OPEESA

DECEMBER 2022

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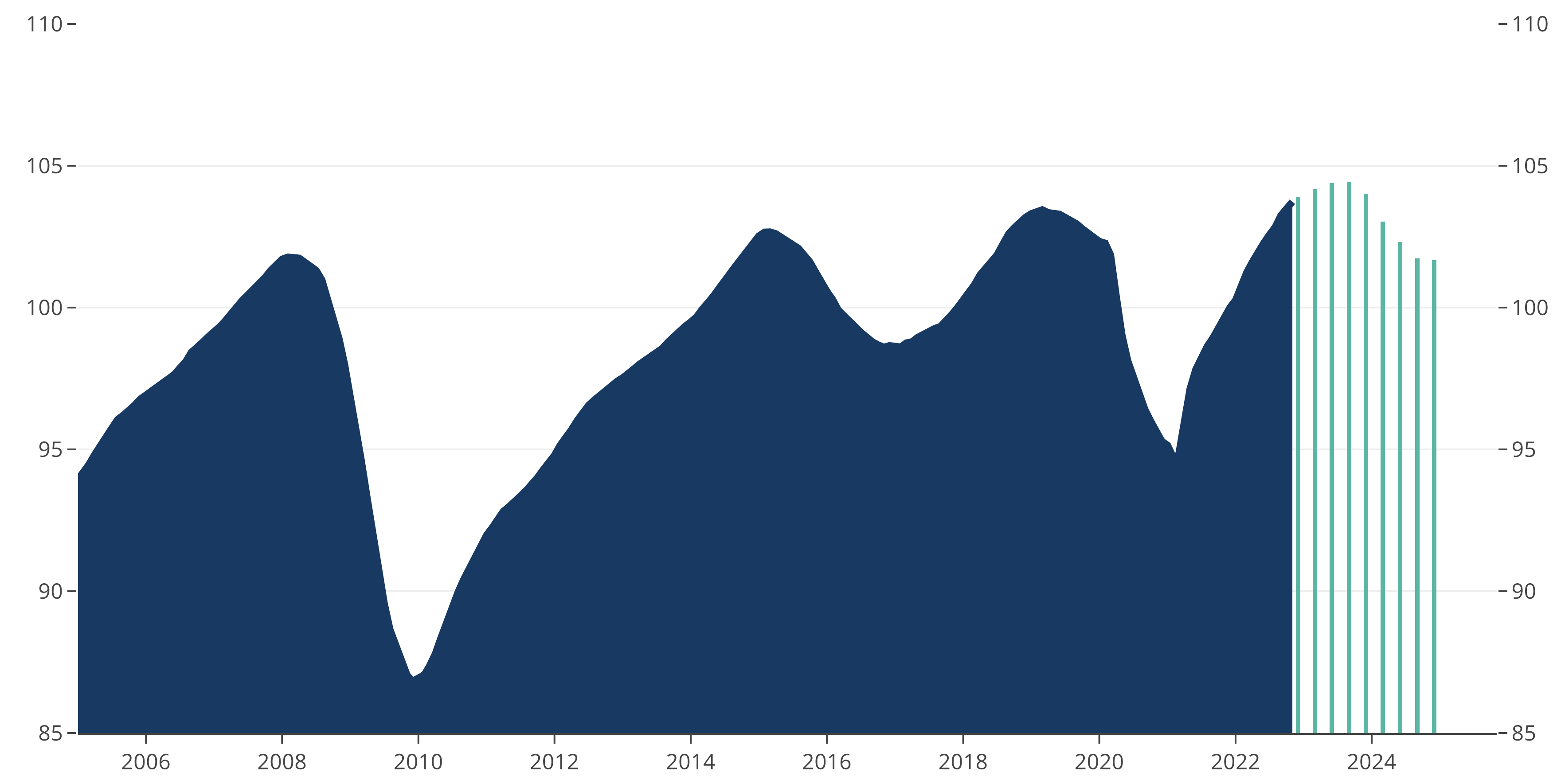
Economic Overview

What A Yield Curve Inversion Means For You

Rain or shine, we constantly monitor our system of leading indicators for signs of improvement or deterioration. In the last quarter, we've seen broad-based weakness, coupled with a new signal: short term interest rates – as measured by 3-month treasuries – are now higher than long-term interest rates, as measured by 10-year treasuries. This so-called "inverted yield curve" is a signal that there is an 88% probability of a US Industrial Production recession coming, as the Federal Reserve has raised short-term interest rates too far, too fast.

US Industrial Production Index

Annual Average (12MMA)



We lowered our annual average US Industrial Production forecast downward by a slim 0.4% for 2023. Instead of the mild growth (+1.6%) previously forecast, we now expect activity to be virtually flat for 2023 (+0.1%) relative to 2022, with decline developing late in the year. 2024 is impacted more significantly. Prior to the extremely sharp and fast rate hikes by the Fed, we were expecting growth for 2024. Now we expect decline to extend throughout 2024, with 2024 coming in 2.3% below the 2023 average, as it typically takes just over a year for yield-curve inversions to translate into a recession.

At the bottom of the cycle in 3Q24, we are calling for 2.6% year-over-year contraction. We've experienced a similar severity of decline in US Industrial Production three times in the last 30 or so years: the early 1990s macroeconomic recession, the early 2000s macroeconomic recession, and the 2015-16 recession. The 2015-16 recession only impacted the industrial sector and was particularly unrelenting for companies tied to oil prices. Expect this cycle to be more like the early 1990s or early 2000s.

Three main tailwinds – reshoring, backlogs, and a solid consumer balance sheet – will keep the recession relatively mild. Companies continue to be interested in positioning their supply chain closer to the North American consumer base, and backlogs will continue to be worked through as the supply chain loosens. Meanwhile, our examination of consumer balance sheets revealed that the aggregate consumer debt-to-income ratio, particularly the credit card debt-to-income ratio, is in a healthy place. Simply put, consumers are not overleveraged, which is the opposite situation that the US economy found itself in going into the Great Recession.

It will be especially important to understand the degree to which your business will (or will not) be impacted by a macroeconomic recession. Use the forecasts in this report to help. In general, industries that benefitted greatly from stimulus in 2020-21 (outdoor equipment, single-family housing in expensive areas, etc.) are most at risk of a pullback in 2023-24. In addition, discretionary markets like tech are likely to underperform essentials in the food industry, healthcare, and utilities, as consumers will prioritize deploying tighter dollars to where they are most needed. Meanwhile, there will be some loosening in the labor market – though not marked, given demographics – particularly in 2024. Take this as an opportunity to upgrade your talent pool in preparation for recovery and rise starting in 2025.

There are an elevated number of risks to our forecast both to the upside and to the downside because of domestic and international political events at play in this cycle. The degree of monetary and fiscal stimulus that was deployed in 2020-21, and is now being withdrawn, is unprecedented. The war in Ukraine and general nationalist/protectionist sentiment around the world, coupled with a pandemic, only adds to the uncertainty. In spite of this, the labor market and consumer balance sheets look very strong, offering upside risk.

What can you do amid the uncertainty? First and foremost, make a plan and work the plan. Determine what impacts the recession will have on your business (reach out to us if you need help). After making those determinations, put baseline budgets and strategies in place to maximize your competitive advantages in the recessionary landscape. Get your employees excited and focused on implementing those strategies, but don't stop there. We will regularly be in contact with our clients and providing updates if the upside or downside risk factors lead us to change our baseline forecasts. You should have plans at the ready to adjust as things develop. Monitor your cash flow more carefully than before. Lastly, lead with confidence and be opportunistic. Your competitors may go into panic mode. Don't follow them there.

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Terminology and Methodology

Data Trends: Moving Averages and Totals

Quarterly Average *(Three-Month Moving Average, or 3MMA)*
The average of the latest three months of data, updated every month. In the example, $57.79 is the quarterly average for the three months ending in March 2021 (i.e., the average for January, February, and March 2021).

Example: Monthly US Crude Oil Spot Prices averaged $57.79 in the first quarter of 2021, a 26.3% increase from the first quarter of 2020.

Quarterly Total *(Three-Month Moving Total, or 3MMT)*
The total of the latest three months of data, updated every month. In the example, $257.8 billion is the quarterly total for the three months ending in February 2021 (i.e., the total for December 2020, January 2021, and February 2021).

Example: Quarterly US Capital Goods New Orders totaled $257.8 billion in February 2021.

Annual Average *(12-Month Moving Average, or 12MMA)*
The average of the latest 12 months of data, updated every month. In the example, 119.0 million is the annual average for February 2021 (i.e., the average for the 12-month period from March 2020 through February 2021).

Example: US Private Sector Employment averaged 119.0 million workers during the 12 months through February 2021, down 7.5% from one year earlier.

Annual Total *(12-Month Moving Total, or 12MMT)*
The total of the latest 12 months of data, updated every month. In the example, $5.849 trillion is the annual total for February 2021 (i.e., the total for the 12-month period from March 2020 through February 2021).

Example: US Wholesale Trade totaled $5.849 trillion during the 12 months through February 2021.

Growth Rates

Monthly Growth Rate *(1/12 Rate-of-Change)*
The percentage change between a given month and the same month one year earlier. In the example, 79.3% is the monthly growth rate for March 2021.

Example: Monthly US Copper Futures Prices were at $4.00 per pound in March 2021, 79.3% above the March 2020 level of $2.29.

Quarterly Growth Rate *(3/12 Rate-of-Change)*
The percentage change between a three-month period and the same three-month period from one year earlier. In the example, 26.3% is the quarterly growth rate for March 2021.

Example: US Crude Oil Spot Prices averaged $57.79 in the first quarter of 2021, a 26.3% increase from the first quarter of 2020.

Annual Growth Rate *(12/12 Rate-of-Change)*
The percentage change between a 12-month period and the same 12-month period from one year earlier. In the example, -7.5% is the annual growth rate for February 2021; that is, US Private Sector Employment during March 2020 through February 2021 came in 7.5% below Employment from March 2019 through February 2020.

Example: US Private Sector Employment averaged 119.0 million workers during the 12 months through February 2021, down 7.5% from one year earlier.

Business Cycle Phases

Recovery (A)

The annual growth rate (12/12) is rising, but the rate of growth is still negative. We denote this phase with blue (for improving).

Accelerating Growth (B)

The annual growth rate (12/12) is rising, and the rate of growth is positive. We denote this phase with green (for go).

Slowing Growth (C)

The annual growth rate (12/12) is positive, but the rate of growth is declining. We denote this phase with yellow (for caution).

Recession (D)

The annual growth rate (12/12) is declining, and the rate of growth is negative. We denote this phase with red (for warning).

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OPEESA Markets Dashboard

		Current		Annual Growth Rate Forecast (12/12), Year-End*	
Page Number	Indicator	Growth Rate**	Phase	2023**	2024**
4	US Wholesale Trade of Durable Goods	14.6%	C	2.5%	-2.4%
5	US Hardware Production Index	2.9%	C	N/A	N/A
6	US Refrigeration and HVAC Equipment Production Index	-4.7%	D	N/A	N/A

**Coloring denotes the business cycle phase at year-end. For example, if a value in the 2021 column is colored blue, the corresponding indicator is forecasted to be in Phase A, Recovery, at year-end 2021. Green denotes Phase B, yellow Phase C, and red Phase D.*

***Annual growth rate (12/12) except where otherwise noted.*

Recovery (A)   Accelerating Growth (B)   Slowing Growth (C)   Recession (D)

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US Wholesale Trade of Durable Goods

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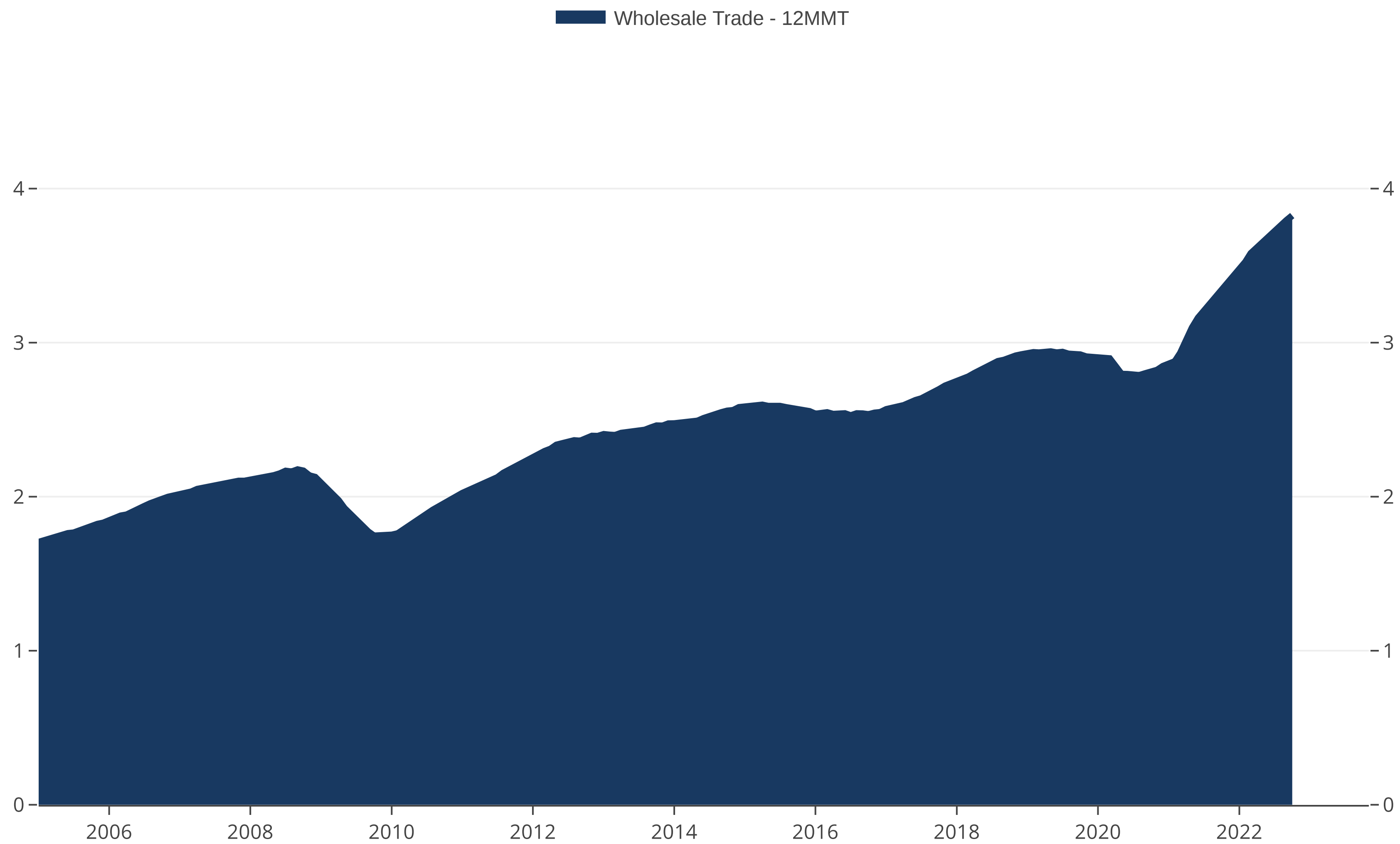
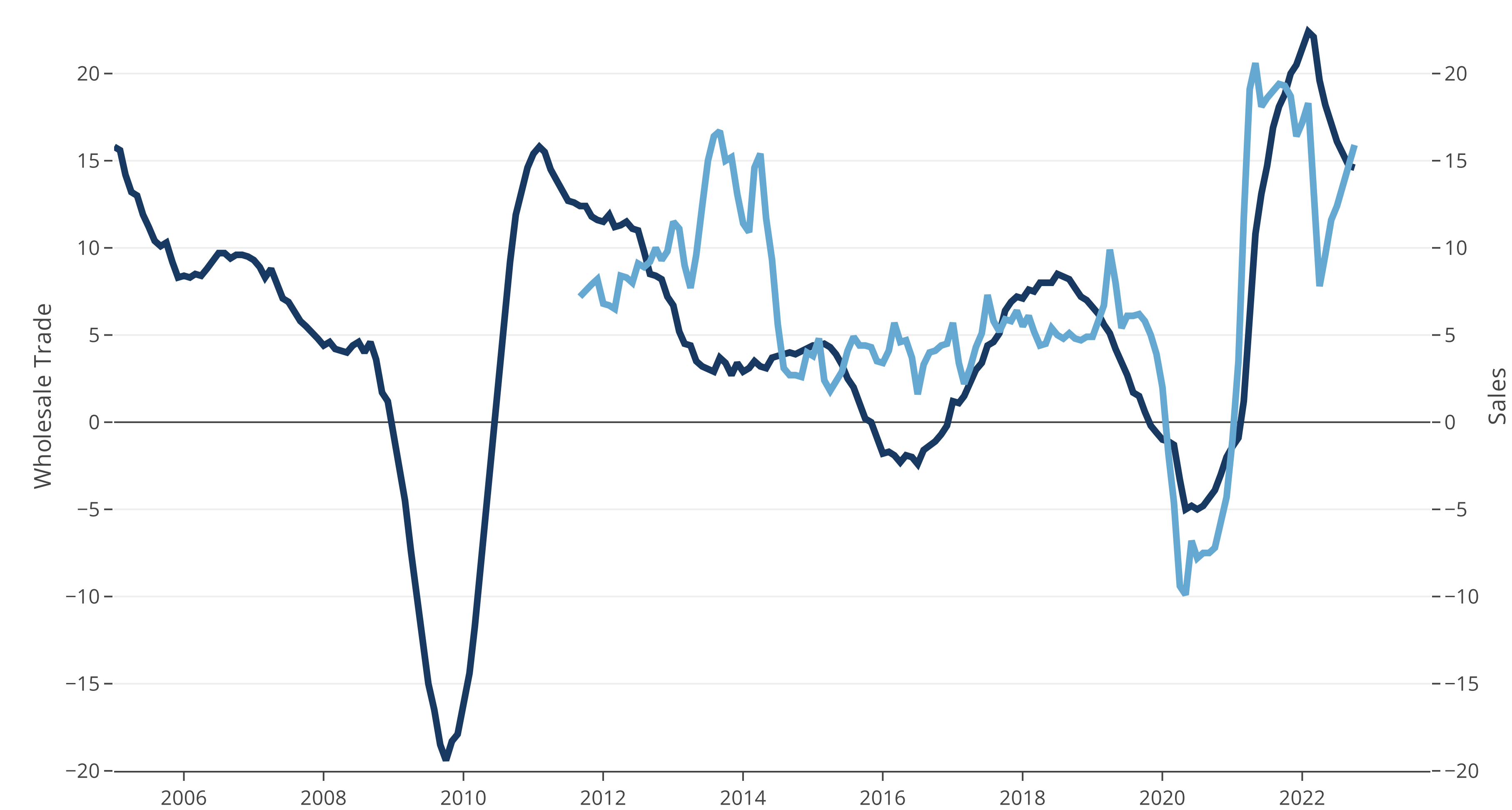
Yield Curve Inversion Signals Hard Landing Is Likely for 2024

Annual Total (12MMT)



Annual Growth Rate (12/12)

Sales to Wholesale Trade: Coincident Timing



Current Phase

Phase C
Slowing Growth

Current Indicator Amplitude

- October 2022 Annual Growth Rate (12/12): 14.6%
- October 2022 Annual Total (12MMT), Trillions of USD: $3.825

Industry Outlook

Year	Annual Growth Rate
2022	12.9%
2023	2.5%
2024	-2.4%

Outlook & Supporting Evidence

- US Wholesale Trade of Durable Goods is at a record $3.825 trillion and is rising at a double-digit, albeit slowing, pace. The durable goods market is interest rate sensitive. Rapid rise in interest rates and waning macroeconomic conditions will result in Wholesale Trade slowing in growth in 2023 and then declining in 2024.
- Single-Unit Residential Construction is declining, as elevated mortgage rates deter would-be homebuyers. This has negative implications for Wholesale Trade of durables such as furniture and appliances. These markets are likely to see a normalization following the abnormally strong growth that occurred coming out of the pandemic. The housing market typically leads the macroeconomy; consequently, we are likely to see residential construction recover sooner than metrics like Industrial Production.
- Discretionary durable goods may be slower to move during this cycle, as consumers tightened their belts to adjust to elevated inflation. However, consumer finances are still sound - with relatively low debt-to-income ratios. This supports our outlook for the recession to be relatively mild, and not a repeat of the Great Recession.
- Annual OPEESA Member Sales totaled $2.5 billion, up 15.9% from one year ago. ITR Checking Points™ suggest the annual growth rate will move higher in the near term. However, the majority of economic evidence points to rate-of-change decline in 2023.

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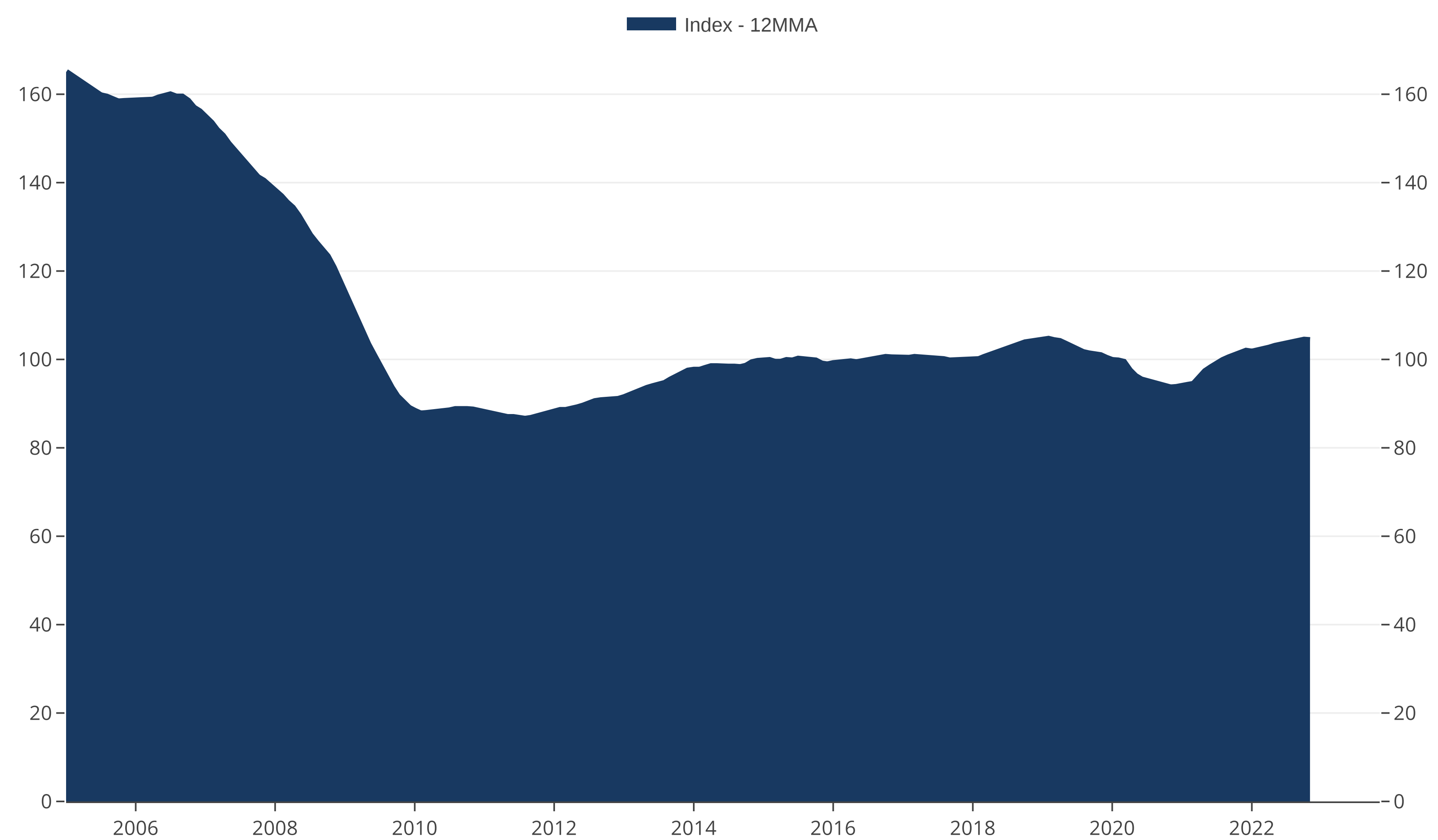
US Hardware Production Index

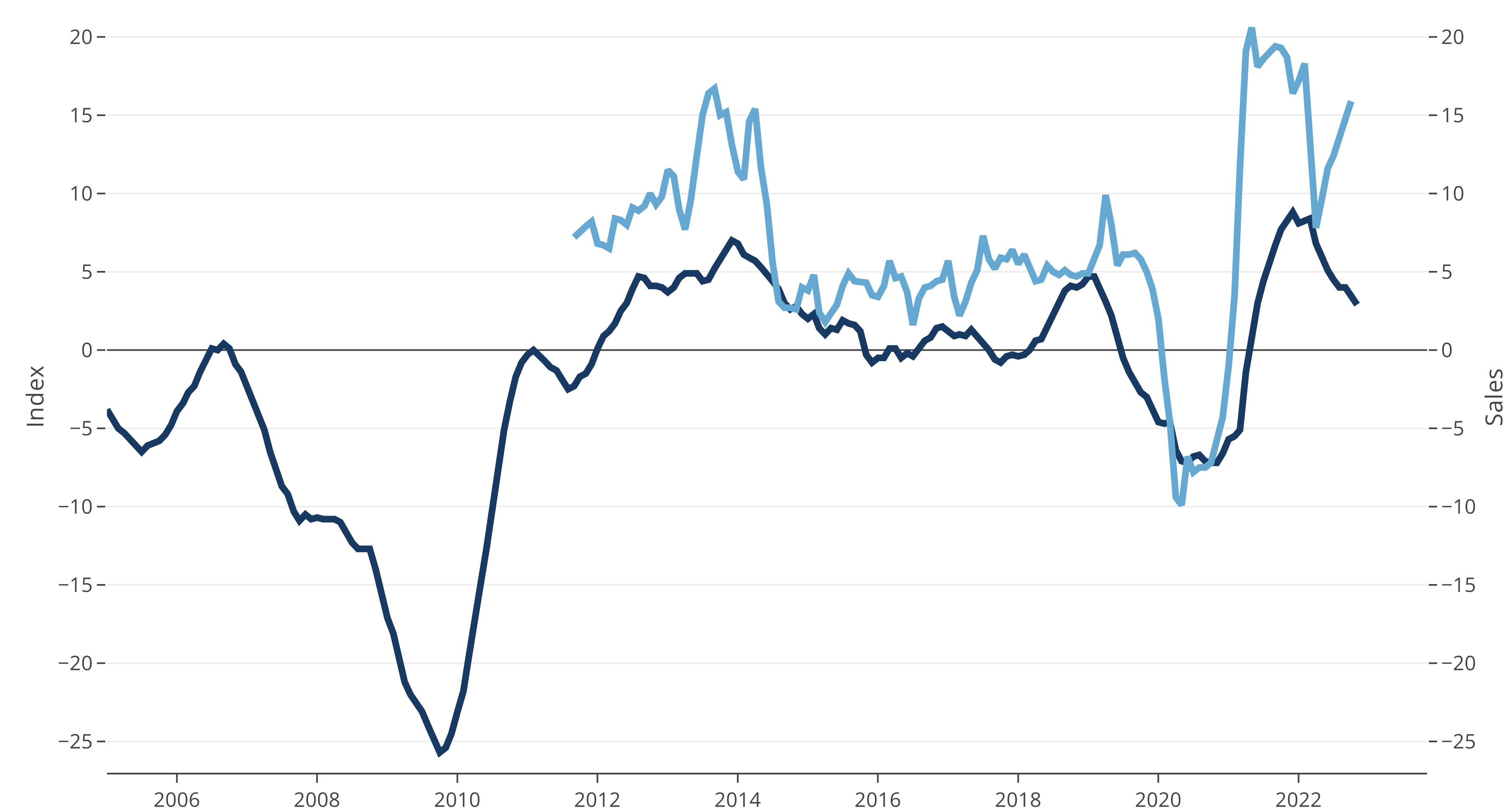
Leading Indicators Suggest Downward Pressure Will Intensify in at Least the Next 2-3 Quarters

Annual Average (12MMA)



Annual Growth Rate (12/12)

Sales to Index: Coincident Timing



Current Phase

Phase C
Slowing Growth

Current Indicator Amplitude

- November 2022 Annual Growth Rate (12/12): 2.9%
- November 2022 Annual Average (12MMA), 2017=100: 104.3

Outlook & Supporting Evidence

- Annual US Hardware Production in November was 2.9% higher than November 2021. As growth slows, the annual Production trend is flattening out.
- Leading indicators are pointing unanimously downward, suggesting at least another two to three quarters of downturn. Over that period, it is likely that Production will transition from Phase C, Slowing Growth, to Phase D, Recession.
- Annual US Single-Unit Housing Starts are down 9.2% from one year prior, indicating that higher interest rates caused a rapid softening in the market. This suggests declining demand for related hardware. At the same time, manufacturing activity is rising, but the pace of growth is diminishing. Together, construction and manufacturing trends suggest downward pressure on Production ahead.

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US Refrigeration and HVAC Equipment Production Index

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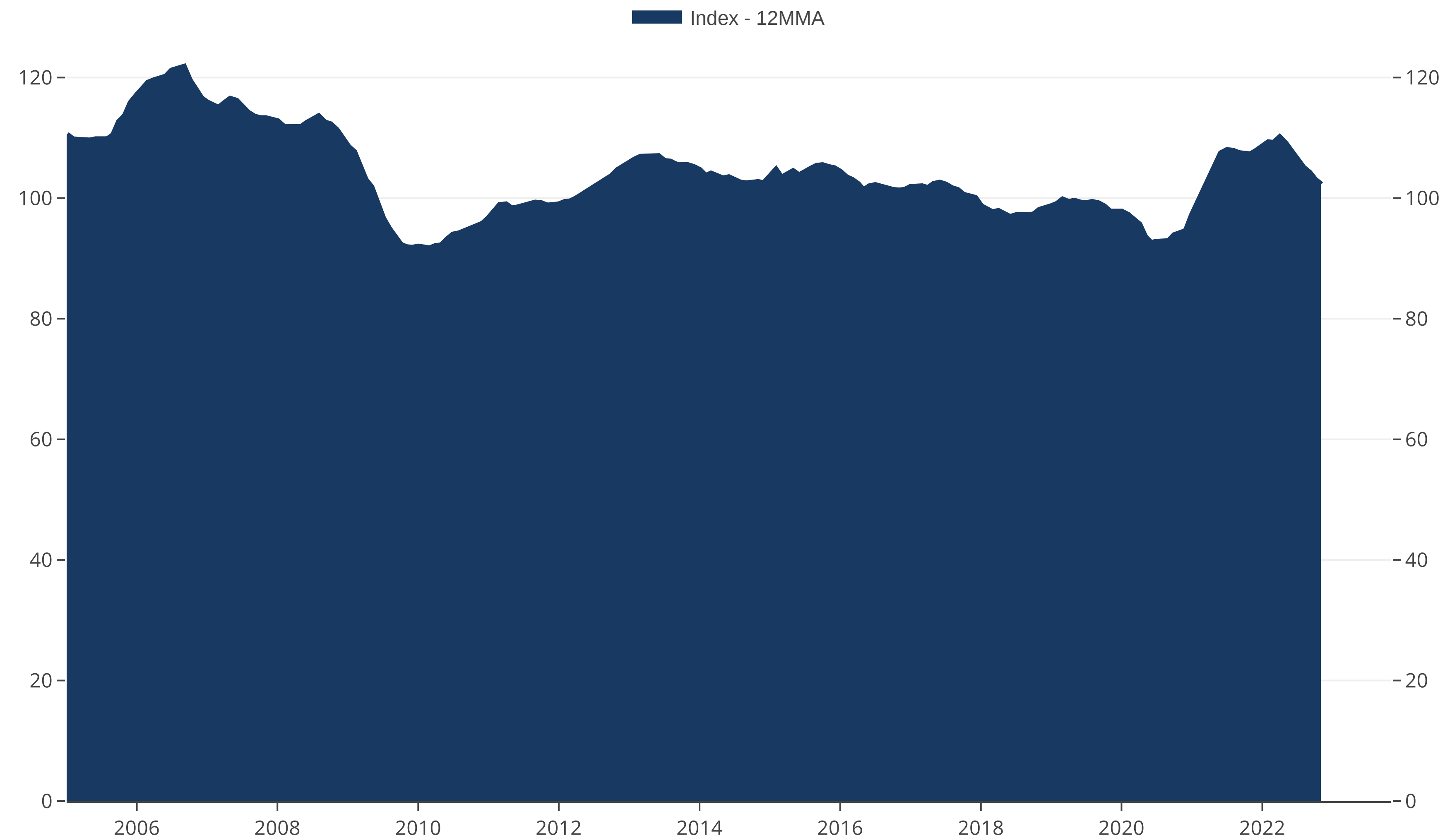
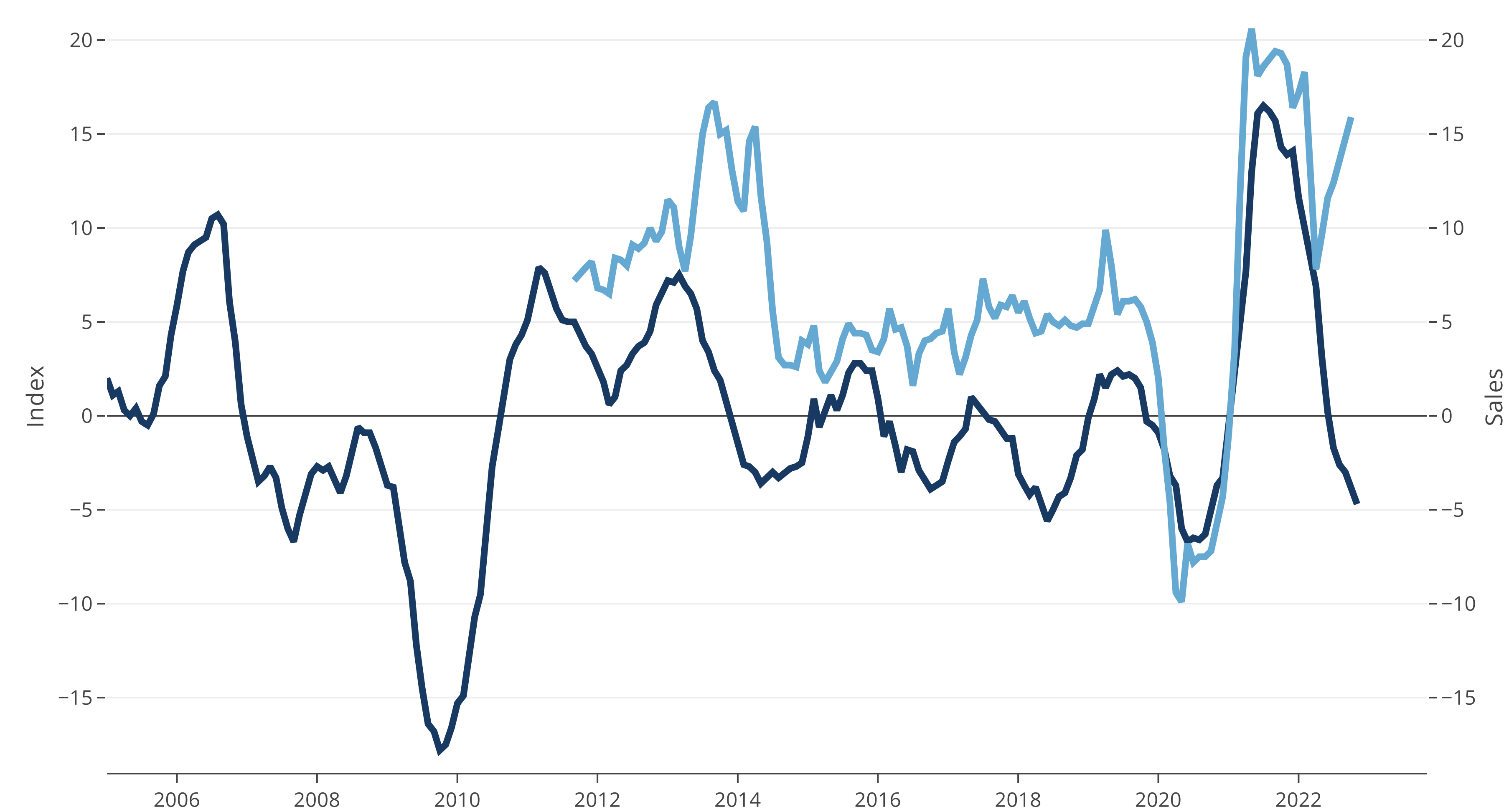
Record Production Decline in the Third Quarter; Headwinds to Housing Starts Will Hinder Demand

Annual Average (12MMA)



Annual Growth Rate (12/12)

Sales to Index: Coincident Timing



Current Phase

Phase D
Recession

Current Indicator Amplitude

- November 2022 Annual Growth Rate (12/12): -4.7%
- November 2022 Annual Average (12MMA), 2017=100: 102.2

Outlook & Supporting Evidence

- US Refrigeration and HVAC Equipment Production in the third quarter declined 33.6% from the second quarter, the most severe quarter-to-quarter decline in the 50-year data history. This is likely the result of rapid cooling in the housing market as mortgage rates rose and a normalization of HVAC demand following the pandemic-induced surge.
- Many consumers and businesses sought to upgrade HVAC systems during the first two years of the pandemic. This period also saw a surge in residential construction. We are now seeing the consequences of pulled-forward demand and a downturn in Single-Unit Residential Construction in the form of an abnormally steep decline in Production during the last two quarters.
- Incentives in the Federal Inflation Reduction Act could contribute upward pressure to demand for HVAC equipment in the coming years, but are unlikely to stop near-term decline stemming from the single-unit housing market.

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US Leading Indicators

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Indicator	Direction 1Q23	2Q23	3Q23
ITR LEADING INDICATOR™	●	●	N/A
ITR RETAIL SALES LEADING INDICATOR™	●	●	●
US OECD LEADING INDICATOR	●	●	N/A
US ISM PMI (PURCHASING MANAGERS INDEX)	●	●	●
US TOTAL CAPACITY UTILIZATION RATE	●	●	N/A

Green denotes that the indicator signals cyclical rise for the economy in the given quarter. Red denotes the opposite.

What It Means for the US Economy

- The general consensus among leading indicators is that the US industrial sector will remain on the back side of the business cycle through at least the first half of 2023.
- We have yet to see sustainable upward movement in the leading indicators in this dashboard; this contributed to our decision to revise our US Industrial Production outlook.
- Further decline in the ITR Retail Sales Leading Indicator™ signals that business cycle momentum will continue to wane for US Total Retail Sales in the coming quarters.

Ongoing decline in the leading indicators signal tougher economic conditions in the quarters ahead. Make sure your sales goals are realistic given waning economic conditions and a shift in pricing to disinflation. Consider building up a larger cash cushion for the likely recession in 2024. Make sure you don't overleverage, but at the same time don't be afraid to make investments that will pay off in the long run, such as efficiency improvements and those that boost your competitive advantage. Remember to lead with confidence; recessions are temporary and the long-term trajectory of the US economy is rise.

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Market Definitions

US Industrial Production Index

Index of total industrial production in the United States; includes manufacturing, mining, and utilities. Source: Federal Reserve Board (FRB). Index, 2017 = 100, not seasonally adjusted (NSA).

US Hardware Production Index

Production index for hardware manufacturing. This industry comprises establishments primarily engaged in manufacturing metal hardware, such as metal hinges, metal handles, keys, and locks (except coin-operated, time locks). Includes hardware for doors, locks, luggage, cabinets, automobiles, aircraft, pianos, etc. NAICS code: 3325. Source: FRB. Index, 2017 = 100, NSA.

US Wholesale Trade of Durable Goods

Total wholesale trade of durable goods in the United States. Industries in the Merchant Wholesalers, Durable Goods subsector sell capital or durable goods to other businesses. Merchant wholesalers generally take title to the goods that they sell (i.e., they buy and sell goods on their own account). Durable goods are new or used items generally with a normal life expectancy of three years or more. Durable goods merchant wholesale trade establishments are engaged in wholesaling products, such as motor vehicles, furniture, construction materials, machinery and equipment (including household-type appliances), metals and minerals (except petroleum), sporting goods, toys and hobby goods, recyclable materials, and parts. Source: US Census Bureau. Measured in trillions of dollars, NSA.

US Refrigeration and HVAC Equipment Production Index

This industry comprises establishments primarily engaged in manufacturing ventilating, heating, air-conditioning, and commercial and industrial refrigeration and freezer equipment. Includes air purification equipment, such as industrial dust and fume collection equipment, electrostatic precipitation equipment, warm air furnace filters, air washers, and other dust collection equipment; attic fans and industrial and commercial fans and blowers, such as commercial exhaust fans and commercial ventilating fans, heating boilers, heating stoves, floor and wall furnaces and wall and baseboard heating units. Source: FRB. Index, 2017 = 100, NSA.

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Management Objectives™

Phase A

Recovery

- Scrupulously evaluate the supply chain
- Model positive leadership (culture turns to behavior)
- Start to phase out marginal opportunities (products, processes, people); repair margins
- Perform due diligence on customers and extend credit
- Be on good terms with a banker; you will need the cash more now than in any other phase
- Invest in customer market research; know what they value and market/price accordingly
- Hire key people and implement company-wide training programs ahead of Phase B
- Allocate additional resources to sales and marketing
- Invest in system/process efficiencies
- Make opportunistic capital and business acquisitions; use pessimism to your advantage

Phase B

Accelerating Growth

- Ensure quality control keeps pace with increasing volume
- Invest in workforce development: hiring, training, retention
- Ensure you have the right price escalator; space out price increases
- Maximize your profit margins through differentiation; stand out from the crowd and set yourself apart
- Use improved cash flow to strategically position the business to beat the business cycle
- Expand credit to customers
- Improve corporate governance (rent a CFO; establish a board of advisors or board of directors)
- Communicate competitive advantages; build the brand
- Query users for what they want and what is important to them
- Sell the business in a climate of maximum goodwill

Phase C

Slowing Growth

- Know if your markets are headed for a soft landing or a hard landing
- Cash is king; beware of unwarranted optimism
- Stay on top of aging receivables
- Revisit capital expenditure plans
- Lose the losers: if established business segments are not profitable during this phase, eliminate them
- Use competitive pricing to manage your backlog through the coming slowdown
- Avoid committing yourself to long-term expenses at the top of the price cycle, but lock in revenue
- Go entrepreneurial and/or counter-cyclical
- Evaluate your vendors for financial strength; if needed, look for additional vendors as a safety net
- If the cycle looks recessionary, cross-train key people to prepare for workforce attrition/reduction

Phase D

Recession

- Implement aggressive cost-cutting measures
- Offer alternative products with a lower cost basis
- Perform due diligence on acquisitions while valuations are falling
- Reduce advertising as consumers become more price conscious
- Enter or renegotiate long-term leases
- Negotiate labor contracts
- Consider capital equipment needs for the next cycle
- Tighten credit policies
- Develop programs for advertising, training, and marketing to implement in Phase A
- Lead with optimism, remembering that Phase D is temporary

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