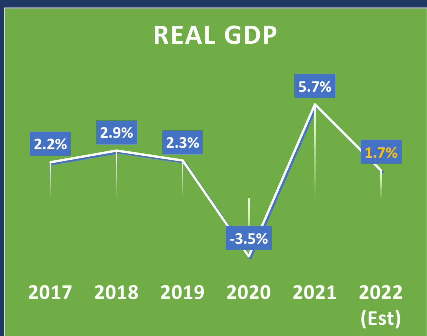
National Paper Trade Association

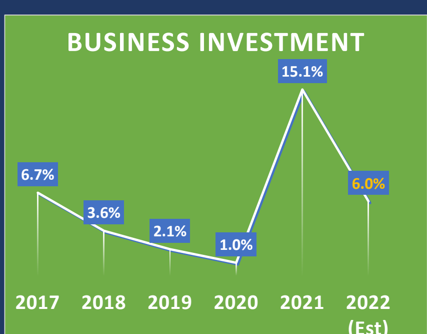
Quarterly Economic Report

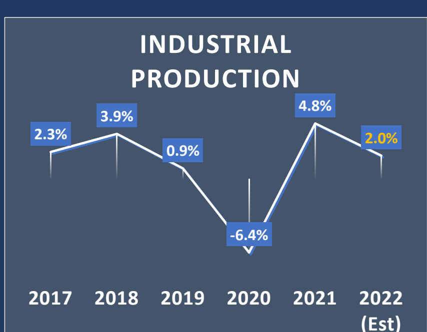
Q2 2022

Executive Summary – Q2 '22

Selected Indices







Big Items

Real GDP: GDP forecasts are volatile with the range for full year2022 now between 1.7% to 2%. Growth is weakening amidst tough inflationary pressures at a consumer level and rising interest rates (impacting mostly the housing sector). Q2 GDP is coming in weak with some estimates showing it in contraction territory. That would create a technical recession if it does indeed continue to show negative, but a recession has never happened with a labor market this strong. It would be a first.

Paper Inventories-to-Sales: The inventory-to-sales-ratio is an important barometer of future orders for new paper (consumer paper). Currently, the sales ratio is down 7.7% from pre-pandemic levels and was 9.6% lower than levels just a year ago. A low ratio should keep restocking activity flowing. Many data points in the surveys show that demand remains strong, but the rate of growth is slowing as general economic pressures build, especially in construction paper demand. Other consumer products, e-commerce, and general consumer staples retail remain strong and spending at a consumer level is still robust (despite those dollars being concentrated on fewer items because of inflationary pressures), consumer dollars are simply not going as far. But wages are strong, and the consumer continues to spend.

Construction: Housing construction has experienced a sharp reversal; mortgage demand has fallen to 22-year lows and builder sentiment is near all-time lows. Total housing starts fell 2% in June M/M and are now 6.3% lower Y/Y. Single family was the problem, it was down 8.1% M/M and was 15.7% lower Y/Y. Multi-family housing starts were the bright spot, rising 15% M/M and were still 16.4% higher Y/Y. Rising interest rates could still dramatically slow the housing sector, but lack of housing should keep multi-family stable. Non-residential construction was still trending higher year-over-year with manufacturing construction leading the industry with nearly $95 billion in annualized spending which was 23% higher year-over-year.

Retail: When adjusted for inflation, retail sales declined slightly in June by 0.5% Y/Y. Retail sectors that sell products that are considered to be discretionary are feeling more of a slowdown in spending than the essential consumer staples categories. Consumer spending continues to be robust and the total dollars being spent are still near all-time highs, but those dollars are being concentrated in fewer items as a result of inflation. Big Box retailers reported that sales are still running nearly 3% higher based on same-store-sales, but the number of discretionary products being purchased is down for now.

Manufacturing: Most manufacturing measures show US and Global manufacturing sectors are still growing, but at a slower pace than they were just a month ago. Perhaps more concerning, new orders across nearly every market around the world were falling in June. Mexico had one of the more optimistic new orders reports, manufacturers were reporting that purchasing managers were relying on Mexico manufacturing to replace Chinese sourcing while the country continues to go through waves of Covid lockdowns. US manufacturers saw a decline in both domestic and export orders in June.

Risks

Recession Risk: The Federal Reserve continues to attempt to tame inflationary pressures by raising interest rates and reducing the amount of liquidity in the financial system. This mixture of factors has started to slow growth in the economy. Forecasts have Q3 coming in at a lackluster 0.8% growth rate, Q4 and Q1 '23 are expected to contract at 0.4% and 0.6% respectively. Even Q2 of 2023 is expected to grow at an anemic 0.6% based on current outlooks. The labor environment will be a key in determining whether this will be a hard or soft landing.

Macroeconomic Viewpoints

- Dr. Chris Kuehl

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There is no escaping the conversations regarding inflation and recession. Too bad there is not all that much consensus on what is going on. To be honest economists are actually pretty bad at what we ostensibly do – forecast. The joke is that we have predicted 13 of the last three recessions. The truth is that we really don't forecast as much as we warn about them. The purpose of the forecast is to point out that if certain issues are not dealt with there will be a recession or an inflation surge or some other economic calamity. What is it that economists are now warning the paper and packaging industry about?

Inflation is at the top of the current list. The rate is as high as it has been in decades and there is no secret as to what is responsible. The energy crisis brought on by the sanctions against Russia and the supply chain chaos that centers in China have provided the bulk of the motivation but there are also issues of wage growth, a savings overhang and excess demand from 2021 as people emerged from the pandemic lockdown. The Fed (and other central banks) have been urged to hike rates to slow the rise of inflation, but this tool has no impact on either Russia or China. This basically means that higher rates will not necessarily lower inflation and that explains the hesitance on the part of these banks.

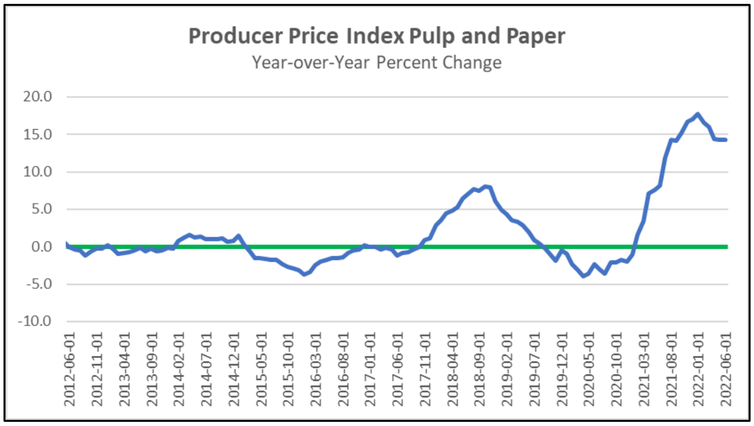
The second major set of questions are whether there will be a recession, how deep and how long. Right now, the data is not signaling a recession – at least not an imminent one. There are ample signs of a slowdown but after a year when growth hit nearly 6.0% that is to be expected. Some critical measures are still positive – employment is up, capacity utilization is up, retail still growing (albeit more slowly). The New York Fed is still giving a recession in 2023 no more than a 6.0% chance. Given the current data the expectation is a slowing economy in 2023 – around 1.5%. That is anemic to be sure but not recession.

There is plenty of time for these factors to change. There will be issues to watch carefully. Beyond the ongoing crisis in Ukraine and the supply chain chaos in China there will be the issue of wage growth in the US as well as consumer expectations. Wage growth has been at around 5.2% and that is still short of inflation. Consumers are starting to anticipate higher inflation and that tends to be a self-fulfilling prophecy. For the industry a key factor will be the habits of the consumer. The shift to on-line shopping created a major demand for packaging but a decline in retail activity overall will negatively affect demand. Prices for paper products have spiked in response to both demand and limits imposed by the supply chain and the expectation is that they will retreat – the question is by how much. Consumers are spending more on services and less on goods but thus far that has not affected packaging demand all that significantly.

The issue of labor shortage will be the dominant driver in the coming year (assuming there is some change to the Ukraine crisis and China's supply chain issue). There is simply no good solution to the shortage of skilled workers. Training takes time, immigration is not the answer. Business has elected to spend heavily on technology and robotics in lieu of hiring but that may get harder as borrowing becomes more expensive. The drive to reshore is real but lack of workers has slowed that process down as well. Even if the pressure from fuel costs and supply chain issues fades, there is likely to be a major and continued inflationary push from labor rates.

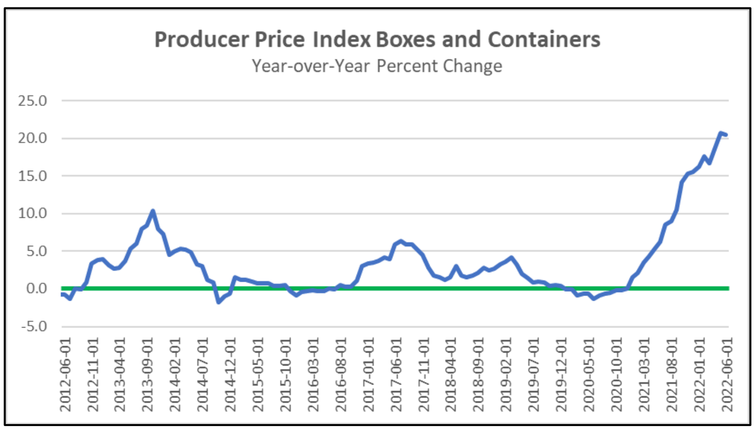
Upstream Conditions

The following section includes viewpoints on key commodities. Wherever possible, the Producer Price Index (PPI) is used as a gauge of prices for specific commodities. The PPI is derived from monthly Government surveys of those that purchase specific products and services. The PPI includes views on both spot and contract pricing for a given product or service and is more representative of general changes in street-level pricing trends. The most recent months of activity are used to provide the most accurate viewpoints.



Pulp and Paper Prices (WPU0913)

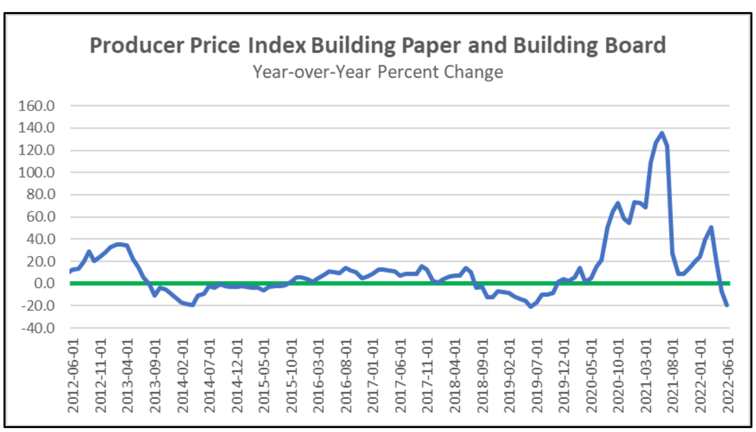
- The Producer Price Index (PPI) for paper and pulp in June (latest PPI available) was up month-over-month by 1.3% (up 0.8% last month). It was higher year-over-year, rising by 14.3% Y/Y (also up 14.3% last month). This marked an all-time high for the index at 242 points.
- **Looking Ahead**: Despite the year-over-year rate of growth seemingly slowing, it is going up against some strong comparisons to last year. In reality, the Federal price survey for pulp and paper showed that prices touched all-time highs in June amid rising production and supply chain costs. And several categories of paper demand remain robust.



Paper Boxes and Container Prices

(WPU091503)

- The Producer Price Index (PPI) for boxes and containers in June (latest PPI available) was up month-over-month by 0.4% (up 2.5% last month). It was higher year-over-year, rising by 20.5% Y/Y (up 20.7% last month). This also marked an all-time high for the index at 342 points.
- **Looking Ahead**: Despite inflationary pressures on consumers, spending in total dollars continues to trend near all-time highs. Even e-commerce sales continue to grow at a 10% annualized rate (and remember that current e-commerce volumes are 65% higher than they were pre-pandemic). Product consumption will be accelerating into the back-to-school period, and e-commerce will play a big role in that period.



Building Paper / Building Board Prices

(WPU092)

- The Producer Price Index (PPI) for building paper and building board in June (latest PPI available) was down sharply month-over-month by 5.3% (down 12.8% last month). It was also down year-over-year, falling by 19.6% Y/Y (down 6.7% last month).
- **Looking Ahead**: Although the drop in paper prices used in construction is concerning, the overall PPI remains near the upper end of the historic range. Prices today are still higher than at any time prior to April of 2021. But the drop in overall construction projects is concerning, and the impact on paper products is starting to show up in monthly pricing surveys.

Manufacturing Producer Prices

The Producer Price Index (PPI) for key paper industry metrics is listed in the chart below including month-over-month and year-over-year comparisons. To the degree that the PPI is derived from monthly Government Surveys of actual purchasers and users of the following products, it provides a more accurate street-level pricing viewpoint. Some data is delayed and may not have been updated by the time of publication.

Producer Price Index - Key Manufacturing Sectors

Category	PPI Code	Jun-22	May-22	M/M% Chg	Jun-21	Y/Y % Chg
Paper Manufacturing	PCU322322	181.0	178.1	1.6%	153.1	18.2%
Pulp, Paper and Paperboard Mills	PCU32213221	178.3	173.8	2.6%	151.2	17.9%
Pulp Mills	PCU3221132211	244.6	233.1	4.9%	213.4	14.6%
Paper Mills	PCU3221232212	233.0	227.1	2.6%	201.2	15.8%
Paper Mills (Except Newsprint)	PCU322121322121	159.5	155.7	2.5%	138.7	15.0%
Newsprint	WPU091302	168.0	160.2	4.9%	125.7	33.6%
Paperboard (Primary Products)	PCU322130322130P	372.2	366.3	1.6%	308.2	20.8%
Recycled Paperboard	PCU3221303221307	433.4	424.5	2.1%	358.9	20.8%
Paper Container Manufacturing	PCU3222132221	325.7	322.3	1.1%	270.1	20.6%
Converted Paper Product Manufacturing	PCU32223222	185.3	183.4	1.1%	156.3	18.6%
Corrugated and Solid Fiber Box Manufacturing	PCU322211322211	450.6	445.1	1.2%	374.7	20.3%
Shipping Containers for food, beverages, carryout	PCU32221132221101	367.8	366.4	0.4%	310.0	18.6%
Shipping Containers for paper products	PCU32221132221102	471.1	471.1	0.0%	395.0	19.3%
Shipping Containers for Metal Machinery	PCU32221132221103	256.4	256.4	0.0%	222.7	15.1%
Corrugated Paperboard in Sheets and Rolls	WPU091405	367.2	345.5	6.3%	305.6	20.2%
Folding Paperboard Box Manufacturing	PCU322212322212P	209.7	207.7	0.9%	172.1	21.8%
Paper Bag and Coated and Treated Paper Manuf.	PCU322220322220	128.0	127.1	0.8%	111.4	14.9%
Stationery Product Manufacturing	PCU322230322230	149.1	145.6	2.4%	118.9	25.4%
Sanitary Paper Product Manufacturing	PCU322291322291	122.9	122.7	0.2%	113.7	8.1%
Disposable Sanitary Product Manufacturing	PCU3222913222912	99.4	99.4	-0.1%	93.5	6.3%
Sanitary Tissue Product Manufacturing	PCU3222913222915	148.8	148.3	0.4%	135.7	9.7%

Q2 Comments: The data showed that there was very little deflationary activity taking place across the sector (based on June Federal surveys). Year-over-year price increases were higher across the board. However, several sectors were experiencing flat sequential activity month-over-month. Corrugated and solid fiber box manufacturing was fairly flat month-over-month but was still significantly higher versus pricing levels from a year ago. Sanitary paper product manufacturing was also essentially flat month-over-month and was still 8-10% higher across the category. Other sectors across the paper manufacturing complex was still climbing sequentially month-over-month and remained high on a year-over-year basis.

Downstream Market Demand

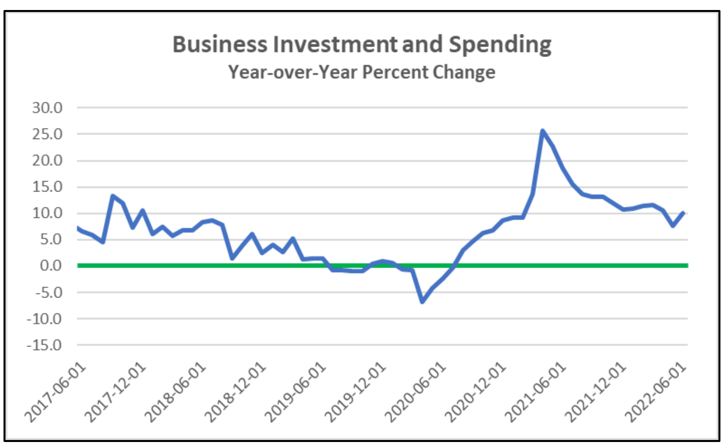
Kind of Business	Percent Change Jun-22 from --	
	May 2022	Jun. 2021
Retail & food services, total	1.0	8.4
Retail	1.0	7.7
Motor vehicle & parts dealers	0.8	0.0
Furniture & home furn. stores	1.4	4.6
Electronics & appliance stores	0.4	-9.1
Building material & garden eq. & supplies dealers	-0.9	6.4
Food & beverage stores	0.4	7.1
Grocery stores	0.6	8.3
Health & personal care stores	-0.1	-0.6
Gasoline stations	3.6	49.1
Clothing & clothing accessories stores	-0.4	-0.2
Sporting goods, hobby, musical instrument, & book stores	0.8	2.7
General merchandise stores	-0.2	1.5
Department stores	-2.6	-2.9
Nonstore retailers	2.2	9.6
Food services & drinking places	1.0	13.4

Retail Sales (NEWORDER)

- Total retail sales were 8.4% higher year-over-year in June (the latest available). When stripping out fuel and food, sales were still up 7.7%. However, when adjusting for inflation, total retail sales were 0.5% lower Y/Y and were 0.3% lower sequentially M/M.
- General merchandise retailers saw sales 1.5% higher year-over-year and the critical e-commerce sector experienced an increase of 9.6%. With higher inflation, the **number of retail units (products) leaving stores is lower than it was a year ago, despite same-store-sales being higher by 3%**. Consumer staples are much higher in demand than discretionary items at this time with inflationary food price pressure rising. These sectors obviously create significant demand for paper packaging and shipping materials, and direct purchases of consumer paper goods.
- **Outlook**: The total dollars being spent in retail is still near all-time highs, consumers are still spending. The problem is that more than 35% of US households have little left after purchasing essential items (food, energy, and shelter). This changes the types of products being purchased and the volume of total products being consumed. Note that higher-ticket appliances are slowing, lower priced blister pack and small carton products are still seeing strong demand.

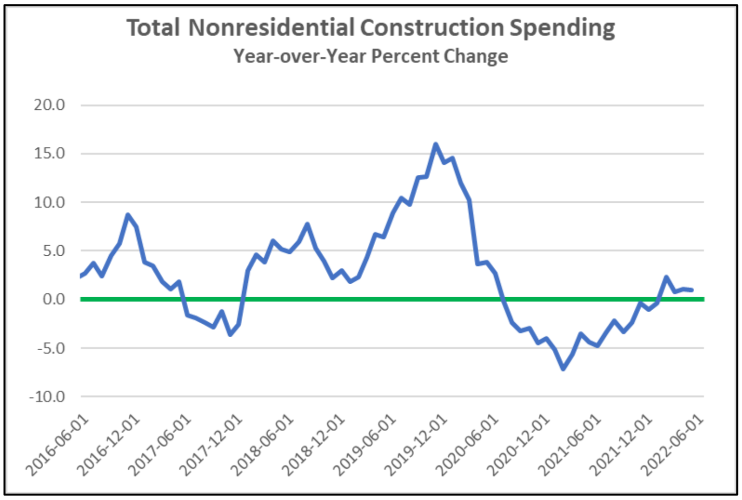
E-commerce sales remain up nearly 60% vs. pre-pandemic levels and current sales are still growing at a 10% annual rate. Packaging demand for that sector will continue to be strong.

Food and grocery spending was still strong, but again, inflationary pressures are cutting down the total volume of products moving through retail stores.



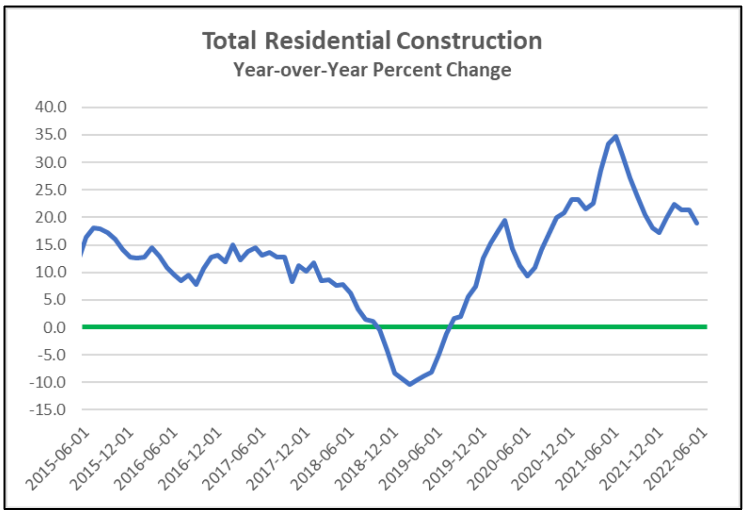
Capital Goods New Orders (NEWORDER)

- Value of manufacturers new orders for capital goods remained strong again in June (latest available) and were up sequentially 0.6% M/M (0.4% higher last month). They were up by 10.0% Y/Y (up 7.6% last month) and continued to be strong overall.
- **Outlook**: Surveys are beginning to warn that CEOs are considering cutting their second half 2022 investment and spending plans if recession risk continues to loom. Some sectors of construction continue to be strong, such as industrial, multi-family, and some commercial projects in some markets. However, the macro data is not showing a significant slowdown in spending. What this data does not account for is the impact of inflationary pressure on spending volumes. Spending volumes are still generally good for now.



Total Non-Residential Constr. (TLNRESCONS)

- Total Non-Residential Construction was 1.0% higher than it was a year ago (1.1% higher last month) and was down 0.6% M/M (-0.2% last month). Overall spending was at an annual rate of $832B (down just slightly from the January 2020 annualized run rate peak of $840B).
- **Outlook**: Nonresidential construction activity is still growing despite some deceleration starting to show up. There is a big debate ongoing in the construction sector about the impact of falling commodity prices on the rate of projects getting restarted (those that were put on hold during the commodity crisis). Some projects are slated to start in the second half of the year, the question is how quickly those projects would restart and how many of those that were put on hold would restart during a possible recession.



Total Residential Construction (PRRESCONS)

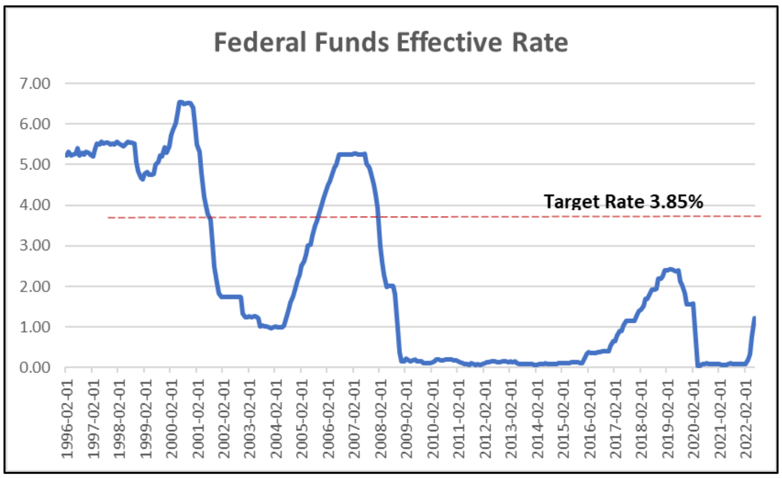
- Total residential construction in May (latest available), was up by 19.0% Y/Y (up 21.4% last month). It was up 0.2% M/M (1.7% last month).
- **Outlook**: The US housing market is changing fast. Mortgage applications are down sharply, and builder sentiment fell at one of its fastest rates in the history of the NAHB. Permits were down slightly M/M by 0.6% but were 1.4% higher Y/Y on top of a surge in multi-family housing demand (which surged 27.8% Y/Y and were 13.1% higher M/M. Single family permits were down 11.4% Y/Y and fell 8% M/M. Home prices have just now started to ease, but they remain prohibitive in many markets, especially as interest rates rise. Builders reported that foot traffic at new open houses was down 13% year-over-year. Other sources are reporting that 15% of mortgage contracts are getting cancelled. The market is changing quickly as we saw in paper for construction material prices earlier in the brief.

Wholesale Trade (R4241IM163SCEN)

- Merchant wholesalers' inventory to sales ratios of paper supplies were at 1.03 months of inventory-on-hand. This is now lower than the decade average. The ratio was lower by 9.6% Y/Y through May (latest available; down 11.3% Y/Y last month).
- **Outlook**: Wholesale inventory to sales ratios for paper products fell back below decade low levels. When the ratios are low (inventory is tight) prices are higher. Input prices and transportation costs are still driving up the cost of operations. But some pressure has started to build on the retail front as retail buyers start to show some hints of easing their purchases and stockpiling of inventories. A strong dollar is the one contrarian in the mix, a stronger dollar has encouraged some stockpiling for importers but risks slowing export volumes out of the US.

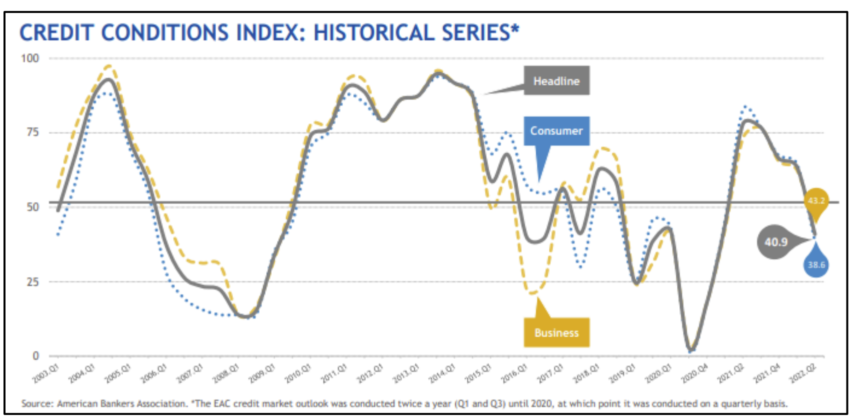
Banking Credit and Finance

Overall Observations: Overall, bank credit has become more expensive as interest rates have risen and that will continue. But at the same time, there is more risk tolerance as these higher rates give banks more latitude and potential to make money. Bankers have shown renewed enthusiasm by higher rates and are only slightly changing their risk profiles, being more concerned about some of the higher risk sectors and limiting their individual exposure to just a few firms in those sectors. They expect to see fewer applications across the board, but expect many of them to be higher quality applications. Higher rates could weed out the applicants they would prefer not to deal with.



Federal Funds Effective Rate (FedFunds)

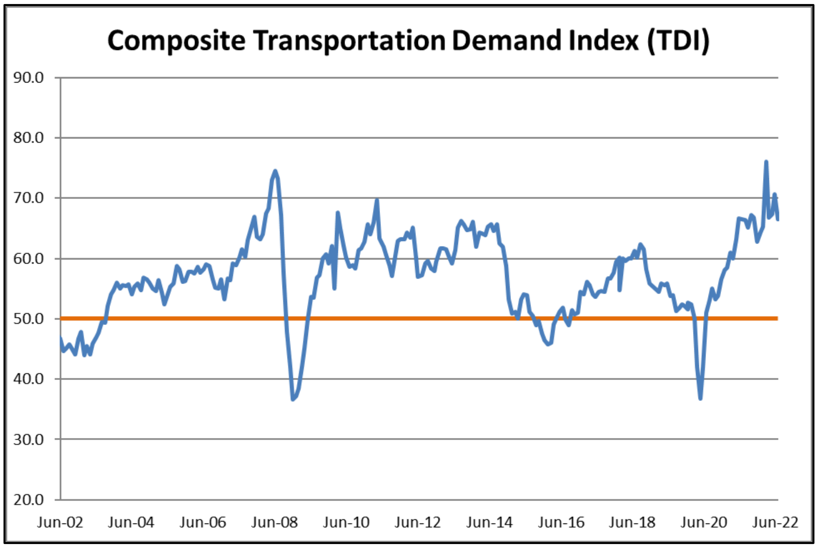
- The Fed Funds Effective rate has gone from .08% during the pandemic to 1.21% today. The Fed's target rate is 3.85% which would create the highest interest environment since prior to the Great Recession, but far from historic highs. The Fed expects to hit this rate sometime between January 2023 and May of 2023.
- **Outlook**: Although this would technically be the end of the "cheap money era", rates at a corporate level will remain fairly accommodative on a historical basis. One of the heaviest inventory building and project-oriented periods was in 2018 (the prior peak of global supply chain activity) and rates were above 2.4%. Interest rates should be at those levels by the end of Q3 if the Federal Reserve continues hiking interest rates at their projected pace.



Credit Conditions (ABA)

- The American Banking Associations Credit Conditions Index for business credit fell 19.3 points to 43.2 in Q2. As mentioned earlier, 75% of the nation's bankers expect business credit availability to remain the same or improve slightly. The quality of that credit is expected to hold steady with about 90% anticipating some changes in business conditions that put more stress on firms over the next six months.
- **Outlook**: Again, banks and businesses alike are going to be tightening standards slightly given looming national economic growth slowdowns. The headline, consumer, and business indexes all showed a dip in Q2 but they remain better than pre-pandemic conditions in 2018 and 2019. Again, most banks remain accommodative and commercial lending is expected to remain available, at higher rates.

Supply Chain and Transportation Situation



	22-Jun	22-May	21-Jun	Y/Y Change %	M/M Change %
Composite	66.5	70.7	66.6	-0.2%	-5.9%
Rail	63.8	67.4	64.5	-1.1%	-5.3%
Trucking	67.0	71.3	66.5	0.8%	-6.0%
Air	66.5	70.5	75.4	-11.8%	-5.7%
Maritime	64.7	68.6	74.2	-12.8%	-5.7%

Transportation Demand Still High

- The Transportation Demand Index shows the current demand environment for freight services (which dictates price). The current demand index at a broad level (across all modes of transportation) was 5.9% **lower** month-over-month in June and was 0.2% lower year-over-year.
- **Outlook:** Although the sequential trend shows demand slipping across the sector, the demand index remains in the upper end of the historic range and there are still problems in the industry keeping prices higher. Prices are still elevated year-over-year (truckload prices are still 30.0% higher Y/Y; Less-then-Truckload is up 20.6%, and Rail is up 11.1%). Those prices are for both contract and spot and include fuel surcharges. Prices remain firm and concern is building that labor issues across ports and rail sectors could create further challenges for supply chain operators.

Mode Demand Slowing

- Each mode of transportation started showing signs of decelerating demand, which would suggest that some softening of price would also follow. A reading over 50 here is considered to be an expanding market, a reading below 50 is contracting. Every mode still had indexes well above normal, demand is strong. But there was some noted deceleration taking place and some shippers could be in a position to start negotiating more stringently on price. Only the trucking sector showed any resilience year-over-year.
- **Outlook:** With diesel prices still near all-time highs, some small trucking firms (independents and those with less than 45 trucks) are starting to drop out of the industry and capacity is tightening across the sector, despite a drop in demand. New laws in California that restrict the classification of independent contractors is also culling some capacity moving in and out of the state. Further, two labor contracts which were still not settled at the time of writing this quarter's brief are adding more uncertainty and risk for domestic supply chain operators. The West Coast Ports and US rail sectors are both in labor contract negotiations and both are beyond contract deadlines, disruptions or delays in freight throughput could be a factor at any point between now and the finalization of a contract for both industries.

Industry Outlook

Economic slowing seems to be the trend as global inflationary pressure, energy shortages, and Covid outbreaks in Asia continue to create an air of uncertainty. But the interesting backstop at this time is the strength of the US jobs market. The estimates below for Real GDP are based on a number of economic outlooks, averging the various outlooks. The biggest risk of recesison appears to come in the first half of 2023, although current Fed estimates would suggest that the risk is still very light. Again, that is subject to change quickly as new economic data comes in.

	2022				2023				2021	2022	2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Real GDP Percent Change	-1.6	0.4	1.0	0.1	-0.4	-0.3	2.1	3.0	5.7	1.8	1.0

Paper production costs will continue to be higher than historic averages. Transportation, warehousing, and supply chain costs are still higher than pre-recession levels despite some mild softening in April, May, and June. Prices have started to inch up again in July, and domestic transportation risks are looming. The US West Coast ports are still in a labor negotiation as is many of the nation's largest rail lines. Although worker strikes are not likely in the cards at this time, work slowdowns, sickouts and other labor actions could delay the throughput of cargo going into the critical Q4 retail season. East coast ports are picking up temporary increases in volumes and congestion is building along the east coast as inland distribution systems get congested. But, if shippers are willing to work the spot trucking market, there are ways to drop transportation costs. Just remember that capacity availability will continue to be an issue, and many supply chain managers are working closer with carrier partners to secure capacity using contractual relationships.

Construction activity will continue to slow down temporarily except in manufacturing, multi-family, some commercial activity, and energy, water, and conservation projects. However, as commodity prices come down and certain products are more available some projects that have been temporarily put on pause will restart, which could create some odd, off-cycle improvements in demand even if broader economic activity starts to slow.

Consumer spending in retail and e-commerce sales will continue to create a stable environment for packaging, this is expected to continue unless the jobs environment dramatically changes. Even with layoffs accelerating, the market still must absorb nearly 11.3 million jobs that remain open before real household income pressure builds. It is important to keep in mind that banks are still seeing nearly $3.5 trillion in excess savings (exceeding the 20-year period prior to the pandemic), and some of that savings could find its way back into the marketplace.