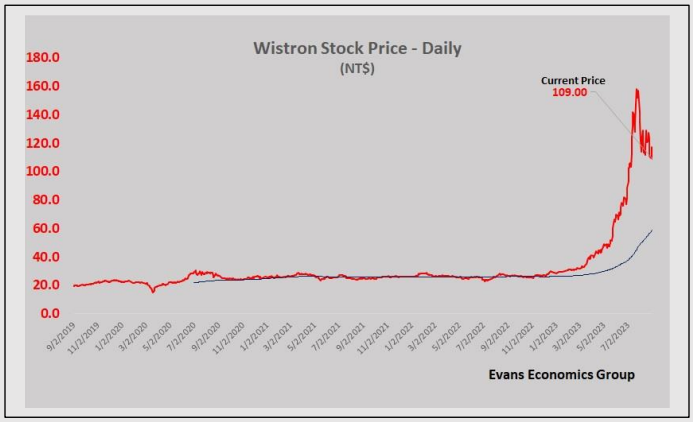
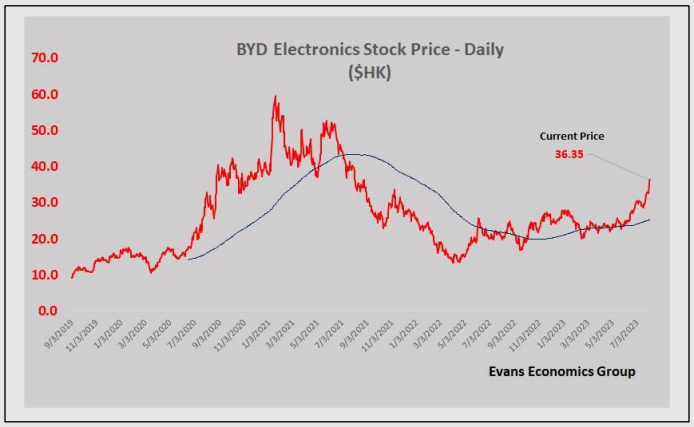
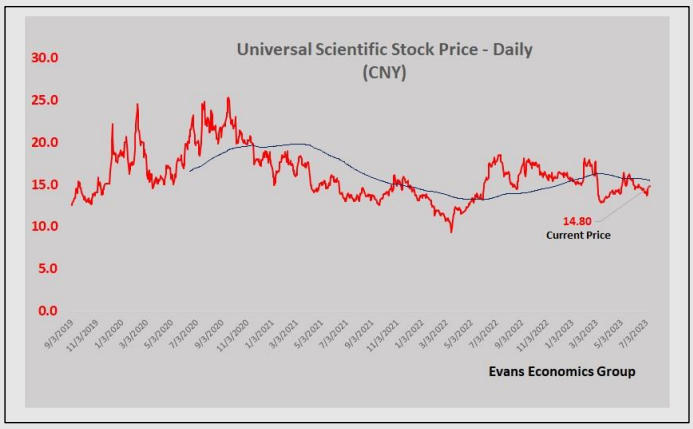
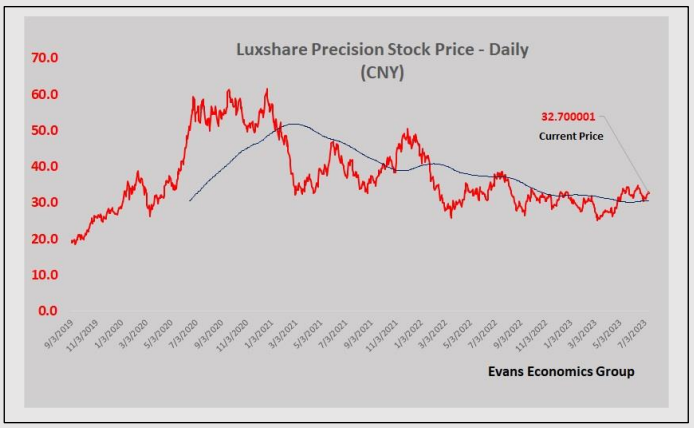

Jabil Stock Price - Daily
Current Price
115.42
Evans Economics Group

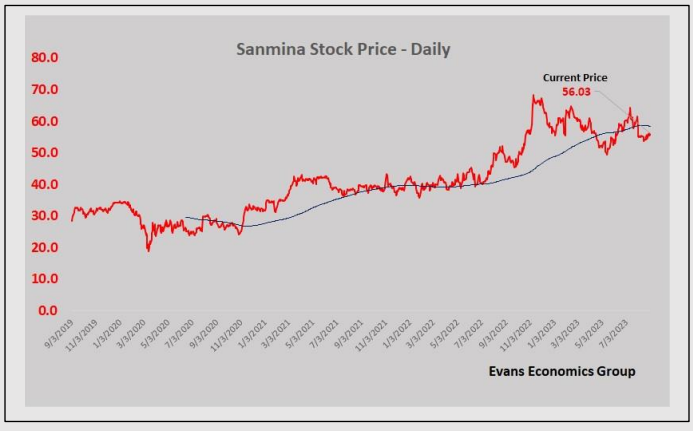

Wistron Stock Price - Daily
(NT$)
Current Price
109.00
Evans Economics Group

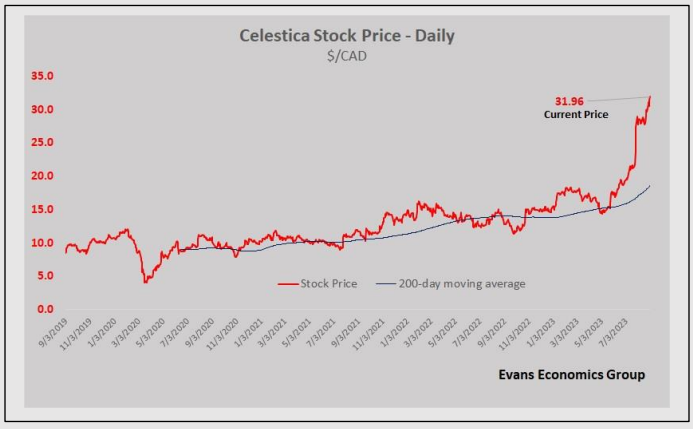

Flex Stock Price - Daily
Current Price
27.51
Evans Economics Group


BYD Electronics Stock Price - Daily
($HK)
Current Price
36.35
Evans Economics Group


Universal Scientific Stock Price - Daily
(CNY)
14.80
Current Price
Evans Economics Group


Luxshare Precision Stock Price - Daily
(CNY)
32.700001
Current Price
Evans Economics Group


Sanmina Stock Price - Daily
Current Price
56.03
Evans Economics Group


Celestica Stock Price - Daily
$/CAD
31.96
Current Price
Stock Price
200-day moving average
Evans Economics Group

Electronics Supply Chain Major Commodity Price Trends

Commodity	Staus *	% > 20-mo m.a.	Price Change -Months 1	3	6	12	24	Ch from 3-year: High	Low
Copper	Downtrend	-3.1%	-4.6%	5.1%	-6.2%	8.6%	-12.5%	-24.2%	37.4%
Aluminium	Downtrend	-13.3%	-3.3%	-1.7%	-7.0%	-6.4%	-18.8%	-44.3%	31.2%
Zinc	Downtrend	-22.4%	-5.2%	8.1%	-19.0%	-29.7%	-19.1%	-45.5%	8.8%
Nickel	Uptrend	-17.8%	-9.0%	-1.5%	-18.2%	-5.2%	3.8%	-51.8%	49.1%
Tin	Downtrend	-12.3%	-11.3%	-0.2%	1.7%	11.4%	-25.1%	-48.6%	51.4%
Steel	Downtrend	-24.3%	-11.6%	-21.9%	-30.8%	-6.5%	-62.5%	-62.5%	63.1%
Gold	Uptrend	5.0%	-2.2%	-0.8%	6.1%	13.9%	8.1%	-6.5%	21.2%
Silver	Sideways	9.4%	-1.7%	4.0%	16.8%	37.5%	2.3%	-18.9%	39.1%
Platinum	Sideways	0.10%	1.6%	-2.5%	0.8%	16.8%	-4.4%	-27.7%	20.7%
Palladium	Downtrend	-33.10%	-4.5%	-10.3%	-14.2%	-41.4%	-50.7%	-64.4%	2.6%
Brent Crude	Uptrend	-6.39%	1.6%	19.5%	3.5%	-10.0%	19.0%	-37.6%	142.9%
Lithium	Downtrend	-51.03%	-23.8%	-32.3%	-45.6%	-59.1%	72.2%	-66.42%	423.4%
Cobalt	Downtrend	-36.43%	0.02%	13.3%	13.3%	-35.9%	-34.0%	-59.62%	13.36%

* Trend defined by slope of 20-month moving average

Evans Economics Group

Commodities Corner

The major commodity markets within the electronics supply chain are still adjusting to the dual impact of the COVID-19 demand shock and the supply shock caused by the Ukraine invasion. The injection of substantial global economic stimulus to counter a prolonged downturn resulted in significant price spikes, obscured price discovery, and distorted commodity values. The markets are currently grappling with trying to address these distortions.

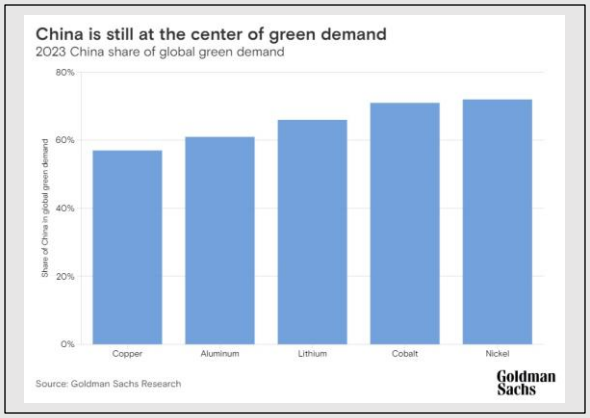
The table, *Electronics Supply Chain Major Commodity Price Trends*, indicates that many of the commodity prices we track have declined by nearly 50% from their recent peaks. Most are following medium-term downtrends as markets seek their post-COVID equilibrium.

Cyclical and Secular Demand

The weakening of China's economy and restrictive global monetary policy have also pressured commodity prices.

Nevertheless, the secular demand for metals crucial to the expansion of the green economy remains considerable. The rise of electric vehicles, renewable energy, and energy storage will bolster demand for these metals in the next few years, countering some of the cyclical weaknesses in the West and China.

Even with China's property market challenges, the nation should remain the dominant buyer of green metals. President Xi Jinping's strategic intent to lead in the primary green industries is unlikely to waver. The Goldman Sachs chart shows China's pivotal role in the demand for green metals.

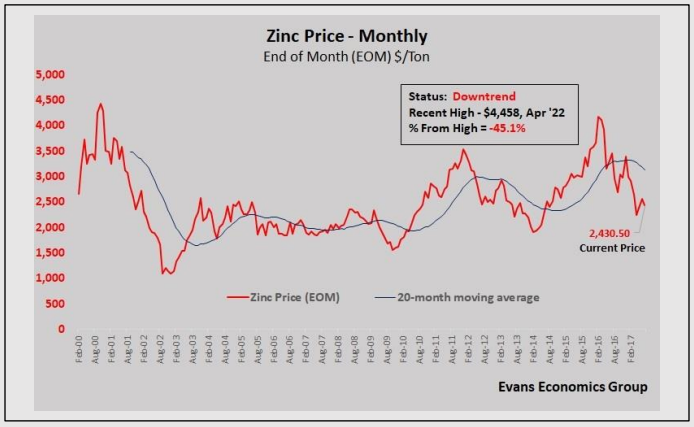


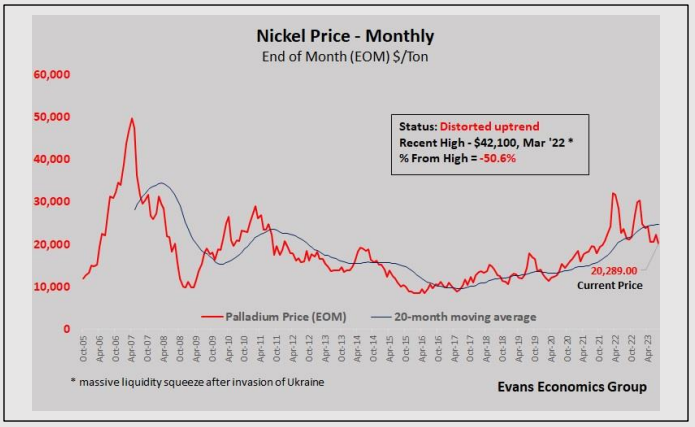
Electric vehicles and charging stations will drive primary demand for these metals in the upcoming years. Copper stands out due to its diversified applications across EVs, solar and wind power, and energy storage, contributing to its stubbornly high historical price.

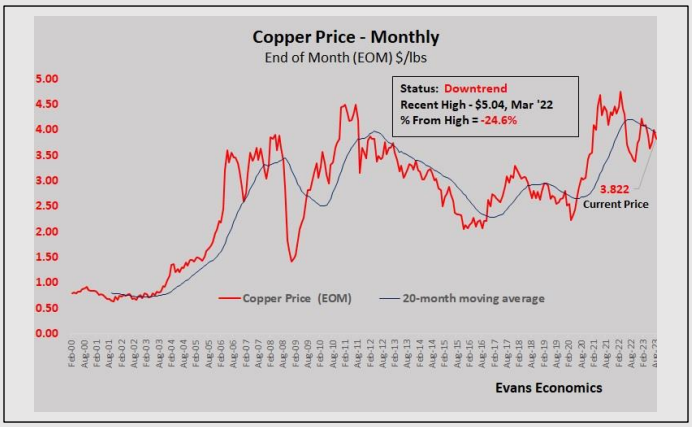
Make A Shopping List

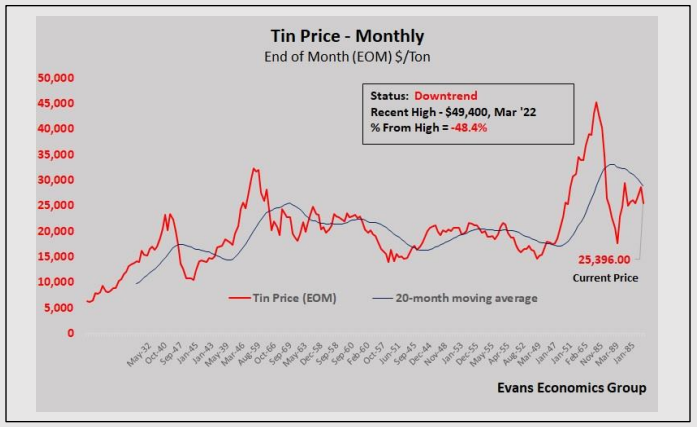
Anticipating softness due to cyclical weaknesses, we can envision commodity futures traders, who have the attention span of a gnat, continuing to push prices lower, in reaction to headlines of slower global growth. The softer prices will offer better entry points for the electronics industry to meet their commodity needs. While the exact bottom is uncertain, we anticipate it might materialize around mid-2024.

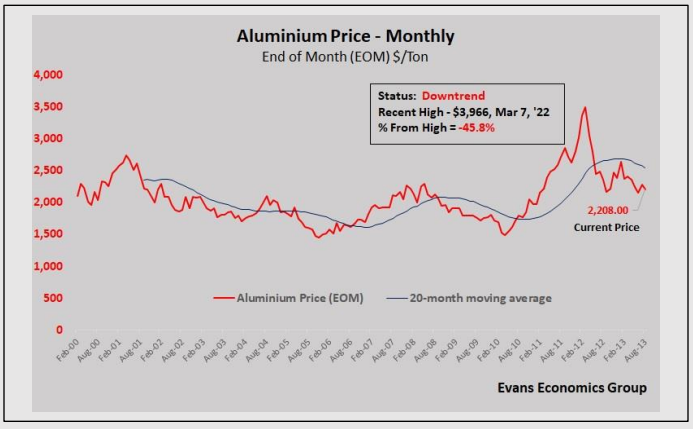
Prepare to back up the truck!

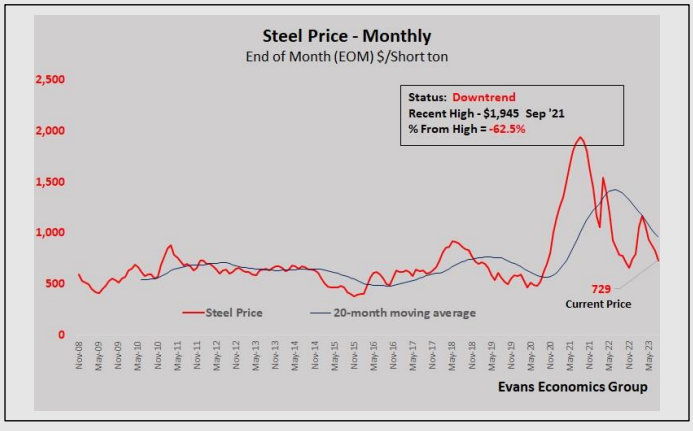












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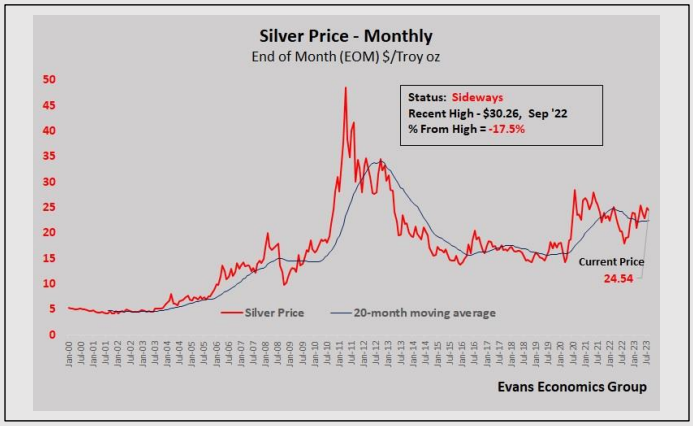
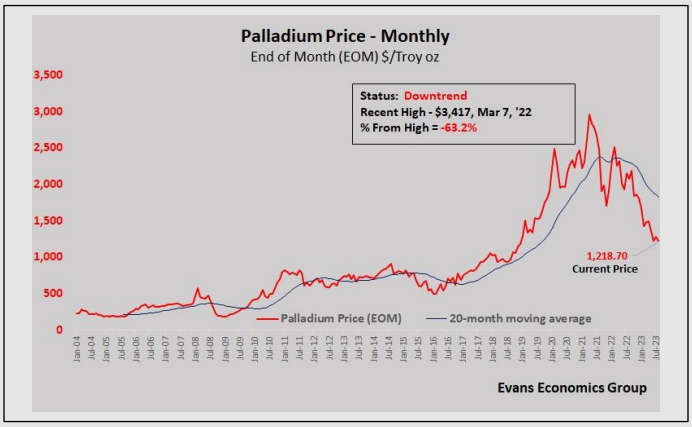
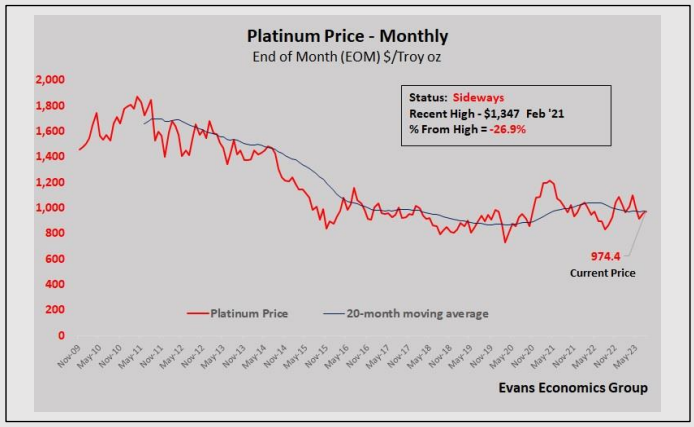
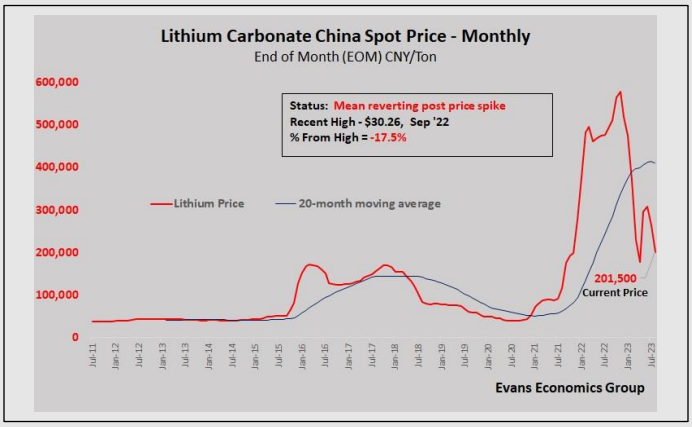
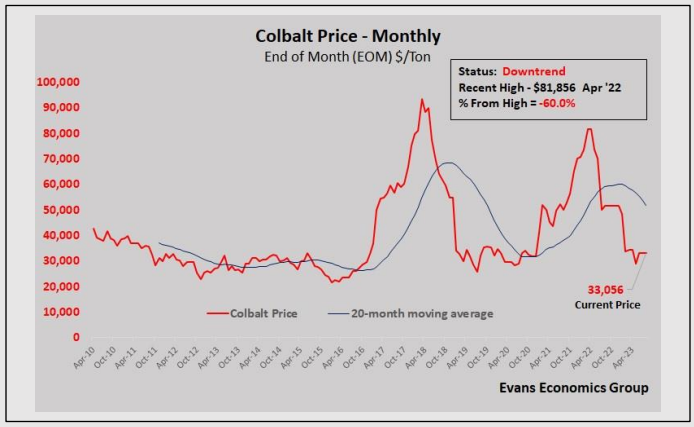
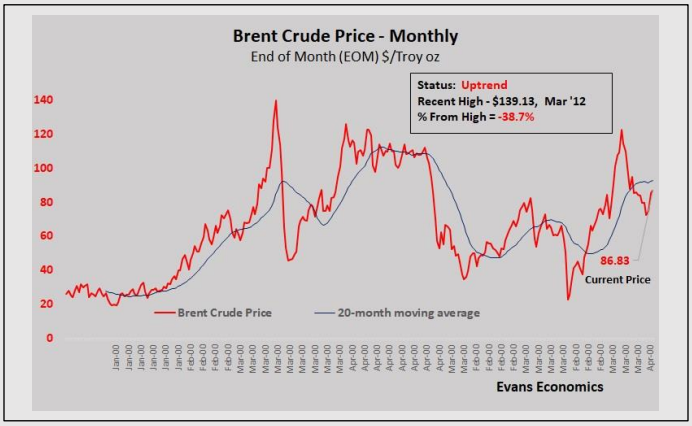












Global demand for commodities, components and raw materials continues to weaken at the strongest pace since the start of the year. Europe is seeing the steepest downturn in demand by a notable margin, while purchasing activity in Asia fell slightly in July. North American demand conditions were less depressed than in June, hinting at potential divergences opening between major markets. – S&P Global

Global Supply Chain

The GEP S&P Global Supply Chain Volatility Index reveals a notable rise in excess capacity within supply chains worldwide during the summer, the fastest increase since May 2020.

This surge underscores declining economic conditions. European and UK demand conditions worsened significantly, whereas North America experienced a milder downturn, suggesting economic divergence. European suppliers' excess capacity reached levels last seen during the 2008-2009 financial crisis.

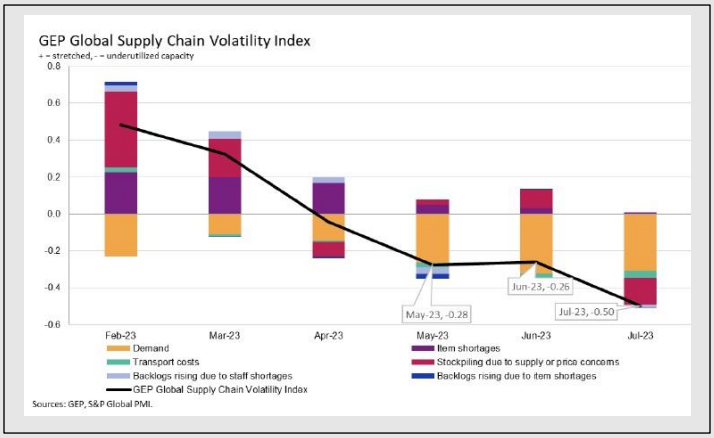
However, global transportation costs fell to their lowest since 2016, indicating the end of freight inflation. These trends highlight a challenging start to H2 2022 for the global economy.

Key Findings for July 2023:

- **Demand:** Global demand for commodities and materials declined significantly, with Europe experiencing the sharpest downturn. North American demand conditions were relatively less depressed.
- **Inventories:** Businesses reported reduced safety stockpiling due to continuous destocking efforts, except for slight increases in North America.
- **Materials Shortages**: Supply shortages normalized, aligning with historical levels.
- **Labor Shortages:** Despite low unemployment in economies like the U.S., backlogs due to employee shortages remained historically low.
- **Transportation:** Global transportation costs decreased to their lowest point since 2016.

Regional Supply Chain Volatility:

- **North America:** The index rose, indicating a slower increase in excess capacity.
- **Europe:** The index dropped to its lowest level since the 2008-2009 financial crisis, reflecting deteriorating economic conditions.
- **UK:** The index fell as the impact of weak European trading partners contributed to increased supplier spare capacity.
- **Asia:** The index reached a three-year low, showcasing relative resilience compared to other regions.



The GEP Global Supply Chain Volatility Index, a collaborative effort between S&P Global and GEP, is based on S&P Global's PMI™ surveys, involving over 27,000 companies across 40+ countries. This index comprises a weighted sum of six sub-indices derived from PMI data, PMI Comments Trackers, and PMI Commodity Price & Supply Indicators compiled by S&P Global.

- ***A positive value above 0 signifies an increase in supply chain volatility due to stretched capacity. A higher value indicates a more pronounced stretch.***
- ***A negative value below 0 indicates reduced supply chain volatility and underutilized capacity. A lower value suggests a greater extent of underutilization.***