

## EE/MI Sector

## Quarterly PPI / Pricing Deep Dive

Pricing remains a key input in the analysis of the EE/MI sector, despite the more moderated contribution to growth in '24. Tariffs are obviously a major factor in the degree of forward momentum, which we expect to remain healthy and above long term averages, though this is mostly a related cost push and dependent on the final outcome of policy, with overall price now 3%+ on average vs 1-1.5% pre-tariffs, including 4% in 2H. This is probably a peak estimate on de-escalation and related surcharge activity, and the degree of stickiness on recently implemented price increases will be case by case, depending on channel structure. HVAC will continue to capture benefits, bolstered by mix impacts though the HVAC Unitary PPI is now flat y/y (versus average levels of +3% y/y), remaining below the OEM pricing trends and there is some surcharge activity here, along with potential competitive behavior if volumes are weak. Supply/demand remains tight and favorable in the electrical market, which continues to command strong price in long lead-time items, with switchgear and transformer pricing accelerating in April; switchgear is now up 8% (v 6% for three-month roll) and transformers went from +2% to +4% and Vistra recently called out ongoing extension of lead times, against the narrative that supply is coming on too fast. For more short-cycle industrial markets, price benefits are decelerating back to more normal levels with signs of actual pressure at some distributors. On cost, metals inflation is up materially, with freight rates correcting since the beginning of the year but outlook remains uncertain, and labor inflation is inching down gradually at ~3.5% versus ~3% historically, all of which likely require some additional price actions to offset, pre-tariffs. Tying all of this up, the most incremental price is expected at LII, PNR, and HUBB. Some of the pricing will come through surcharges which are at risk now, with DD, EMR, FTV, HON, LII, MMM, and TT all indicating potential for this approach to be part of the price they guided to. We have a more positive view on PNR given favorable channel structure, which we recently upgraded to Overweight from Neutral.

- **Pricing deep dive.** With the tariffs-led inflation debate emerging as a key factor for the sector/market, we have refreshed our periodical product that tracks pricing movements through a range of EE/MI verticals, using data mostly pulled from the PPI report.
- **Base pricing normalized but remains positive.** Inflationary pressures cooled in 2024, with growth rates across PPIs hovering around long-term averages, though things were more stable on the cost side than truly deflationary, and 2025, earlier setting up to be a more normal spread environment, is seeing the potential of upward pricing pressure driven by commodity led inflation reflecting the impact for the latest round of tariffs. Pricing was one of the biggest drivers of the P&L in the sector in '22 and '23, representing ~85% of organic growth, 75% estimated in '24, with '25 a TBD as companies recalibrate their pricing playbooks. Sector pricing lags costs by one to two quarters, and at an average of +1.3% in 1Q25, expected to be +2.2% in 2Q25, well off the peak of ~8% in 3Q22. The cap goods PPI, our favored historical proxy for sector pricing, continues to be stable, now at +3% y/y versus peak of ~10% in

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*The authors wish to thank Chandreyee Sengupta, of the J.P. Morgan Global Research Center, for contributions to this report.*

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Sep '22.

- **Steel up materially, copper up slightly, aluminum flat to down, buton net, material inflation is sticky and material.** On the cost side, base metals trends lead the commodities PPI by about six months, our favored smoothed out macro measure of cost inflation, which was up slight 2.5% y/y as of April '25 vs a peak growth rate of ~17% in Nov'21. Recall, key commodities that had been pushing inflation declined in '22 and '23, bottomed in the fall of '23, before moving higher late that year. Currently, steel/copper on an aggregate are up 10% MTD in May '25 (driven primarily by steel) after being down -5% in '24 as steel slumped by 16%. Steel is currently up ~20% y/y month to date and implies +18% for all of '25. Copper (+1% MTD) is coming off peak growth levels but still implies a healthy +10% for all of '25. Aluminum is now deflating by HSD, while oil is down 20% month to date on top of the 2% decline in '24.
- **Labor inflation sticky near long-term average, while outlook for freight rates marred by macro uncertainty.** Labor inflation has moderated slightly to the 3.5% range y/y, close to the 3% range historically. Information recorded the highest inflation at +5.2% y/y, while Mining & lodging was the lowest at +1.2%. Moving on, freight rates have corrected since the beginning of the year but despite that, tariffs have created demand uncertainty near term, while on supply the eventual return of effective container shipping capacity to the Suez Canal will also put further pressure on the demand-supply balance and rates.
- **After a stronger than expected '23, price/cost normalized in 2024 with 2025 spreads a TBD on inflation.** Price/cost was better than we expected in '23, with material tailwinds for many, and the year ended with close to ~250bps of y/y benefit versus the prior expectation of 200-250bps and an initial expectation for ~50-75bps. For those that disclose it, the spread has represented 85% of profit growth in that year. Price/cost for '24 ended at +50bps, ~15% of earnings growth, and we currently assume spread to be negative in 2025. Margins have positively correlated to inflation over time, and as a result, most in the industrial economy root for some inflation.
- **Post de-escalation, costs are now expected to be lower than guidance resulting in some pricing actions scaled down.** Guidance calls for cost increases due to tariffs, driving broad-based pricing actions, with overall price now 3%+ on average vs 1-1.5% prior, including 4% in 2H, though with de-escalation, recently embedded tariff-related inflation will go down, along with assumed surcharges, while the degree of stickiness on recently implemented price increases will be case by case, and assumed to be normal. Companies generally provided multiple ways they would offset tariff impacts, with most targeting dollar for dollar offsets, including supply chain moves, restructuring/productivity, as well as pricing. The most incremental price is expected at LII, PNR, and HUBB. Looking at the implied 2H25 price % of sales compared to the post-COVID peaks, the current tariff-driven inflation expectation is less than what was booked back then for all, with FTV, LII, and EMR closest to those prior highs. Some of this pricing will come through surcharges, with DD, EMR, FTV, HON, LII, MMM, and TT all indicating potential for this approach to be part of the price they guided to. All in, we have a more positive view on PNR due to favorable channel structure. For LII we see the use of surcharges as lower quality and more likely to revert while light commercial markets are amongst the most challenged, with competitive risks in resi HVAC, and for HUBB we think price actions targeted for late May related to the China 125% reciprocal tariffs will now be dialed back. We are a bit more negative on MMM and DD on price, given their approach to guide excluded any tariff impacts, unlike others.
- **Price disinflation/deflation has been a headwind for operating leverage at distributors, tariffs should help turn the tide...** Distributor pricing has moderated over the past year, currently trending flattish for some (FAST/MSM), slightly up for others (GWW/WCC), with some (CNM/FERG) reporting deflationary trends. While early in the year price expectations were more muted, this changed after the news on tariffs, with

most expecting price inflation to increase as the year progresses, starting with 2Q results but more of an impact in 2H25. The impact comes from the combination of section 232 (impacts steel and derivatives including fasteners), IEEPA, and reciprocal rates that remain in flux, making the situation fluid with high degree of uncertainty and lumpiness. None have embedded much in their outlooks, also acknowledging uncertainty around volumes as/when prices rise as a factor. They will also look to find alternate products/sourcing to help customers mitigate, citing no competitive disadvantages when it comes to their own sourcing mix vs peers. On margins, the goal for all is to pass through any tariff cost with price (not surcharges) without any negative margin drag, getting more than dollar for dollar offsets. Recent history around price capture lends credibility here, though the magnitude and scope of tariffs, targeted at specific countries/sectors, which seems to be constantly evolving, vs more broad based general inflation makes this far from a perfect read.

- **...Electricals still leading and most durable...**Electrical pricing remains solid with switchgear one of the only PPI categories showing acceleration (+8% in Apr '25 v +6% rolling three months), along with transformers also accelerating (+4% in Apr '25 v +2% rolling three months), ETN and VRT stand out as electricals with another heavy dose of spread with ~4% pricing benefit in '24, and we assume another ~4% in 2025, above the sector average, with HUBB a LIFO-based company that has improved its portfolio and where margins moved substantially higher in 2023, supported by sustained demand, especially in utility, and we still see positive pricing at ~3.5%. Capacity adds are a watch item here, but demand remains strong enough to soak it all up for the foreseeable future. Indeed, while the narrative is that we are on the cusp of over-supply with capacity adds, news that Vistra had to push out regulatory deadlines on three projects totaling 833 MWs due to transformers which they cannot get until 4Q29 and breakers which are typically a 12-18 month lead time but remain out three years shows we are far from normal, and arguably in some pockets getting worse when it comes to lead times.
- **...HVAC pricing remains in focus...** HVAC stands out as continuing to capture benefits in 2025/2026, bolstered by mix impacts though the HVAC Unitary PPI is now flat y/y (versus average levels of +3% y/y), remaining below the OEM pricing trends. On the equipment side, newer refrigerant pricing is between HSD-10%, and important to note, this is categorized under mix for most. Tariffs add further pricing, which varies by OEM, with some going the surcharge route (TT/LII), and CARR putting in straight price increases. Our R410A tracker shows that pricing has been flattish since September last year but in recent months, we have seen an uptick on the back of R-454B shortages although most OEMs and refrigerant manufacturers see this issue resolving through 2Q, with most of the contractors calling this refrigerant transition poorly planned. In terms of OEM actions to address the R454B shortage, Trane will temporarily increase the factory pre-charge of refrigerant in vertical-discharge split air conditioner and heat pump models using R-454B starting May 7, due to a supply constraint, and will apply a \$50 charge per unit for the additional refrigerant. Meanwhile, Carrier will increase the pre-charged refrigerant amount in residential ducted splits without any surcharges.
- **...while diversifieds with high gross margins stable.** Finally, while not totally immune in all segments, diversifieds with higher gross margins (i.e., less cost push) and less historical volatility should be able to defend pricing even when commodities roll given less of a push factor in the first place (DOV, ROK, EMR, FTV, HON, OTIS). Here, HON stands out, guiding to 4% price versus 2% in '24. We see less pricing power for diversified materials technology companies, and we estimate that pricing for 3M was 1%, while DD is the only company in our coverage that guides to give back price.

## The Price Is...

Pricing emerged as a key factor with the onset of inflation in '21/'22, testing the ability of companies to push price to their customers. To be sure, pricing power has remained solid for the past couple of decades, but the magnitude that had been booked as part of revenues in the last few years post COVID is like nothing we have seen in 20 years watching the sector. The Bear case had been that price/cost would eat into profits – while it hit margins initially (higher costs and higher price equalized represents revenue growth at zero margin), it did not broadly hit profits, a function of improved business quality, and the degree of stickiness/installed base, which for many has been an insulator. The Bull case was that as commodities normalize, there will be a profit windfall. This happened to a large degree, with price/cost for those that report it representing a significant part of earnings growth in '23. In '24, however, price/cost spreads moderated with '25 showing similar signs but likely too early to conclude given the tariffs and their resultant impact on inflation. To start, the table below ranks the various products we track through the PPI report by momentum (3m vs 12m % change) and by absolute growth rates (3m/12m y/y % change) to show which products and categories are seeing the strongest/weakest pricing and where there are accelerating vs decelerating trends. We then combine the two metrics (growth + momentum) for a total ranking.

Figure 1: Product Pricing Heat Map

| PPI Sub-Categories                                                                           | Categories                               | Momentum | Growth | Combined |
|----------------------------------------------------------------------------------------------|------------------------------------------|----------|--------|----------|
| Titanium and titanium-base alloy mill shapes                                                 | Aerospace & Engines                      | 4        | 2      | 1        |
| Parts and accessories for bulk material handling conveyors and conveying systems             | Elevators & Conveyors                    | 2        | 4      | 1        |
| Lumber                                                                                       | Construction Materials                   | 1        | 8      | 3        |
| Aerospace type fluid power valves                                                            | Valves                                   | 6        | 9      | 4        |
| Parts and accessories for military aircraft engines                                          | Aerospace & Engines                      | 7        | 11     | 5        |
| General-purpose industrial controls                                                          | Electrical Equipment/Industrial Controls | 17       | 3      | 6        |
| Steam, gas, and other turbines and turbine generators                                        | Turbines                                 | 18       | 12     | 7        |
| Maintenance and repair of nonresidential buildings                                           | New Non-Res Building Construction        | 22       | 10     | 8        |
| Motors, generators, motor generator sets                                                     | Electrical Equipment/Industrial Controls | 28       | 6      | 9        |
| Specific-purpose industrial controls                                                         | Electrical Equipment/Industrial Controls | 15       | 21     | 10       |
| Fluid meters and counting devices                                                            | Electrical Equipment/Industrial Controls | 14       | 24     | 11       |
| Parts & accessories for turbines, turbine generators, and turbine generator sets             | Turbines                                 | 5        | 34     | 12       |
| Industrial material handling equipment                                                       | Elevators & Conveyors                    | 26       | 16     | 13       |
| Aeronautical services on aircraft engines                                                    | Aerospace & Engines                      | 42       | 1      | 14       |
| Turbines and turbine generator sets                                                          | Turbines                                 | 29       | 15     | 15       |
| New health care building construction                                                        | New Non-Res Building Construction        | 9        | 42     | 16       |
| Fluid power valves                                                                           | Valves                                   | 33       | 18     | 16       |
| Heat pumps                                                                                   | HVACR                                    | 30       | 22     | 18       |
| Metal valves, except fluid power                                                             | Valves                                   | 21       | 33     | 19       |
| Switchgear, switchboard, industrial controls equipment                                       | Electrical Equipment/Industrial Controls | 51       | 5      | 20       |
| Civilian aircraft                                                                            | Aerospace & Engines                      | 34       | 23     | 21       |
| Fabricated structural metal                                                                  | Non-res Structural                       | 8        | 53     | 22       |
| Adhesives and sealants                                                                       | New Non-Res Building Construction        | 19       | 43     | 23       |
| Adhesives and sealants                                                                       | Construction Materials                   | 19       | 43     | 23       |
| New office building construction                                                             | New Non-Res Building Construction        | 24       | 40     | 25       |
| Industrial process control instruments                                                       | Electrical Equipment/Industrial Controls | 52       | 13     | 26       |
| Private insurance and all other patients: diagnostic imaging center care                     | Diagnostic Imaging Centers               | 27       | 38     | 26       |
| Building materials, paint, and hardware wholesaling                                          | Building Equipment Retailing             | 10       | 57     | 28       |
| Aircraft parts and auxiliary equipment                                                       | Aerospace & Engines                      | 44       | 26     | 29       |
| Other aircraft parts and equipment                                                           | Aerospace & Engines                      | 43       | 28     | 30       |
| New nonresidential building construction                                                     | New Non-Res Building Construction        | 23       | 49     | 31       |
| New school building construction                                                             | New Non-Res Building Construction        | 25       | 47     | 31       |
| Alarm systems, including electric sirens and horns                                           | Non-res Structural                       | 42       | 31     | 33       |
| Plastic resins and materials                                                                 | Construction Materials                   | 11       | 62     | 33       |
| Parts and accessories for fans and blowers                                                   | HVACR                                    | 62       | 14     | 35       |
| Elevators and moving stairways                                                               | Elevators & Conveyors                    | 45       | 32     | 36       |
| Elevators, escalators, and other lifts                                                       | Elevators & Conveyors                    | 38       | 41     | 37       |
| Gypsum products                                                                              | Construction Materials                   | 60       | 19     | 37       |
| Commercial refrigeration equipment                                                           | HVACR                                    | 35       | 46     | 39       |
| Bulk material handling conveyors and conveying systems                                       | Elevators & Conveyors                    | 75       | 7      | 40       |
| Iron and Steel                                                                               | Non-res Structural                       | 3        | 79     | 40       |
| Parts and attachments for elevators and moving stairs (sold separately)                      | Elevators & Conveyors                    | 13       | 70     | 42       |
| Parts and attachments for pumps                                                              | Valves                                   | 53       | 30     | 42       |
| Industrial and commercial fans and blowers                                                   | HVACR                                    | 49       | 35     | 44       |
| Diagnostic imaging center care                                                               | Diagnostic Imaging Centers               | 31       | 54     | 45       |
| Concrete block and brick                                                                     | Construction Materials                   | 68       | 17     | 45       |
| Electrical machinery and equipment                                                           | Electrical Equipment/Industrial Controls | 47       | 39     | 47       |
| Parts and accessories for civilian aircraft engines                                          | Aerospace & Engines                      | 66       | 20     | 47       |
| Heat transfer equipment, including heat pumps                                                | HVACR                                    | 37       | 50     | 49       |
| Power and distribution transformers, except parts                                            | Electrical Equipment/Industrial Controls | 42       | 45     | 49       |
| Other centrifugal fans and blowers, except parts                                             | HVACR                                    | 59       | 29     | 51       |
| Steel pipe and tube, stainless steel                                                         | Non-res Structural                       | 12       | 78     | 52       |
| Aircraft engine and engine parts                                                             | Aerospace & Engines                      | 64       | 27     | 53       |
| Centrifugal blower filter units, and classes I-IV centrifugal fans, except parts             | HVACR                                    | 40       | 52     | 54       |
| Nickel and nickel-base alloy mill shapes                                                     | Aerospace & Engines                      | 16       | 76     | 54       |
| Aircraft                                                                                     | Aerospace & Engines                      | 58       | 36     | 56       |
| Low voltage panelboards and distribution boards, 1000 volts or less                          | Electrical Equipment/Industrial Controls | 72       | 25     | 57       |
| New industrial building construction                                                         | New Non-Res Building Construction        | 32       | 68     | 58       |
| Measuring & controlling devices                                                              | Electrical Equipment/Industrial Controls | 63       | 37     | 58       |
| Medical laboratory and diagnostic imaging center care                                        | Diagnostic Imaging Centers               | 36       | 64     | 58       |
| Furnaces and heaters, including parts                                                        | HVACR                                    | 42       | 61     | 61       |
| Other fabricated metal products                                                              | Non-res Structural                       | 50       | 55     | 62       |
| X-ray and electromedical equipment                                                           | Diagnostic Imaging Centers               | 46       | 59     | 62       |
| Electromedical equipment, including diagnostic, therapeutic and patient monitoring equipment | Diagnostic Imaging Centers               | 48       | 58     | 64       |
| New warehouse building construction                                                          | New Non-Res Building Construction        | 41       | 71     | 65       |
| Medicare and Medicaid patients: diagnostic imaging center care                               | Diagnostic Imaging Centers               | 39       | 75     | 66       |
| Flat Glass                                                                                   | Construction Materials                   | 55       | 60     | 67       |
| Air conditioning and refrigeration equip                                                     | HVACR                                    | 69       | 48     | 68       |
| Motor and generator metal job stamping                                                       | Non-res Structural                       | 42       | 77     | 69       |
| Unitary air-conditioners, except air source heat pumps                                       | HVACR                                    | 69       | 51     | 70       |
| Parts and accessories for air conditioning and heat transfer equipment                       | HVACR                                    | 54       | 67     | 71       |
| Fractional horsepower motors and generators                                                  | HVACR                                    | 56       | 65     | 71       |
| Fractional horsepower motors and generators                                                  | Elevators & Conveyors                    | 56       | 65     | 71       |
| Industrial valves for water works and municipal equipment                                    | Valves                                   | 67       | 56     | 74       |
| Asphalt felts and coating                                                                    | Construction Materials                   | 65       | 63     | 75       |
| Electronic components and accessories                                                        | Electrical Equipment/Industrial Controls | 61       | 69     | 76       |
| Hardware and building materials and supplies retailing                                       | Building Equipment Retailing             | 73       | 72     | 77       |
| Hardware and building materials and supplies retailing                                       | Construction Materials                   | 73       | 72     | 77       |
| Hardware, plumbing, and heating equipment and supplies merchant wholesalers                  | HVACR                                    | 76       | 74     | 79       |
| High alloy steel castings, excluding investment                                              | Aerospace & Engines                      | 71       | 80     | 80       |

Source: BLS and J.P. Morgan calculations.

We simply define “pricing power” as the degree of price capture in the last three years (‘22 + ‘23 + ‘24), which we think is as good a time as any to gauge this aspect of a company’s business model. We use gross margin as a measure of the company’s business model in an effort to delineate how much of the pricing is merely coming from commodities/cost push, which would be most at risk if commodities roll over. Lastly, we measure volatility by the beta of price capture vs the group average. In the figure below, we rank each company across the sector on these variables. On the high end, while price contribution to revenue has been below average at FTV, this is countered by its sector-best gross margins. For LII, pricing is relatively strong but gross margins and price

volatility rank among the worst. CARR meanwhile ranks low in terms of pricing as well as gross margins, and price volatility is above average too.

Figure 2: Relative Ranking Table Across the Sector

| Company | Price | Business Model | Price Volatility | Average Rank | Raw Material as a % of Sales | Lag (in quarters) vs Industrial Commodities (ex-fuel) PPI |
|---------|-------|----------------|------------------|--------------|------------------------------|-----------------------------------------------------------|
| FTV     | 11    | 1              | 4                | 5            | 19%                          | 4                                                         |
| EMR     | 9     | 2              | 6                | 6            | 35%                          | 3                                                         |
| ROK     | 12    | 5              | 3                | 7            | n.a.                         | n.a.                                                      |
| MMM     | 14    | 3              | 2                | 6            | 27%                          | 3                                                         |
| ETN     | 3     | 6              | 11               | 7            | 40%                          | 2                                                         |
| PNR     | 1     | 4              | 16               | 7            | 39%                          | 2                                                         |
| HON     | 7     | 8              | 12               | 9            | n.a.                         | 3                                                         |
| DOV     | 10    | 7              | 8                | 8            | 37%                          | 2                                                         |
| HUBB    | 2     | 12             | 17               | 10           | 40%                          | 2                                                         |
| JCI     | 5     | 11             | 14               | 10           | 37%                          | 2                                                         |
| OTIS    | 15    | 14             | 1                | 10           | 17%                          | 5                                                         |
| TT      | 6     | 10             | 13               | 10           | 30%                          | 2                                                         |
| LII     | 4     | 13             | 15               | 11           | 47%                          | 2                                                         |
| CARR    | 8     | 15             | 9                | 11           | n.a.                         | 2                                                         |
| DD      | 13    | 9              | 10               | 11           | 33%                          | 2                                                         |

Source: J.P. Morgan estimates, company data. DD includes logistics costs and ETN includes components.

### Timing

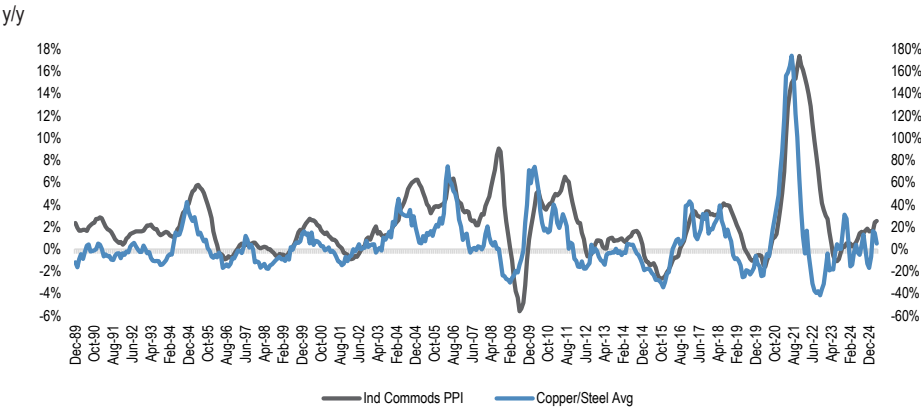
Timing is also key, and the charts below show how these measures lag the inflections in costs as a gauge of when the P&L will reflect the changes. In general, raw commodities like copper and steel lead the PPI cost indicator we use by about five to six months / two quarters, then that index leads most company cost measures by roughly two quarters, on average. On price, the commodities PPI indicator leads pricing by an average of about one to two quarters. Keep in mind that with tariffs, the pricing actions are seemingly coming earlier than in the past, though this is somewhat of an unusual situation, not entirely fundamental in nature.

Figure 3: Illustrative Time Line of Commodity Inflection as It Translates to Company Costs/Pricing



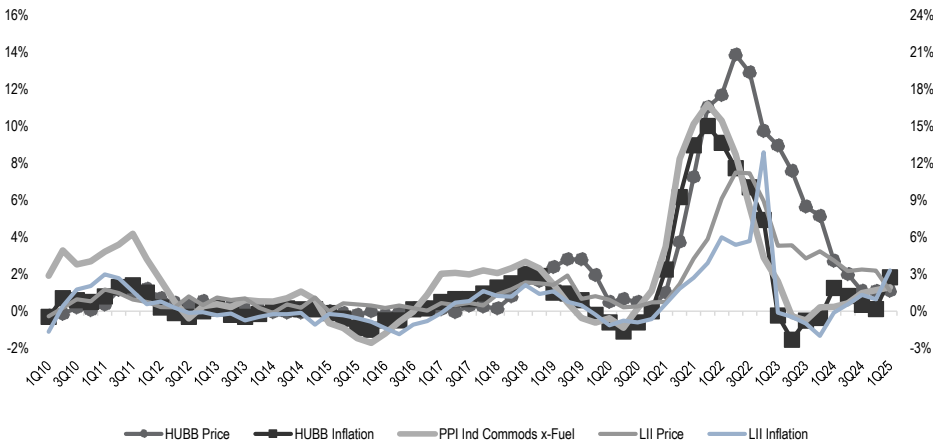
Source: J.P. Morgan estimates.

Figure 4: Base Metals Prices Plotted Against Ind Commods PPI Shows the Leading Nature of the Raw Material...



Source: Bloomberg Finance L.P., BLS.

Figure 5: ...While HUBB vs LII Price and Cost Plotted Against Ind Commods PPI Shows Timing Differences



Source: Company reports, BLS.

### Summary of Company Implications

The table below describes the summary for each company around the timing and direction of pricing when factors inflect. We note the timing between cost and price should be more truncated this time as the reaction to tariffs has been more aggressive.

**Table 1: Summary of Moving Parts by Company**

| HVAC/Building/Electrical Products                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>LII:</b> Price and cost are both 1-2 quarter lag to PPI. Margins already helped by big price/cost windfall, Price now a watch item, Material capacity adds over the years present risk.</p> <p><b>CARR:</b> Limited history but 1-2 quarter lag on pricing to commodity PPI, solid price/cost benefits in 2023 but weak residential volumes brings with it risk of pricing pressure.</p> <p><b>TT:</b> 1-2 quarter lag on pricing versus PPI, This year guided to 11% organic growth with 1% of price but there is potential upside here.</p> <p><b>JCI:</b> Directionally similar to the above HVAC peers but less exposure to residential trends, GP portfolio with a heavy applied exposure (~35%), should see above average price.</p> <p><b>PNR:</b> 2 quarter lag on pricing versus PPI, while costs are highly correlated on a 1 quarter lag.</p> <p><b>HUBB:</b> LIFO accounting means “first into” seeing raws headwinds, costs seemingly coincident to PPI which lags metals by 6 months, price is a 1-2 quarter lag to PPI. Went out early with price this year of LSD/MSD, sticking so far. Guide only embeds 1% carryover, implying positive implications for price/cost as steel has come back down.</p> <p><b>OTIS:</b> 4Q lag with 43% correlation; lower exposure to raw material than peers at &lt;15% of sales.</p> <p><b>ETN:</b> Price is a 1-2 quarter lag to PPI.</p> <p><b>VRT:</b> Direct material costs are &gt;3 B, of which &gt;\$600mm is metals (half of which is steel). There is a lag of 1-2 quarters from when changes in metals costs flow through to the financials.</p> |

Source: J.P. Morgan estimates.

**Table 2: Summary of Moving Parts by Company (contd)**

| Diversified Materials Technology/Petroleum Based                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>3M:</b> Pricing has a close to 90% correlation to commodity PPI on a 3 quarter lag, while on costs, a 90%+ correlation on 1 quarter lag.</p> <p><b>DD:</b> Price has 95%+ correlation with commodity PPI on 3 quarter lag and 80%+ correlated with oil on 2 quarter lag.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Diversified Industrial/Tech                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <p><b>DOV:</b> On recent data, pricing 95% correlated with commodity PPI on 2-3 quarter lag.</p> <p><b>FTV:</b> Limited history.</p> <p><b>EMR:</b> Pricing has close to 90% correlation to commodity PPI on 2-3 quarter lag.</p> <p><b>ROK:</b> Historically ~1% price per year, accelerated to MSD in FY23, little cost push or historical data to work with but generally good pricing power.</p> <p><b>ATS:</b> No historical data provided, but management says price was LSD % contribution to sales in recent years (MSD % in standard machines/products &amp; services).</p> <p><b>HON:</b> Amongst the lowest correlations to industrial commodities PPI in pricing, at 75-80% on 2-3 quarter lag.</p> <p><b>GE:</b> highly limited pricing data historically, general price pressure across OE businesses, some escalators in contracts but typically ceilings applied</p> <p><b>ROP:</b> n/a.</p> |

Source: J.P. Morgan estimates.

Table 3: Summary of Moving Parts by Company (contd)

| Distributors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>FAST:</b> Pricing has been flattish in recent periods, with fastener deflation offset by some inflation in non-fasteners. There is currently no impetus to change price in the market.</p> <p><b>GWW:</b> Only distributor here that's LIFO based. Price/cost has been neutral in recent periods, with pricing increases relatively modest.</p> <p><b>MSM:</b> Price/mix has been running flat in part due to web pricing changes, with 100% of SKUs converted to new web pricing. Slight GM impact initially has been recovered.</p> <p><b>WSO:</b> Pricing has been running flattish. Management noted price increases from the OEMs in the HSD to DD range for the A2L products.</p> <p>The benefits from this pricing will be realized later in 2025 as legacy 410a inventory gets sold through first.</p> <p><b>WCC:</b> Pricing has been running in the LSD % range, supplier actions for the coming year look normal. Commodity products are MSD % of sales, with copper the key driver.</p> <p><b>FERG:</b> Price deflation in the LSD % range in recent periods driven by commodity products (14% of sales) where pricing is down LDD/LT.</p> <p>GMs have been relatively stable despite this, helped by the fact that commodity product pricing declines have been gradual, not a rapid fall.</p> <p><b>CNM:</b> The outlook for 2024 is for slight deflation in pricing driven by declines in PVC/steel pipe, offset by stability/inflation in other products.</p> |

Source: J.P. Morgan estimates.

#### LIFO vs. FIFO an important consideration

We also note that there are differences among EE/MI companies in terms of inventory accounting, and those that report using LIFO-based accounting likely see deflated margins in inflationary environments, which should eventually lead to margin expansion as these hits start to fade. Here Hubbell stands out and saw significant benefits from this dynamic in '23.

Figure 6: Inventory Accounting Approach

|      | Primary Accounting            | % Approx (2024)   |
|------|-------------------------------|-------------------|
| CARR | FIFO/Average Cost/LIFO        | 100%              |
| DOV  | FIFO                          | 100%              |
| EMR  | Average Cost/FIFO             | >50% Average Cost |
| ETN  | FIFO                          | 100%              |
| HON  | FIFO                          | 100%              |
| MMM  | FIFO                          | 100%              |
| ATS  | FIFO                          | 100%              |
| OTIS | FIFO                          | 100%              |
| PNR  | FIFO                          | 100%              |
| ROK  | FIFO/Average Cost             | 100%              |
| ROP  | FIFO                          | 100%              |
| TT   | US: LIFO/FIFO<br>Non-US: FIFO | 59% LIFO          |
| HUBB | LIFO/FIFO/Average Cost        | 45% LIFO          |
| LII  | LIFO/FIFO/Average Cost        | 70% LIFO          |
| VRT  | FIFO/Average Cost             | 100%              |
| WSO  | FIFO/Average Cost             | 100%              |
| WCC  | Average Cost                  | 100%              |

Source: Company data, J.P. Morgan estimates.

### Price/cost disclosure is mixed

As an aside, we see that disclosures around price/cost are relatively mixed across the sector, with many giving very clear disclosure and guidance, while others select only to explicitly give price. ETN stands out as a company for which price is highly important but is not disclosed, JCI continues to not disclose pricing for their Building Solutions businesses.

Figure 7: Price/Cost Disclosure & Updated 2025 Guide

|                     | Price   | Price/Cost Spread | Current 2025 Pricing Guide | 2H Implied | Notes                                                                                                                                                      |
|---------------------|---------|-------------------|----------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DuPont              | Y       | N                 | -1%                        | 0%         | <Q1 price -2%, pricing/surcharges ~25% of mitigation measures in 2025                                                                                      |
| Johnson Controls    | Partial | N                 | 2%                         | 3%         | <+2% price in F2Q in Global Products, pricing is 2/3 of total mitigation measures, expected to be in the 3-5% range in the current Global Products segment |
| Eaton               | Y       | N                 | 3%                         | 3%         | <+3% price in 1Q, price cost positive                                                                                                                      |
| Otis                | N       | N                 | NA                         | NA         | <flatish price in 1Q in NE, NE pricing in China was down 6% y/y in 1Q, and down 2% q/q, China NE is expected to be price/cost neutral in 2025              |
| Carrier             | Y       | N                 | 2%                         | ~3%        | <2pts price in 1Q, ~1% of additional pricing due to tariffs in 2025                                                                                        |
| Dover               | Y       | N                 | 2%                         | 3%         | <+1% price in 1Q25                                                                                                                                         |
| Emerson             | Y       | N                 | 3%                         | 4%         | <Price was +1.5% in F2Q, favorable price/cost, ~1% incremental pricing/surcharges in 2025 to offset tariffs, 2025 total pricing ~3%                        |
| Trane Technologies  | T       | N                 | 3%                         | ~3%        | <+3% price in 1Q25, 1-1.5% incremental pricing due to tariffs in 2025                                                                                      |
| LII                 | Y       | Y                 | 7%                         | HSD %      | <~+1% price in 1Q (+2% in HCS, 1% in BCS), price-cost slightly negative in 1Q25, 2025 pricing at 7% (vs 1% prior) on tariff mitigation                     |
| Honeywell           | Y       | N                 | 4%                         | 5%         | <+2% price in 1Q, 4% of pricing including Bombardier for 2025                                                                                              |
| Rockwell Automation | Y       | N                 | 2%                         | 2%         | <~3% price in F2Q, price/cost positive                                                                                                                     |
| Fortive             | Y       | N                 | 4%                         | 5%         | <+2% price in 1Q, price for the year now seen at 3-4% vs 1-2% prior                                                                                        |
| HUBB                | Y       | N                 | 4%                         | 5%         | <~1% price in 1Q, 3-4% price expected in 2025, 1H price/cost ~\$30mm, 2H price/cost positive                                                               |
| 3M                  | N       | N                 | 2%                         | 2%         | <~2% price in 2025                                                                                                                                         |
| Roper Technologies  | N       | N                 | NA                         | NA         | <n/a                                                                                                                                                       |
| ATS Corp            | N       | N                 | NA                         | NA         | <n/a                                                                                                                                                       |

Source: J.P. Morgan, company reports. Note: Y = Yes, reported. N = No, not reported.

### Price/cost to moderate further in 2025

Price/cost tightened in '24, after a better than expected '23. When all is said and done, 2024 ended with close to ~50bps of y/y benefit versus the prior expectation of ~90bps. For those that disclose it, the spread represented 15% of profit growth last year. Following a material moderation in 2024, spread in 2025 is expected to moderate further as shown below.

Table 4: Price/Cost Spreads for EE/MI Companies in 2025E

\$ in millions

|      | Price/cost \$ | Price/cost Margin | % of Profit Growth |
|------|---------------|-------------------|--------------------|
| DD   | -219          | -1.55%            | N/A                |
| PNR  | 1             | -1.37%            | 2%                 |
| CARR | -71           | -0.75%            | -26%               |
| LII  | -44           | -1.71%            | N/A                |
| HUBB | 3             | -0.68%            | 7%                 |
| ETN  | 212           | 0.18%             | 33%                |
| VRT  | 15            | -0.66%            | 4%                 |

Source: J.P. Morgan estimates.

All else equal, this sounds good. However, nothing occurs in a vacuum, and the demand picture is important from two angles: (1) fixed cost coverage and (2) making sure industry participants maintain their discipline. The simplified model below shows that if volumes are down 10% at a standard 35% decremental margin, and assuming flat price, while dialing this tailwind, would still lead to a 20% profit decline and margins down 140 bps. A LSD price headwind on top of the volume decline leads to a materially worse outcome: profits down 35%. There are obviously other levers at managements'

disposal to limit the damage, but this is the simple math around the impact using a sector average margin.

**Figure 8: Simplified Analysis for \$10 B Revenue Company with 15% Margins and Moving Parts in Down Volume Environment but for Which Price Holds While Commods Relieve Some...**

\$ in millions

|                | Revs          | OP           | Rev Growth | Decremental Mgn | Margin Walk  |
|----------------|---------------|--------------|------------|-----------------|--------------|
| <b>Start</b>   | <b>10,000</b> | <b>1,500</b> |            |                 | <b>15%</b>   |
| Volume and Mix | -1,000        | -350         | -10%       | 35%             | -2.2%        |
| Pricing        | 0             | 0            | 0.00%      |                 | 0.0%         |
| Materials      |               | 75           |            |                 | 0.8%         |
| <b>End</b>     | <b>9,000</b>  | <b>1,225</b> |            |                 | <b>13.6%</b> |
| y/y            | -10%          | -18%         |            |                 |              |

Source: J.P. Morgan estimates.

**Figure 9: ...Same Analysis with LSD Price Pressure Shows Materially Different Outcome**

\$ in millions

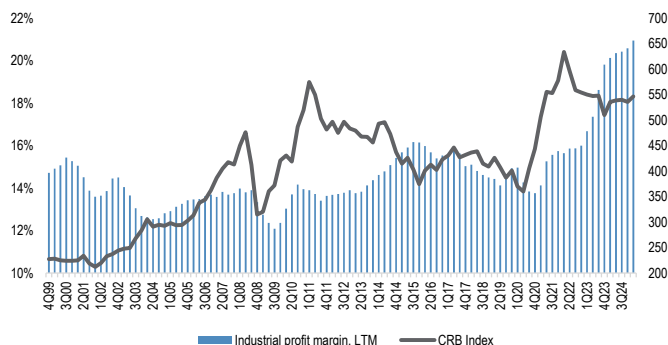
|                | Revs          | OP           | Rev Growth | Decremental Mgn | Margin Walk   |
|----------------|---------------|--------------|------------|-----------------|---------------|
| <b>Start</b>   | <b>10,000</b> | <b>1,500</b> |            |                 | <b>15%</b>    |
| Volume and Mix | -1,000        | -350         | -10%       | 35%             | -2.20%        |
| Pricing        | -250          | -250         | -2.50%     |                 | -2.20%        |
| Materials      |               | 75           |            |                 | 0.80%         |
| <b>End</b>     | <b>8,750</b>  | <b>975</b>   |            |                 | <b>11.10%</b> |
| y/y            | -13%          | -35%         |            |                 |               |

Source: J.P. Morgan estimates.

## The Great Margin Miracle Helped by Inflation

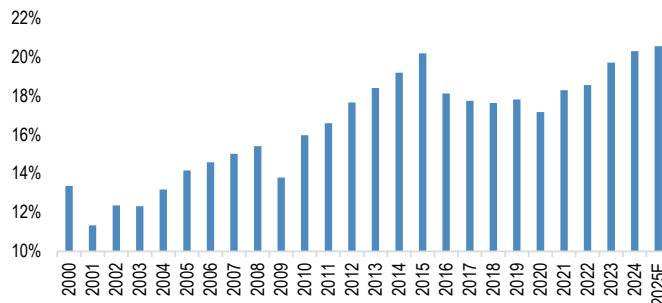
From 2001 to 2015 the EE/MI sector benefitted from an unprecedented period of margin expansion, for which margins moved from ~11% to ~18%, a key aspect of earnings growth in what was generally a lower growth period when organic growth averaged ~3%. This period corresponded with the reemergence of commodity inflation, driven mostly by the build-out in emerging markets, around which industrial commodities ex-fuel averaged about 2% growth. Clearly, “a little inflation” was a good thing, helping industries such as HVAC maintain price discipline. While productivity has been a key contributor to improved profitability, the move to new peaks, we think, was also aided by the more inflationary environment the industrial economy has been in since the turn of the century. Historical industrial profit margin trends as reported by the US census vs. the CRB index (a price measure of 22 basic commodities) showed a similar dynamic. Here from the lows in 2020, we did see a step up from volumes in ‘21, though ‘22 was hit by extreme inflation, a once-in-a-generation move that capped the upside, though margins rebounded with a healthy dose of price/cost benefits driving an inflection in 2023 as raw materials turned lower, with margins in 2024 close to peak levels and we estimate 2025 should inch higher helped by an inflationary environment and productivity/restructuring efforts an added benefit.

Figure 10: Industrial Margin vs CRB Index



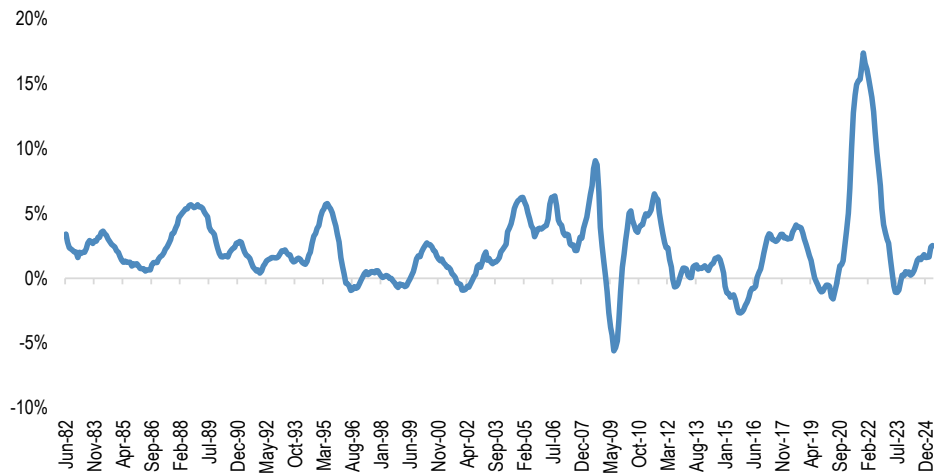
Source: U.S. Census, company reports, and Bloomberg Finance L.P.

Figure 11: EE-MI Sector Operating Margins



Source: Company reports and J.P. Morgan calculations.

Figure 12: Industrial Commodities ex-fuel PPI

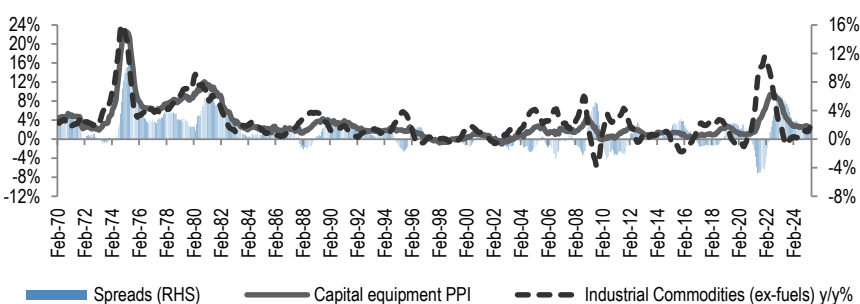


Source: BLS.

## High-Level Price/Cost: Spread At Low Levels

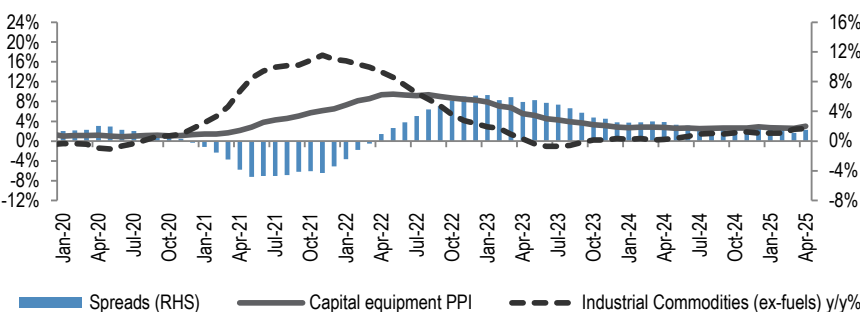
Looking high level, our favored price/cost proxy is capital goods pricing less industrial commodities ex-fuel in the monthly PPI report, for which commodities clearly lead cap good pricing, as we have seen with timing on company prices. The spread here has been positive since April 2022, peaking around 6% in late '22 / early '23, with 2024 seeing tighter spreads at slightly below 2% while in 2025, albeit at lower levels, spread is inching up tracking at +1.1%/+1.5% in Mar/Apr '25. Capital goods PPI was up +4%/+3.3%/+2.9%/+2.7% in 1Q24/2Q24/3Q24/4Q24, with 1Q25 stable at ~2.7%, down from peak rates of growth around 9% in mid '22.

Figure 13: Capital Goods y/y PPI vs Industrial Commodities Less Fuels PPI (Long-Term View)



Source: Bloomberg Finance L.P., BLS.

Figure 14: Capital Goods y/y PPI vs Industrial Commodities Less Fuels PPI (Near-Term View)

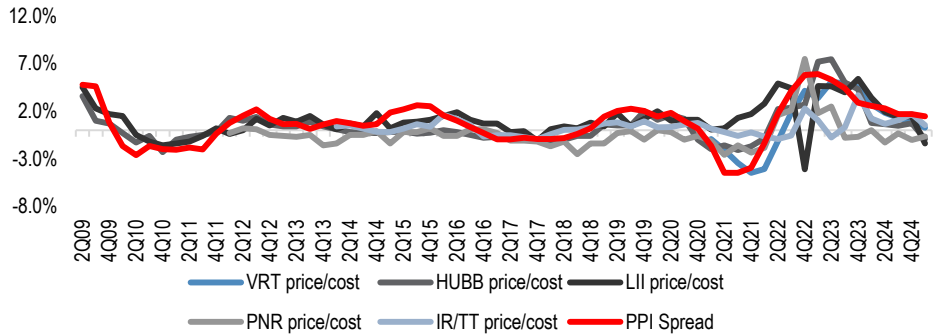


Source: Bloomberg Finance L.P., BLS.

## Company reports track spread with less volatility and a lag

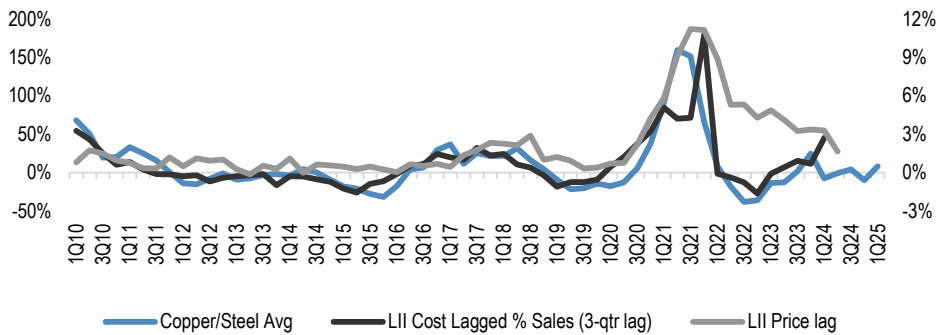
Looking at some companies where we track price/cost closely, these typically trend with our proxy shown above with some lag. While price/cost remained challenged in the 1H22, we saw an inflection in 2H22 as pricing held in and costs normalized, and the positive spread persisted through '23 as commodity costs deflated while pricing carried forward. Steel costs re-inflated late 2023, driving some additional price moves at some companies, but prices receded (thereby driving down spreads) before inching up again in 2025.

Figure 15: Price/Cost Spreads vs PPI Proxy Spread



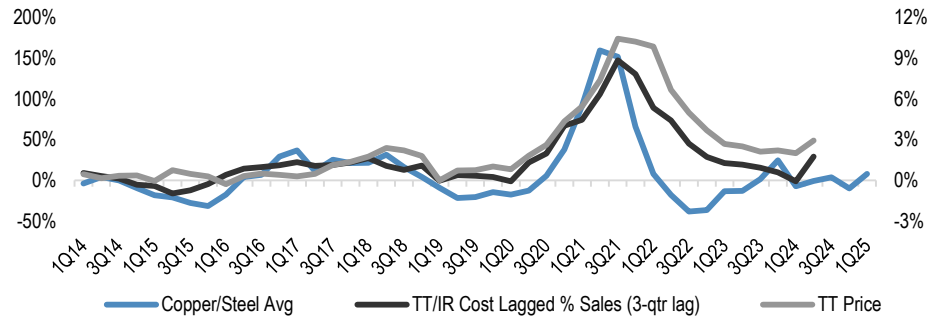
Source: Bloomberg Finance L.P., company reports, and J.P. Morgan estimates.

Figure 16: LII Price/Cost vs Metals Prices



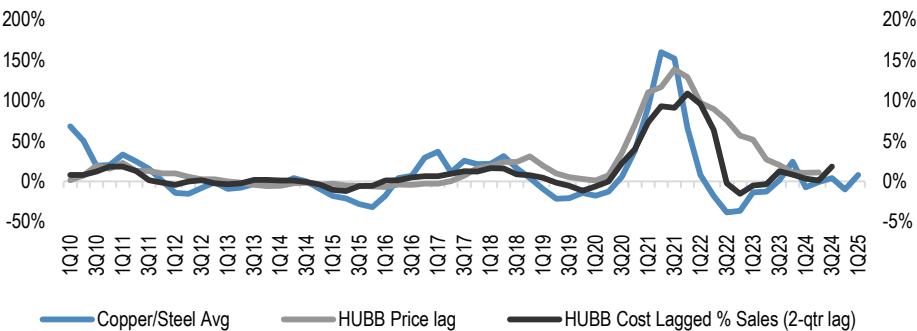
Source: J.P. Morgan estimates, company data.

Figure 17: TT Price/Cost vs Metals Prices



Source: J.P. Morgan estimates, company data.

Figure 18: HUBB Price/Cost vs Metals Prices

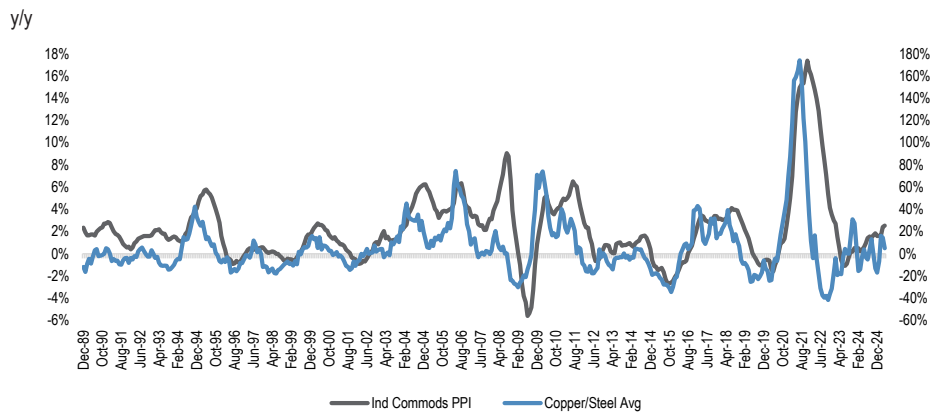


Source: J.P. Morgan estimates, company data.

## Costs: Commodities range-bound; supply chain costs bracing for macro volatility; labor now near average levels

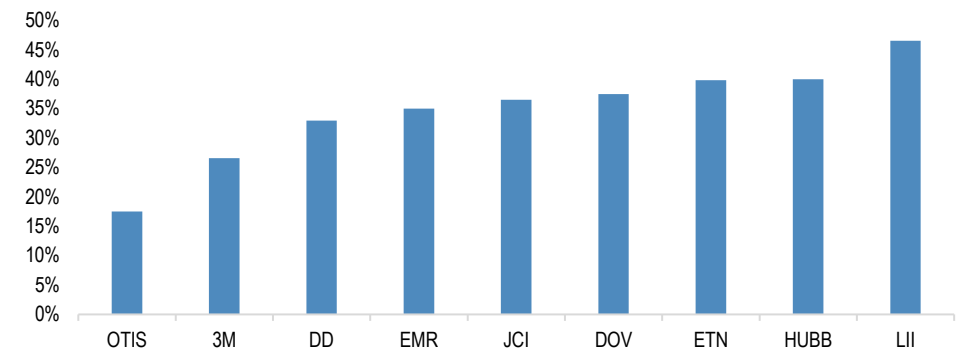
Moving to costs, we show below commodity pricing versus the industrials commodity PPI, which shows a clear correlation, but with commodities more volatile. What we can see is that the underlying driver of the “commodity inflation” as per the above had turned positive y/y in late ‘23, a reversal from the negative DD territory from May ‘22 to May ‘23. More recently, commodity inflation is down in the +MSD range in April ‘25, following +MT% y/y in Feb/Mar.

Figure 19: Raw Materials Lead Industrial Commodities PPI



Source: BLS.

Figure 20: Raw Materials as a % of Sales



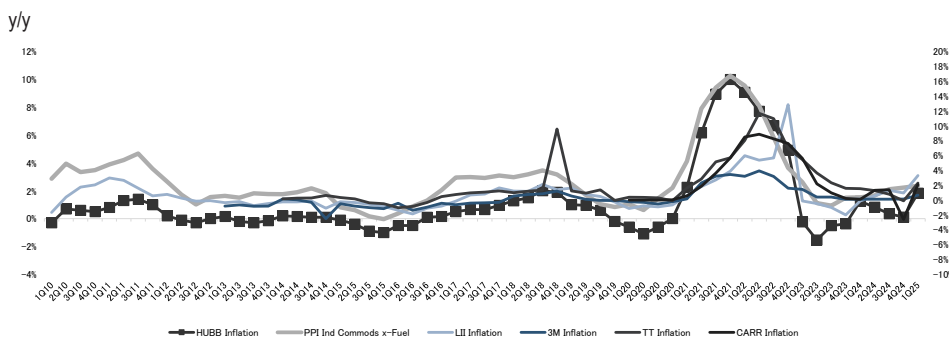
Source: J.P. Morgan estimates, company data. DD includes logistics costs and ETN includes components.

Figure 21: Raw Material Commentary

|      |                                                                                                                                                                                                                                                                                                                                                                                                  |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| JCI  | ~45% of COGS is tied to direct materials/components (motors, compressors, electronic assemblies, etc.), ~10% would be metals (Steel, Copper, Aluminum), about 40% labor/overhead (including subcontract labor), and the remainder would be freight/fleet, etc. Of the metals spend, more than half is tied to Steel, around one-third is Copper and the rest is Aluminum and other small inputs. |
| LII  | 65% of COGS is material costs of which 65%-70% is purchased components and 30-35% is commodities (steel is about half of that, then aluminum, then copper). 10-15% conversion costs which is overhead and direct labor. Direct labor is MSD percent of COGS. 20-25% is other, freight, warranty. Freight is HSD percent of COGS.                                                                 |
| TT   | About \$750 mm in Tier 1 spend (copper, aluminum, and steel), \$4.5 B in spend on Tier 2 (motors, compressors, metal fab, etc)                                                                                                                                                                                                                                                                   |
| HUBB | Raws are low 40% of sales and a little bit more than that for COGS.                                                                                                                                                                                                                                                                                                                              |
| OTIS | \$2.5 B spend on material, \$300mm of that is raw materials, of which 75%-80% is steel.                                                                                                                                                                                                                                                                                                          |
| ETN  | 60% of COGS is raw materials and components, 29% is overhead, 7% is labor and freight is 4%. Large material buys are steel, copper, aluminum.                                                                                                                                                                                                                                                    |
| DD   | Raw material and contract manufacturing exposure is ~33% of revenue for the legacy portfolio                                                                                                                                                                                                                                                                                                     |
| 3M   | Total raw materials, outsourced manufactured hard goods, and logistics costs combined were ~25% of sales in 2021                                                                                                                                                                                                                                                                                 |
| DOV  | 60% of COGS is material; 20% is labor; rest is overhead/other                                                                                                                                                                                                                                                                                                                                    |
| EMR  | Labor HSD as % of sales                                                                                                                                                                                                                                                                                                                                                                          |
| FTV  | \$1 B in purchased materials, labor 1-2% of COGS, freight 1-2% of COGS                                                                                                                                                                                                                                                                                                                           |
| PNR  | Roughly 60% of COGS are materials, but think of it as components (e.g., motors, drives, resins, etc.) and not necessarily raw metal purchases. Labor would be most of the rest with freight a smaller percentage. As for inflation in 2021, it has historically been 2/3 material and 1/3 labor inflation with 2021 being a little more material inflation than usual.                           |
| ATS  | About 40-45% of cost of sales is component materials (e.g., robotics purchased from third parties), 40-45% is people costs, 10-15% is fixed costs.                                                                                                                                                                                                                                               |

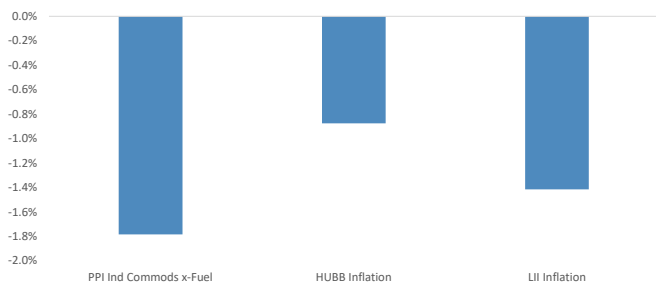
Source: Company reports.

Figure 22: Commodities PPI Leads Cost Inflation, as Reported by EE/MI Companies



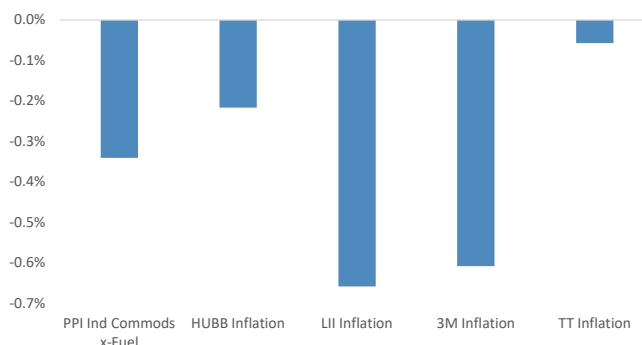
Source: Company reports, BLS.

Figure 23: Cost Deflation for Selected Companies in '08-'09



Source: J.P. Morgan estimates, company data.

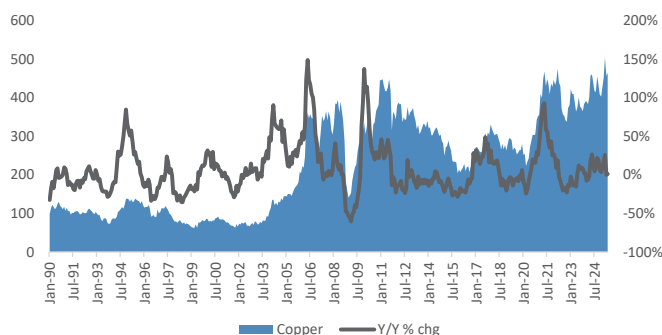
Figure 24: Cost Deflation for Selected Companies in '14-'16



Source: J.P. Morgan estimates, company data.

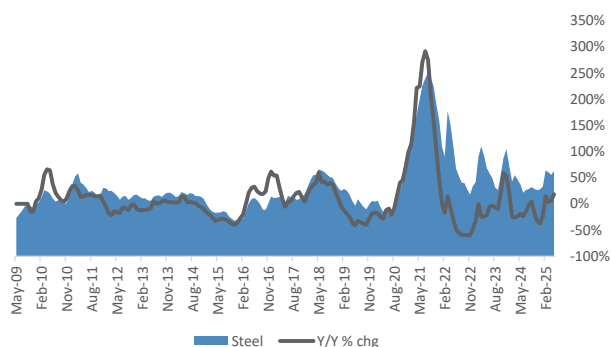
**Raw Materials** – Aluminum is down ~7% y/y month to date after being up HSD% in Dec '24 and up close to ~20% in Feb '25, with oil down 20% y/y on a month-to-date basis, the decline accelerating since the beginning of '25. Copper is up ~1% month to date, following the LSD% increase in Dec, a deceleration from the low-20s range recorded in Sep/Oct '24 and the +25% y/y seen in Feb '25. In contrast, steel is up ~19% month to date, following the ~40% decline in Dec.

Figure 25: Copper Price (USD/lb)



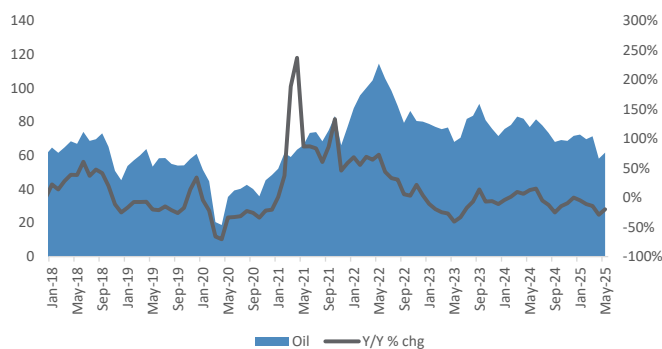
Source: Bloomberg Finance L.P.

Figure 26: Steel Price (Domestic HRC, USD/short ton)



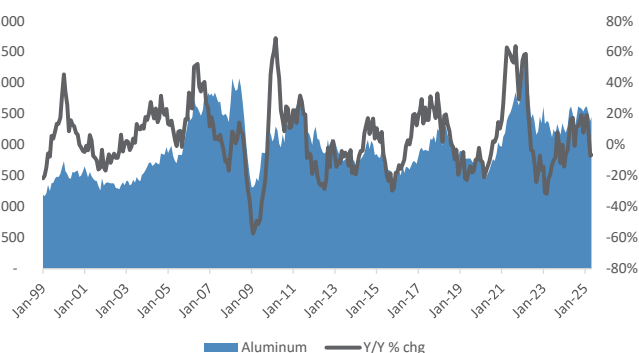
Source: Bloomberg Finance L.P.

Figure 27: Oil Price (\$/b)



Source: Bloomberg Finance L.P.

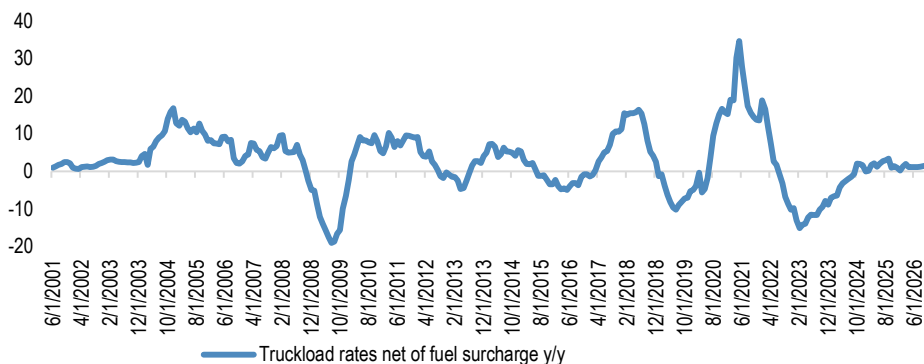
Figure 28: Aluminum (USD/MT)



Source: Bloomberg Finance L.P.

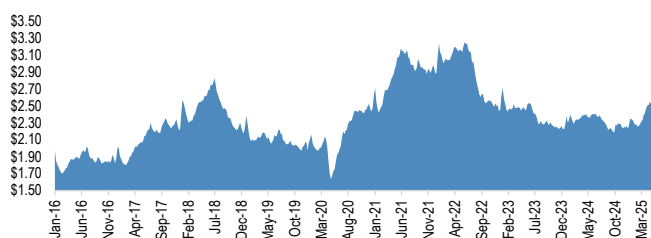
**Freight Rates Correcting; Outlook Uncertain On Macro Uncertainty** – Supply chain costs remain elevated, not surprising given the tariff/geopolitical landscape. As shown below, truckload spot rates are tracking well below prior peak levels but are still above 2019 levels. As noted [here](#), container spot rates have corrected since the start of the year. Proposed US tariffs have created a lot of uncertainties and the duration of these and reciprocal action will cause increased volatility to demand near term, while on supply the eventual return of effective container shipping capacity to the Suez Canal will also put further pressure on the demand-supply balance and rates. It is unclear when this resolves. JPM Analyst Alexia Dogani noted a lot of demand volatility for freight given the rapidly evolving tariff set up, while February was the first month with notable reductions in demand, beyond normal seasonality.

Figure 29: Truckload Rates Net of Fuel Surcharge



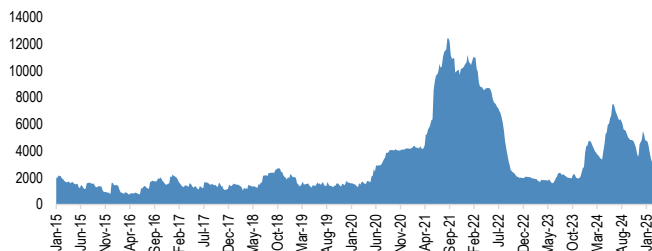
Source: Bloomberg Finance L.P., FTR Associates.

Figure 30: TL Spot Rates (Average Rate/Mile Incl. Fuel)



Source: Bloomberg Finance L.P.

Figure 31: Shanghai-LA Container Rate Benchmark



Source: Bloomberg Finance L.P.

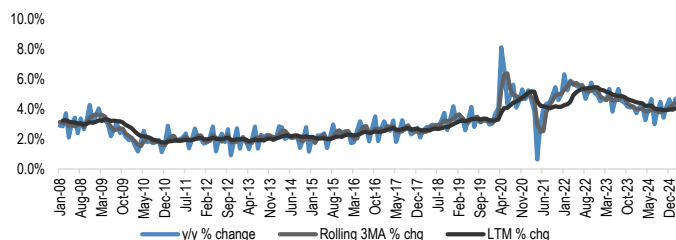
**Labor Inflation Close To Long-Term Average**– In this section, we look at wage inflation in various industries ranging from goods producing to service producing, leisure and hospitality, as well as education and healthcare. Categories here, as shown in the table below, are growing by ~3.5% y/y, which is close to the historical average range of ~3%.

Figure 32: Wage Inflation Dashboard

|                                  | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|----------------------------------|---------------|----------------|-----------------|
| Total private                    | 3.7%          | 4.3%           | 4.1%            |
| Goods producing                  | 4.0%          | 4.3%           | 4.4%            |
| Mining & lodging                 | 1.2%          | 2.7%           | 3.3%            |
| Construction                     | 3.5%          | 3.8%           | 4.2%            |
| Manufacturing                    | 4.3%          | 4.7%           | 4.6%            |
| Durable goods                    | 4.8%          | 5.1%           | 5.4%            |
| Nondurable goods                 | 3.3%          | 3.9%           | 3.1%            |
| Pvt svc producing                | 3.6%          | 4.3%           | 4.0%            |
| Trade, transport, utilities      | 3.4%          | 3.2%           | 3.1%            |
| Wholesale trade                  | 2.6%          | 2.6%           | 2.3%            |
| Retail trade                     | 4.6%          | 3.8%           | 3.0%            |
| Transport & warehousing          | 3.1%          | 3.0%           | 3.5%            |
| Utilities                        | 1.8%          | 2.4%           | 2.7%            |
| Information                      | 5.2%          | 5.3%           | 4.4%            |
| Financial activities             | 4.4%          | 4.8%           | 4.7%            |
| Professional & business services | 4.3%          | 5.7%           | 4.9%            |
| Education and health services    | 3.2%          | 3.7%           | 3.8%            |
| Leisure & hospitality            | 3.7%          | 4.1%           | 4.0%            |
| Other services                   | 2.6%          | 3.7%           | 4.4%            |

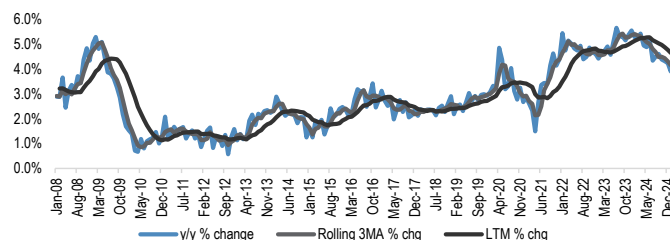
Source: BLS.

Figure 33: Private Total



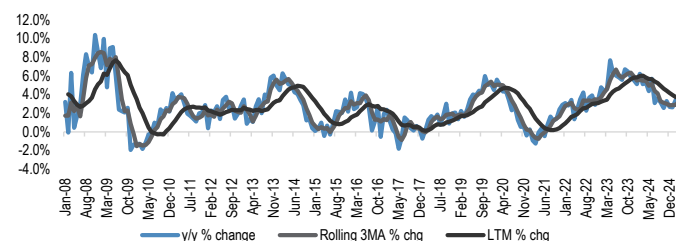
Source: BLS.

Figure 34: Goods Producing



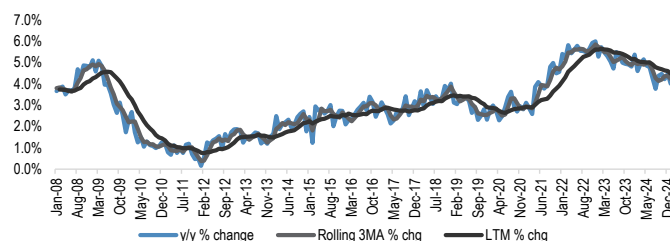
Source: BLS.

Figure 35: Mining & Lodging



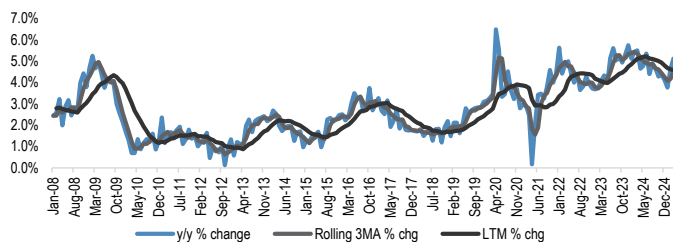
Source: BLS.

Figure 36: Construction



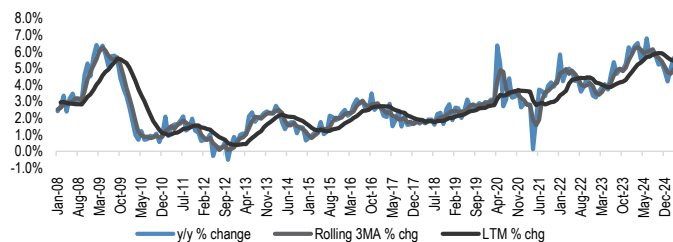
Source: BLS.

Figure 37: Manufacturing



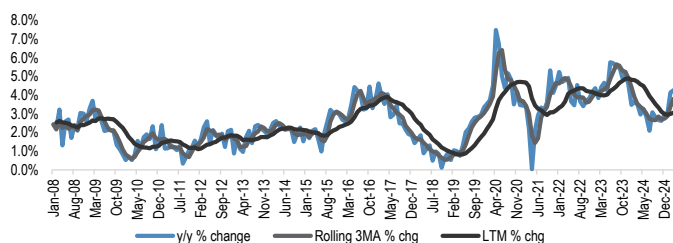
Source: BLS.

Figure 38: Durable Goods



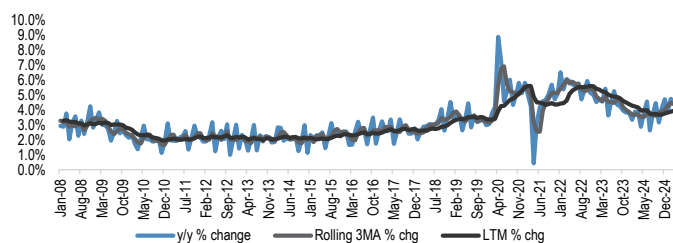
Source: BLS.

Figure 39: Non-Durable Goods



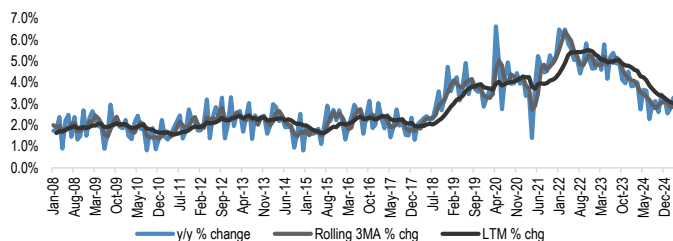
Source: BLS.

Figure 40: Private Service Producing



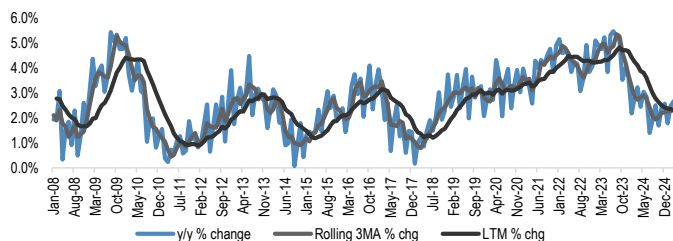
Source: BLS.

Figure 41: Trade, Transport, Utilities



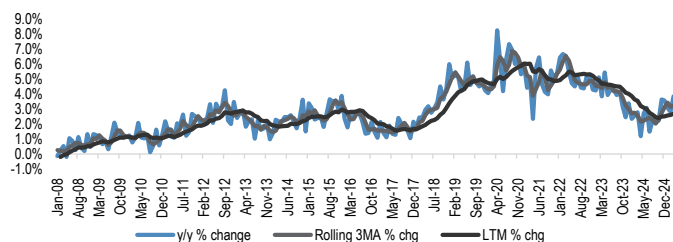
Source: BLS.

Figure 42: Wholesale Trade



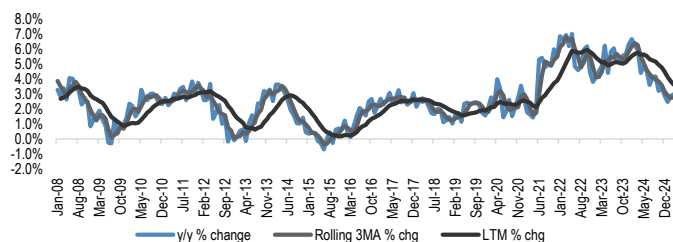
Source: BLS.

Figure 43: Retail Trade



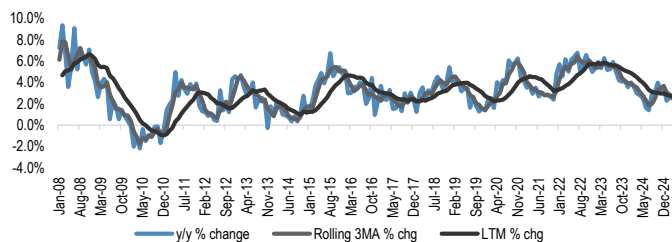
Source: BLS.

Figure 44: Transport & Warehousing



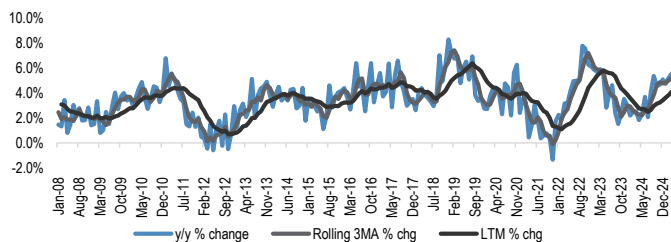
Source: BLS.

Figure 45: Utilities



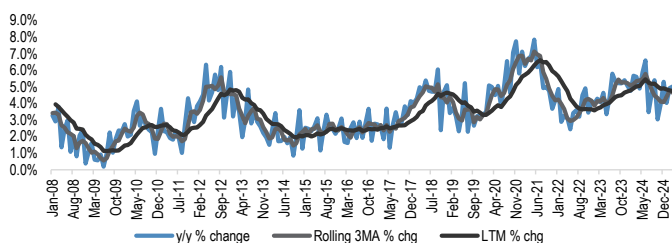
Source: BLS.

Figure 46: Information



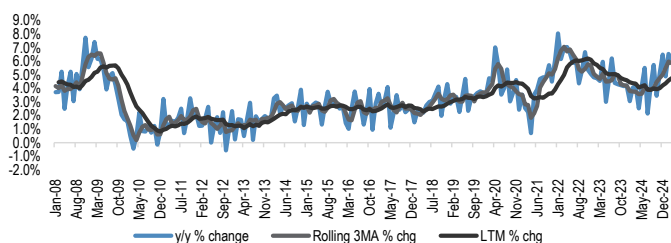
Source: BLS.

Figure 47: Financial Activities



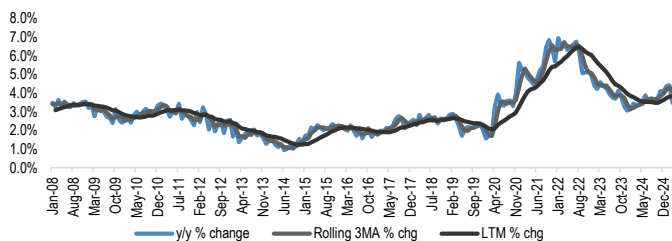
Source: BLS.

Figure 48: Professional & Business Services



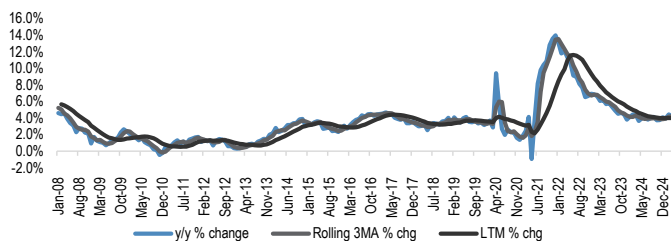
Source: BLS.

Figure 49: Education and Health Services



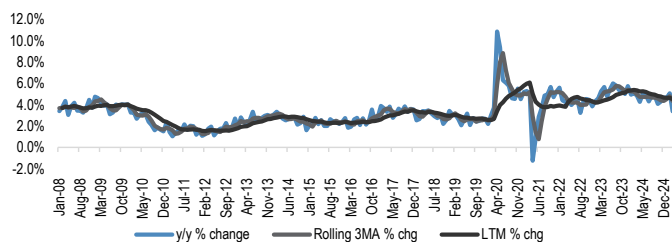
Source: BLS.

Figure 50: Leisure & Hospitality



Source: BLS.

Figure 51: Other Services

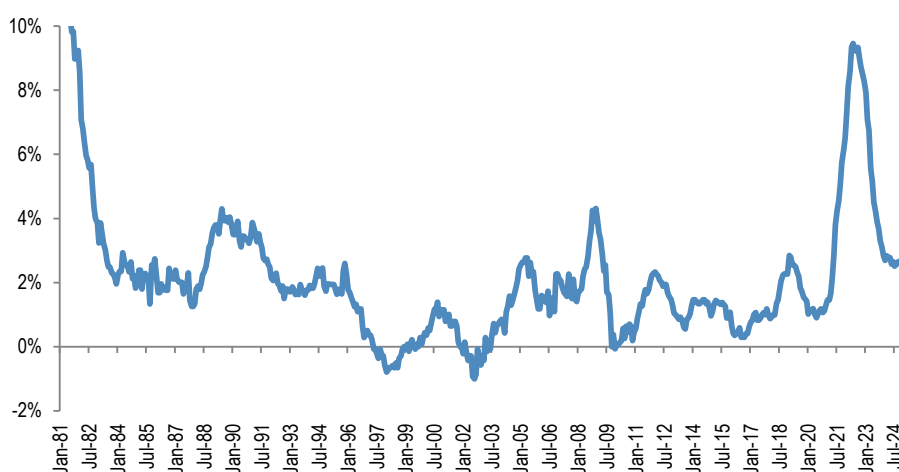


Source: BLS.

## Price: A Major Driver for the Sector, Moderation in 2024, 2025 Set To Be Muted, but Tariffs Change The Game

Turning to price, pushed by the above costs, our traditional approach to tracking price/cost trends in the industry and subsequent read-across to the group has been looking at the overall capital goods pricing index vs. the overall industrial commodities (ex-fuel) index. This has been a useful indicator in the past to track overall cap goods pricing trends and has decelerated throughout '23 following the move down from peak for commodities. Since '23 end, this category has stabilized in the LSD range.

Figure 52: Capital Goods PPI y/y

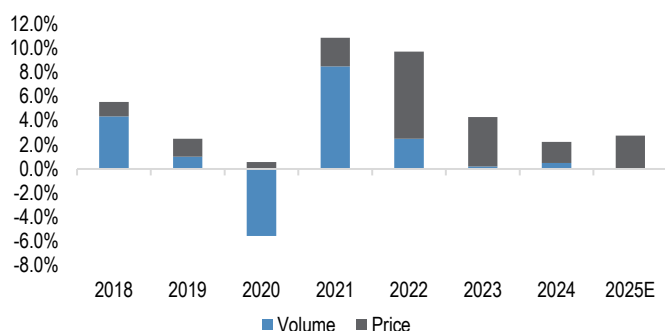


Source: BLS.

### EE/MI price stable at low levels...

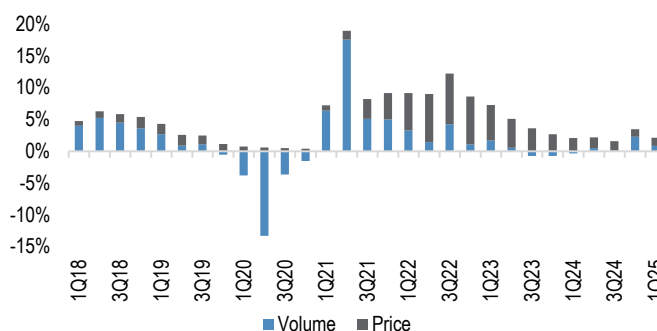
Of the MSD organic growth we saw for the group in 2023, the majority was driven by price. The growth rates have moderated with the deceleration in pricing. With the onset of tariffs, most companies have indicated towards pricing offset and the question now becomes how much of the pricing can hold and the resultant impact on volumes. There is risk to volumes across various end markets with the exception of a few.

Figure 53: Price & Volume Growth (Annual)



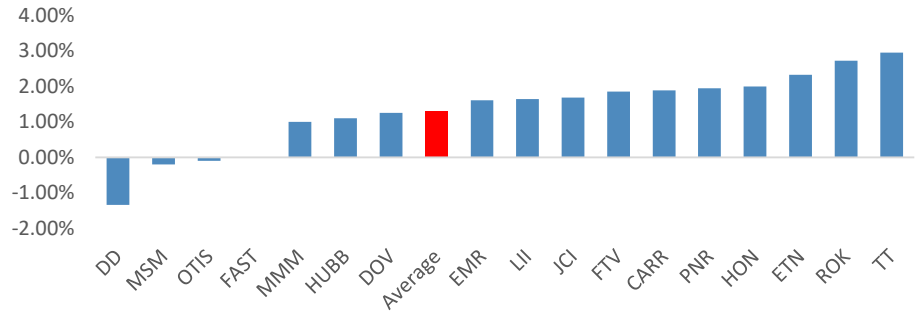
Source: J.P. Morgan estimates, company data.

Figure 54: Price and Volume Growth (Quarterly)



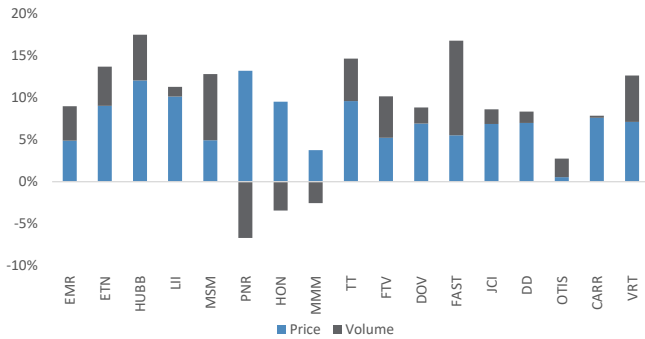
Source: J.P. Morgan estimates, company data.

Figure 55: 1Q25 Price Growth



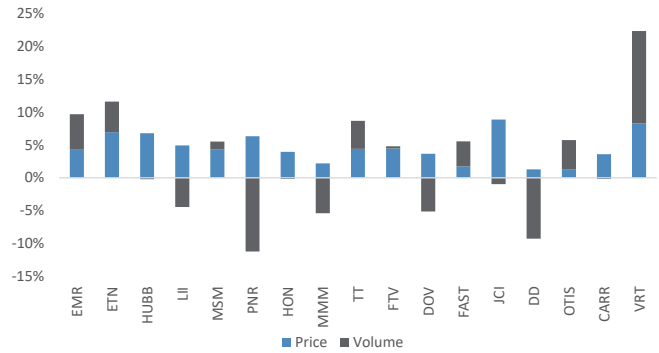
Source: Company reports, J.P. Morgan estimates.

Figure 56: 2022 Price Volume Contribution to Organic Growth



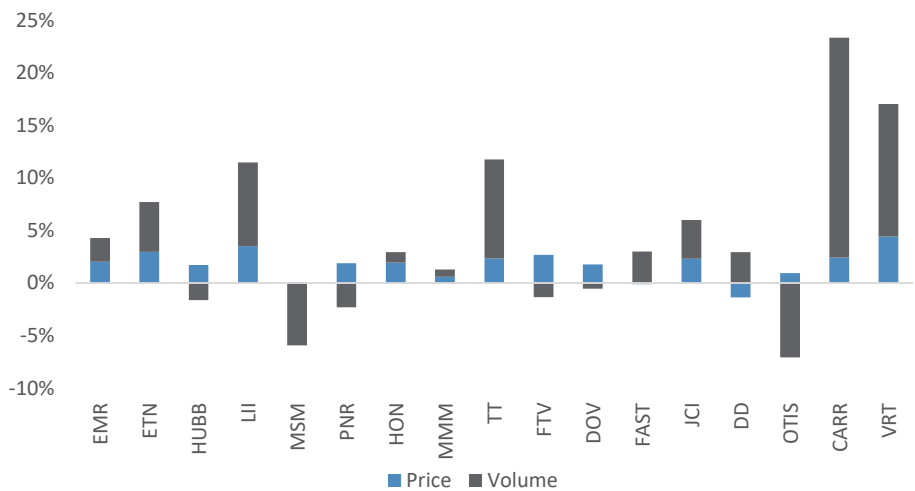
Source: J.P. Morgan estimates.

Figure 57: 2023 Price Volume Contribution to Organic Growth



Source: J.P. Morgan estimates.

Figure 58: 2024 Price Volume Contribution to Organic Growth



Source: J.P. Morgan estimates.

To get a better understanding of those most exposed to volume growth, the below chart highlights positioning for 2025 across companies that disclose price and volume growth by quarters.

Figure 59: Price and Volume growth

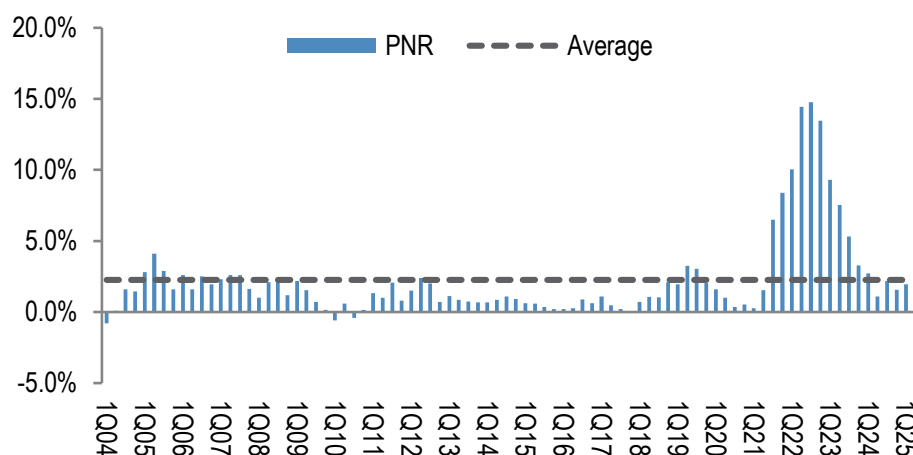
|                | Price     |           |           |           | Volume    |           |            |            |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
|                | 1Q25      | 2Q25E     | 3Q25E     | 4Q25E     | 1Q25      | 2Q25E     | 3Q25E      | 4Q25E      |
| EMR            | 1.6%      | 4.0%      | 5.0%      | N/A       | 0.2%      | -0.7%     | -6.4%      | N/A        |
| ETN            | 2.3%      | 2.4%      | 3.2%      | 3.0%      | 5.9%      | 4.7%      | 8.1%       | 7.8%       |
| HUBB           | 1.1%      | 2.4%      | 4.7%      | 5.7%      | -1.7%     | 0.0%      | 3.3%       | 3.9%       |
| LII            | 1.6%      | 2.5%      | 4.8%      | 5.2%      | -3.2%     | -7.0%     | -11.8%     | -16.5%     |
| PNR            | 1.9%      | 4.6%      | 7.6%      | 7.7%      | -2.7%     | -3.3%     | -6.7%      | -7.0%      |
| HON            | 2.0%      | 2.3%      | 3.3%      | 7.3%      | 1.9%      | -0.5%     | -2.2%      | -4.7%      |
| MMM            | 1.0%      | 1.8%      | 1.8%      | 1.8%      | 0.6%      | -0.3%     | -3.8%      | -2.5%      |
| TT             | 2.9%      | 2.7%      | 2.8%      | 2.2%      | 8.2%      | 4.2%      | 4.9%       | 3.8%       |
| DOV            | 1.3%      | 2.0%      | 2.7%      | 2.7%      | -0.8%     | 0.6%      | -1.3%      | -2.4%      |
| JCI            | 1.7%      | 2.4%      | 3.6%      | N/A       | 4.7%      | 1.9%      | -2.2%      | N/A        |
| DD             | -1.3%     | -1.0%     | -0.3%     | -0.2%     | 7.4%      | 3.4%      | 0.1%       | -0.8%      |
| OTIS           | -0.1%     | -0.3%     | -0.3%     | -0.5%     | -7.0%     | -5.7%     | -1.3%      | 7.7%       |
| CARR           | 1.9%      | 2.6%      | 2.5%      | 3.4%      | -2.3%     | 3.4%      | 2.6%       | -8.6%      |
| ROK            | 2.7%      | 2.9%      | 2.3%      | N/A       | -6.8%     | -2.2%     | 5.0%       | N/A        |
| VRT            | 3.7%      | 4.1%      | 4.8%      | 5.8%      | 21.6%     | 17.1%     | 15.0%      | 8.1%       |
| <b>Average</b> | <b>1%</b> | <b>2%</b> | <b>3%</b> | <b>3%</b> | <b>0%</b> | <b>0%</b> | <b>-1%</b> | <b>-2%</b> |

Source: J.P. Morgan estimates.

### ...current measures have moderated from standout levels

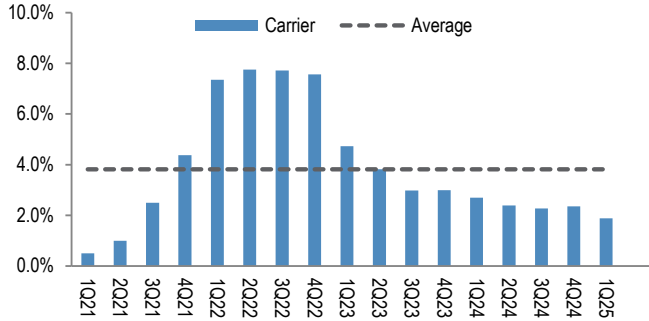
Looking at historical pricing trends for our companies, not surprisingly most are seeing current pricing trends decelerating on easing inflationary conditions, albeit sticky of late. We show companies below that have given good enough historical disclosure on price.

Figure 60: PNR Price vs. Historical Average



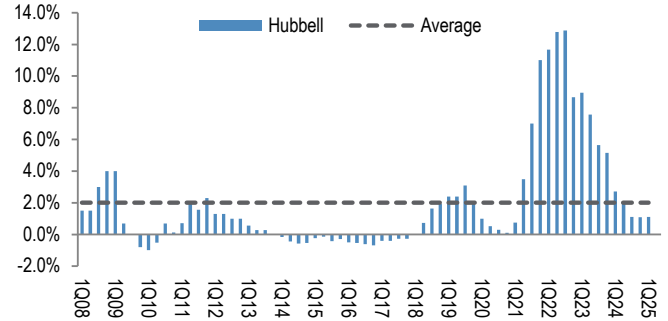
Source: J.P. Morgan estimates, company data.

Figure 61: Carrier Price vs. Historical Average



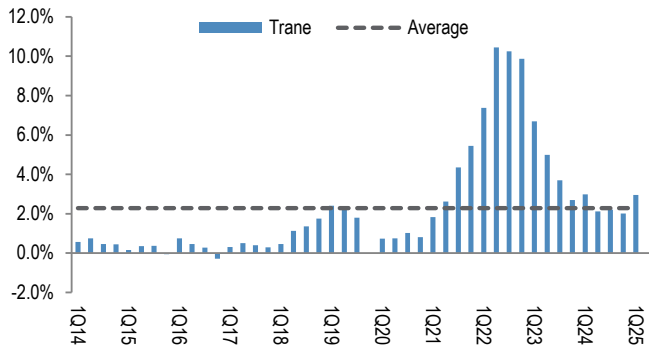
Source: J.P. Morgan estimates, company data.

Figure 62: Hubbell Price vs. Historical Average



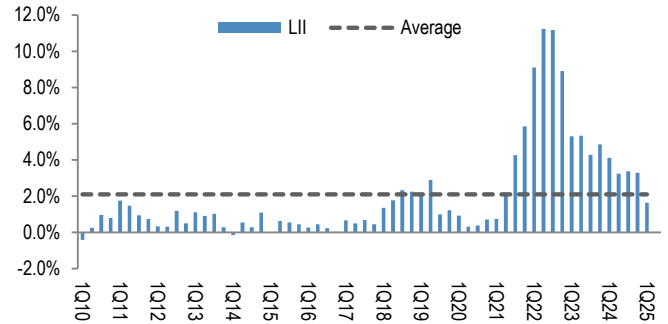
Source: J.P. Morgan estimates, company data.

Figure 63: Trane Price vs. Historical Average



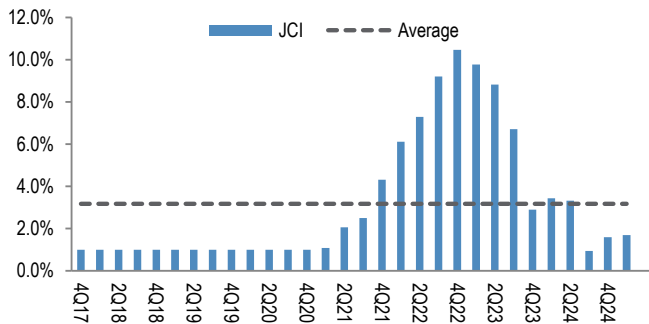
Source: J.P. Morgan estimates, company data.

Figure 64: LII Price vs. Historical Average



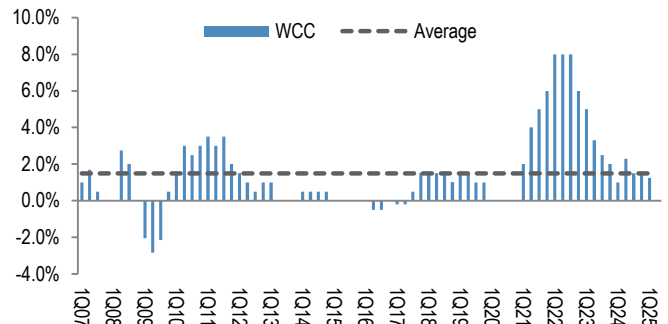
Source: J.P. Morgan estimates, company data.

Figure 65: JCI Price vs. Historical Average



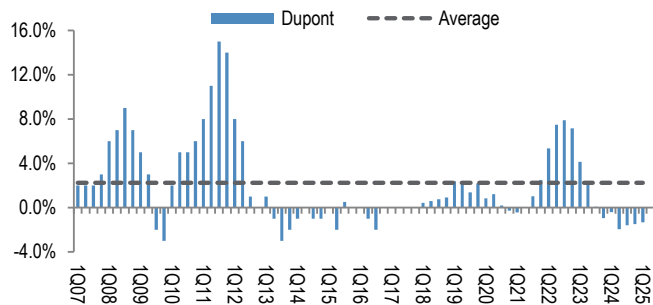
Source: J.P. Morgan estimates, company data.

Figure 66: WCC Price vs. Historical Average



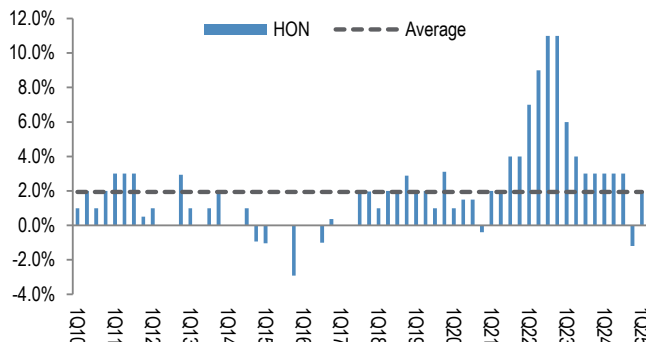
Source: J.P. Morgan estimates, company data.

Figure 67: DuPont Price vs. Historical Average



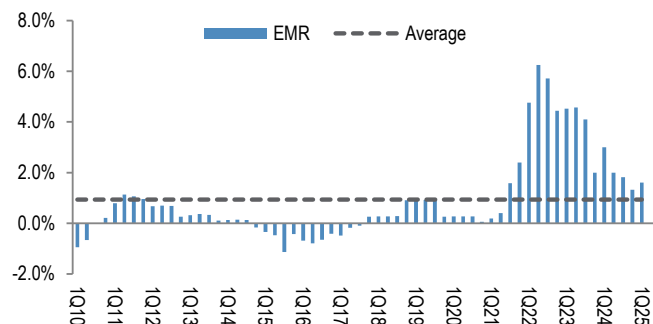
Source: J.P. Morgan estimates, company data.

Figure 68: HON Price vs. Historical Average



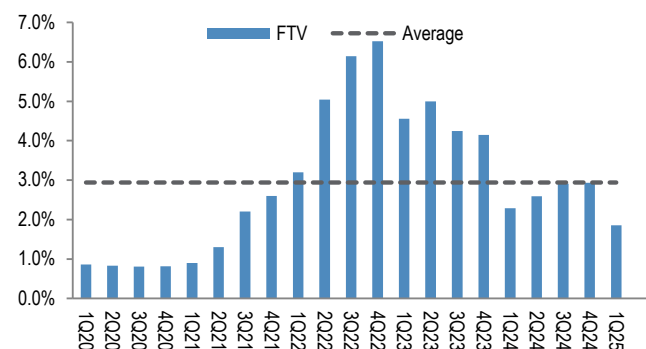
Source: J.P. Morgan estimates, company data.

Figure 69: Emerson Price vs. Historical Average



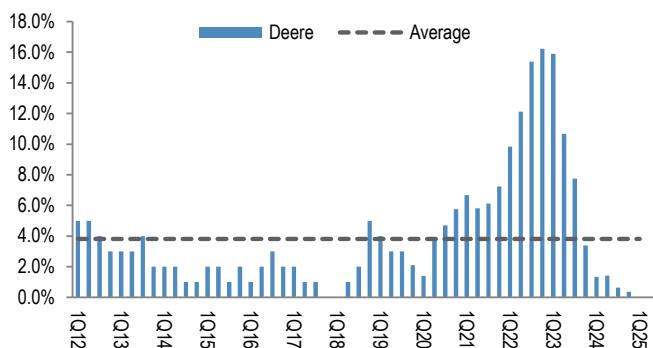
Source: J.P. Morgan estimates, company data.

Figure 70: FTV Price vs. Historical Average



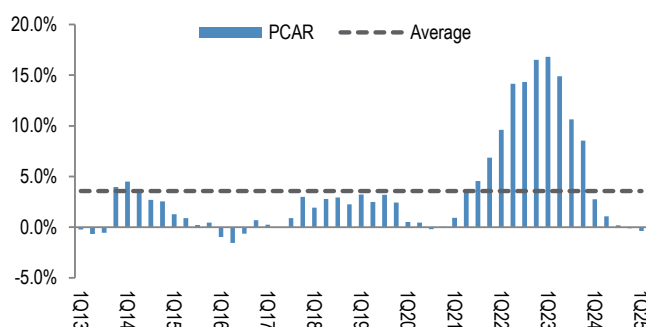
Source: J.P. Morgan estimates, company data.

Figure 71: DE Price vs. Historical Average



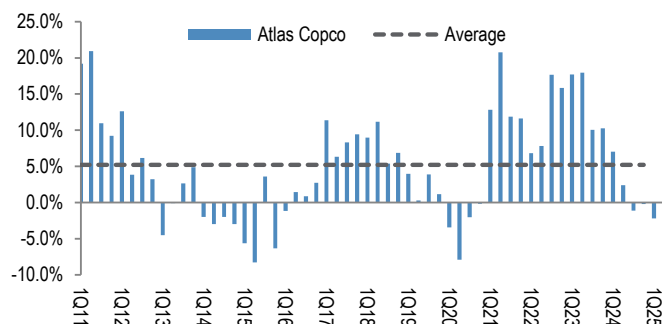
Source: J.P. Morgan estimates, company data.

Figure 72: PCAR Price vs. Historical Average



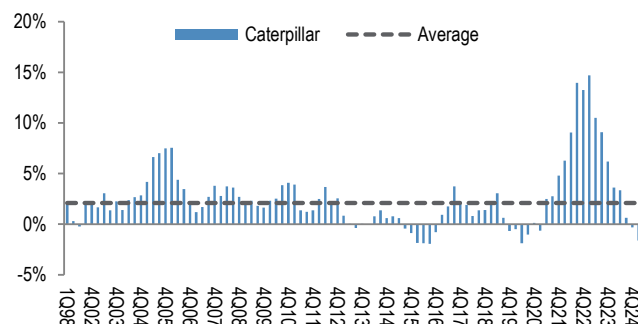
Source: J.P. Morgan estimates, company data.

Figure 73: Atlas Copco Price vs. Historical Average



Source: J.P. Morgan estimates, company data.

Figure 74: CAT Price vs. Historical Average



Source: J.P. Morgan estimates, company data.

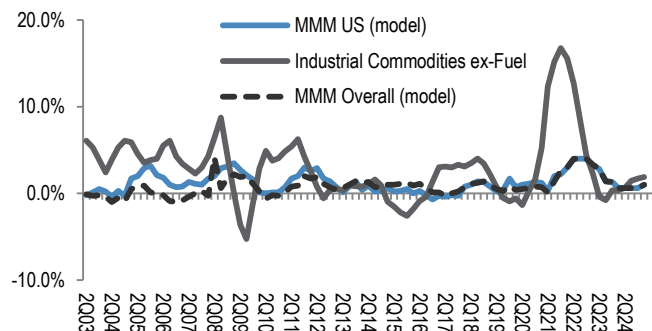
Based on historical pricing data provided by companies in our coverage and certain machinery/distributor peers, we see solid correlations between the quarterly pricing data and the Industrial commodities (ex-fuels) PPI data. We summarize the correlations below with the appropriate quarterly lag, which is then followed by related summary charts.

Table 5: EE/MI Quarterly Price Correlation vs. Industrial Commodities ex-fuels PPI

| EE/MI Company | Correlation | Lag (Qtrs) |
|---------------|-------------|------------|
| CARR          | 92%         | 2          |
| DD            | 90%         | 2          |
| DOV           | 88%         | 2          |
| EMR           | 84%         | 3          |
| FTV           | 90%         | 4          |
| HON           | 80%         | 3          |
| HUBB          | 85%         | 2          |
| LII           | 81%         | 2          |
| MMM           | 74%         | 3          |
| OTIS          | 48%         | 5          |
| PNR           | 79%         | 2          |
| TT            | 90%         | 2          |
| WCC           | 79%         | 1          |

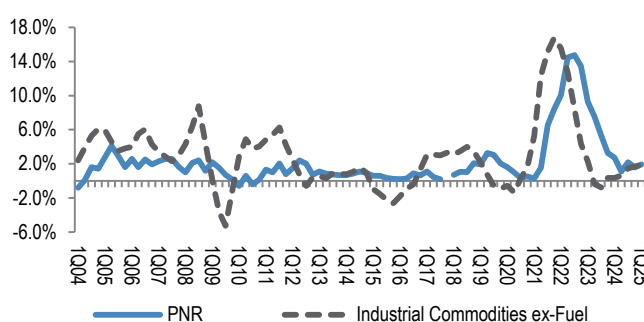
Source: Company reports and J.P. Morgan estimates.

Figure 75: MMM Pricing vs Industrial Commodities ex-Fuel



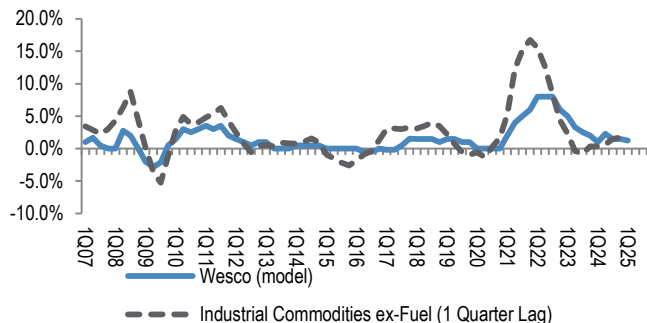
Source: Company reports, J.P. Morgan estimates, BLS.

Figure 76: PNR vs Industrial Commodities ex-Fuel



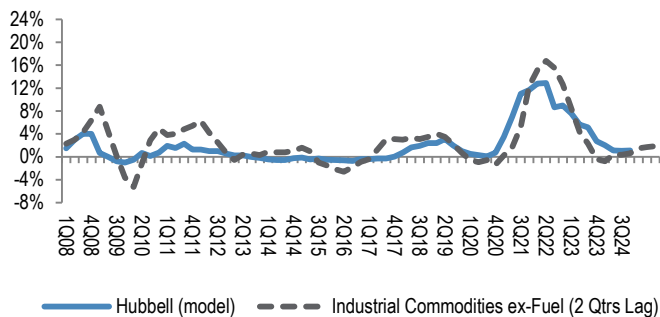
Source: Company reports, J.P. Morgan estimates, BLS.

Figure 77: WCC vs Industrial Commodities ex-Fuel



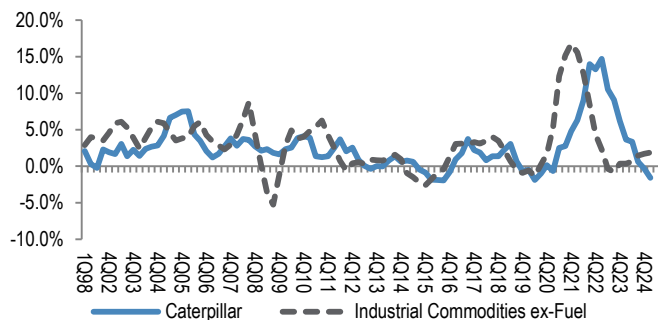
Source: Company reports, J.P. Morgan estimates, BLS.

Figure 78: HUBB vs Industrial Commodities ex-Fuel



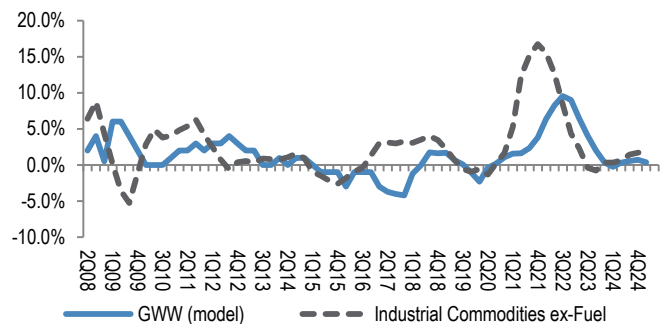
Source: Company reports, J.P. Morgan estimates, BLS.

Figure 79: CAT vs Industrial Commodities ex-Fuel



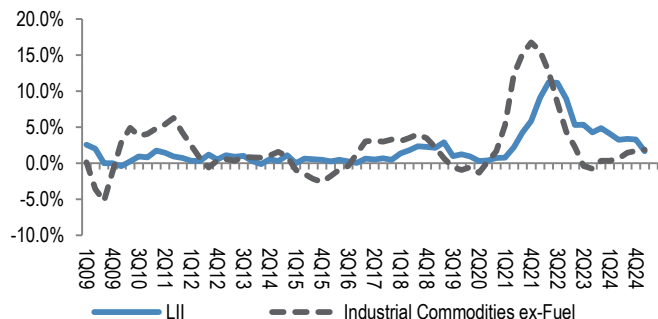
Source: Company reports, J.P. Morgan estimates, BLS.

Figure 80: GWW vs Industrial Commodities ex-Fuel



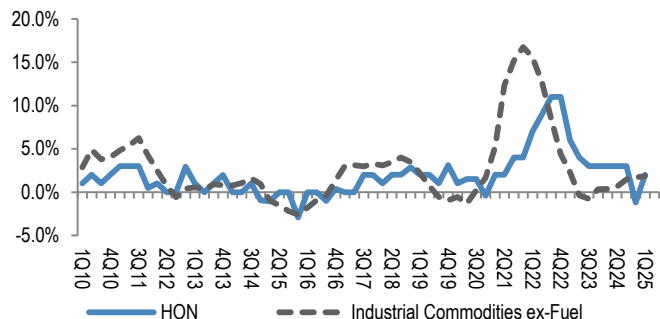
Source: Company reports, J.P. Morgan estimates, BLS.

Figure 81: LII vs Industrial Commodities ex-Fuel



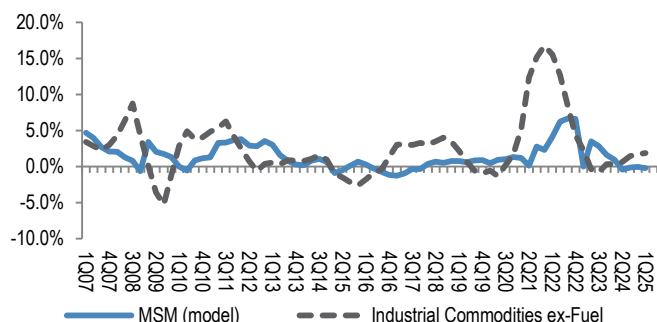
Source: Company reports, J.P. Morgan estimates, BLS.

Figure 82: HON vs Industrial Commodities ex-Fuel



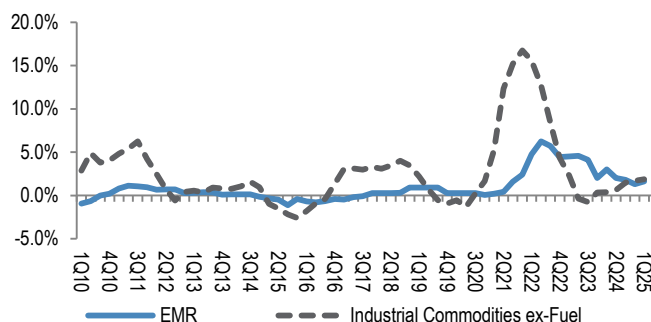
Source: Company reports, J.P. Morgan estimates, BLS.

Figure 83: MSM vs Industrial Commodities ex-Fuel



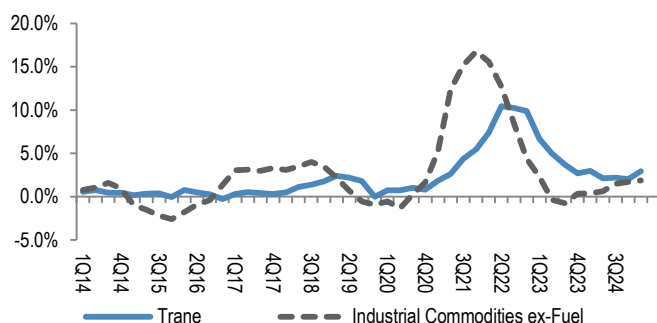
Source: Company reports, J.P. Morgan estimates, BLS.

Figure 84: EMR vs Industrial Commodities ex-Fuel



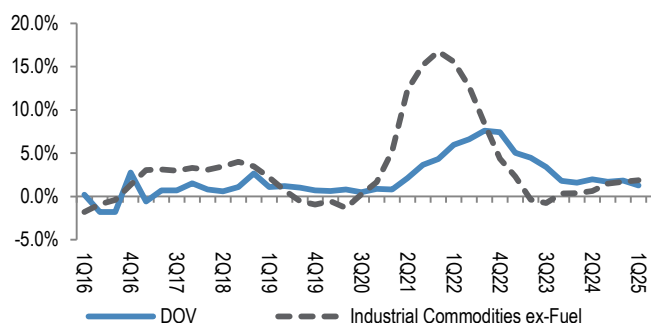
Source: Company reports, J.P. Morgan estimates, BLS.

Figure 85: TT vs Industrial Commodities ex-Fuel



Source: Company reports, J.P. Morgan estimates, BLS.

Figure 86: DOV vs Industrial Commodities ex-Fuel



Source: Company reports, J.P. Morgan estimates, BLS.

## Tariffs Update: Post De-escalation, Costs Now Expected to be Lower Resulting in Pricing Actions Scaled Down

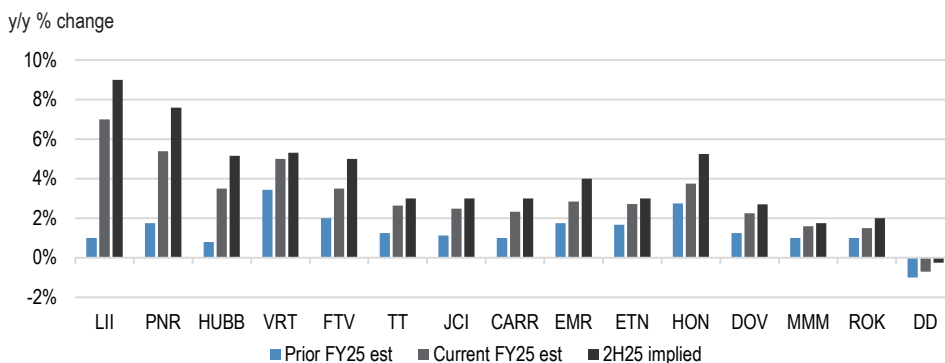
Reiterating key takeaways from our [note](#), recently embedded tariff-related inflation will go down, along with assumed surcharges, while the degree of stickiness on recently implemented price increases will be case by case, and assumed to be normal. Costs are still expected higher due to tariffs, driving broad-based pricing actions, with overall price now 3%+ on average vs 1-1.5% prior, including 4% in 2H, though with China/US rates having moved down 115% for the interim this cost is now substantially lower. An obvious question is how much price can be kept with this backdrop, and we think some will be dialed back, and versus guidance this includes surcharges, as well as price that has yet to be put in place, all of which we are contemplating. However, the fact remains that costs are higher and that will necessitate more price.

### Pricing Actions Offset Majority of Tariff Cost for Most...

Companies generally provided multiple ways they would offset tariff impacts, including supply chain re-sourcing, restructuring/productivity, and pricing. On the price front, we show here the change in price expectations by company. The most incremental price is expected at LII, PNR, and HUBB, with 2Q up from 1Q and 2H up from 2Q. Looking at the implied 2H25 price % of sales compared to the post-COVID peaks, the current tariff-driven inflation expectation is less than what was booked back then for all, with FTV, LII, and EMR closest to those prior highs. Some of this pricing will come through surcharges, with DD, EMR, FTV, HON, LII, MMM, and TT all indicating potential for this approach to be part of the price they guided to. We see surcharges as a less sticky

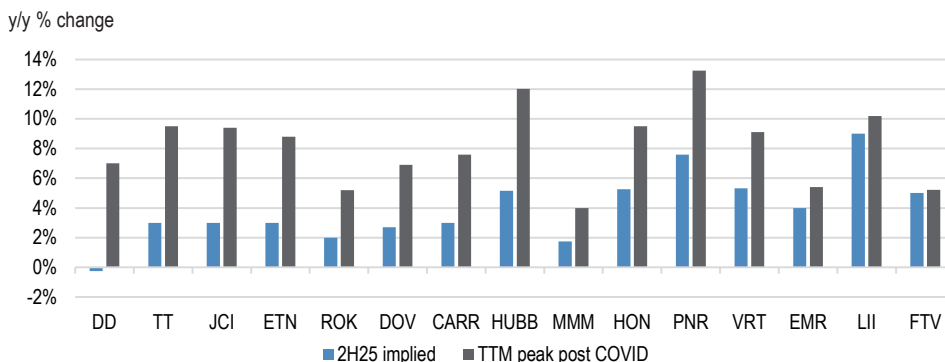
form of price, and as such less sustainable as traditional price increases, though it's unclear what % of the price they guide to would be from surcharges.

**Figure 87: Price Increases Primary Offset to Tariffs**



Source: Company reports, and J.P. Morgan calcs.

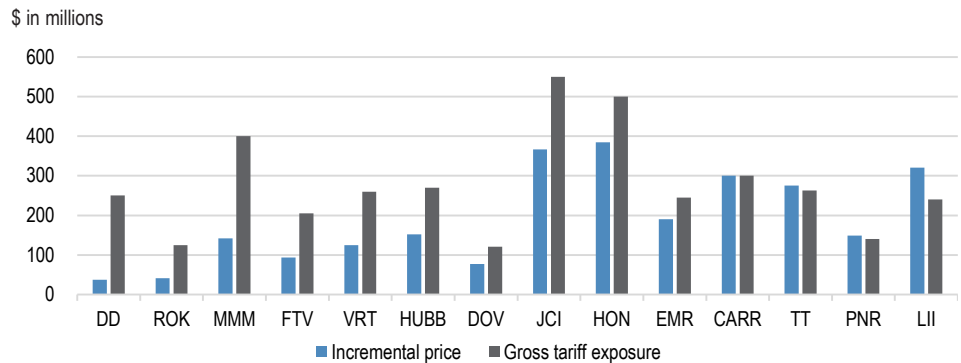
**Figure 88: 2H25 Implied Price Expectation vs Post-COVID Peak Pricing**



Source: Company reports, and J.P. Morgan calcs.

Next we look at the incremental price implied for the year compared to the gross tariff impact embedded in FY25 guide to show how much price is offsetting this cost. On average, price is covering 70% of the tariff cost impact, suggesting this is the primary lever being used to offset, with other factors cited by the companies of secondary importance. For most, it's unclear how much of this price was actioned prior to news around China/US de-escalation. HUBB was specific in calling out its pricing actions to offset the reciprocal tariffs were scheduled for late May, and majority of that \$135mm cost related to 125% China tariffs.

Figure 89: In-Year Price Contribution vs In-Year Gross Tariff Impact



Source: Company reports, and J.P. Morgan calcs.

As a reminder, the EE/MI sector mainly dealt with tariffs under the first Trump regime by implementing price increases and passing the cost to the customer, as well as evaluating alternate sourcing strategies. As customers stocked up on inventory to avoid the price increases, several of our companies called out significant levels of pre-buy, and consequent destocking challenges, which were exacerbated to varying degrees by short-cycle slowing. We provide below related company commentary from 2019.

Figure 90: Tariff Commentary from Companies in 2019

| Company         | Commentary                                                                                                                                                                                                                                                                                                                                        | Impact in 2019                                        |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| DOV             | Neutral in retail refrigeration and overall positive on tariffs, but to the extent that tariffs cause a slowdown in Asia, can expect to see impact to revenue streams in Asia. Ultimately in North America, DOV positioned appropriately simply because of the nature of their business.                                                          | Price/cost neutral for 2019                           |
| EMR             | Saw slower global discrete manufacturing end markets through 1H19, some of which was exacerbated by the channel inventory from tariffs. Expect to still see the \$125 mm hit as of 3Q19 that number still looks accurate despite being originally given end of 2018.                                                                              | \$125mm headwind                                      |
| HON             | 2019 tariff position unchanged; expect no significant impact in 2019 given proactive measures taken to mitigate major tariff impacts.                                                                                                                                                                                                             | Minimal impact for 2019                               |
| MMM             | Expecting to see about \$70 mm headwind from tariffs, down from original expectations of \$100 mm. Tariffs haven't turned out quite as bad as original estimates. See raw material and tariff headwinds continuing in 2019, but not the same level of 2018 headwinds. Expecting \$0.1 to \$0.2 of headwinds, inclusive of tariffs.                | \$70mm headwind built into the \$0.10-0.20 EPS impact |
| JCI             | Starting to see impacts from both Section 232 and 301 in late 2018, with order of magnitude between \$130 to \$140 mm, about half of which saw come through already in 2018. Confident they have captured not only inflationary pressures, but also the tariff pressure fully in 2019 plan. Tariff impact considered "stabilized" by end of 1H19. | \$130-140mm total impact, half in 2019                |
| IR (TT)         | Expect to be able to effectively manage the inflationary and tariff-related impacts in 2019, similar to how they handled them in 2018 with price increases offsetting headwinds.                                                                                                                                                                  | Price increases offsetting inflation/tariff headwinds |
| ROK             | The anticipated "small headwind" came to fruition in 2019 and through supply chain changes and vendor negotiations have effectively neutralized tariff impacts. Maintain the \$90 mm gross annual tariff impact for 2019, half of which is offset with pricing and half with supply chain changes.                                                | Neutral impact on financials                          |
| UTX (CARR/OTIS) | 2019 outlook for operating profit is to be up \$125-\$175 mm with volume-related drop-through and productivity to offset a \$65 mm net tariff impact.                                                                                                                                                                                             | \$65mm net tariff impact                              |
| FTV             | Price offsetting tariffs in late 2018 and continued trend to continue into FY19 and expect to be in "good shape" surrounding tariffs for full year 2019. That said, core operating margins decreased 190 bps in Q1 19 and 140 bps in Q2 reflecting some tariff headwind in there along with simply general weaker than expected revenue growth.   | Neutral impact on financials                          |
| ROP             | Some repositioning within supply chains to minimize tariff impact. Nothing material.                                                                                                                                                                                                                                                              | Neutral impact on financials                          |
| HUBB            | 2 points of price to cover List 1, 2, and 3 tariffs and other cost headwinds. Biggest impact from List 3 is resi lighting, some impacts also on plugs, receptacles, basic hardware parts in power systems                                                                                                                                         | Price/cost parity expected                            |
| ETN             | Expect \$100mm of additional tariff costs, to be offset fully by price                                                                                                                                                                                                                                                                            | Price/cost neutral in dollars                         |

Source: Company reports and Bloomberg Finance L.P.

We also present a summary of latest tariff commentary across the EE-MI sector.

Table 6: EE/MI Sector Tariff Comments and Impacts

| Company | In-Year Net Tariff Impact after mitigation measures (\$ mm) | In-Year Net Tariff Impact after mitigation measures (% of Sales) | In-Year Tariff Impact (\$ mm) | In-Year Tariff Impact (% of Sales) | China as % of In-Year Tariff Impact | Annualized Tariff Impact (\$ mm) | Annualized Tariff Impact (% of Sales) | 2H price | Surcharge or List Price Increase                                                                   | 2H volume | Supplier related inflation                                 | Tariff assumption                                                                                                                                                   | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|-------------------------------------------------------------|------------------------------------------------------------------|-------------------------------|------------------------------------|-------------------------------------|----------------------------------|---------------------------------------|----------|----------------------------------------------------------------------------------------------------|-----------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PNR     | 0                                                           | 0.0%                                                             | 140                           | 3.4%                               | 82%                                 |                                  |                                       | +7.5%    | No                                                                                                 | -6.3%     |                                                            | Current tariffs stay in place, respondents pause in place                                                                                                           | Full China impact is quantified at ~\$100 mm on the 145% with the retaliatory tariffs at 125% against another ~\$15mm impact. Mexico tariffs are estimated to be ~\$5mm at 25% with 80%+ falling under USMCA. The 10% EU tariffs are estimated at another ~\$5mm with RoW accounting for ~\$10mm at ~10%. Finally steel and aluminum tariff impact is quantified at ~\$5mm, bringing the total impact to ~\$140 mm as of 21st April, 2025 (volume ~\$100 mm estimated sales), which will impact PNR leverage ratio. To counter tariffs, the company increased prices across its distribution model (~75% of revenue), which makes it easier to pass through pricing, with the majority of the remaining ~25% OEMs/projects being local for local. It is also capping orders to manage supply chain, inventory and production.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| OTIS    | 60                                                          | 0.4%                                                             | 100                           | 0.7%                               | 90%                                 |                                  |                                       |          | No                                                                                                 | +5%       | Yes                                                        | Current tariffs stay in place, respondents pause in place                                                                                                           | (1) US imports from China – the annual purchases under Section 322 amount to ~\$50mm and under Reciprocal tariffs amount to another ~\$20mm, and combined the incremental annual impact is estimated to be ~\$90mm; (2) US imports from RoW – Canada/Mexico are majorly covered under USMCA, while the company is still impacted by the ~10% reciprocal tariffs, and the incremental annual impact is estimated to be ~\$10mm; and (3) China imports from US are not material. Important to note, tariff impact of ~\$40mm in 2023 from current backlog has been accounted for in the outlook. As it relates to mitigating actions, customer/supply chain negotiations are underway, along with US supply chain localization and contract language protection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DD      | 60                                                          | 0.5%                                                             | 200                           | 2.0%                               | 91%                                 | 500                              | 4.0%                                  | -6.2%    | Surcharge                                                                                          | 4.0%      |                                                            | Current tariffs stay in place, respondents pause in place                                                                                                           | DD quantified gross tariff exposure of \$500mm for 2025 on an annualized basis, with \$275 mm (75%) tied to exports to China, which largely reflect moving intermediate product from DD US into DD China toward final completion and then shipping to the customer. The remaining 25% is tied to imports from China and RoW. Mitigation actions include supply chain optimization, strategic sourcing, tariff negotiated surcharges and product exemptions leading to an estimated net FY23 exposure in the year of ~\$60 mm impacting mainly the 2H. Out of the four mitigation measures, product exemptions is the smallest, and the bulk of the tariff savings and mitigation actions have been on the procurement and supply chain optimization side. Pricing/purchases is also smaller comprising ~20% of the mitigation measures. In addition to this, DD exports \$200 million (1-5.2% of sales) of finished goods from the US into China, where the tariff cost is borne by the customer.                                                                                                                                                                                                                                                                                                                                           |
| MMM     | 213                                                         | 0.9%                                                             | 425                           | 1.8%                               | 79%                                 | 850                              | 3.6%                                  | 1.8%     | Both                                                                                               | -0.5%     |                                                            | Current tariffs stay in place, respondents pause comes off in 90 days                                                                                               | 3M reports \$1.6 billion into the U.S., and exports \$4.1 billion from the U.S. China is approximately 10% of the imports and slightly more on exports for a total trade flow of approximately \$600 million between the U.S. and China. These flows at the current tariff rates of 125% imports from China into the U.S. and 145% from China into U.S., will equate to approximately \$675 million of potential annualized tariff impact after anticipated exemptions. In addition, tariffs on products not qualified under USMCA, along with aluminum steel and other respondent actions, had approximately \$175 million impact for a total annualized impact of approximately \$850 million before any mitigation actions. Given that most of the tariffs were enacted recently and they typically carry 90 days of inventory, 3M expects only half of this impact this year, which is approximately \$400 million or approximately \$4.00 of EPS before any effects. The team has responded quickly and is working on a number of mitigation plans, including cost and productivity initiatives, optimizing production and logistics, including leveraging a U.S. footprint and selective price increases where feasible, and 3M believes they can partially offset the headline for an estimated 2025 net impact of \$0.20 to \$0.40. |
| DOV     | 0                                                           | 0.0%                                                             | 110                           | 1.4%                               | 81%                                 | 215                              | 2.7%                                  | 2.7%     | Price (no mention of surcharge)                                                                    | 2.0%      | Unclear                                                    | Current tariffs stay in place, respondents pause in place                                                                                                           | DOV quantified tariff exposure before any cost mitigation, targeted pricing or strategic share gains, of \$175mm (with \$60mm from one insurance product that is actively being reworked) in China, \$15mm in Mexico/Canada, \$15 mm in Europe and \$10m in RoW for a total of \$215mm or 2% of 2024 sales on an annualized basis. DOV believes they are well positioned on a competitive basis as they manufacture in region for region and cost and revenue bases are largely aligned. Overall, they plan to offset FY23 tariff impact entirely by a combination of productivity and price.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| HON     | 0                                                           | 0.0%                                                             | 500                           | 1.3%                               | 60-70%                              | 1,000                            | 2.5%                                  | 3.1%     | Surcharge                                                                                          | 4.0%      |                                                            | Unclear                                                                                                                                                             | Tariff impact translates to ~\$500 mm 2025 exposure, based on the current tariffs, which will be fully offset with targeted pricing actions by product line, direct material productivity as value engineering is accelerated using AI tools, alternative sourcing strategies and proactive customer/channel communication. HON expects pricing action to be largely via surcharges given they are easier to administer. 60-70% of overall tariff exposure is in China while the rest is for respondent tariffs and Mexico is 100% covered by the USMCA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| FTV     | 39                                                          | 0.6%                                                             | 205                           | 3.3%                               | 83%                                 | 273                              | 4.4%                                  | 5.0%     | Some surcharge but most price                                                                      | -3.5%     | Unclear                                                    | Current tariffs stay in place, respondents pause comes off in 90 days                                                                                               | FTV expects 2025 gross incremental tariff impact of \$165-175 mm from China with \$75-80mm tied to US imports from China, and \$90-95mm tied to US exports to China. Asia ex-China is expected at \$10-15mm, Europe at \$10-15mm, North America \$0-5mm, and RoW \$5-10mm. In total, this adds up to \$190-220mm of gross incremental tariff impact to FTV, expected to be split ~40%-40% for steel/forward-looking and non-steel/forward-looking. Countermeasures include investigating existing sourcing strategies, optimizing production and logistics, and cost and productivity actions. Pricing actions have been implemented through 3Q, with price for the year now seen at 3-4% vs 1-2% prior. FTV expects to fully offset estimated tariff exposure by 4Q and completely mitigate in 2026, planning proactive restructuring plus new cost actions. FTV has assumed the tariffs that are in place now or are expected to go into effect on July 9th continue through the year.                                                                                                                                                                                                                                                                                                                                                    |
| ROP     | 0                                                           | 0.0%                                                             | 10-15                         | 0.2%                               |                                     | 10-15                            | 0.2%                                  |          |                                                                                                    |           |                                                            | Most of the product business in the TEP segment have to deal with some amount of tariff impact, but the vast majority, Neptune, Velefare, CHVO, is USMCA-compliant. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ROK     | 0                                                           | 0.0%                                                             | 125                           | 1.5%                               | 81%                                 | 250                              | 3.1%                                  | 2.0%     | Prices as part of the recovery program which will flex up or down as tariffs are enacted, modified | 1.5%      | Some assumption embedded in in-year tariff impact estimate | Current tariffs stay in place, respondents pause in place                                                                                                           | Overall, ROK expects to fully offset FY23 tariff costs through a combination of pricing and supply chain actions. ROK's import exposure from Mexico is \$300 mm and \$100 mm each from China and Canada with Mexico and Canada exposure largely covered by the USMCA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| EMR     | 0                                                           | 0.0%                                                             | 245                           | 1.4%                               | 60%                                 | 455                              | 2.5%                                  | 4.0%     | Headier price vs surcharge                                                                         | 1.3%      | Embedded, so far instance is small                         | Current tariffs stay in place, respondents pause comes off in 90 days                                                                                               | \$245mm of gross in-year impact to be offset by \$180mm of pricing and \$65mm of supply chain actions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

Source: Company reports, and J.P. Morgan calcs.

Table 7: EE/MI Sector Tariff Comments and Impacts (continued)

| Company | In-Year Net Tariff Impact after mitigation measures (\$ mm) | In-Year Net Tariff Impact after mitigation measures (% of Sales) | In-Year Tariff Impact (\$ mm) | In-Year Tariff Impact (% of Sales) | China as % of In-Year Tariff Impact | Annualized Tariff Impact (\$ mm) | Annualized Tariff Impact (% of Sales) | 2H price | Surcharge or List Price Increase | 2H volume | Supplier related inflation | Tariff assumption                                         | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|-------------------------------------------------------------|------------------------------------------------------------------|-------------------------------|------------------------------------|-------------------------------------|----------------------------------|---------------------------------------|----------|----------------------------------|-----------|----------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CARR    | 0                                                           | 0.0%                                                             | 300                           | 1.3%                               | 80%                                 | 600                              | 2.7%                                  | 3.0%     | No                               | 4.4%      |                            | Current tariffs stay in place, respondents pause in place | The revised guide provided during the 1Q25 earnings call reflects full mitigation of tariffs to effect through supply chain actions, increased productivity and cost containment, while the balance of \$300mm through incremental, which is mostly driven by the USMCA. The company has already implemented these price increases in the channel, mostly targeted to American segment and specifically res business. The company is taking further additional cost reduction measures. The impact of further tariff escalation and potential economic downturn is excluded from the current guide. Management stated that volatility at their imports from Mexico is USMCA compliant, and for the tariffs in effect, China ~80% of exposure. Lastly, the company has been collaborating with the supply chain and has intentionally focused on localization and dual sourcing over the past few years. Dual sourcing, in particular, has provided flexibility in negotiations with the supply base.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| TT      | 0                                                           | 0.0%                                                             | 263                           | 1.3%                               |                                     | 525                              | 2.6%                                  | 3.0%     | Yes                              | 4.9%      |                            | Current tariffs stay in place, respondents pause in place | The company quantified the tariff cost impact in 2025 to be ~\$250-\$275mm. Their initial aim is to reduce the net cost impact on customers, with the net tariff cost being offset \$ for \$ through pricing. Pricing actions will include normal price increases and surcharges, which will be of significant importance depending on the tariff environment. Majority of the CARR's cost base have tariff protections and/or escalation features, especially on larger projects. The EPS guidance for the year accounts for zero impact from net tariff costs. Due to the fluid situation, the company has stated that it is too tough to include specific pricing in the revenue guidance at this time. Consequently, neither tariff costs nor pricing are factored into the current guidance, with the aim to gain more clarity as the second quarter progresses. The calculations suggest a 1-1.5 point price increase if the estimated tariff costs persist throughout the year, but the company is committed to not raising tariffs in a profit center. The \$ for \$ offset may effect margins, but they are confident in growing margins through other means. In terms of mitigation, they are exploring suppliers and trade routes to reduce the financial impact, while pricing actions will be tailored to specific product lines rather than applied broadly. For Tier 1 exposure, 100% of steel and copper and over 80% of aluminum are sourced from the U.S. The main tariff exposure is in Tier 2, which are sourced from suppliers and also includes wage inflation, quantified as \$68 of spend, and a minor exposure in Tier 3 products, which are the support materials. China has a 145% tariff while Mexico and Canada have a smaller impact at 85-90% of products as USMCA compliant, and the rest of the world accounts for a 10% baseline tariff. The company imports a very small percentage of complete units from China. Additionally, they manufacture many value products in the U.S. for the residential market, which could be advantageous since much of the residential market's value segment is currently served by products from China and other countries.                                                                                                                                                                                                                                                             |
| JCI     | 0                                                           | 0.0%                                                             | 550                           | 2.0%                               | 50%                                 | 550                              | 2.0%                                  | 3.0%     | Yes, some                        | -0.5%     |                            | Current tariffs stay in place, respondents pause in place | The company provided some tariff-related commentary in their presentation, with exposure representing ~2% of sales or ~3% of COGS, as long-cycle business + resilient service mix limits the exposure. This represents ~\$600-650mm of tariff exposure on pure COGS as FY24 revenues. The company plans to initiate these through the usual levers that we have heard during this earnings season in the form of pricing, changing order of contractual adjustments, supported by regionalized manufacturing and supply chain resilience. Pricing action is considered to be the main lever, or 2/3 of total mitigation measures, while the remaining comes from negotiating abilities, as described above. Pricing is expected to be in the 3-5% range in the current Global Products segment, while they didn't divulge much detail on the building solutions segment. On pricing action, they describe it to be a mix of price increase and surcharge, with the latter taking place in mostly longer-cycled businesses such as DC, where they will have an agreement on the amount of surcharge which can be pulled back if and when the tariffs are withdrawn. For both FY23 and on an annual basis, they expect the impact to be ~\$600mm, as they are sourcing some of the products from China where they have the capability to procure from Mexico or Canada, but the remaining sales a couple of quarters, after which that will get mitigated, thus limiting the annualized impact to some level as FY25-18. On Mexico and Canada, they stated that 80% of their portfolio is USMCA compliant and they believe 85-90% is achievable. In terms of tariff exposure, they see half of the disclosed impact related to China and some other SE Asian countries, and 15% of COGS coming from Mexico but ~40% less as USMCA compliant and remaining from some European countries. On reciprocal tariffs, 20% of the \$600mm is related to the impact of goods exported from the U.S. to other countries, with some products on Applied but mostly coming on FAS side, as they manufacture most of the products in this business within US in their facility in Wisconsin.                                                                                                                                                                                                                                                                                |
| LI      | 0                                                           | 0.0%                                                             | 240                           | 4.5%                               | 79%                                 |                                  |                                       | 9.0%     | Yes                              | -9.3%     |                            | Current tariffs stay in place, respondents pause in place | Management summarized the tariff landscape and its impact on the economic outlook in each of the segments on the earnings call. They stated that ~90% of their cost structure (COGS+SG&A) is in North America, which includes the USMCA compliance spent in Mexico. This spend is not directly impacted by tariffs, but losses indirect tariff impacts, including price of commodities such as steel and aluminum. 15% of their cost base direct impact of tariff, and ~5% of this spend is from China. The company's exposure in China-manufactured products has been decreasing, and the joint venture with Samsung marks a significant step in reducing tariff exposure from Chinese exports. Lennox is actively pursuing long-term tariff mitigation strategies, such as production shifts to better serve U.S. and Canadian customers, collaborating with supply partners on tariff-sharing models, and utilizing more U.S.-based components to enhance flexibility within their North American network. Any contingent tariff impacts are offset by pricing initiatives or surcharges. On exports exposure, the company sources electronics for control boards, motors, and smaller components like parts and accessories from China, but has shifted sourcing for new splits to Samsung in Korea. Historically, Lennox is actively pursuing long-term tariff mitigation strategies, such as production shifts to better serve U.S. and Canadian customers, collaborating with supply partners on tariff-sharing models, and utilizing more U.S.-based components to enhance flexibility within their North American network. For the year, the company anticipates a 5% increase in inflation pressure, on \$48 of cost structure, or ~\$450 mm of FY23 tariff costs, with full annualized costs to be higher. A significant portion of these costs is attributed to China, where exposure is 5%, and costs have doubled due to tariffs. The remaining costs are primarily related to Mexico's steel and aluminum tariffs, with some secondary inputs affecting U.S. suppliers.                                                                                                                                                                                                                                                                                                                                                                       |
| ETN     | 125                                                         | -0.5%                                                            | 625                           | 2.5%                               |                                     |                                  |                                       | 3.0%     | no mention                       | 6.0%      |                            | Current tariffs stay in place, respondents pause in place | ETN stayed away from discussing tariff-related costs due to inaccuracies associated over time with the continuously evolving tariff situation, and continued to state that they will offset the impact dollar for dollar. They stated that they have long maintained a robust sourcing and manufacturing strategy globally and recently announced significant investments to expand its manufacturing presence in the U.S., enhancing resilience against global trade impacts. Post-COVID, the company has introduced additional flexibility, including digital tools into its supply chain, aligning these actions with its long-term strategy. While full implementation will take time due to the evolving global landscape, the company is actively controlling costs and taking discretionary spending alongside taking necessary commercial actions to offset tariff impacts. It plans to recover on a dollar-for-dollar basis through three intuitive levers: cost management, supply chain actions, and pricing adjustments. These levers will help mitigate the tariff impact, with expectations to recover more over time, though not in the current quarter. Further, the company backs competitive advantages, particularly in the U.S., where it relies minimally on external sources to serve the market. Globally, as businesses in Europe and Asia operate independently of the U.S., unlike some competitors who serve the U.S. from Europe. This local for local strategy enhances ETN's competitiveness. Additionally, the company built inventory before the quarter to circumvent tariffs on certain highly impacted products. While the company didn't provide explicit guidance on tariffs in terms of cost or EPS impact, the incremental cost or margin decreased from ~33% in the prior guidance vs ~27% in current guide, with the EPS at risk unchanged, would be one way to think about the tariff impact. Out of this \$200mm, headline is expected in 2Q. The company also announced no significant price increases, one in April and 1st second one scheduled for May 15. There are no surcharges, as pricing needs to be stable to avoid unsettling consumers. If necessary, hedging hedging will be done on a case-by-case basis, not automatically. In terms of exposure, ~5% of impact comes from China, with Tier 2 suppliers purchasing microprocessors from China, making it a significant factor, along with Mexico. |
| HUBB    | 35                                                          | -0.6%                                                            | 270                           | 4.8%                               | 59%                                 |                                  |                                       | 5.2%     | No                               | 3.6%      |                            | Current tariffs stay in place, respondents pause in place | Price guide for '25 was raised, margin guide lowered, with no change to net EPS expectations. COGS exposure includes Mexico at ~15%, while less than 5% comes from China and another ~5% from ROW. The tariff impact has been divided into two parts. The first part, quantified as a gross impact of \$130mm for 2025, is driven by material costs and IEP&A tariffs, with about half attributed to material costs. This includes a baseline China tariff of 20%, Mexico/Canada tariffs of 25% on non-USMCA compliant products, steel/aluminum tariffs of 25%, and indirect supplier costs along with higher material costs. Price increases have been implemented since mid-April, and the current stock sale gives the company confidence in realizing the full impact. The gross cost of the company's FY25 annual impact, quantified at 10 months of tariff impact, would be ~\$165-165 mm on an annualized basis. The second part, which is a gross impact of \$100 mm for 2025, stems from respondent tariffs, including China tariffs of 125% and baseline tariffs on ROW at 10%, and would equate to ~\$200mm impact on an annualized basis. The company aims to neutralize this through pricing impact and productivity levers, with mitigation actions leveraged. Price increases for the year are expected to be implemented by the end of May. These tariffs, primarily driven from China, are more targeted towards specific product lines. The company is negotiating with suppliers, mitigating supply chains, and taking other actions to offset the impact of tariffs. Some elasticity is expected in certain product lines, meaning price increases may result in lower volumes. The company is targeting a neutral impact from these respondent tariffs but includes a \$50-50 downside sensitivity in case HFO accounting requires additional before price adjustments take effect. Pricing actions, in the form of price increases, will be implemented more quickly in the Electrical segment due to its shorter backlog and back-and-forth nature, with pricing increasing a couple of points from the first to the second quarter.                                                                                                                                                                                                                                                                                                  |
| VRT     | 77                                                          | -1.0%                                                            | 260                           | 3.2%                               |                                     |                                  |                                       | 5.3%     | No                               | 10.0%     |                            | Current tariffs stay in place, respondents pause in place | It cited that (1) the existing US capacity already caters to a significant portion of US demand; (2) majority of the Mexico supply is covered under USMCA; (3) single digit % of supply for US factories comes from China, with a multi-China+ supply chain strategy in place; and (4) outside Mexico, tariff countries are USMCA are the primary source of US supply. On mitigation, pricing is being implemented on back and ship orders, with ongoing customer discussions regarding existing backlog to pricing where necessary, and using ability able to implement actions in supply chain to reduce the tariff impacts. Management expects to offset half of the tariff day with price and the other half with supply chain reconfiguration, with actions expected to build through 2H, and they hope to be neutral on cost/tariffs ending 2Q. Guidance now includes actual tariff rates, which will be below the ~\$200mm p/y profit gain in 1Q and ~\$80mm on a quarterly rate basis starting in 2H, before countermeasures are implemented. On the profit bridge, this means an incremental ~\$125mm each in pre-mitigation productivity vs prior, helping to offset the ~\$250mm tariff headline (estimated \$80mm for 2Q-4Q before mitigation, plus \$20mm in 1Q).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

Source: Company reports, and J.P. Morgan calcs.

## PPI Deep Dive

While inflation at a high level cuts across the entire economy, today's trends and the degree of normalization in the future are not uniform. It's important to discern (1) the magnitude across various verticals, (2) variability and instances in which price has gone negative and to what degree, and (3) timing of such inflections versus base metals and the indicators, for which we analyze historical performance over many years to gauge how severe "normalization" could be. We use the PPI data as our proxy, a data series with unparalleled breadth and timely disclosure (monthly). We have narrowed the scope of the analysis from over 1,000 different NAICS codes to 10 major categories, which cut across the sector. The table below summarizes these verticals. These verticals, as a simple average, saw ~1-2% inflation in 3Q24, versus a sector that reported +2% price. The table below summarizes there verticals.

**Table 8: Major Categories**

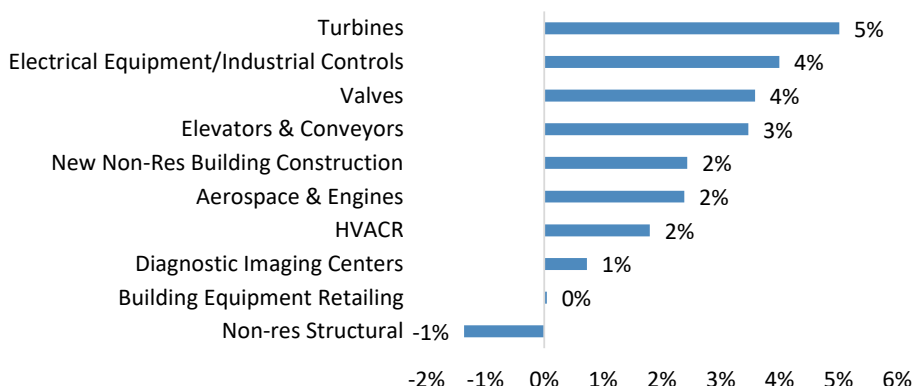
| Major Categories                         | Relevant Companies                       |
|------------------------------------------|------------------------------------------|
| New Non-Res Building Construction        | APG, HUBB, OTIS, JCI, TT, CARR, LII, ETN |
| Construction Materials                   | 3M, DD, PNR                              |
| HVACR                                    | JCI, CARR, LII, TT, VRT, DOV             |
| Electrical Equipment/Industrial Controls | DOV, EMR, ROK, HUBB, FTV, ETN, ATS       |
| Aerospace & Engines                      | HON, AIN, ETN                            |
| Valves                                   | EMR                                      |
| Elevators & Conveyors                    | OTIS                                     |
| Non-res Structural                       | HUBB, APG                                |
| Turbine                                  | HON, AIN                                 |
| Medical Equipment/Imaging                | FTV                                      |

Source: BLS and J.P. Morgan.

The industries tracked here range from everything HVAC to medical equipment, to services industries like those in distribution, to contracting services. The chart below shows the various verticals we are looking at and the degree of current inflation in each as a gauge for which ones have the most upward pressure and which ones do not.

**Figure 91: Average PPI Growth by High-Level Category**

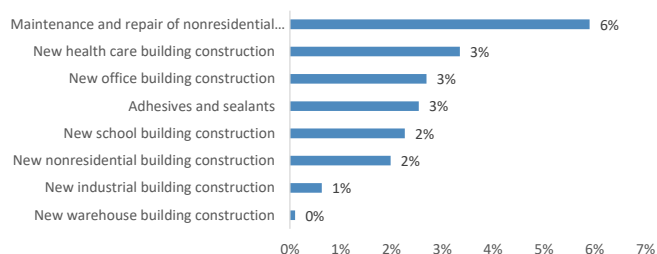
3-month moving average y/y % change



Source: BLS and J.P. Morgan calculations.

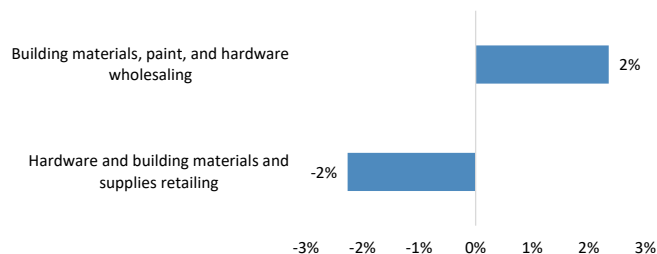
We rank the major sub-categories that are relevant to our sector in the charts below based on three-month moving average pricing growth and the lag vs industrial commodities. The three-month moving average pricing is a proxy for overall pricing ability given that the industries with pricing power should have the ability to raise price in this environment. As we can see, electrical equipment, valves and turbines top the list, while building equipment retailing and non-res structural fared the worst. We also rank the lag time, in which those with a shorter lag time are more likely to reflect pricing declines as commodities turn. As such, building construction and non-res structural should give up higher pricing levels first. Meanwhile, turbines track the furthest behind on lag time, though given that they barely gain any price, they do not have much to give back.

**Figure 92: New Non-res Building Construction (3-month moving average)**



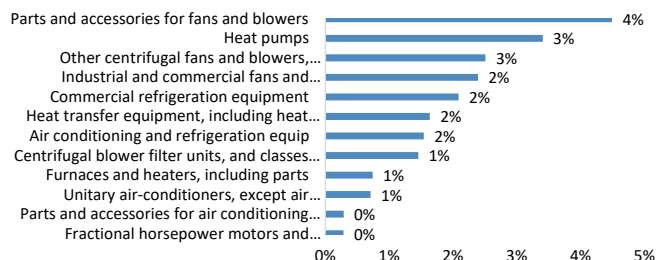
Source: BLS.

**Figure 93: Building Equipment Retailing (3-month moving average)**



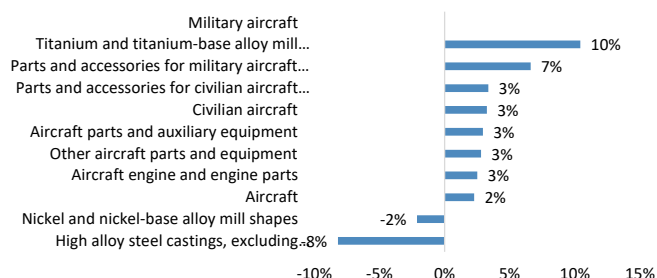
Source: BLS.

Figure 94: HVACR (3-month moving average)



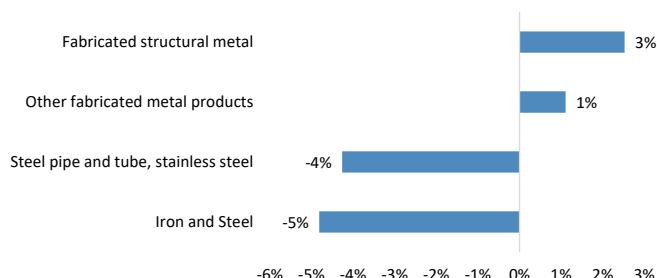
Source: BLS.

Figure 96: Aerospace & Engines (3-month moving average)



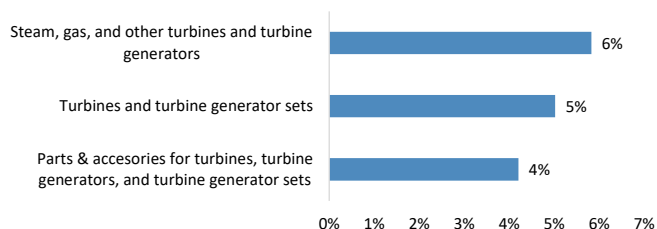
Source: BLS.

Figure 98: Non-res Structural (3-month moving average)



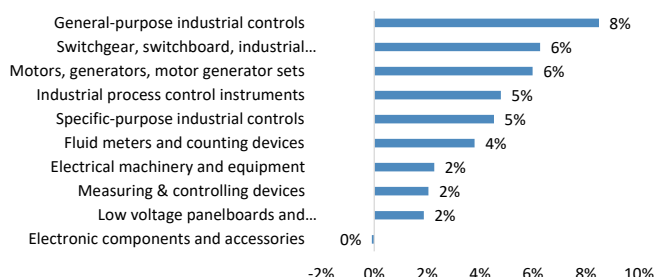
Source: BLS.

Figure 100: Turbines (3-month moving average)



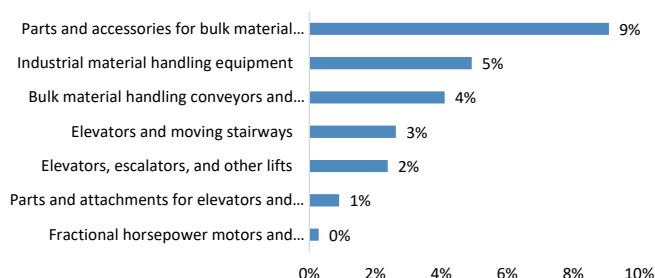
Source: BLS.

Figure 95: Electrical Equipment/Industrial Control (3-month moving average)



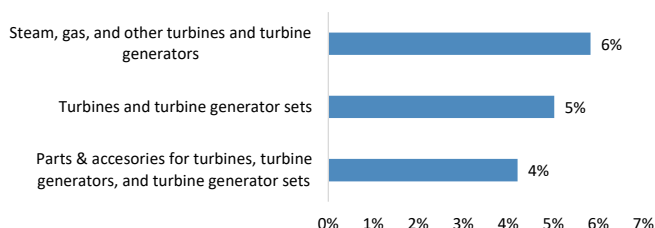
Source: BLS.

Figure 97: Elevators & Conveyors (3-month moving average)



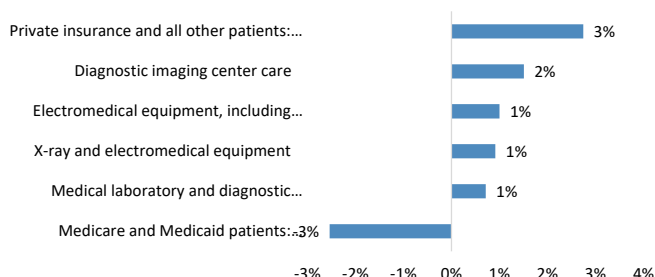
Source: BLS.

Figure 99: Valves (3-month moving average)



Source: BLS.

Figure 101: Medical Equipment (3-month moving average)



Source: BLS.

In the analysis below, we evaluate the stickiness of pricing by looking at how PPI for each major category has performed through the recent recession. As a baseline, the industrial commodities less fuels pulled back 6% during the '08-'09 recession and -3% during the '14-'16 industrial slowdown. Among the major categories we looked at, valves had a surprising amount of pricing power compared to other subcategories, increasing 90% from 2000-2019 with little deterioration during the '08-'09 recession and actually increasing during '14-'16. Aircraft engines and parts also stand out, as they continued to trend upward despite the recession. Even following the pullback in '01, aircraft engines only pulled back 20bps during that time frame. Meanwhile, Medical Imaging trends were on the weaker end of the sub-categories, with little pricing power over time.

In the framework below, we rank the sub-categories based on overall pricing power and stickiness. For pricing power, we look at the change from 2000-2019 to gauge the ability to raise price before the pandemic impacted the backdrop. For stickiness, we looked at how each sub-category performed during prior recessions to arrive at an overall pricing score. In the framework below, a lower pricing score is better. We also note that for some of the sub-categories that compose the major categories shown below, data extending back through 2000 was not available, so we used the sub-categories that have a full data set.

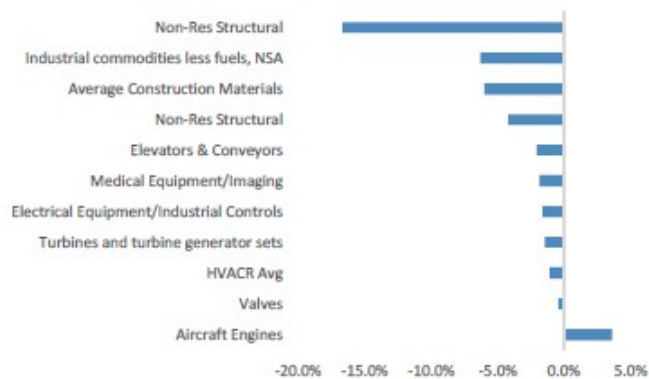
Figure 102: Pricing Power Framework

|                                          | Pricing Power | Pricing Stickiness | Overall Pricing Score |
|------------------------------------------|---------------|--------------------|-----------------------|
| Valves                                   | 1             | 2                  | 1.5                   |
| Aircraft Engines                         | 3             | 1                  | 2                     |
| Elevators & Conveyors                    | 4             | 3                  | 3.5                   |
| Non-Res Building Construction            | 2             | 7                  | 4.5                   |
| HVACR                                    | 7             | 4                  | 5.5                   |
| Electrical Equipment/Industrial Controls | 10            | 5                  | 7.5                   |
| Turbines and turbine generator sets      | 8             | 8                  | 8                     |
| Non-Res Structural                       | 5             | 11                 | 8                     |
| Average Construction Materials           | 6             | 10                 | 8                     |
| Medical Equipment/Imaging                | 11            | 6                  | 8.5                   |
| Industrial commodities less fuels, NSA   | 9             | 9                  | 9                     |

Source: J.P. Morgan estimates.

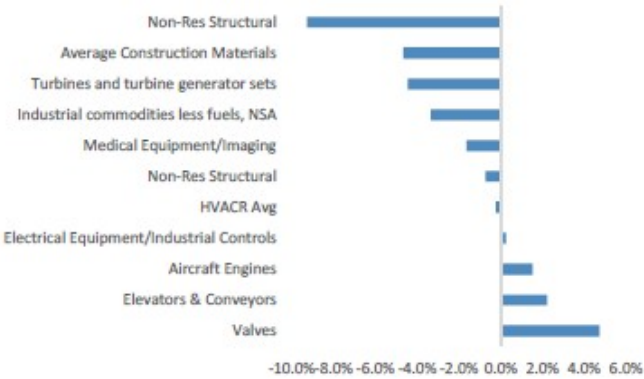
We also take a look at how each PPI category has performed in prior recessions from the peak to trough as an indicator of pricing stickiness shown in the rankings above. Those that have given back the most on price appear most at risk if we head into a recession. We also note that for the categories that gained price during prior recessionary periods, we measure the increase consistent with the timing of when industrial commodities excluding fuel peaked and troughed.

Figure 103: Performance through '08-'09 Recession



Source: BLS, J.P. Morgan calculations.

Figure 104: Performance through '15-'16 Recession



Source: BLS, J.P. Morgan calculations.

## Refresher on Key Categories with Strong Correlations

There are ~3,000 sub-categories (reported by the BLS) in the overall capital goods PPI and industrial commodities indices, and we pulled out the components of “Private capital equipment for manufacturing industries” from the Capital Goods index and “Machinery and equipment” from the commodities index as most relevant for our analysis. There are ~550 unique components (or product categories) within these indices (we acknowledge that some of the components in each of these categories will overlap). We start our analysis by drawing correlations between these components and the ***industrial commodities ex-fuels index***, and we screen for those with >75% correlations from 2010 to today. We ultimately narrow down our list to ~80 categories (listed below) that both have a high correlation and are a relevant read-across for our coverage universe, highlighting the ones in the table that have shown the strongest correlations over the time periods chosen. The correlations are arrived at by lagging the data from 0 to 16 months and picking the best correlation within the range of this lagged data set.

Figure 105: Aerospace/Engines Correlation Dashboard

|                                                     | Correlation |             | Correlation |             | Correlation |             |
|-----------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                                     | 2010-Today  | Lag (month) | 2001-2008   | Lag (month) | 2001-Today  | Lag (month) |
| Aircraft engine and engine parts                    | 58%         | 14          | 33%         | 0           | 35%         | 13          |
| Aircrafts                                           | 69%         | 12          | 77%         | 4           | 53%         | 7           |
| Civilian aircraft                                   | 80%         | 12          | 56%         | 4           | 54%         | 7           |
| Parts and accessories for civilian aircraft engines | 51%         | 16          | NA          | NA          | 51%         | 16          |
| Military aircraft                                   | 35%         | 16          | NA          | NA          | 35%         | 16          |
| Aircraft parts and auxiliary equipment              | 67%         | 16          | NA          | NA          | 67%         | 16          |
| Other aircraft parts and equipment                  | 67%         | 16          | 36%         | 16          | 57%         | 16          |
| High alloy steel castings, excluding investment     | 81%         | 7           | 60%         | 8           | 70%         | 6           |
| Nickel and nickel-base alloy mill shapes            | 86%         | 4           | 72%         | 10          | 65%         | 3           |
| Titanium and titanium-base alloy mill shapes        | 62%         | 9           | 42%         | 7           | 32%         | 7           |

Source: BLS.

Figure 106: Construction Correlation Dashboard

|                                                  | Correlation |             | Correlation |             | Correlation |             |
|--------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                                  | 2010-Today  | Lag (month) | 2001-2008   | Lag (month) | 2001-Today  | Lag (month) |
| New nonresidential building construction         | 91%         | 8           | NA          | NA          | 91%         | 8           |
| New warehouse building construction              | 90%         | 6           | 62%         | 8           | 89%         | 6           |
| New school building construction                 | 91%         | 9           | 86%         | 8           | 86%         | 9           |
| New office building construction                 | 90%         | 8           | 94%         | 9           | 89%         | 8           |
| New industrial building construction             | 91%         | 8           | 96%         | 3           | 90%         | 8           |
| New health care building construction            | 95%         | 9           | NA          | NA          | 95%         | 9           |
| Maintenance & repair of nonresidential buildings | 80%         | 5           | NA          | NA          | 80%         | 5           |
| Adhesives and sealants                           | 93%         | 7           | 73%         | 4           | 90%         | 7           |
| Lumber                                           | 34%         | 0           | 3%          | 0           | 32%         | 0           |
| Flat Glass                                       | 65%         | 9           | 58%         | 9           | 57%         | 8           |
| Asphalt felts and coating                        | 86%         | 3           | 61%         | 3           | 53%         | 5           |
| Plastic resins and materials                     | 83%         | 0           | 60%         | 0           | 79%         | 0           |
| Gypsum products                                  | 55%         | 3           | 33%         | 1           | 39%         | 2           |
| Concrete block and brick                         | 76%         | 12          | 77%         | 7           | 69%         | 11          |

Source: BLS.

Figure 107: HVACR Correlation Dashboard

|                                                                     | Correlation |             | Correlation |             | Correlation |             |
|---------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                                                     | 2010-Today  | Lag (month) | 2001-2008   | Lag (month) | 2001-Today  | Lag (month) |
| Air conditioning and refrigeration equip                            | 90%         | 6           | 87%         | 7           | 86%         | 6           |
| Unitary AC, except air source heat pumps                            | 79%         | 9           | 57%         | 6           | 74%         | 8           |
| Heat transfer equipment, including heat pumps                       | 94%         | 6           | NA          | NA          | 94%         | 6           |
| Heat pumps                                                          | 72%         | 4           | NA          | NA          | 72%         | 4           |
| Parts and accessories for AC and heat transfer equipment            | 84%         | 3           | 68%         | 16          | 78%         | 3           |
| Commercial refrigeration equipment                                  | 88%         | 6           | 74%         | 5           | 81%         | 6           |
| Hardware & building materials and supplies retailing                | 39%         | 0           | NA          | NA          | 39%         | 0           |
| Building materials, paint, and hardware wholesaling                 | 77%         | 2           | NA          | NA          | 77%         | 2           |
| Fractional horsepower motors and generators                         | 83%         | 6           | 89%         | 6           | 75%         | 6           |
| Plumbing and heating valves and specialties, except plumbers'       | 48%         | 13          | 47%         | 7           | 33%         | 0           |
| Industrial and commercial fans and blowers                          | 89%         | 4           | 62%         | 3           | 86%         | 4           |
| Centrifugal blower filter units, and classes I-IV centrifugal fans, | 64%         | 5           | NA          | NA          | 64%         | 5           |
| Other centrifugal fans and blowers, except parts                    | 88%         | 3           | NA          | NA          | 88%         | 3           |
| Parts and accessories for fans and blowers                          | 84%         | 2           | NA          | NA          | 84%         | 2           |

Source: BLS.

Figure 108: Medical Devices Correlation Dashboard

|                                                                                              | Correlation |             | Correlation |             | Correlation |             |
|----------------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                                                                              | 2010-Today  | Lag (month) | 2001-2008   | Lag (month) | 2001-Today  | Lag (month) |
| X-ray and electromedical equipment                                                           | 78%         | 15          | -24%        | 16          | 46%         | 16          |
| Medical laboratory and diagnostic imaging center care                                        | 8%          | 0           | NA          | NA          | 8%          | 0           |
| Diagnostic imaging center care                                                               | 29%         | 16          | NA          | NA          | 29%         | 16          |
| Medicare and Medicaid patients: diagnostic imaging center care                               | 26%         | 0           | NA          | NA          | 26%         | 0           |
| Private insurance and all other patients: diagnostic imaging center care                     | 19%         | 16          | NA          | NA          | 19%         | 16          |
| Electromedical equipment, including diagnostic, therapeutic and patient monitoring equipment | 69%         | 16          | NA          | NA          | 69%         | 16          |

Source: BLS.

Figure 109: Product Manufacturing Correlation Dashboard

|                                                                                  | Correlation |             | Correlation |             | Correlation |             |
|----------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                                                                  | 2010-Today  | Lag (month) | 2001-2008   | Lag (month) | 2001-Today  | Lag (month) |
| Switchgear, switchboard, industrial controls equipment                           | 81%         | 9           | 69%         | 6           | 78%         | 8           |
| Electronic components and accessories                                            | 53%         | 8           | 2%          | 3           | 26%         | 6           |
| Elevators, escalators, and other lifts                                           | 82%         | 7           | 78%         | 4           | 78%         | 6           |
| Elevators and moving stairways                                                   | 84%         | 7           | 78%         | 4           | 78%         | 6           |
| Parts and attachments for elevators and moving stairs (sold                      | 61%         | 16          | 57%         | 6           | 57%         | 16          |
| Fractional horsepower motors and generators                                      | 83%         | 6           | 89%         | 6           | 75%         | 6           |
| Industrial material handling equipment                                           | 88%         | 6           | 74%         | 5           | 85%         | 6           |
| Bulk material handling conveyors and conveying systems                           | 80%         | 7           | 78%         | 4           | 78%         | 6           |
| Parts and accessories for bulk material handling conveyors and                   | 83%         | 7           | 65%         | 4           | 74%         | 5           |
| Fluid power valves                                                               | 64%         | 5           | 66%         | 8           | 60%         | 7           |
| Aerospace type fluid power valves                                                | 45%         | 4           | NA          | NA          | 45%         | 4           |
| Metal valves, except fluid power                                                 | 93%         | 10          | 65%         | 6           | 80%         | 8           |
| Industrial valves for water works and municipal equipment                        | 91%         | 10          | NA          | NA          | 91%         | 10          |
| Measuring and dispensing pumps and parts and attachments                         | 65%         | 7           | 46%         | 9           | 55%         | 8           |
| Parts and attachments for pumps                                                  | 79%         | 9           | 66%         | 4           | 68%         | 7           |
| Industrial process control instruments                                           | 79%         | 12          | 61%         | 11          | 74%         | 12          |
| Fluid meters and counting devices                                                | 84%         | 10          | 41%         | 8           | 73%         | 10          |
| Measuring & controlling devices                                                  | 85%         | 12          | 52%         | 10          | 74%         | 11          |
| Electrical machinery and equipment                                               | 81%         | 8           | 38%         | 3           | 66%         | 7           |
| Motors, generators, motor generator sets                                         | 88%         | 7           | 81%         | 5           | 87%         | 7           |
| Low voltage panelboards and distribution boards, 1000 volts or less              | 87%         | 13          | NA          | NA          | 87%         | 13          |
| General-purpose industrial controls                                              | 87%         | 9           | NA          | NA          | 87%         | 9           |
| Specific-purpose industrial controls                                             | 85%         | 9           | NA          | NA          | 85%         | 9           |
| Turbines and turbine generator sets                                              | 26%         | 16          | 43%         | 6           | 22%         | 8           |
| Steam, gas, and other turbines and turbine generators                            | 5%          | 16          | NA          | NA          | 5%          | 16          |
| Parts & accessories for turbines, turbine generators, and turbine generator sets | 82%         | 11          | NA          | NA          | 82%         | 11          |

Source: BLS.

Figure 110: Metals Correlation Dashboard

|                                                | Correlation |             | Correlation |             | Correlation |             |
|------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                                | 2010-Today  | Lag (month) | 2001-2008   | Lag (month) | 2001-Today  | Lag (month) |
| Iron and Steel                                 | 87%         | 0           | 72%         | 0           | 86%         | 0           |
| Steel pipe and tube, stainless steel           | 91%         | 2           | NA          | NA          | 91%         | 2           |
| Fabricated structural metal                    | 93%         | 1           | 81%         | 1           | 91%         | 1           |
| Other fabricated metal products                | 93%         | 1           | 87%         | 2           | 85%         | 2           |
| Fabricated steel plate                         | 87%         | 0           | 75%         | 1           | 85%         | 1           |
| Sheet metal products                           | 95%         | 2           | 71%         | 1           | 91%         | 1           |
| Aluminum sheet and strip                       | 82%         | 0           | 37%         | 7           | 81%         | 0           |
| Copper and copper alloy sheet, strip and plate | 70%         | 0           | NA          | NA          | 70%         | 0           |

Source: BLS.

## A look back at correlations in the 1980s and 1990s

Looking at longer-term correlations over the last 30 years for product categories, the highest correlations are for product categories such as new non-res building construction, heat transfer equipment, industrial controls. and steel pipe/tube to name a few. Once again, we highlight the ones in the table that have shown the strongest correlations over the time periods chosen.

Figure 111: Aerospace/Engines Correlation Dashboard (1984-Today)

|                                                     | Correlation |             |
|-----------------------------------------------------|-------------|-------------|
|                                                     | 1984-Today  | Lag (month) |
| Aircraft engine and engine parts                    | 37%         | 13          |
| Aircrafts                                           | 39%         | 8           |
| Civilian aircraft                                   | 49%         | 8           |
| Parts and accessories for civilian aircraft engines | 51%         | 16          |
| Military aircraft                                   | 35%         | 16          |
| Aircraft parts and auxiliary equipment              | 67%         | 16          |
| Other aircraft parts and equipment                  | 45%         | 16          |
| High alloy steel castings, excluding investment     | 68%         | 6           |
| Nickel and nickel-base alloy mill shapes            | 59%         | 2           |
| Titanium and titanium-base alloy mill shapes        | 36%         | 7           |

Source: BLS.

Figure 112: Construction Correlation Dashboard (1984-Today)

|                                                  | Correlation |             |
|--------------------------------------------------|-------------|-------------|
|                                                  | 1984-Today  | Lag (month) |
| New nonresidential building construction         | 91%         | 8           |
| New warehouse building construction              | 89%         | 6           |
| New school building construction                 | 86%         | 9           |
| New office building construction                 | 89%         | 8           |
| New industrial building construction             | 90%         | 8           |
| New health care building construction            | 95%         | 9           |
| Maintenance & repair of nonresidential buildings | 80%         | 5           |
| Adhesives and sealants                           | 84%         | 6           |
| Lumber                                           | 25%         | 0           |
| Flat Glass                                       | 48%         | 6           |
| Asphalt felts and coating                        | 53%         | 5           |
| Plastic resins and materials                     | 76%         | 0           |
| Gypsum products                                  | 25%         | 1           |
| Concrete block and brick                         | 62%         | 10          |

Source: BLS.

Figure 113: HVACR Correlation Dashboard (1984-Today)

|                                                                     | Correlation |             |
|---------------------------------------------------------------------|-------------|-------------|
|                                                                     | 1984-Today  | Lag (month) |
| Air conditioning and refrigeration equip                            | 82%         | 6           |
| Unitary AC, except air source heat pumps                            | 68%         | 8           |
| Heat transfer equipment, including heat pumps                       | 94%         | 6           |
| Heat pumps                                                          | 72%         | 4           |
| Parts and accessories for AC and heat transfer equipment            | 74%         | 4           |
| Commercial refrigeration equipment                                  | 78%         | 6           |
| Hardware & building materials and supplies retailing                | 39%         | 0           |
| Building materials, paint, and hardware wholesaling                 | 77%         | 2           |
| Fractional horsepower motors and generators                         | 74%         | 6           |
| Plumbing and heating valves and specialties, except plumbers'       | 33%         | 1           |
| Industrial and commercial fans and blowers                          | 86%         | 4           |
| Centrifugal blower filter units, and classes I-IV centrifugal fans, | 64%         | 5           |
| Other centrifugal fans and blowers, except parts                    | 88%         | 3           |
| Parts and accessories for fans and blowers                          | 84%         | 2           |

Source: BLS.

Figure 114: Medical Devices Correlation Dashboard (1984-Today)

|                                                                                              | Correlation |             |
|----------------------------------------------------------------------------------------------|-------------|-------------|
|                                                                                              | 1984-Today  | Lag (month) |
| X-ray and electromedical equipment                                                           | 34%         | 16          |
| Medical laboratory and diagnostic imaging center care                                        | 8%          | 0           |
| Diagnostic imaging center care                                                               | 29%         | 16          |
| Medicare and Medicaid patients: diagnostic imaging center care                               | 26%         | 0           |
| Private insurance and all other patients: diagnostic imaging center care                     | 19%         | 16          |
| Electromedical equipment, including diagnostic, therapeutic and patient monitoring equipment | 69%         | 16          |

Source: BLS.

Figure 115: Product Manufacturing Correlation Dashboard (1984-Today)

|                                                                                 | Correlation |             |
|---------------------------------------------------------------------------------|-------------|-------------|
|                                                                                 | 1984-Today  | Lag (month) |
| Switchgear, switchboard, industrial controls equipment                          | 75%         | 8           |
| Electronic components and accessories                                           | 27%         | 5           |
| Elevators, escalators, and other lifts                                          | 73%         | 6           |
| Elevators and moving stairways                                                  | 71%         | 6           |
| Parts and attachments for elevators and moving stairs (sold                     | 52%         | 16          |
| Fractional horsepower motors and generators                                     | 74%         | 6           |
| Industrial material handling equipment                                          | 81%         | 6           |
| Bulk material handling conveyors and conveying systems                          | 74%         | 6           |
| Parts and accessories for bulk material handling conveyors and                  | 72%         | 5           |
| Fluid power valves                                                              | 55%         | 7           |
| Aerospace type fluid power valves                                               | 45%         | 4           |
| Metal valves, except fluid power                                                | 78%         | 9           |
| Industrial valves for water works and municipal equipment                       | 91%         | 10          |
| Measuring and dispensing pumps and parts and attachments                        | 48%         | 8           |
| Parts and attachments for pumps                                                 | 62%         | 8           |
| Industrial process control instruments                                          | 66%         | 12          |
| Fluid meters and counting devices                                               | 63%         | 10          |
| Measuring & controlling devices                                                 | 70%         | 12          |
| Electrical machinery and equipment                                              | 64%         | 6           |
| Motors, generators, motor generator sets                                        | 86%         | 7           |
| Low voltage panelboards and distribution boards, 1000 volts or less             | 87%         | 13          |
| General-purpose industrial controls                                             | 87%         | 9           |
| Specific-purpose industrial controls                                            | 85%         | 9           |
| Turbines and turbine generator sets                                             | 24%         | 16          |
| Steam, gas, and other turbines and turbine generators                           | 5%          | 16          |
| Parts & accesories for turbines, turbine generators, and turbine generator sets | 82%         | 11          |

Source: BLS.

Figure 116: Metals Correlation Dashboard (1984-Today)

|                                                | Correlation |             |
|------------------------------------------------|-------------|-------------|
|                                                | 1984-Today  | Lag (month) |
| Iron and Steel                                 | 84%         | 0           |
| Steel pipe and tube, stainless steel           | 91%         | 2           |
| Fabricated structural metal                    | 90%         | 1           |
| Other fabricated metal products                | 85%         | 2           |
| Fabricated steel plate                         | 81%         | 1           |
| Sheet metal products                           | 91%         | 1           |
| Aluminum sheet and strip                       | 81%         | 0           |
| Copper and copper alloy sheet, strip and plate | 70%         | 0           |

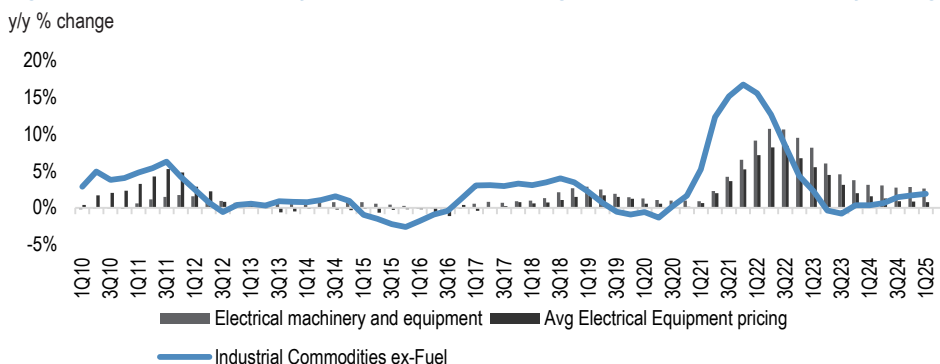
Source: BLS.

## Goods Pricing

### Electrical Equipment/Controls: Inflating at Above Average Levels

Starting with Electrical Equipment manufacturing companies, we mapped average pricing reported by WCC, EMR, DOV, DD, and HUBB against the electrical machinery and equipment PPI and saw a very high correlation between the two in the last 11 years. Industrial Commodities PPI on one hand showed greater volatility and has been up slightly y/y in recent months, down peak rates of growth in the MT % in late '21/early '22, and both the average company pricing and the electrical machinery and equipment PPI are up LSD, down from peak growth rates in the HSD/LDD % range in mid/late '22.

**Figure 117: Electrical Machinery and Equipment PPI vs Avg Electrical Equipment Company Pricing**



Source: BLS, company reports, and J.P. Morgan calculations. Note: Companies include EMR, DOV, HUBB, WCC, DD.

Average Electrical Equipment pricing has trended well with Electrical machinery and equipment pricing, which shows the ability of these electrical equipment manufacturers to pass on the price to their customers. We highlight the growth trends on a y/y basis in a few important sub-categories below:

- *Switchgear, switchboard, and industrial control equipment* is up 4% on average over time, though in the last three months, they have been up 5%/6%/8% y/y in Feb/Mar/Apr.
- *Industrial process control instruments* has been up 3% on average historically, but it was up by 4-5% in the last three months.
- *Fluid meters and counting devices* category also grew at 2% on average historically, with last 2 months up ~5% y/y.
- *Measuring controlling devices* averaged +2% over time, with the last three months in line.
- *Motors, generators, and motor sets* grew in the LSD range historically and was up by 7%/6%/5% in Feb/Mar/Apr.
- *Low-voltage panel boards* category grew in the ~4% range on average and has been up 1%/2%/3%.
- *General purpose industrial controls* was up 4% over time with consistent LSD growth until mid 2021. General-purpose industrial controls rose 5%/9%/12%.
- *Specific purpose industrial controls* was up 3% over time with consistent LSD growth until mid 2021. Specific-purpose industrial controls were up +5% in the last two months.

Within Electrical Equipment/Controls, categories such as power and distribution transformers have historically lagged Industrial Commodities PPI by roughly two months and should be inching up following the move in industrial commodities. There are also categories like fluid meters and controlling devices; measuring and controlling devices; and general and specific purpose industrial controls that have lagged Industrial Commodities PPI by eight to 10 months, and as a result have stabilized.

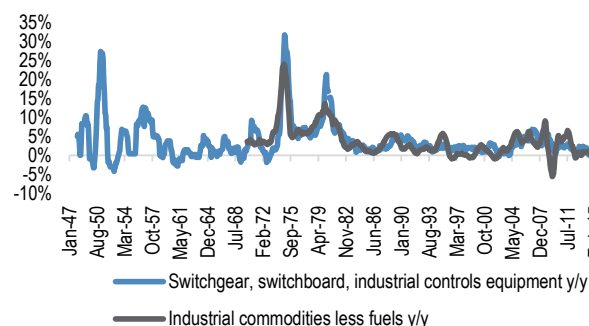
Figure 118: Electrical Equipment Inflation Dashboard

| Electrical Equipment/Industrial Controls                            | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|---------------------------------------------------------------------|---------------|----------------|-----------------|
| Switchgear, switchboard, industrial controls equipment              | 8%            | 6%             | 7%              |
| Electronic components and accessories                               | 0%            | 0%             | 1%              |
| Industrial process control instruments                              | 4%            | 5%             | 5%              |
| Fluid meters and counting devices                                   | 5%            | 4%             | 2%              |
| Measuring & controlling devices                                     | 2%            | 2%             | 3%              |
| Electrical machinery and equipment                                  | 3%            | 2%             | 2%              |
| Power and distribution transformers, except parts                   | 4%            | 2%             | 2%              |
| Motors, generators, motor generator sets                            | 5%            | 6%             | 5%              |
| Low voltage panelboards and distribution boards, 1000 volts or less | 3%            | 2%             | 4%              |
| General-purpose industrial controls                                 | 12%           | 8%             | 7%              |
| Specific-purpose industrial controls                                | 5%            | 5%             | 3%              |

Source: BLS.

Figure 119: Switchgear, Switchboard, Industrial Controls Equipment vs. Industrial Commodities

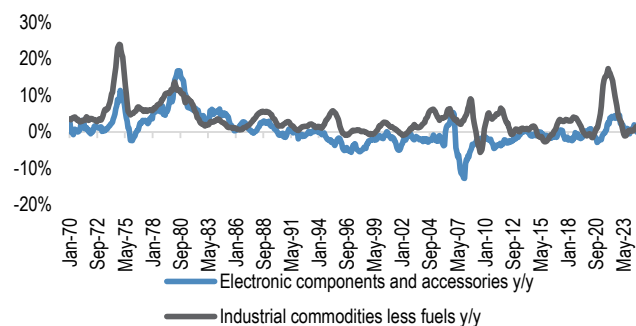
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 120: Electronic Components and Accessories vs. Industrial Commodities

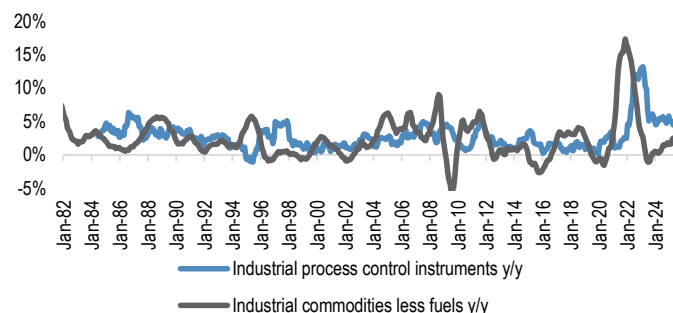
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 121: Industrial Process Control Instruments vs. Industrial Commodities

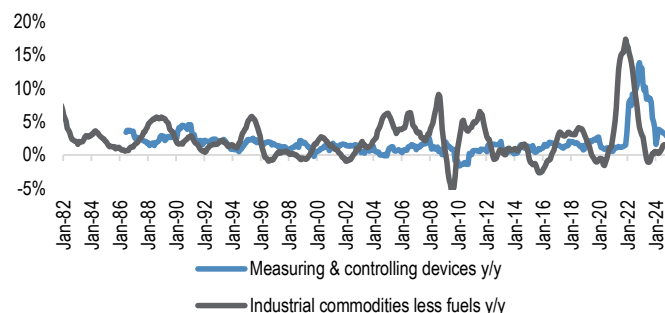
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 122: Fluid Meter and Counting Devices vs. Industrial Commodities

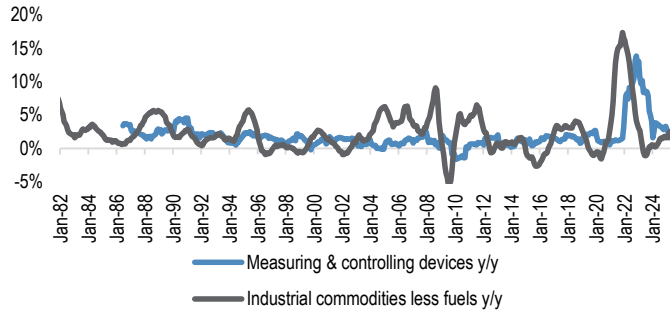
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 123: Measuring & Controlling Devices vs. Industrial Commodities**

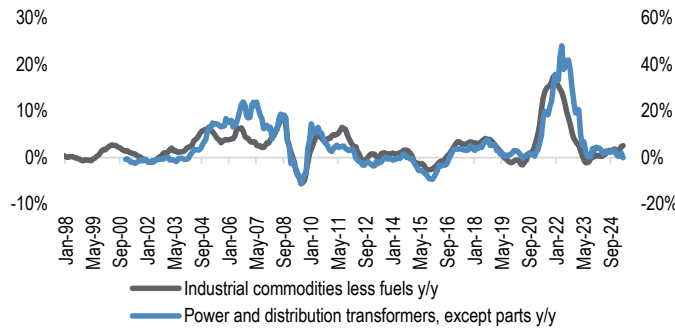
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 125: Power and Distribution Transformers vs. Industrial Commodities**

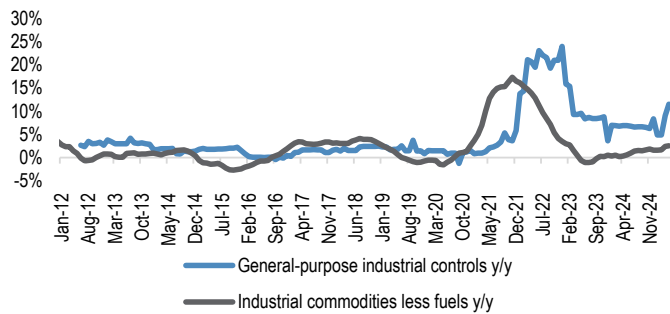
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 127: General-Purpose Industrial Controls vs. Industrial Commodities**

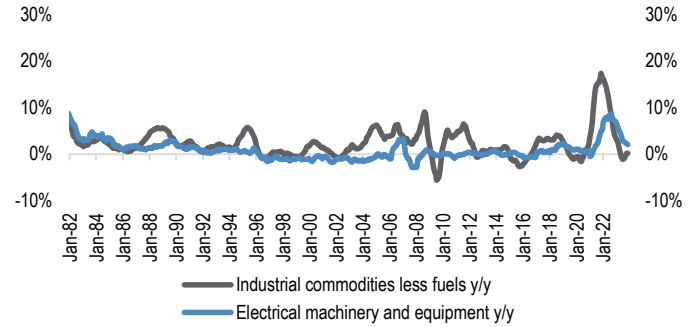
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 124: Electrical Machinery & Equipment vs. Industrial Commodities**

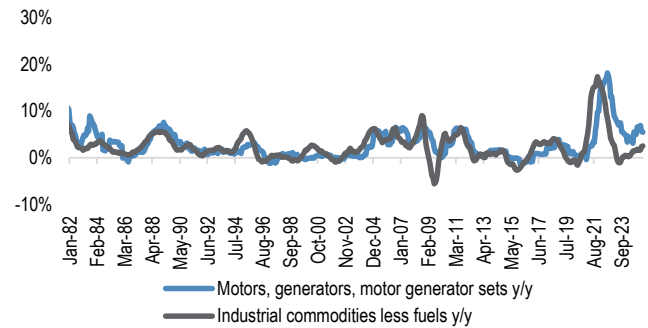
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 126: Motors, Generators, Motor Generator Sets vs. Industrial Commodities**

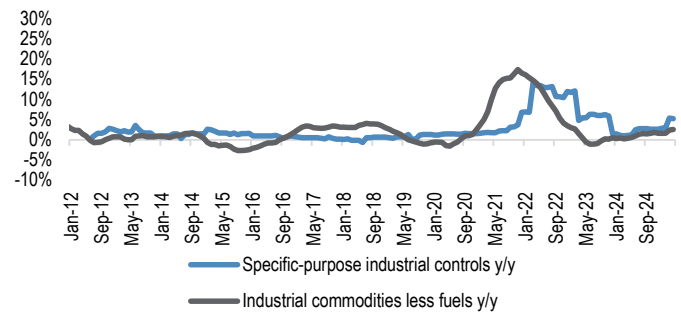
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 128: Specific-Purpose Industrial Controls vs. Industrial Commodities**

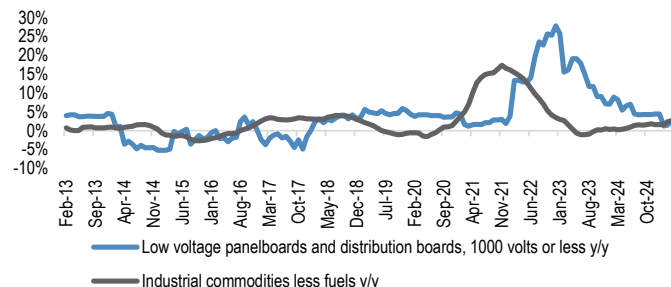
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 129: Low-Voltage Panelboard vs Industrial Commodities**

Industrial commodities less fuel PPI y/y



Source: BLS.

**Capacity adds in electrical a watch item:** We continue to watch the impact of capacity additions, though we continue to note that this takes time given the labor-centric nature of such expansions, and it would appear as though the focus from utilities remains on product availability (capacity), brand quality, and service vs price, with the supply/demand situation still favoring the suppliers. Last year, many companies at the DistribuTECH power grid technology show highlighted their plans to add capacity in the near term, coming in phases, and much of it tagged for visible demand, required by the customer to bring down lead times. While we agree that any industry that expands capacity after a period of extreme tightness in markets is a red flag, we think a deeper dive is required here to tease out the level of risk of overcapacity, which we view as low. The “electrical industry” as it’s commonly referred to is not as monolithic as perceived, with some small/private actors that have not added capacity in 20+ years and recent announcements that are more targeted than appreciated in well-defined market sub-segments that have oligopolistic characteristics. In other words, just because Siemens Electrical or ABB has announced a new plant for some products does not necessarily mean there is more capacity for specific products currently being supplied by Eaton to utility customers. In fact, a closer look shows little overlap in the capacity expansion announcements of the majors, perhaps aside from some of the more commoditized transformer lines. Importantly, barriers to entry for foreign players include IEEE standards and are also related to components that are used behind the steel in transformers, for example, like arrestors that have a tight supply chain, adding to transportation costs, making it unattractive economically to manufacture overseas and bring to the US. We have highlighted specific expansion announcements below:

Figure 130: Electrical Capacity Adds

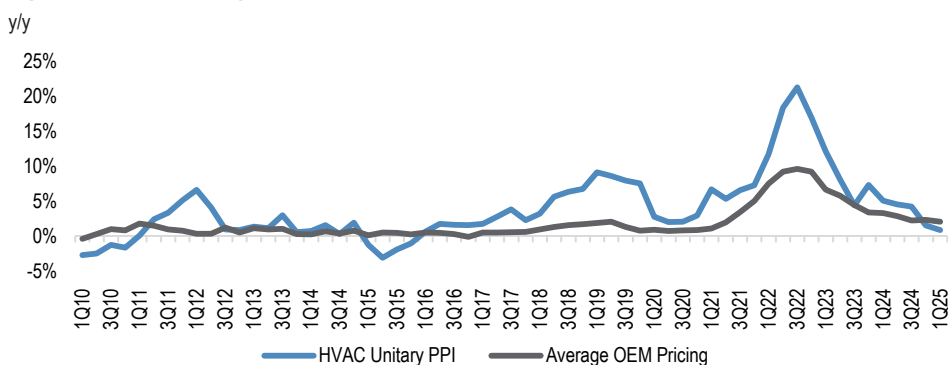
| Company   | Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ETN       | Eaton is investing \$340 million to establish a new manufacturing facility in Jonesville, South Carolina, dedicated to producing three-phase transformers, addressing the critical shortage and record demand for transformers across utility, commercial, industrial, and data center sectors. This facility, Eaton's third in the U.S., will create 700 local jobs by 2027, supported by local, state, and federal incentives. Eaton's investment in North American manufacturing for electrical solutions has surpassed \$1 billion since 2023, enhancing production capacity for transformers, voltage regulators, and electrical assemblies like switchgear and circuit breakers. This expansion supports grid modernization and the transition to renewable energy. |
| Hitachi   | Hitachi Energy is investing an additional \$250 million USD by 2027 to address the global transformer shortage, with over 40% dedicated to the U.S. This investment builds on a previous \$6 billion USD commitment announced in 2024, aimed at upgrading power grids and scaling global transformer production. The U.S. investment includes hiring over 100 people to expand manufacturing capabilities at transformer factories in Virginia, Missouri, and Mississippi, enhancing production capacity and supply-chain resilience. These efforts respond to surging transformer demand driven by electrification in industries like data centers and AI.                                                                                                               |
| ABB       | ABB is investing over \$100 million to expand production capacity at two U.S. manufacturing sites, responding to growing electricity demands driven by new technologies and decarbonization efforts. The company will invest \$80 million to replace its existing Selmer, Tennessee operations with a new 320,000 square-foot facility, increasing production capacity by over 50% and adding 50 new jobs, slated to open in late 2026. Additionally, \$40 million will be used to double the size of the Senatobia, Mississippi site, creating 200 new jobs and meeting the demand for advanced low voltage circuit breakers, expected to open in Q2 2026. These expansions aim to support the growing needs of data centers and utilities.                              |
| Flex      | Flex has significantly increased its U.S. manufacturing capacity to meet the growing demand for data center critical power solutions, driven by rapid AI adoption. The company has expanded its production capabilities for critical power products such as Databar, Power Distribution Units (PDUs), and Remote Power Panels (RPPs) at its Columbia, South Carolina facility, which now has a dedicated capacity of 134,000 sq. ft. This expansion complements the opening of a 400,000 sq. ft. facility in Dallas, Texas, both focusing on critical power products to enable faster production at scale.                                                                                                                                                                |
| Siemens   | Siemens is significantly boosting its U.S. investments by over \$10 billion, surpassing \$100 billion in total U.S. investment over the past 20 years. This includes the unveiling of two state-of-the-art manufacturing facilities in Fort Worth, Texas, and Pomona, California, with a \$285 million investment expected to create over 900 skilled manufacturing jobs. These facilities will more than double Siemens' production capacity of electric equipment, supporting critical American infrastructure such as AI data centers.                                                                                                                                                                                                                                 |
| Schneider | Schneider Electric plans to invest over \$700 million in its U.S. operations through 2027, marking its largest single capital expenditure in the U.S. The investment aims to bolster energy infrastructure, support AI growth, boost domestic manufacturing, and enhance energy security, creating over 1,000 new jobs. Facility upgrades and expansions include a new medium-voltage market facility in Mt. Juliet, TN; a power distribution unit and microgrid laboratory in Andover, MA; expanded production in Columbia, MO; advanced manufacturing in Fairfield, OH; increased switchgear production in El Paso, TX; an Innovation Center in Houston, TX; a Robotics & Motion Center in Raleigh, NC; and modernized production in Welcome, NC.                       |

Source: J.P. Morgan, company reports, and Distributech.

### HVACR: Key Sub-Categories Accelerating But Growth Still Below-Average

The HVACR category includes those companies involved in the manufacturing of air conditioning and warm air heating combination units, air conditioning compressors (except motor vehicle), air conditioning condensers and condensing units, dehumidifiers (except portable electric), heat pumps, humidifying equipment (except portable), refrigerated counter and display cases, refrigerated drinking fountains, snow making machinery, and soda fountain cooling and dispensing. Major companies include Trane, Goodman, Amsted Industries, Modine, York, Welbilt, SPX Corp, Tecumseh, and Emerson. The peer set there is a bit detached from the HVAC sector, but the chart below shows the sub indicator, the unitary PPI versus HVAC public company pricing, to the extent it's disclosed and shows it's relatively accurate from a predictive standpoint. Currently, HVAC unitary PPIs have dropped below company levels.

Figure 131: HVAC Unitary PPI Dropped below Price Trends at OEMs



Source: BLS, company reports (LII, TT, JCI, CARR).

A look back over time shows this category has managed to get price, averaging 3% over time. Let's look at a few major subcategories within HVACR below:

- *Unitary AC* has historically seen ~3% pricing growth on average, though this category was flattish to slightly up y/y in the past three months.
- *Air conditioning and refrigeration equipment* grew in the 3% range historically, and grew by 1-2% range in the last three months.
- *Heat transfer equipment, including heat pumps*, grew at 5% on average historically, growing by 1%/4% in Mar/Apr.
- *Heat pumps* category grew at +3% over time, with current PPI growth at 2%/5%/4% in Feb/Mar/Apr.
- *Parts and accessories for air conditioning and heat transfer equipment*, on average, were up 3% over time with consistent LSD type growth for the most part of the last decade. More recently, this category had come down below its historical growth range but in Apr inflected to +3% growth.
- *Fractional horsepower motors and generators* grew at 2% on average, relatively consistent over time, now flattish y/y.
- *Industrial and commercial fans and blowers* grew at 4% on average but is currently tracking at 3% range.
- *Centrifugal blower filter units* grew 5% on average, growing 1-2% more recently.
- *Parts and accessories for fans and blowers* grew at 4% on average over time and has reverted to that growth range in the last year.

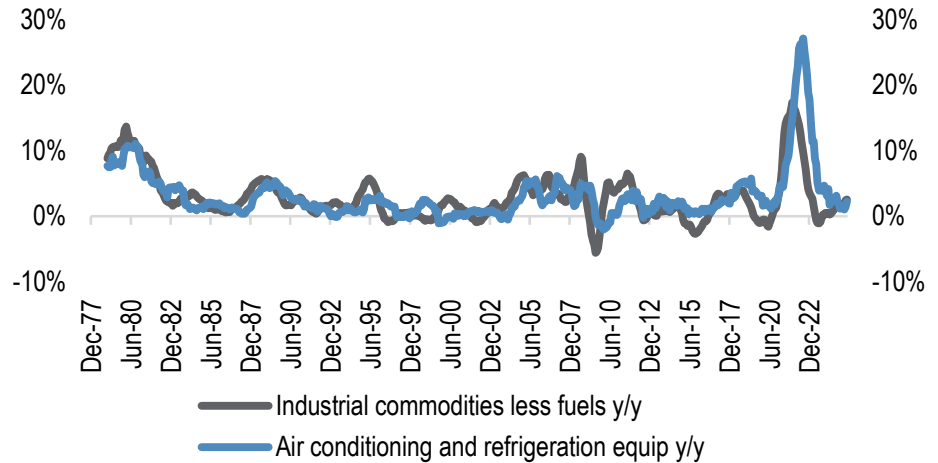
Figure 132: HVACR Inflation Dashboard

| HVACR                                                                            | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|----------------------------------------------------------------------------------|---------------|----------------|-----------------|
| Air conditioning and refrigeration equip                                         | 2%            | 2%             | 2%              |
| Unitary air-conditioners, except air source heat pumps                           | 0%            | 1%             | 2%              |
| Heat transfer equipment, including heat pumps                                    | 4%            | 2%             | 1%              |
| Heat pumps                                                                       | 4%            | 3%             | 3%              |
| Furnaces and heaters, including parts                                            | 3%            | 1%             | 1%              |
| Parts and accessories for air conditioning and heat transfer equipment           | 3%            | 0%             | 1%              |
| Commercial refrigeration equipment                                               | 2%            | 2%             | 2%              |
| Fractional horsepower motors and generators                                      | 0%            | 0%             | 1%              |
| Industrial and commercial fans and blowers                                       | 2%            | 2%             | 3%              |
| Centrifugal blower filter units, and classes I-IV centrifugal fans, except parts | 2%            | 1%             | 1%              |
| Other centrifugal fans and blowers, except parts                                 | 2%            | 3%             | 3%              |
| Parts and accessories for fans and blowers                                       | 4%            | 4%             | 5%              |

Source: BLS.

**Figure 133: Air Conditioning & Refrigeration Equipment vs. Industrial Commodities**

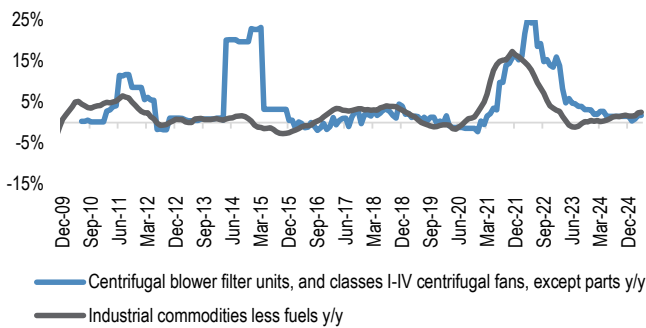
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 134: Centrifugal Blower Filter Units vs. Industrial Commodities**

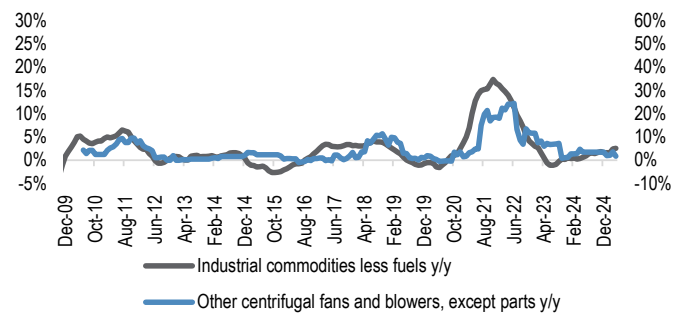
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 135: Other Centrifugal Fans and Blowers vs. Industrial Commodities**

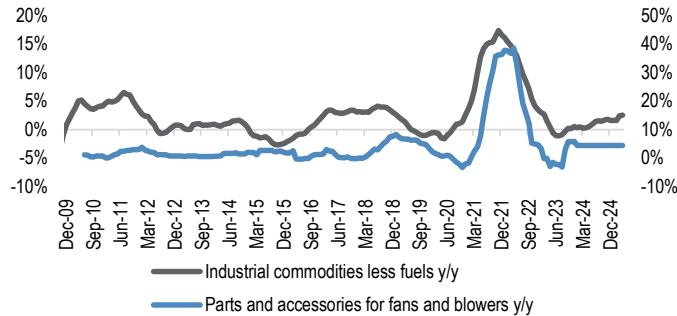
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 136: Parts and Accessories for Fans and Blowers vs. Industrial Commodities**

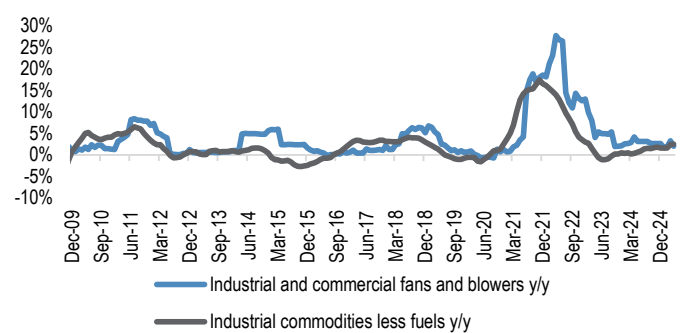
Industrial commodities less fuel PPI y/y



Source: BLS.

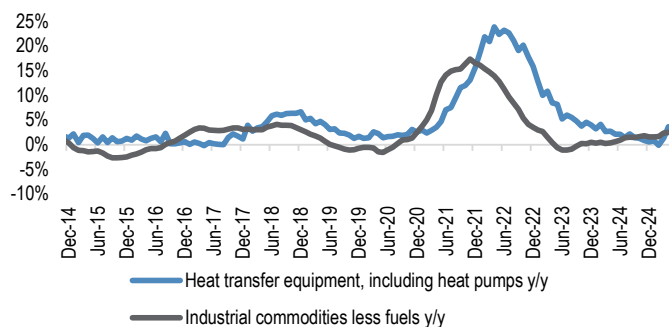
**Figure 137: Industrial and Commercial Fans and Blowers vs Industrial Commodities**

Industrial commodities less fuel PPI y/y



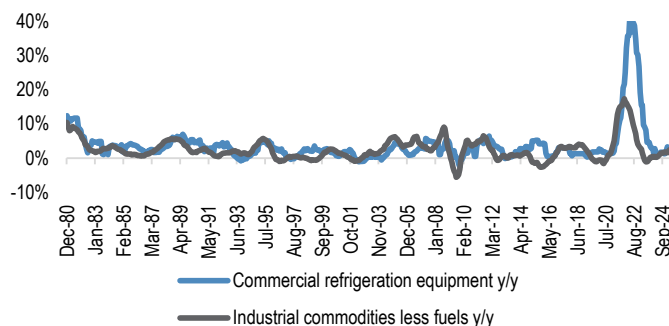
Source: BLS.

Figure 138: Heat Transfer Equipment, including Heat Pumps vs. Industrial Commodities



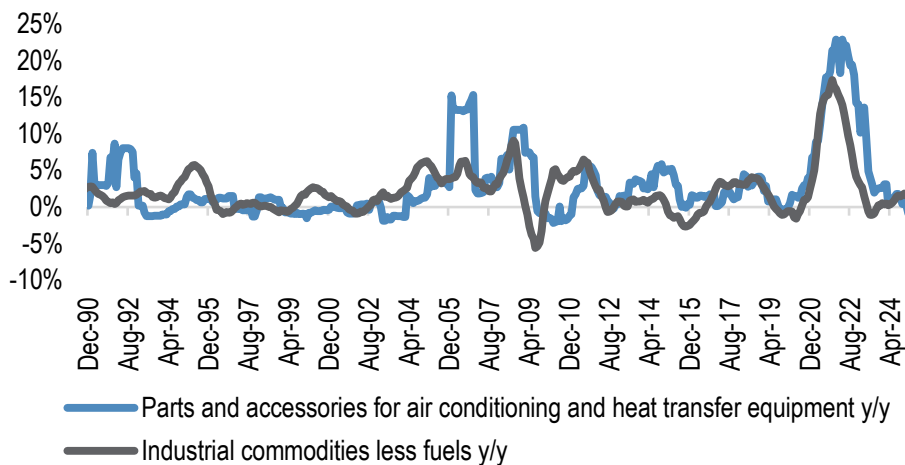
Source: BLS.

Figure 139: Commercial Refrigeration Equipment vs. Industrial Commodities



Source: BLS.

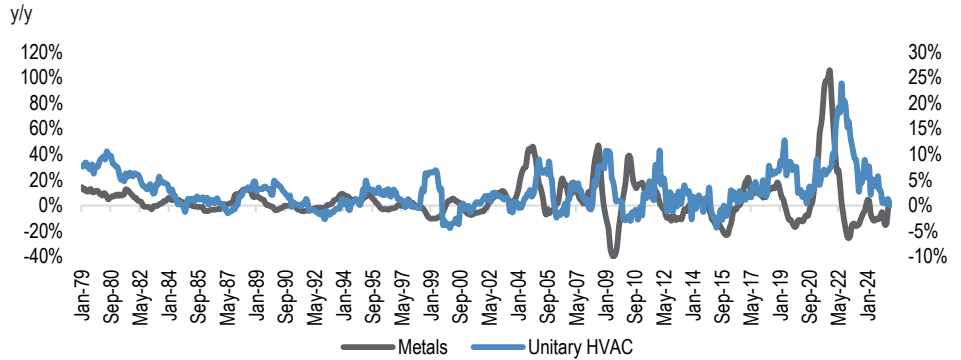
Figure 140: Parts and Accessories for Air Conditioning and Heat Transfer Equipment vs. Industrial Commodities



Source: BLS.

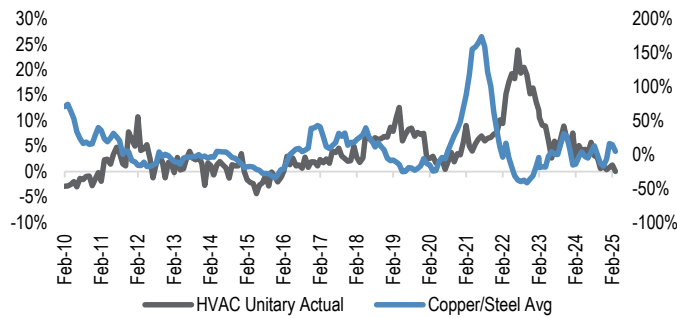
**HVAC vs commodities** – We go back further using the iron and steel PPI to show how the index has behaved coming out of periods of hyperinflation.

Figure 141: Iron and Steel PPI v Unitary HVAC PPI



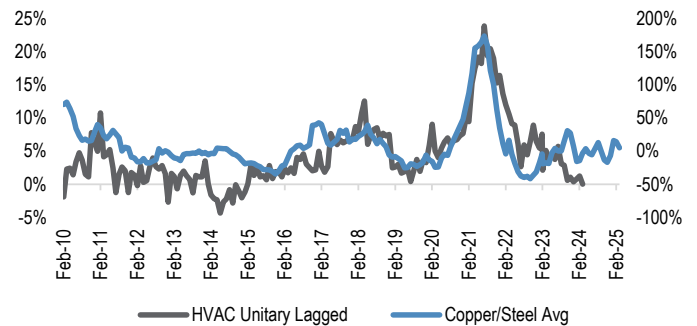
Source: BLS.

Figure 142: Actual Raw Materials Lead HVAC PPI by 12 Months



Source: BLS.

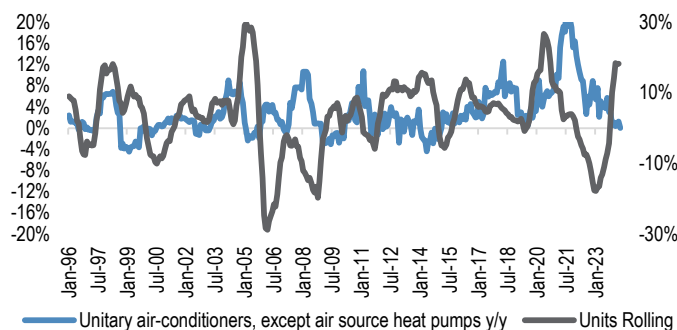
Figure 143: Adjusting HVAC PPI 12 Months Shows High Correlation



Source: BLS.

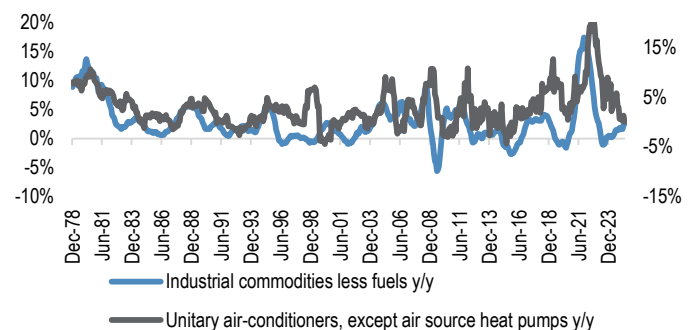
If industry volumes roll over along with inflation, this industry stands out as one in which the consensus assumes pricing is rock solid but where there is risk that it's not. We saw a situation in which pricing had gone vertical, driven by a combination of stable demand at a high level as well as inflation, the combined rates of which had never seen. The sector behaved like it did in prior deflationary cycles, and combined with a decline in demand, we saw some price pressure. As seen in the charts below, the rise in AHRI units and industrial commodities could lead to a spike in unitary ACs.

Figure 144: In Normal Circumstances Units Can Lead Pricing (y/y)



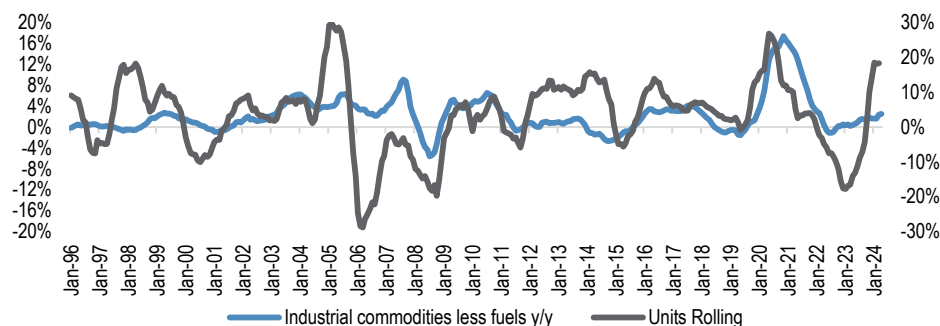
Source: AHRI, BLS.

Figure 145: Along with Commodities (y/y)



Source: BLS.

Figure 146: Commodity Declines Have Been Less Severe Compared to Demand Decline y/y



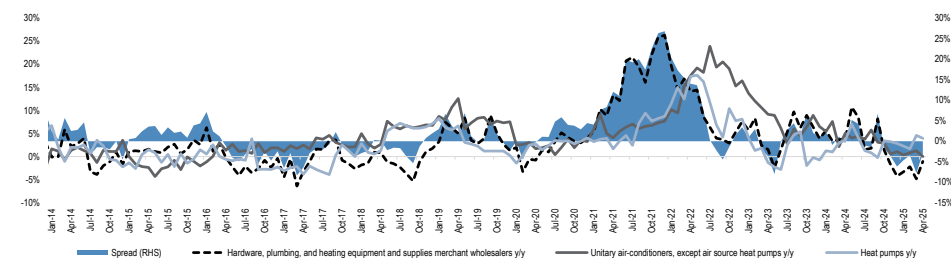
Source: AHRI, BLS. Note: Aug '23-Dec '23 is projected.

On the topic of pricing power, we also note the following:

- Looking at *wholesaler prices*, this was at -2%/-5%/-1% in Feb/Mar/Apr.
- *Unitary ACs except heat pumps* was flattish to slightly up.
- *Heat pumps* grew by 2%/5%/4% in Feb/Mar/Apr.
- The PPI spread has currently decelerated to -3%/-8%/-3% in the past three months.

Figure 147: Wholesalers PPI vs HVAC PPI

% y/y; Spread = Wholesale PPI - (0.5\*Unitary AC PPI + 0.5\*Heat Pump PPI)



Source: BLS.

We next highlight how price capture evidenced above is much different than list price increases that HVAC OEMs announce. HVAC OEMs often only capture a small amount of the list price increase. In the tables below, we highlight price increases from HVAC players.

Figure 148: Recent HVAC OEM Price Increases

| Effective Date | Company           | Business            | Products                                                                                                                                                                    | Price Increase |
|----------------|-------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                | Carrier           |                     | Tariff increase on products, disclosures remain limited                                                                                                                     | up to 10%      |
| 5/1/2025       | Bosch             |                     | Heat pumps                                                                                                                                                                  | 2%             |
| 5/1/2025       | Fieldpiece        |                     |                                                                                                                                                                             | 1-6%           |
| 5/1/2025       | Fujitsu           |                     |                                                                                                                                                                             | 3-5%           |
| 5/1/2025       | Lennox            | Resi and Commercial | Parts & Supplies - tariff surcharges                                                                                                                                        | up to 4%       |
| 5/1/2025       | Lennox            | Resi and Commercial | Tariff surcharges, blended rate on equipment: Dave lennox signature collection and Elite series - 4%, Merit series - 7%, Packaged units - 4%, Coils - 7%, Mini-splits - 10% | up to 6.5%     |
| 4/28/2025      | Heatcraft         |                     |                                                                                                                                                                             | 5%             |
| 4/28/2025      | Carrier           | Resi and Commercial | NA Residential, light commercial and commercial applied products                                                                                                            | up to 5%       |
| 4/21/2025      | Trane             | Commercial          | Light commercial equipment and controls                                                                                                                                     | up to 4%       |
| 4/15/2025      | Air Duct Products |                     | All products                                                                                                                                                                | 10%            |
| 4/11/2025      | Honeywell         | Refrigerant         | R-454B, this surcharge follows a 15% increase in Feb on new A2L refrigerant and 8% hike in Mar                                                                              | 42%            |
| 4/7/2025       | Regal Rexnord     | Genteq Products     |                                                                                                                                                                             | 3.6%           |
| 4/1/2025       | Amana             | Resi and Commercial | Across all residential unitary products                                                                                                                                     | 8-10%          |
| 4/1/2025       | Goodman           | Resi and Commercial | Across all residential unitary and residential ductless products                                                                                                            | 8-10%          |
| 4/1/2025       | Daikin            | Resi and Commercial | Across all products - residential and commercial (Unitary, Ductless, VRV, and Light Commercial).                                                                            | 8-10%          |
| 3/26/2025      | Renew Aire        |                     | All Products, parts and accessories                                                                                                                                         | 7%             |
| 3/12/2025      | Parker-Hannifin   |                     | All new orders                                                                                                                                                              | 5.9%           |
| 3/3/2025       | Resideo           |                     | Increase on products sold in the Pro channel                                                                                                                                | 15%            |
| 3/1/2025       | Carrier           | Resi and Commercial | Residential systems by 6%, light commercial systems by 8%, and commercial applied products by 10%.                                                                          |                |
| 1/13/2025      | Allied Air        | Resi and CHVAC      | Residential parts and accessories, and commercial and specified equipment, parts, and accessories                                                                           | up to 5%       |
| 1/12/2025      | Trane             | CHVAC               | Select Trane applied, ductless, and controls equipment                                                                                                                      | 2-5%           |
| 3/5/2024       | Carrier           | Resi                | Carrier, Bryant, Payne, and International Comfort Products                                                                                                                  | blended 6%     |
| 3/5/2024       | Carrier           | Light comm'l        | Carrier, Bryant, Payne, and International Comfort Products                                                                                                                  | blended 8%     |
| 3/5/2024       | Carrier           | Applied             | Carrier, Bryant, Payne, and International Comfort Products                                                                                                                  | blended 10%    |
| 2/20/2024      | Heatcraft         |                     |                                                                                                                                                                             | up to 4%       |
| 2/10/2024      | Trane             | CHVAC               | Select Trane controls and applied and unitary equipment                                                                                                                     | 2-6%           |
| 2/5/2024       | Lennox            | Resi                | Residential equipment and accessories. Move due to expected increases in R-410a and other inflationary pressures                                                            | up to 10%      |
| 1/2/2024       | Allied Air        | Resi and CHVAC      | Residential equipment, parts and accessories up to 10% and commercial equipment, parts and accessories up to 12%                                                            | up to 12%      |
| 1/1/2024       | Lennox            | CHVAC               | Commercial equipment and accessories. Move due to persistent inflationary pressures                                                                                         | up to 8%       |
| 1/1/2024       | Trane             | Resi                | Residential HVAC equipment                                                                                                                                                  | up to 5%       |

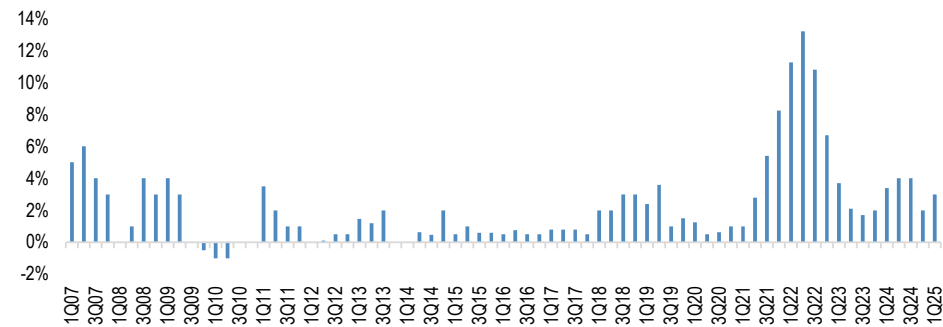
Source: Company reports and J.P. Morgan estimates.

Figure 149: Lennox Price Announcements vs Price Capture

| Announce              | Effective | Brand  | Size                         |
|-----------------------|-----------|--------|------------------------------|
| 11/26/2012            | 1/13/2013 | Lennox | "up to 6%"                   |
| 2/18/2013             | 3/1/2013  | Allied | "up to 6%"                   |
| <i>Implied Annual</i> |           |        | <i>Up to 5.5%</i>            |
| <b>2013 price/mix</b> |           |        | <b>1%/1%, total 2%</b>       |
| 12/9/2013             | 1/15/2014 | Lennox | 2-5%                         |
| 5/26/2014             | 6/2/2014  | Allied | "up to 5%"                   |
| <i>Implied Annual</i> |           |        | <i>Up to 2-4%</i>            |
| <b>2014 price/mix</b> |           |        | <b>1%/1%, total 2%</b>       |
| 11/10/2014            | 1/1/2015  | Lennox | 3-6%                         |
| <i>Implied Annual</i> |           |        | <i>up to 3-4%</i>            |
| <b>2015 price/mix</b> |           |        | <b>1%/1%, total 2%</b>       |
| 11/12/2015            | 1/1/2016  | Lennox | 3-4%                         |
| 12/17/2015            | 2/26/2016 | Allied | "up to 5%"                   |
| <i>Implied Annual</i> |           |        | <i>Up to 4-5%</i>            |
| <b>2016 price/mix</b> |           |        | <b>1%/0%, total 1%</b>       |
| 11/14/2016            | 1/1/2017  | Lennox | 3-6%                         |
| 12/21/2016            | 2/24/2017 | Allied | "up to 5%"                   |
| <i>Implied Annual</i> |           |        | <i>Up to 3-4%</i>            |
| <b>2017 price/mix</b> |           |        | <b>1%/0%, total 1%</b>       |
| 11/10/2017            | 1/1/2018  | Lennox | 4-6%                         |
| 4/27/2018             | 6/18/2018 | Allied | 5-8%                         |
| <i>Implied Annual</i> |           |        | <i>up to 4-5%</i>            |
| <b>2018 price/mix</b> |           |        | <b>2%/-1%, total 1%</b>      |
| 11/15/2019            | 1/1/2020  | Lennox | 3-6%                         |
| <i>Implied Annual</i> |           |        | <i>Up to 3-5%</i>            |
| <b>2020 price/mix</b> |           |        | <b>0.5%/0.1%, total 0.6%</b> |
| 11/9/2020             | 1/18/2021 | Lennox | 4-6%                         |
| 4/12/2021             | 6/1/2021  | Lennox | 6-9%                         |
| 4/19/2021             | 6/1/2021  | Allied | 5-7%                         |
| 7/13/2021             | 9/1/2021  | Lennox | "up to 8%"                   |
| 7/23/2021             | 10/1/2021 | Allied | "up to 8%"                   |
| <i>Implied Annual</i> |           |        | <i>Up to 6-10%</i>           |
| <b>2021 price/mix</b> |           |        | <b>3%/1%, total 4%</b>       |
| 11/3/2021             | 1/1/2022  | Lennox | "up to 13%"                  |
| 11/12/2021            | 1/1/2022  | Allied | "up to 12%"                  |
| 3/28/2022             | 5/2/2022  | Lennox | "up to 9%"                   |
| 4/18/2022             | 6/1/2022  | Allied | "up to 9%"                   |
| 6/28/2022             | 8/1/2022  | Lennox | "up to 14%"                  |
| 7/25/2022             | 8/1/2022  | Allied | "up to 14%"                  |
| <i>Implied Annual</i> |           |        | <i>Up to 31%</i>             |
| <b>2022 price/mix</b> |           |        | <b>10%/2%, total 12%</b>     |
| 12/5/2022             | 1/1/2023  | Lennox | "up to 8%"                   |
| 12/9/2022             | 1/1/2023  | Allied | "up to 8%"                   |
|                       | 6/18/2023 | Lennox | "targeted increase"          |
| <i>Implied Annual</i> |           |        | <i>Up to 21%</i>             |
| <b>2023 price/mix</b> |           |        | <b>5%/6%, total 11%</b>      |
|                       | 1/1/2024  | Lennox | "up to 8%"                   |
|                       | 1/2/2024  | Allied | "up to 12%"                  |
|                       | 2/5/2024  | Lennox | "up to 10%"                  |
| <i>Implied Annual</i> |           |        | <i>Up to 12%</i>             |
| <b>2024 price/mix</b> |           |        | <b>MSD+</b>                  |
| 1/2/2025              | 1/13/2024 | Allied | "up to 5%"                   |

Source: ACHRNews and company reports.

Figure 150: Lennox Residential HVAC Historical Price Capture in 1-2% Range



Source: Company reports.

Figure 151: Trane Price Announcements vs Price Capture

| Announce              | Effective | Brand           | Size             |
|-----------------------|-----------|-----------------|------------------|
| 1/14/2013             | 1/14/2013 | Trane           | "up to 5%"       |
| <i>Implied Annual</i> |           |                 | <i>Up to 5%</i>  |
| 12/23/2013            | 2/1/2014  | Trane           | "up to 4%"       |
| 2/24/2014             | 2/24/2014 | Trane CHVAC     | 1-3%             |
| 9/22/2014             | 9/22/2014 | Trane CHVAC     | 2-5%             |
| <i>Implied Annual</i> |           |                 | <i>up to 6%</i>  |
| <b>2014 price</b>     |           |                 | <b>0.6%</b>      |
| 12/16/2014            | 1/17/2015 | Trane Resi      | "up to 5%"       |
| <i>Implied Annual</i> |           |                 | <i>Up to 3%</i>  |
| <b>2015 price</b>     |           |                 | <b>0.2%</b>      |
| 11/4/2015             | 1/1/2016  | Trane Resi      | 3-4%             |
| 12/21/2015            | 1/1/2016  | Trane CHVAC     | 3-5%             |
| 9/9/2016              | 11/9/2016 | Trane CHVAC     | 2-6%             |
| <i>Implied Annual</i> |           |                 | <i>4.40%</i>     |
| <b>2016 price</b>     |           |                 | <b>0.3%</b>      |
| 11/15/2016            | 1/1/2017  | Trane Resi      | "up to 5%"       |
| <i>Implied Annual</i> |           |                 | <i>Up to 4%</i>  |
| <b>2017 price</b>     |           |                 | <b>0.2%</b>      |
| 11/19/2017            | 1/1/2018  | Trane Resi/Comm | "up to 6%"       |
| <i>Implied Annual</i> |           |                 | <i>Up to 6%</i>  |
| <b>2018 price</b>     |           |                 | <b>1.5%</b>      |
| 5/8/2019              | 5/11/2019 | Trane CHVAC     | "up to 5%"       |
| <i>Implied Annual</i> |           |                 | <i>Up to 2%</i>  |
| <b>2019 price</b>     |           |                 | <b>1.6%</b>      |
| 11/14/2019            | 1/1/2020  | Trane Resi/Comm | 3-7%             |
| 9/30/2020             | 11/7/2020 | Trane CHVAC     | "up to 6%"       |
| <i>Implied Annual</i> |           |                 | <i>Up to 8%</i>  |
| <b>2020 price</b>     |           |                 | <b>0.8%</b>      |
| 11/2/2020             | 1/1/2021  | Trane Resi      | "up to 8%"       |
| 3/8/2021              | 4/9/2021  | Trane CHVAC     | "up to 7.5%"     |
| 3/31/2021             | 4/1/2021  | Trane Resi      | "up to 6%"       |
| 7/2/2021              | 8/7/2021  | Trane Resi/Comm | "up to 7%"       |
| <i>Implied Annual</i> |           |                 | <i>Up to 13%</i> |
| <b>2021 price</b>     |           |                 | <b>3.7%</b>      |
| 11/17/2021            | 1/15/2022 | Trane Resi/Comm | "up to 12%"      |
| 4/4/2022              | 5/1/2022  | Trane Resi/Comm | "up to 9%"       |
| 5/16/2022             | 5/16/2022 | Trane CHVAC     | "up to 18%"      |
| 9/9/2022              | 9/10/2022 | Trane CHVAC     | 3-6%             |
| <i>Implied Annual</i> |           |                 | <i>Up to 35%</i> |
| <b>2022 price</b>     |           |                 | <b>9.6%</b>      |
| 12/9/2022             | 1/9/2023  | Trane Resi      | "up to 10%"      |
| 1/9/2023              | 1/14/2023 | Trane CHVAC     | 4-7.5%           |
| 5/1/2023              | 5/5/2023  | Trane CHVAC     | 4-6%             |
| 9/18/2023             | 10/7/2023 | Trane CHVAC     | 2-6%             |
| <i>Implied Annual</i> |           |                 | <i>Up to 28%</i> |
| <b>2023 price</b>     |           |                 | <b>4.4%</b>      |
| 11/17/2023            | 1/1/2024  | Trane Resi      | "up to 5%"       |
| 1/24/2024             | 2/10/2024 | Trane CHVAC     | 2-6%             |
| <i>Implied Annual</i> |           |                 | <i>Up to 6%</i>  |
| <b>2024 price</b>     |           |                 | <b>-2.5%</b>     |
| 12/10/2024            | 1/12/2024 | Trane CHVAC     | 2-5%             |
| <b>2025 price</b>     |           |                 | <b>3.5%</b>      |

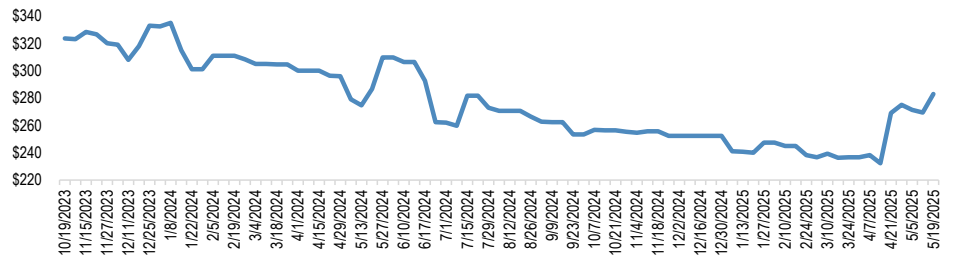
Source: ACHRNews and company reports.

We also track the price of R410A 25lbs from different websites every week, and the price % changes from the prior price are highlighted below. To clarify, the change denotes the % change in price from the prior price level. As per the latest price recorded

across different websites, it looks like R410 pricing is surging up.

Figure 152: R410A Tracker

% change from prior period

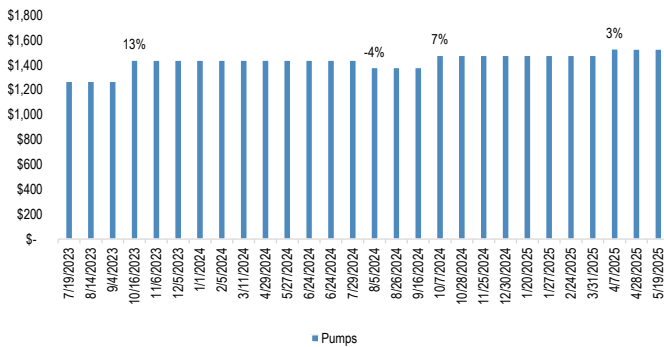


Source: Royal Refrigerant, Ability Refrigerants, General Supplies

Lastly, we highlight two of the bellwether names, Pentair and Hayward, with respect to price increases/decreases from the prior-period recorded price within pumps/motors/heaters.

Figure 153: Pentair Pumps

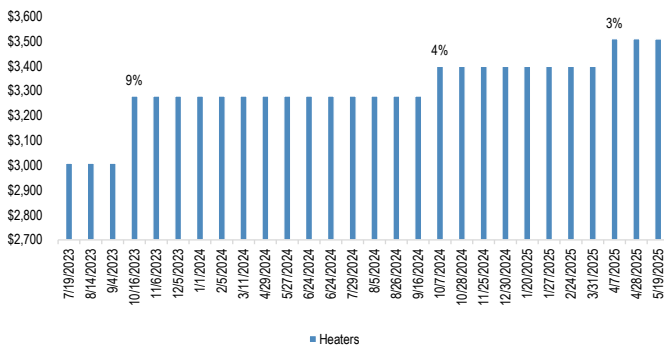
% price change from prior recorded price



Source: Leslie's

Figure 155: Pentair Heaters

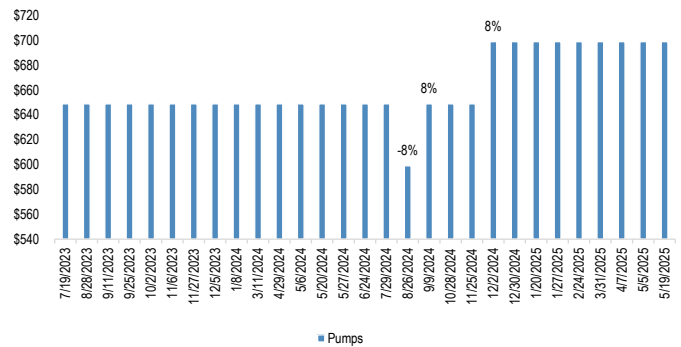
% price change from prior recorded price



Source: Leslie's

Figure 154: Hayward Pumps

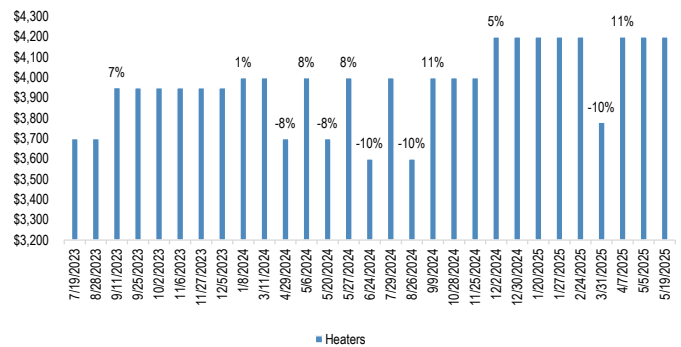
% price change from prior recorded price



Source: Leslie's

Figure 156: Hayward Heaters

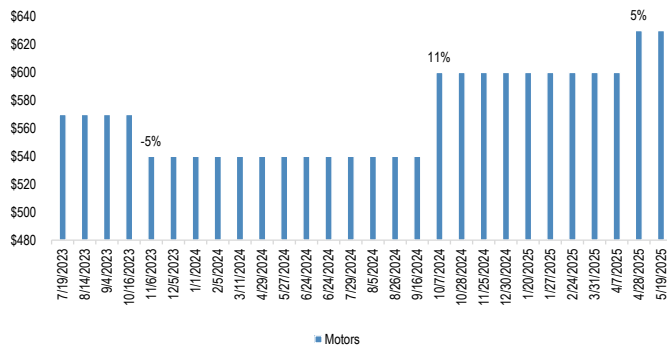
% price change from prior recorded price



Source: Leslie's

Figure 157: Pentair Motors

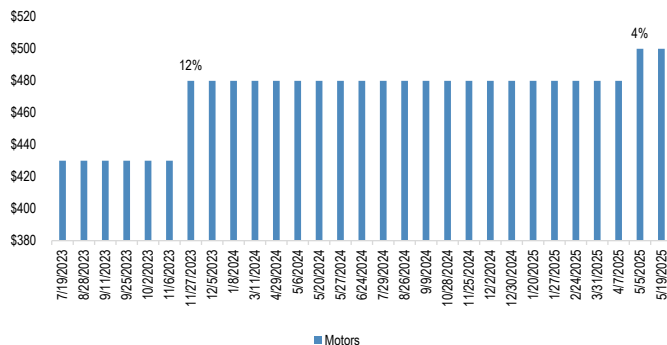
% price change from prior recorded price



Source: Leslie's

Figure 158: Hayward Motors

% price change from prior recorded price



Source: Leslie's

### Turbines: OE/Parts Inflating Above Average

Here we look at the pricing trends of various kinds of turbines and their parts and accessories. The categories here largely grew in the LSD-MSD range in the past, while turbines have not seen the same level of acceleration that other categories have seen.

- *Turbines and turbine generator sets* category is up 3% on average over time with relatively consistent LSD-MSD growth. This category saw +5% inflation in the recent three months.
- *Steam, gas, and other turbines and turbine generators* increased 2% over time on average and was +5-7% in the last three months.
- *Parts & accessories for turbines, turbine generators, and turbine generator sets* have grown by 2% over time but was up in the 4% range in the past three months.

Turbines & generator sets and parts & accessories for turbine PPI lags Industrial Commodities PPI by ~10 months, as evidenced by the chart below.

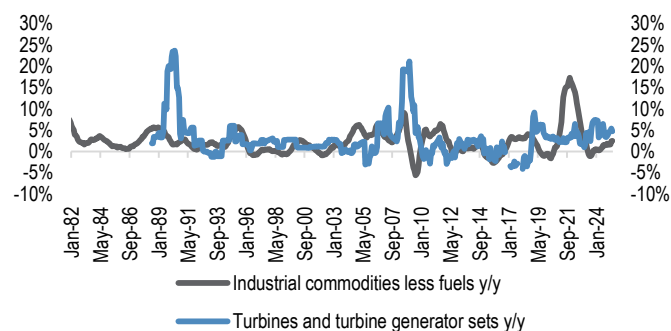
Figure 159: Turbine Inflation Dashboard

| Turbines                                                                        | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|---------------------------------------------------------------------------------|---------------|----------------|-----------------|
| Turbines and turbine generator sets                                             | 5%            | 5%             | 5%              |
| Steam, gas, and other turbines and turbine generators                           | 5%            | 6%             | 5%              |
| Parts & accessories for turbines, turbine generators, and turbine generator set | 5%            | 4%             | 1%              |

Source: BLS.

**Figure 160: Turbines and Turbine Generator Sets vs. Industrial Commodities ex-Fuel**

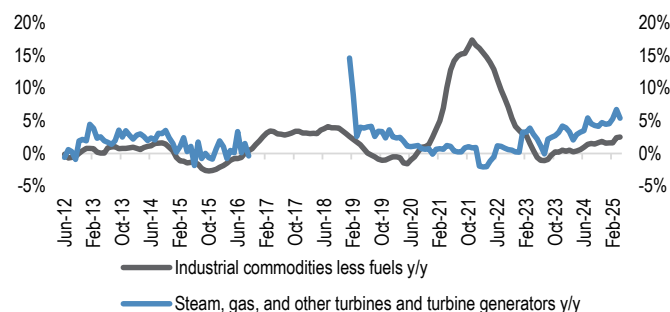
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 161: Steam, Gas, and Other Turbines and Turbine Generators vs. Industrial Commodities ex-fuel**

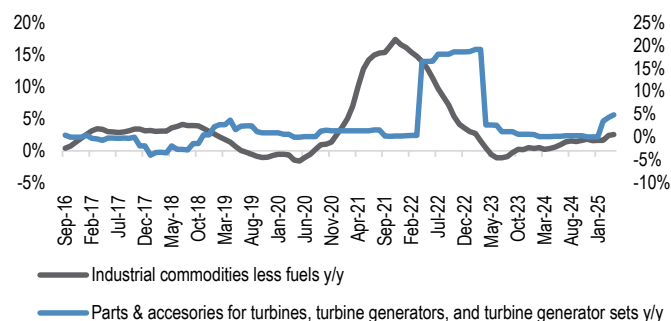
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 162: Parts and Accessories for Turbines, Turbine Generators, and Turbine Generator Sets vs. Industrial Commodities ex-Fuel**

Industrial commodities less fuel PPI y/y



Source: BLS.

### Aerospace/Engines: Stable

In this category, we look at the pricing trends of various components of the aerospace industry, including aircrafts, engines, and parts and accessories. These categories largely grew in the LSD-MSD range historically and are now tracking broadly in the same range.

- Historically, *aircraft engine and engine parts* grew in the ~3% range on average, and they were tracking at +2-3% in the last three months.
- *Aircraft* has been inflating in the 2% range in the past two months.
- *Civilian aircraft* has historically grown in the +3% range and has reverted to those levels in the past year.
- *Parts and accessories for civilian aircraft engines* grew at 2% on average, with +3-4% seen in the last few months.
- *Nickel and nickel-base alloy mill shapes* have been up ~4% on average over time but deflated by -2% in the last few months.
- *Titanium and titanium-base alloy mill shapes* have averaged ~5% y/y growth in the long term with Feb/Mar/Apr seeing ~9-11% growth.

Within the aerospace segment, categories track industrial commodities PPI with lags ranging from 4-16 months. On the lower end of the range, nickel and nickel-based alloy

mill shapes track with a lag of four months and saw deflating beginning in July '23. Civilian aircraft PPI tracks industrial commodities with a lag of about 8-11 months, meaning this category should remain range bound at average levels. Aircraft & engine parts and accessories have lags in the range of roughly 14-16 months, and, as such, we expect to continue to see average inflation levels.

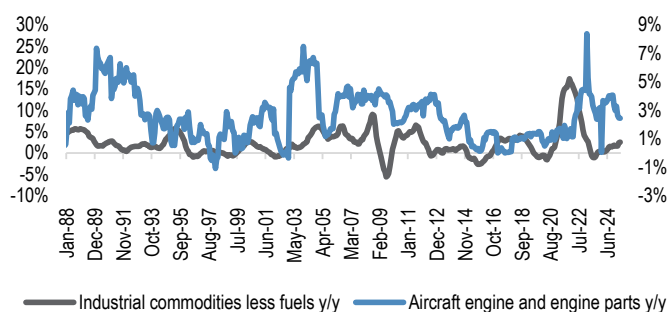
Figure 163: Aerospace Inflation Dashboard

| Aerospace & Engines                                 | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|-----------------------------------------------------|---------------|----------------|-----------------|
| Aircraft engine and engine parts                    | 2%            | 3%             | 3%              |
| Aircraft                                            | 2%            | 2%             | 3%              |
| Civilian aircraft                                   | 3%            | 3%             | 3%              |
| Parts and accessories for civilian aircraft engines | 3%            | 3%             | 4%              |
| Parts and accessories for military aircraft engines | 7%            | 7%             | 4%              |
| Aircraft parts and auxiliary equipment              | 2%            | 3%             | 3%              |
| Other aircraft parts and equipment                  | 2%            | 3%             | 3%              |
| High alloy steel castings, excluding investment     | -8%           | -8%            | -6%             |
| Nickel and nickel-base alloy mill shapes            | -2%           | -2%            | -4%             |
| Titanium and titanium-base alloy mill shapes        | 9%            | 10%            | 6%              |

Source: BLS.

Figure 164: Aircraft Engine and Engine Parts vs. Industrial Commodities

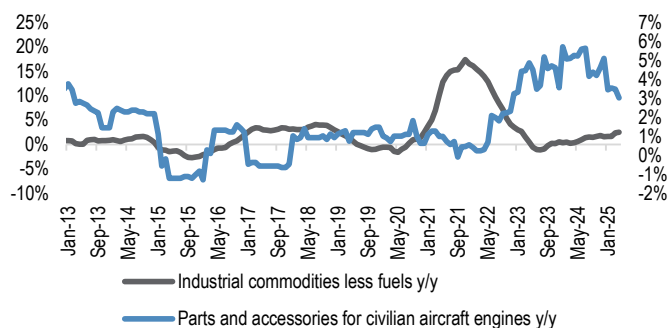
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 166: Civilian Aircraft vs. Industrial Commodities

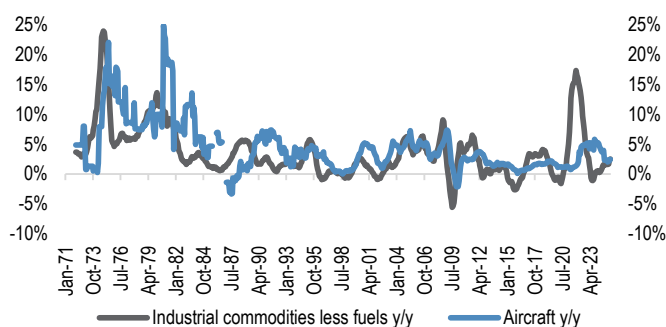
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 165: Aircrafts vs. Industrial Commodities

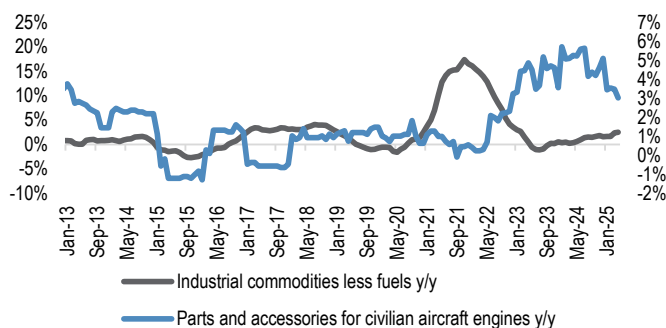
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 167: Parts and Accessories for Civilian Aircraft Engines vs. Industrial Commodities

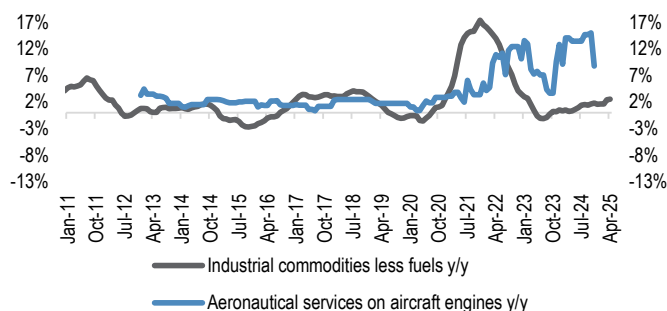
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 168: Aeronautical Services on Aircraft Engines vs. Industrial Commodities**

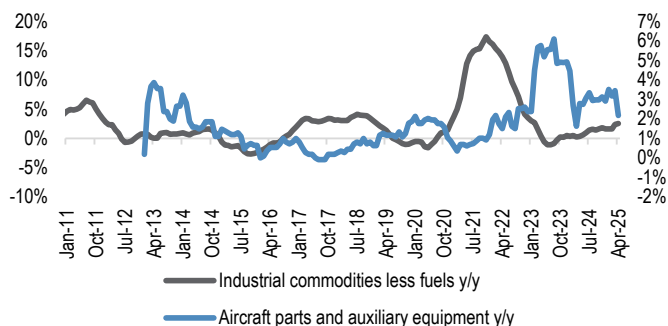
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 169: Aircraft Parts and Auxiliary Equipment vs. Industrial Commodities**

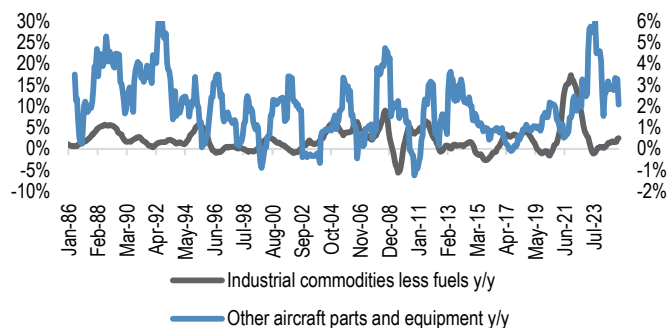
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 170: Other Aircraft Parts and Equipment vs. Industrial Commodities**

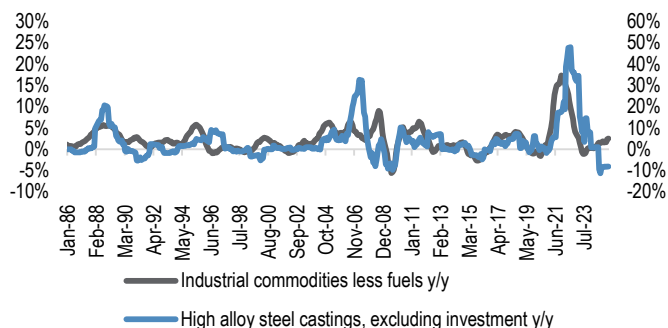
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 171: High Alloy Steel Castings vs. Industrial Commodities**

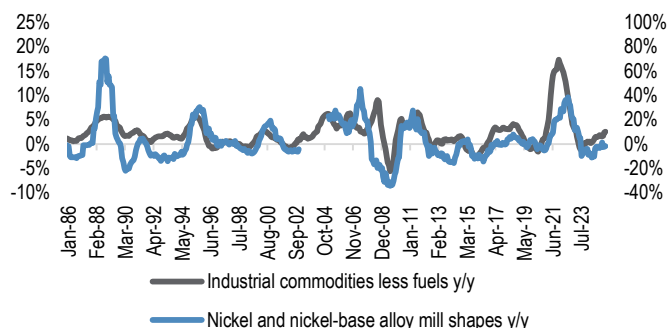
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 172: Nickel and Nickel-Base Alloy Mill Shapes vs. Industrial Commodities**

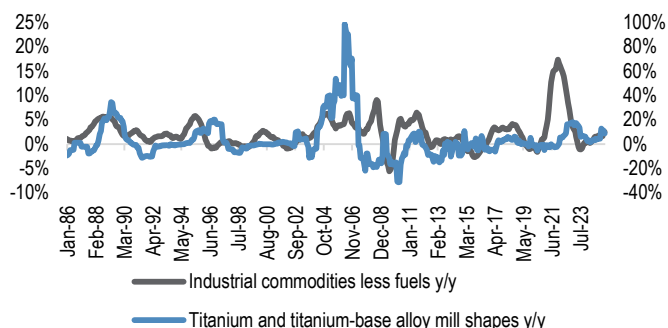
Industrial commodities less fuel PPI y/y



Source: BLS.

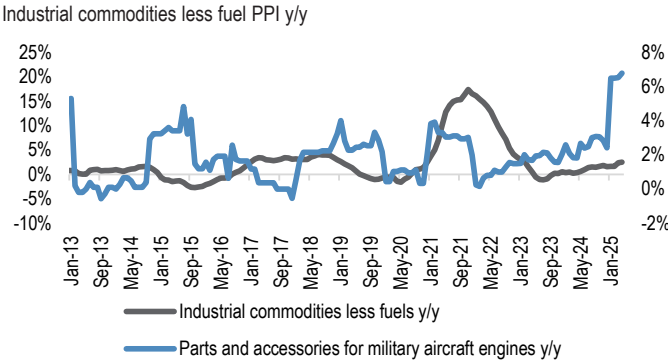
**Figure 173: Titanium and Titanium-Base Alloy Mill Shapes vs. Industrial Commodities**

Industrial commodities less fuel PPI y/y



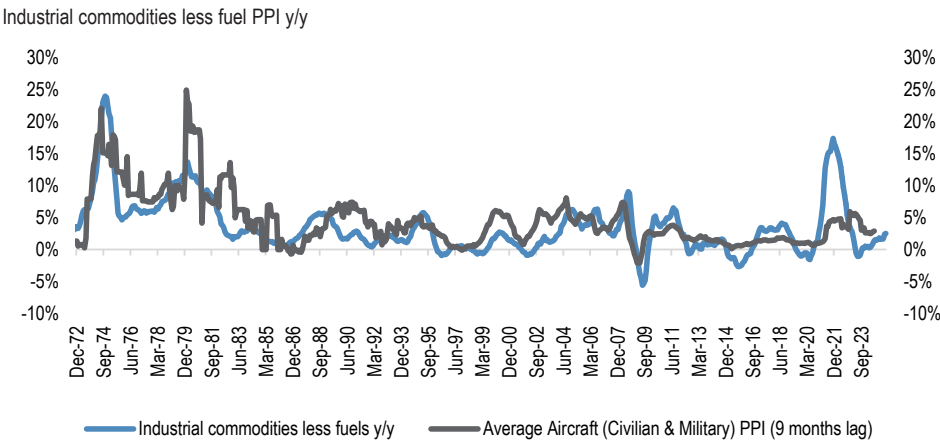
Source: BLS.

Figure 174: Parts and Accessories for Military Aircraft Engines vs. Industrial Commodities



Source: BLS.

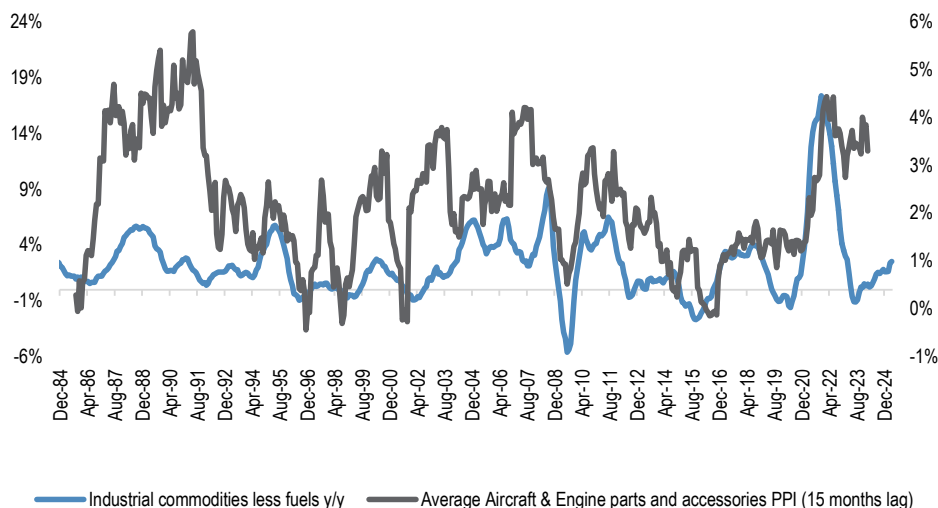
Figure 175: Average Aircraft PPI (Civilian & Military, 9 months lag) vs Industrial Commodities (ex-fuel) PPI



Source: BLS.

**Figure 176: Average Aircraft & Engine Parts and Accessories (15-month lag) vs Industrial Commodities (ex-fuel) PPI**

Industrial commodities less fuel PPI y/y



Source: BLS.

### Elevators & Conveyors: Inching Higher

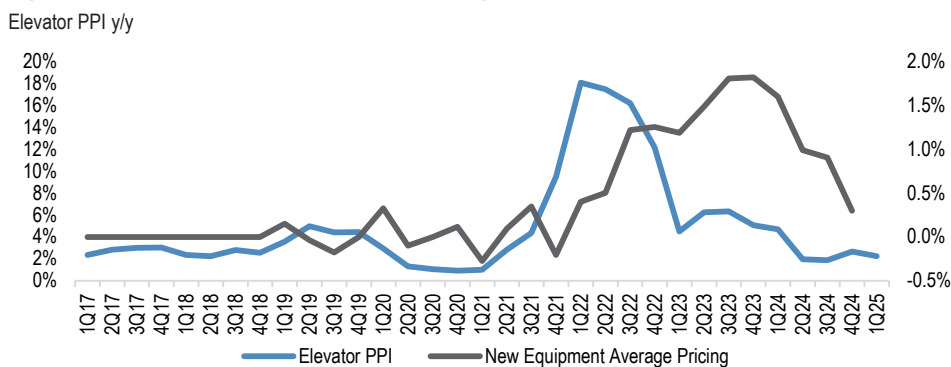
Diving deep into various categories, we highlight the below:

- *Elevator, escalators, and other lifts* were up 2-3% in the last three months (long-term average +3%).
- *Elevators & Moving Stairways* rose by +2-4% (long-term average +2%).
- *Parts and attachments for elevators and moving stairways* declined ~LSD% since Mar '24, inflicting to positive territory in Mar '25 (long-term average +2%).
- *Bulk material handling conveyors and conveying systems* have been growing 5%/4%/3% in Feb/Mar/Apr versus long-term average of +3% y/y.
- *Parts and accessories for bulk material handling conveyors and conveying systems* is growing at ~8-10% y/y (long-term average 3%).
- Industrial material handling equipment also surged now infating in the 7% range versus 4% long term average.

Elevators have historically lagged Industrial Commodities PPI by five to seven months. Based on the slight acceleration of industrial commodities, elevator pricing is likely inching upwards as indicated by charts below. We also point out that in prior recessionary periods ('08/'09 and '15/'16), the segment reflected LSD declines, suggesting downside here is somewhat limited.

In the chart below, we compare elevator PPI with the average new equipment pricing reported by OTIS, Kone, and Schindler, and we see that both PPI and new equipment pricing has grown in the LSD% range.

Figure 177: Elevator PPI vs New Equipment Pricing



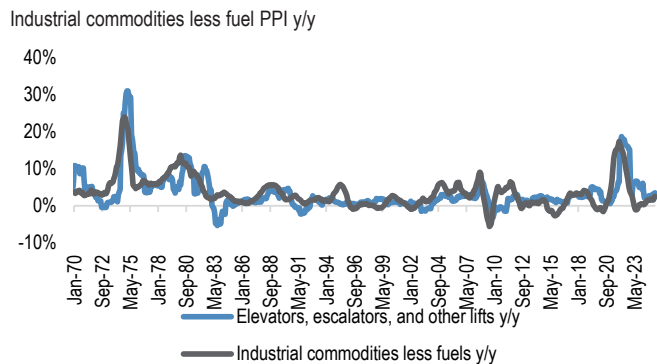
Source: BLS, company data.

Figure 178: Elevator and Inflation Dashboard

| Elevators & Conveyors                                                            | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|----------------------------------------------------------------------------------|---------------|----------------|-----------------|
| Elevators, escalators, and other lifts                                           | 3%            | 2%             | 2%              |
| Elevators and moving stairways                                                   | 4%            | 3%             | 3%              |
| Parts and attachments for elevators and moving stairs (sold separately)          | 2%            | 1%             | -1%             |
| Fractional horsepower motors and generators                                      | 0%            | 0%             | 1%              |
| Industrial material handling equipment                                           | 7%            | 5%             | 4%              |
| Bulk material handling conveyors and conveying systems                           | 3%            | 4%             | 7%              |
| Parts and accessories for bulk material handling conveyors and conveying systems | 10%           | 9%             | 4%              |

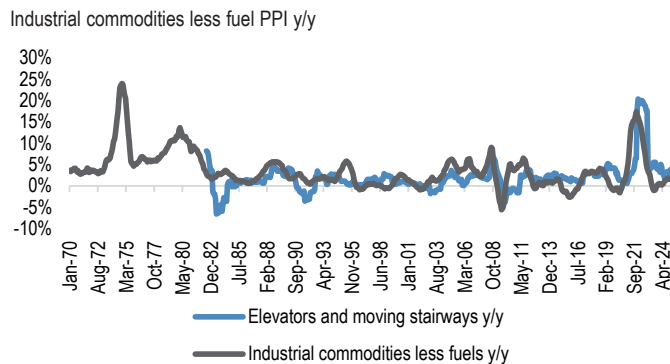
Source: BLS.

Figure 179: Elevators vs. Industrial Commodities



Source: BLS.

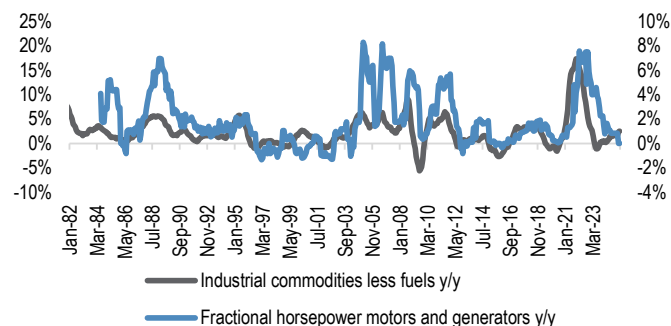
Figure 180: Elevators and Moving Staircase vs. Industrial Commodities



Source: BLS.

**Figure 181: Elevators Parts and Attachments vs. Industrial Commodities**

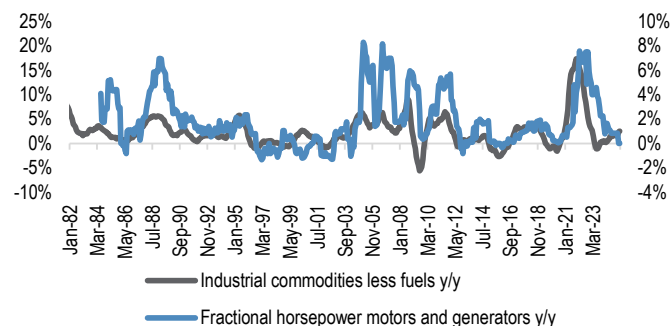
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 182: Fractional Horsepower Motors vs. Industrial Commodities**

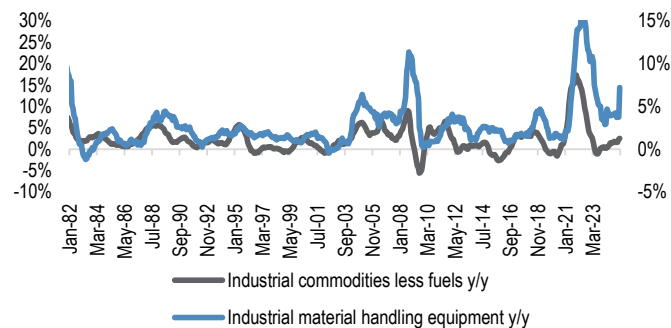
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 183: Industrial Material Handling Equipment vs. Industrial Commodities**

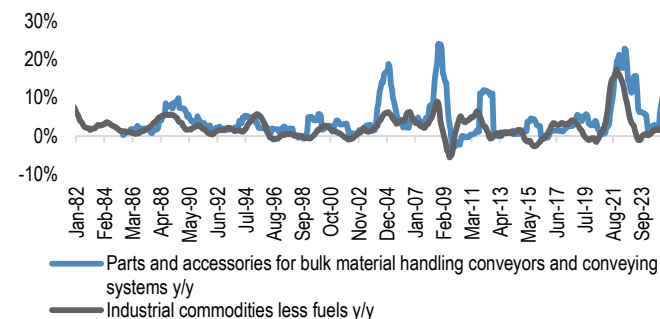
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 184: Bulk Material Handling Conveyors vs. Industrial Commodities**

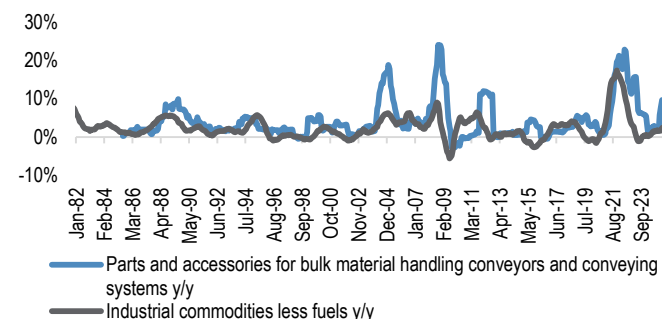
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 185: Parts and Accessories for Bulk Material Handling Conveyor Parts vs. Industrial Commodities**

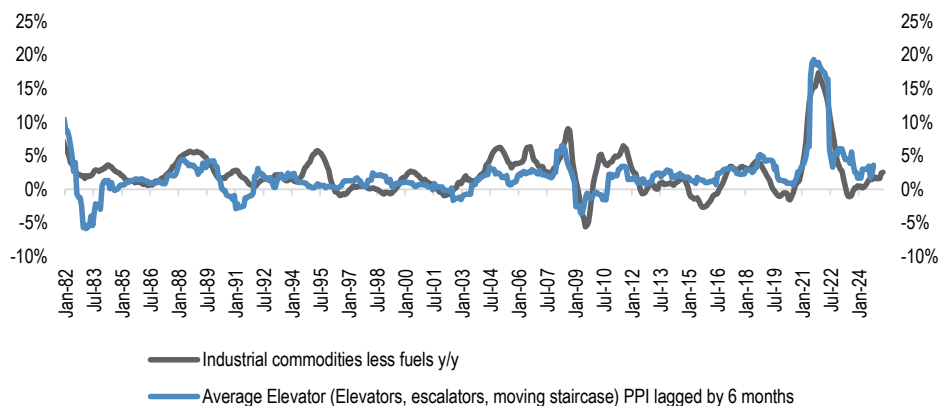
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 186: Average Elevator (Elevators, Escalators, Moving Staircases) PPI lagged by 6 Months vs Industrial Commodities (ex-fuel) PPI**

Industrial commodities less fuel PPI y/y



Source: BLS.

### Valves: Inflation Accelerating

The category includes various kinds of valves used in a variety of applications, ranging from aerospace and industrials to chemicals.

- *Fluid power valves* grew at 4% on average over time, with recent months seeing growth rates in the 4-5% range.
- *Aerospace type fluid power valves* grew at 3% on average over time, with current growth rates in the 7% range.
- *Metal valves* rose by an average of 4% historically and saw 3-4% growth rate y/y in the past three months.
- *Parts and attachments for pumps* were up 4% on average with the past three months tracking +1%.

In valves, categories such as fluid power valves, aerospace type fluid power valves, and parts & attachments for pumps lag industrial commodities PPI by 7-8 months, and accordingly these categories should stay range bound. Metal and industrial valves lag by roughly 10 months.

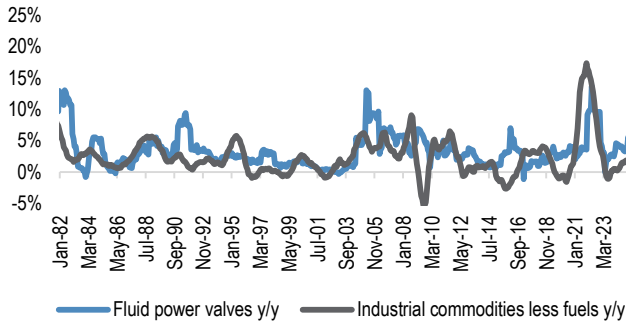
**Figure 187: Valves Inflation Dashboard**

| Valves                                                    | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|-----------------------------------------------------------|---------------|----------------|-----------------|
| Fluid power valves                                        | 4%            | 4%             | 4%              |
| Aerospace type fluid power valves                         | 7%            | 7%             | 4%              |
| Metal valves, except fluid power                          | 4%            | 3%             | 2%              |
| Industrial valves for water works and municipal equipment | -1%           | 1%             | 2%              |
| Parts and attachments for pumps                           | 2%            | 3%             | 3%              |

Source: BLS.

**Figure 188: Fluid Power Valves vs. Industrial Commodities**

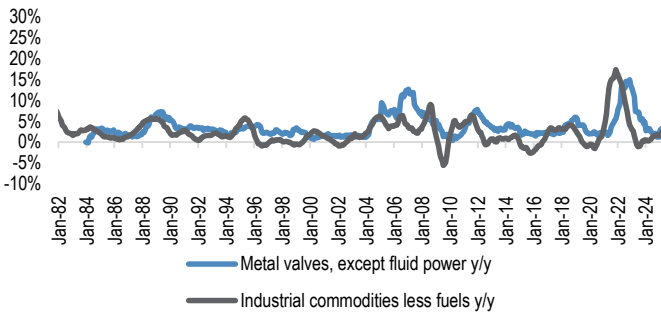
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 190: Metal Valves vs. Industrial Commodities**

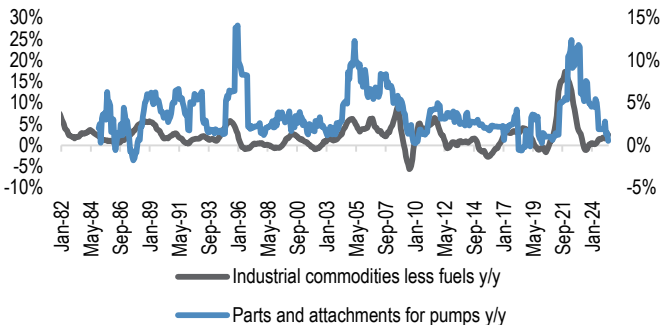
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 192: Parts and Attachments for Pumps vs. Industrial Commodities**

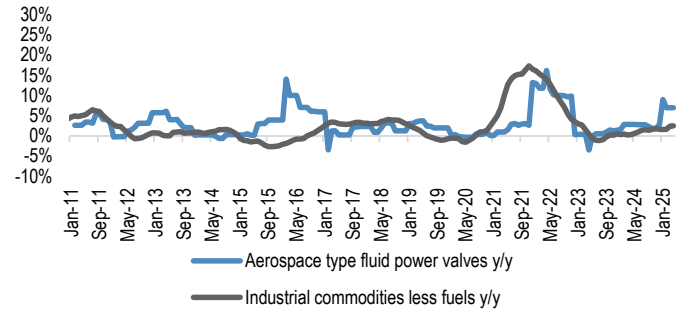
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 189: Aerospace Type Fluid Power Valves vs. Industrial Commodities**

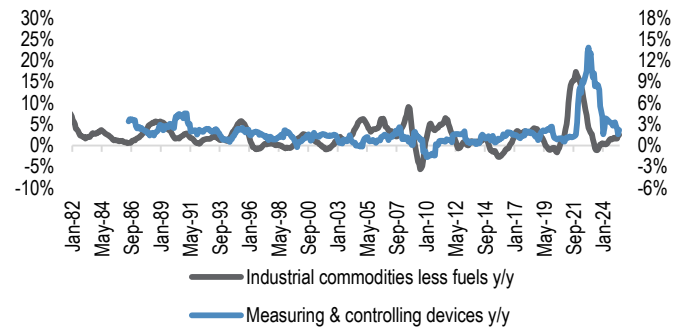
Industrial commodities less fuel PPI y/y



Source: BLS.

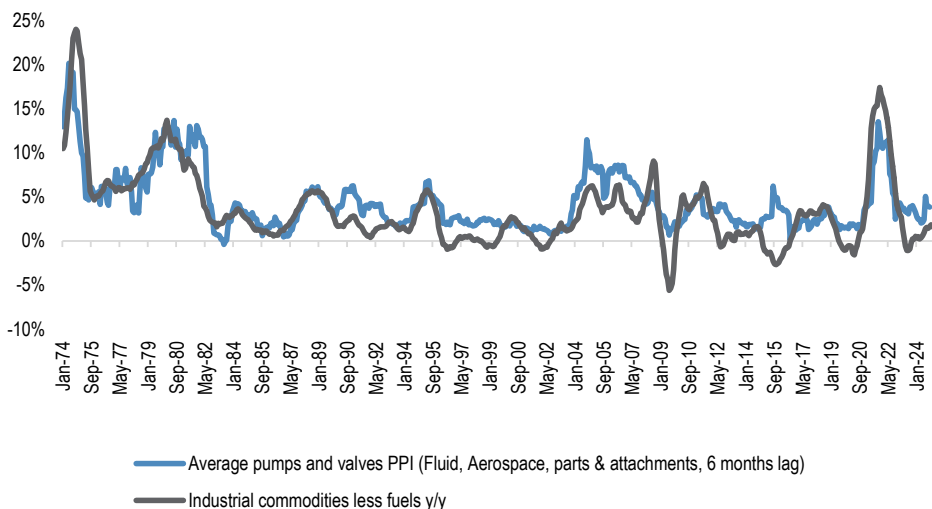
**Figure 191: Measuring & Controlling Devices vs. Industrial Commodities**

Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 193: Average Pumps and Valves on a 6-Month Lag vs Industrial Commodities

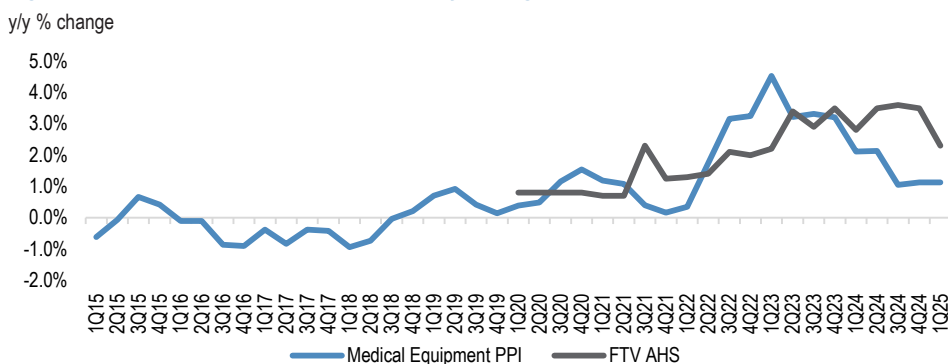


Source: BLS.

### Medical Equipment/Imaging: Stable

Various components in this category include X-ray and medical equipment, diagnostic imaging center care, and electromedical equipment. The category showed very consistent price performance with a flat-LSD growth profile, which stood firm across various macro cycles, and is currently growing in the ~1% range as of 1Q25. We also compared medical equipment PPI with Fortive's Advanced Healthcare System segment below.

Figure 194: Medical Equipment PPI vs Company Pricing



Source: BLS, company reports, and J.P. Morgan estimates.

- *X-ray and electro medical equipment* was up 2% on average historically and reflected ~1% growth since mid-2024.
- *Medical laboratory and diagnostic imaging center care* was flat on average historically and has been up 1% for the past 4 months.
- *Diagnostic imaging center care* was flat over time historically and still tracking in the 1-2% range.
- *Electro medical equipment, including diagnostic, therapeutic, and patient*

*monitoring equipment* was flat over time, and this reflected ~1% growth since mid-2024.

Categories in the medical equipment segment have historically lagged industrial commodities PPI by ~13-16 months with a weak correlation coefficient.

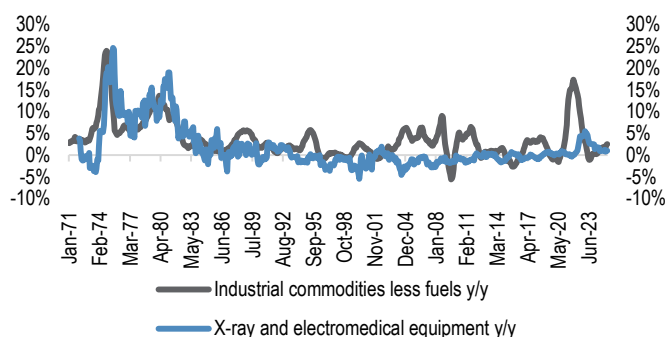
Figure 195: Medical Equipment/Imaging Inflation Dashboard

| Diagnostic Imaging Centers                                                  | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|-----------------------------------------------------------------------------|---------------|----------------|-----------------|
| X-ray and electromedical equipment                                          | 1%            | 1%             | 1%              |
| Medical laboratory and diagnostic imaging center care                       | 1%            | 1%             | 0%              |
| Diagnostic imaging center care                                              | 1%            | 2%             | 1%              |
| Medicare and Medicaid patients: diagnostic imaging center care              | -3%           | -3%            | -3%             |
| Private insurance and all other patients: diagnostic imaging center care    | 2%            | 3%             | 2%              |
| Electromedical equipment, including diagnostic, therapeutic and patient mon | 1%            | 1%             | 1%              |

Source: BLS.

Figure 196: X-ray & Electro Medical Equipment vs. Industrial Commodities

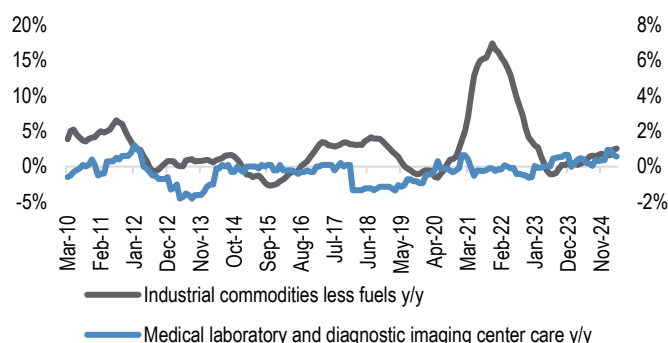
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 197: Medical Laboratory & Diagnostic Imaging Center vs. Industrial Commodities

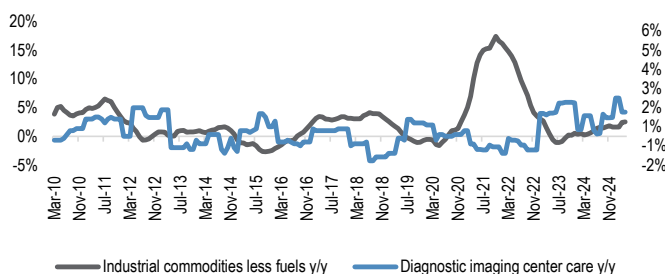
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 198: Diagnostic Imaging Center Care vs. Industrial Commodities

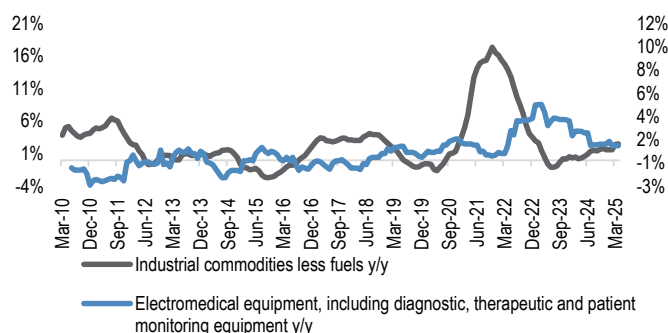
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 199: Electro Medical Equipment vs. Industrial Commodities

Industrial commodities less fuel PPI y/y

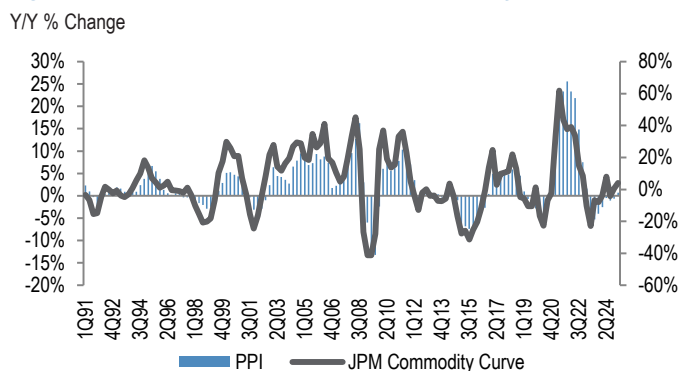


Source: BLS.

## Distribution: Pricing Follows Commodities/ PPI, Expected to Increase in '25 Driven by Tariffs

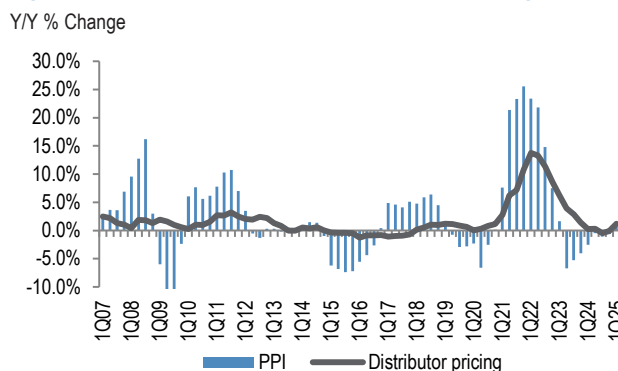
After close to a decade of sustained commodities pressure / deflation that hurt distributor pricing power, an increase in oil and other commodity metals after the pandemic resulted in strengthening distributor pricing power as higher input costs at vendors, including transportation fuels, resulted in inflationary conditions not seen in many years. While historical detail on distributor pricing is scarce, the PPI data is a key gauge. The PPI on processed goods for intermediate demand, which correlates tightly to distributor pricing, peaked in 4Q21 and decelerated since then, with declines being seen since 2Q23. The category is up ~0.7% as of 1Q25. This is in line with the historical track record, where this PPI data follows changes in commodity costs. Distributor pricing has followed.

Figure 200: Processed Goods PPI vs JPM Commodity Curve Index



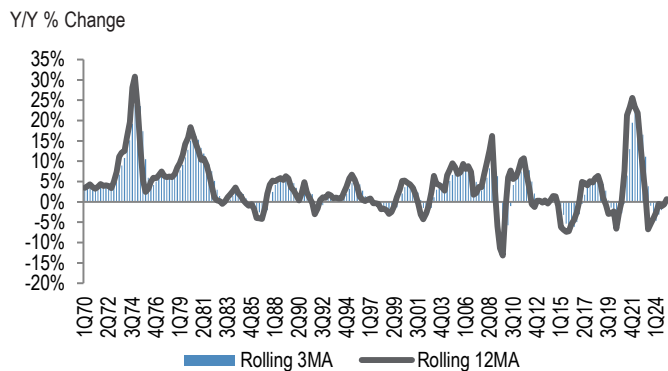
Source: BLS, company reports, and J.P. Morgan estimates.

Figure 201: Processed Goods PPI vs Distributor Pricing



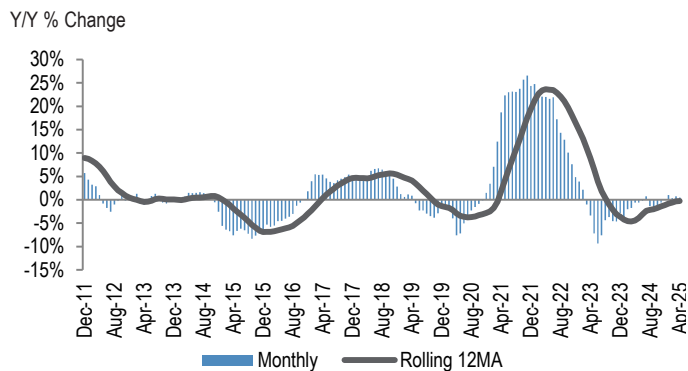
Source: BLS, company reports, and J.P. Morgan estimates. Note: Distribution pricing is average of WCC, FAST, GWW, MSM, CNM, and WSO.

Figure 202: Processed Goods for Intermediate Demand – Long Term



Source: BLS.

Figure 203: Processed Goods for Intermediate Demand – Short Term

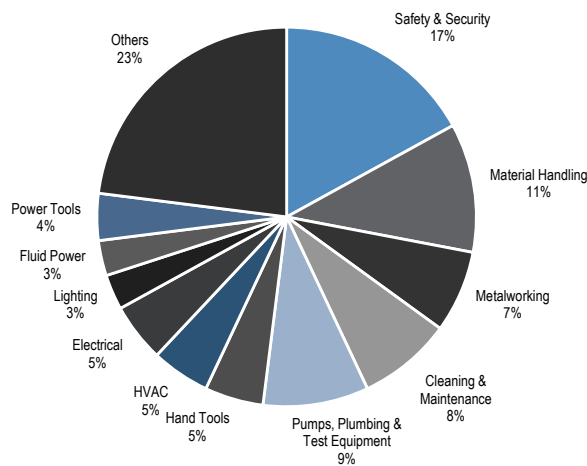


Source: BLS.

We provide a look at distributor sales by product category here, followed by a table with the key PPI categories for the distributors, and depicted in subsequent charts.

Figure 204: Grainger Sales by Product Category

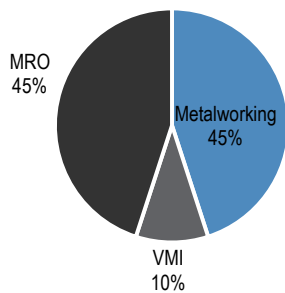
% of total sales



Source: Company reports.

Figure 206: MSM Sales by Product Category

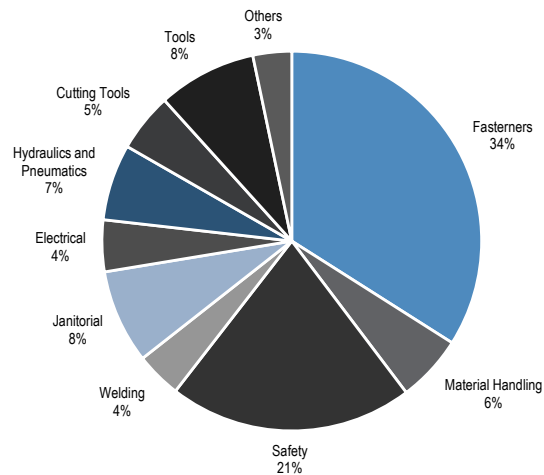
% of total sales



Source: Company reports.

Figure 205: Fastenal Sales by Product Category

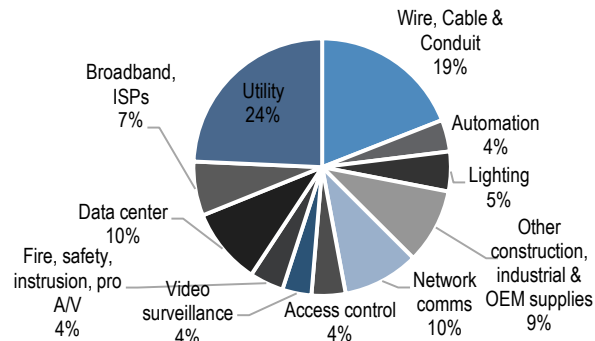
% of total sales



Source: Company reports.

Figure 207: Wesco Sales by Product Type

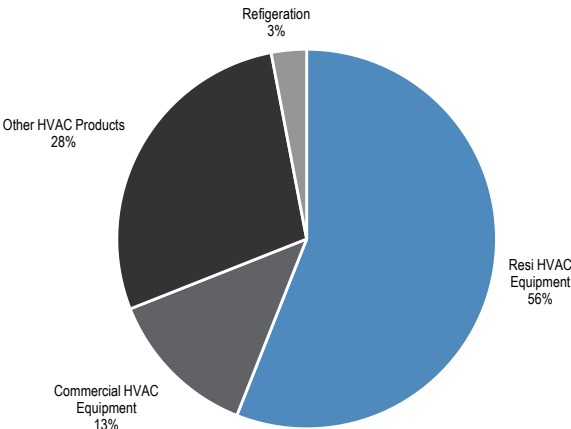
% of total sales



Source: Company reports, and J.P. Morgan estimates.

Figure 208: WSO Sales by Product Category

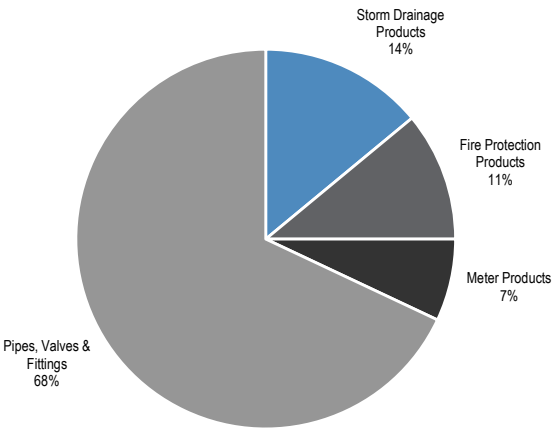
% of total sales



Source: Company reports.

Figure 209: CNM Sales by Product Category

% of total sales



Source: Company reports.

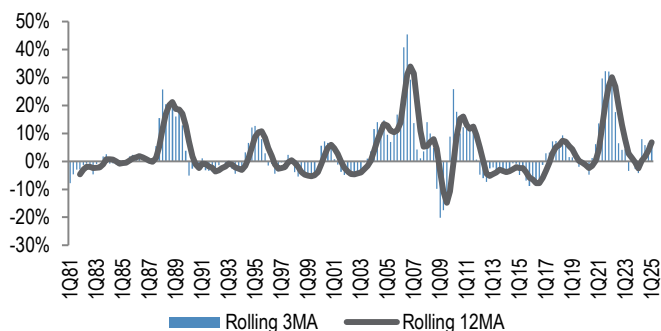
Figure 210: Overview of Key PPI Product Categories

| PPI category                                 | Companies most exposed    |
|----------------------------------------------|---------------------------|
| Nonferrous wire and cable                    | WCC                       |
| Metalworking machinery and equipment         | MSM, GWW, FAST            |
| Fasteners                                    | FAST, MSM, GWW            |
| Wiring devices                               | WCC, GWW, FAST, MSM       |
| Transformers and power regulators            | WCC                       |
| Switchgear, switchboard, industrial controls | WCC                       |
| Industrial safety equipment                  | GWW, FAST, MSM, WCC       |
| Brooms and brushes                           | GWW, FAST, MSM            |
| Electric lamp bulbs and tubes                | GWW, FAST, MSM, WCC       |
| Lighting fixtures                            | GWW, FAST, FERG, MSM, WCC |
| Communications & related equip               | WCC                       |
| Welding machines and equipment               | FAST, MSM, GWW            |
| Industrial material handling equipment       | GWW, FAST, MSM            |
| Pumps, compressors, and equipment            | GWW, MSM, FAST            |
| Hand and edge tools                          | GWW, MSM, FAST            |
| Plumbing fixtures and fittings               | GWW, MSM, FAST, FERG      |
| HVAC                                         | WSO, GWW, MSM, FAST, FERG |
| Test equipment                               | GWW, MSM, FAST            |
| Ductile iron, steel, and plastics/PVC pipe   | CNM, FERG                 |

Source: BLS and J.P. Morgan.

Figure 211: Nonferrous Wire and Cable – Long Term

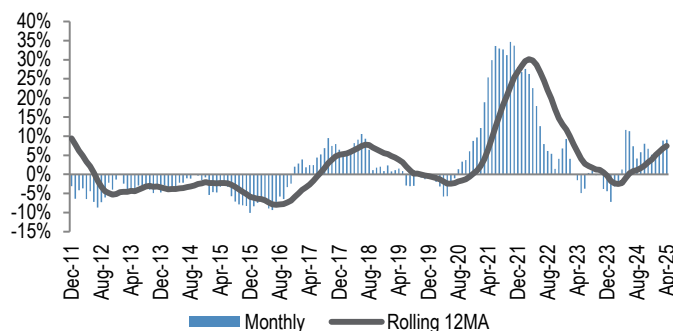
Y/Y % Change



Source: BLS.

Figure 212: Nonferrous Wire and Cable – Short Term

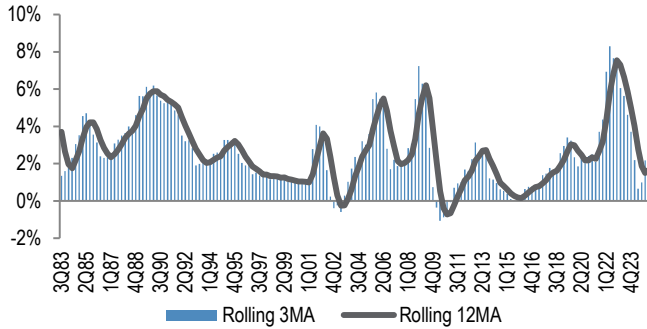
Y/Y % Change



Source: BLS.

Figure 213: Hand and Edge Tools – Long Term

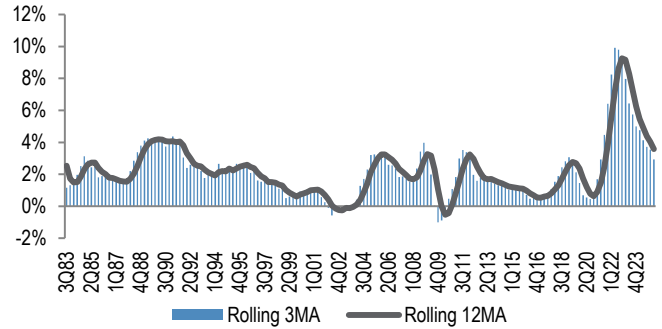
Y/Y % Change



Source: BLS.

Figure 214: Hand and Edge Tools – Short Term

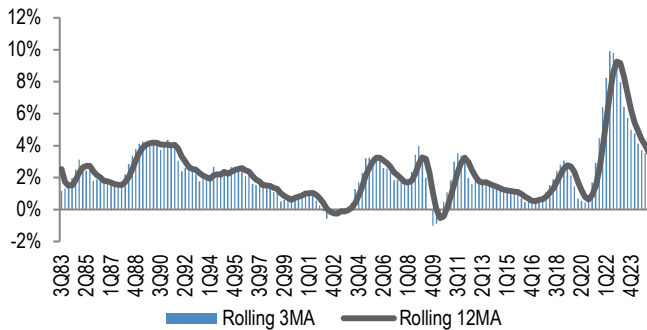
Y/Y % Change



Source: BLS.

Figure 215: Metalworking Machinery and Equipment – Long Term

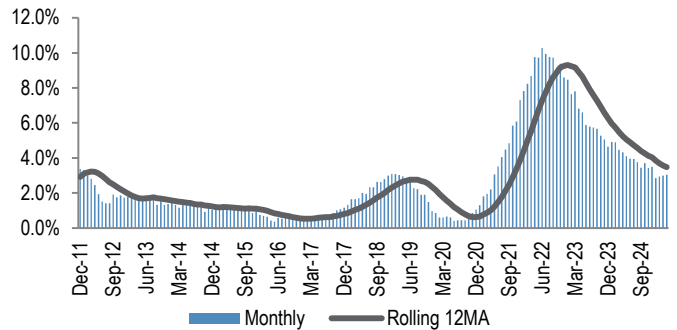
Y/Y % Change



Source: BLS.

Figure 216: Metalworking Machinery and Equipment – Short Term

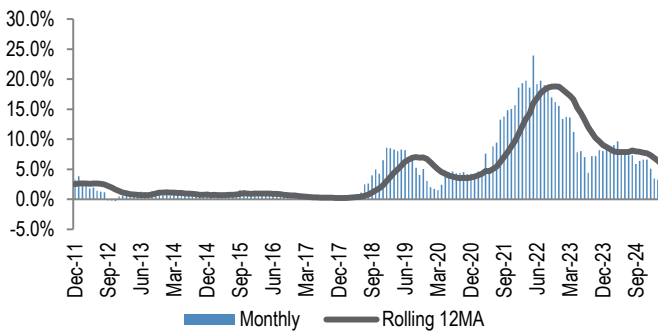
Y/Y % Change



Source: BLS.

Figure 217: Bolts, Nuts, Screws, Rivets, and Washers – Long Term

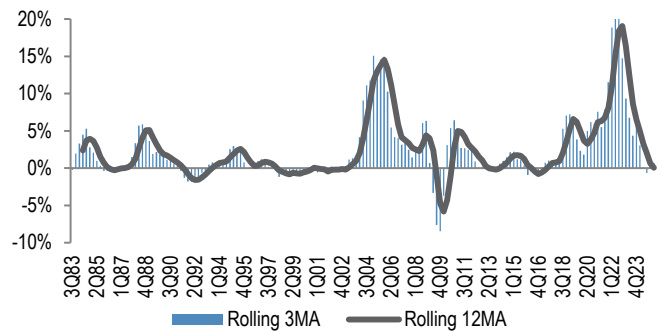
Y/Y % Change



Source: BLS.

Figure 218: Bolts, Nuts, Screws, Rivets, and Washers – Short Term

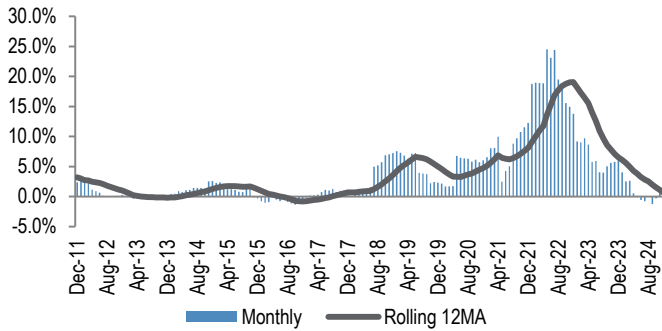
Y/Y % Change



Source: BLS.

**Figure 219: Fasteners, Externally Threaded Except Aircraft – Long Term**

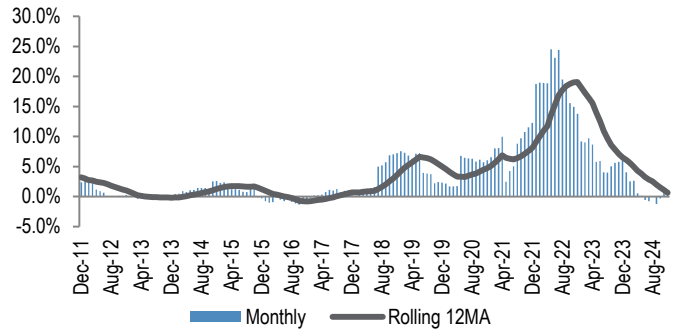
Y/Y % Change



Source: BLS.

**Figure 220: Fasteners, Externally Threaded Except Aircraft – Short Term**

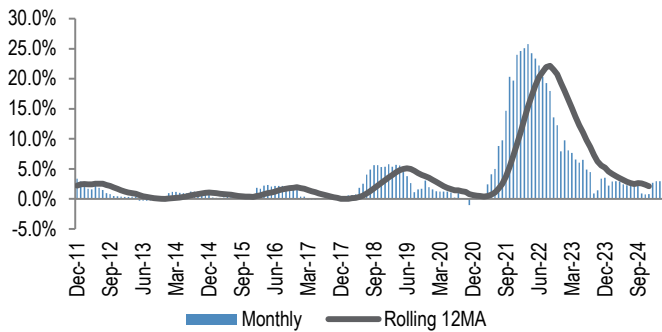
Y/Y % Change



Source: BLS.

**Figure 221: Fasteners, Non-Threaded Metal Ex Aircraft – Long Term**

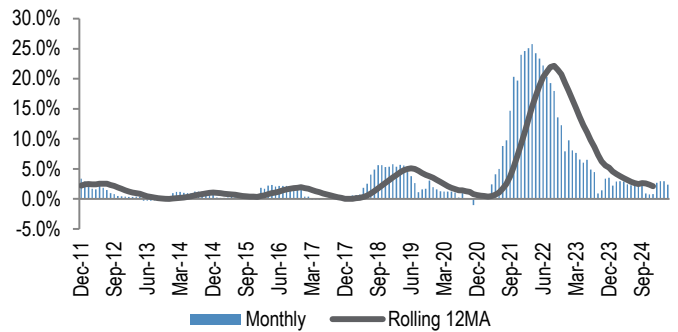
Y/Y % Change



Source: BLS.

**Figure 222: Fasteners, Non-Threaded Metal Ex Aircraft – Short Term**

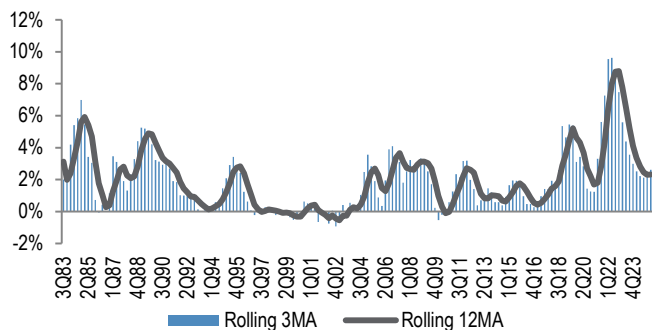
Y/Y % Change



Source: BLS.

**Figure 223: Lighting Fixtures – Long Term**

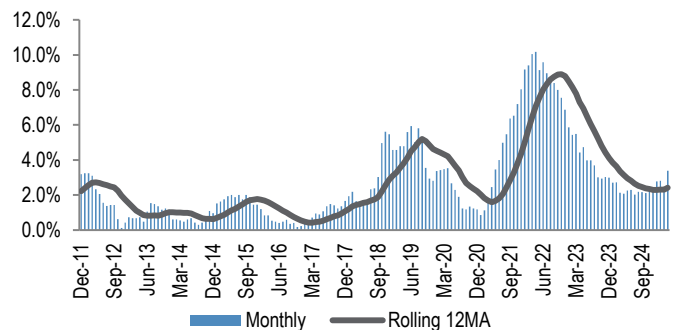
Y/Y % Change



Source: BLS.

**Figure 224: Lighting Fixtures – Short Term**

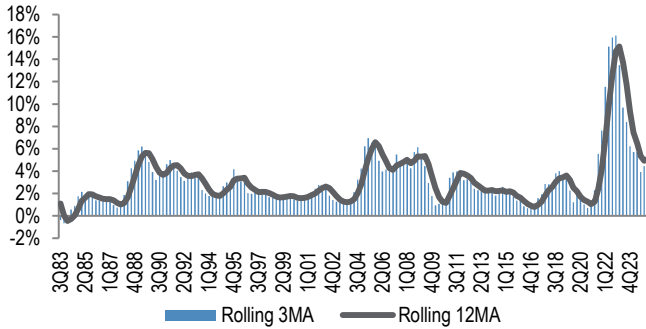
Y/Y % Change



Source: BLS.

**Figure 225: Pumps, Compressors, and Equipment – Long Term**

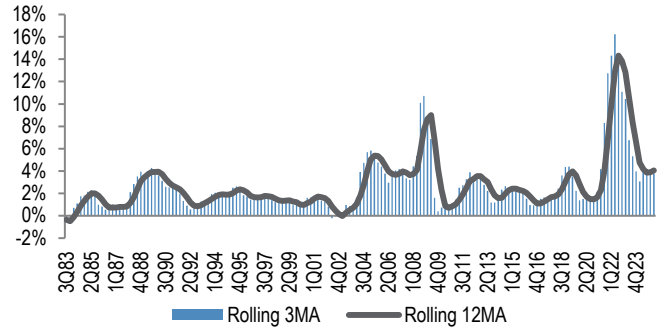
Y/Y % Change



Source: BLS.

**Figure 226: Pumps, Compressors, and Equipment – Short Term**

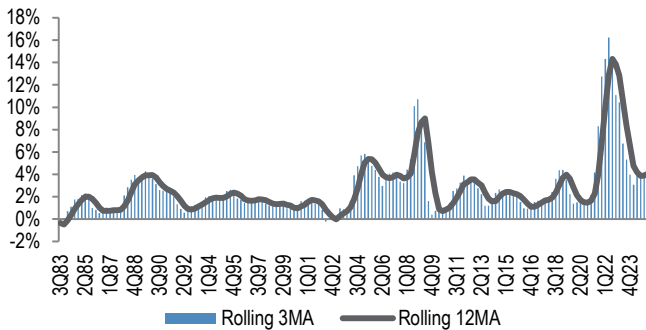
Y/Y % Change



Source: BLS.

**Figure 227: Industrial Material Handling Equipment – Long Term**

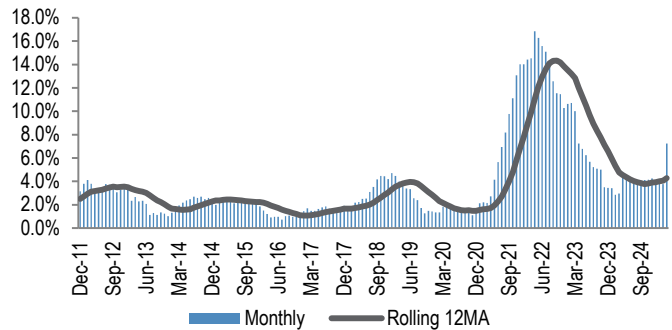
Y/Y % Change



Source: BLS.

**Figure 228: Industrial Material Handling Equipment – Short Term**

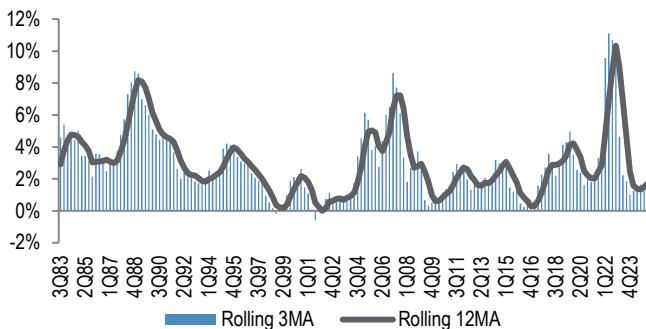
Y/Y % Change



Source: BLS.

**Figure 229: Plumbing Fixtures and Fittings – Long Term**

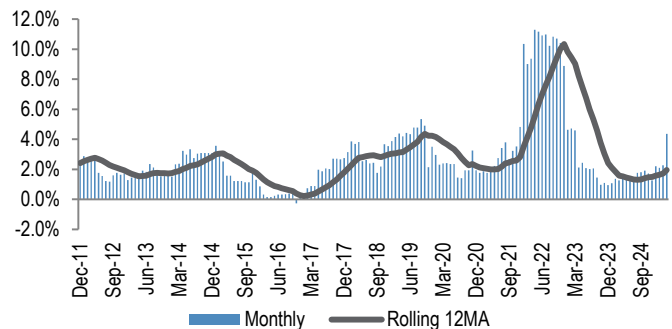
Y/Y % Change



Source: BLS.

**Figure 230: Plumbing Fixtures and Fittings – Short Term**

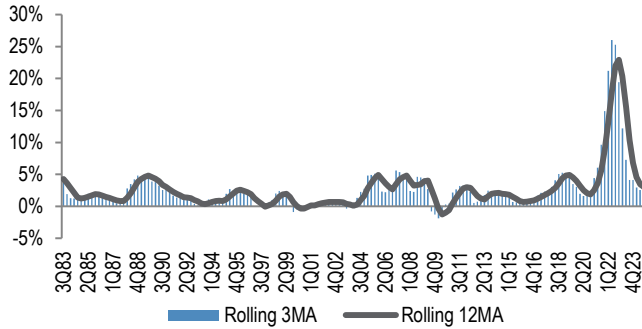
Y/Y % Change



Source: BLS.

**Figure 231: Air Conditioning and Refrigeration Equip – Long Term**

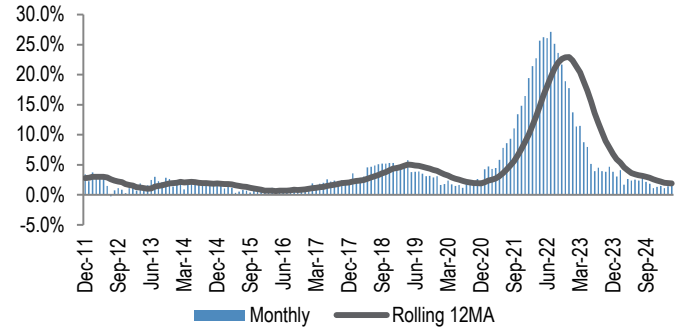
Y/Y % Change



Source: BLS.

**Figure 232: Air Conditioning and Refrigeration Equip – Short Term**

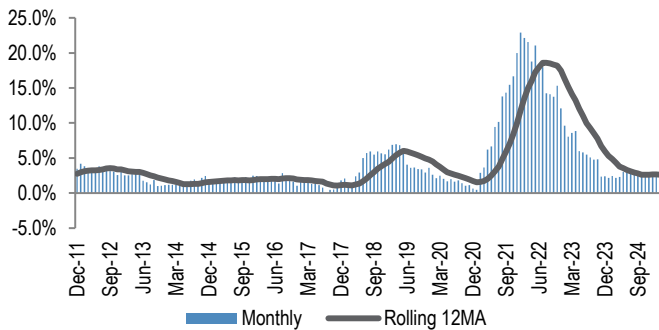
Y/Y % Change



Source: BLS.

**Figure 233: Heating Equipment – Long Term**

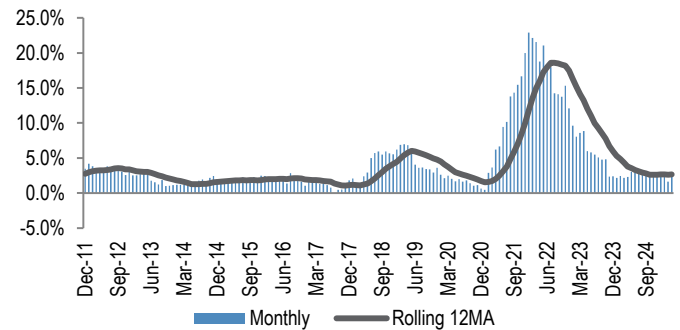
Y/Y % Change



Source: BLS.

**Figure 234: Heating Equipment – Short Term**

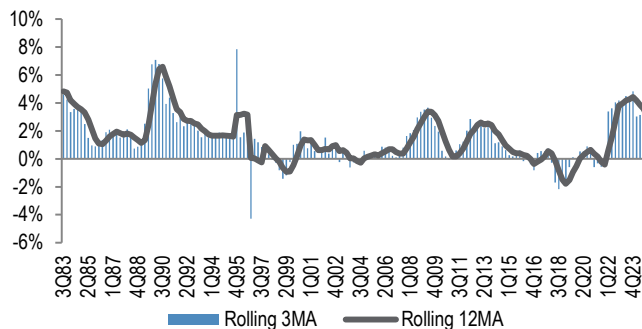
Y/Y % Change



Source: BLS.

**Figure 235: Integrating and Measuring Instruments – Long Term**

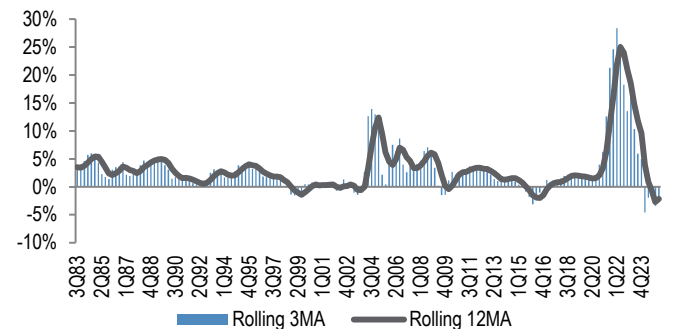
Y/Y % Change



Source: BLS.

**Figure 236: Integrating and Measuring Instruments – Short Term**

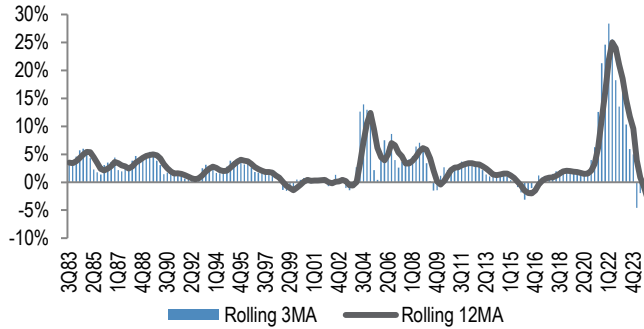
Y/Y % Change



Source: BLS.

Figure 237: Wiring devices – long term

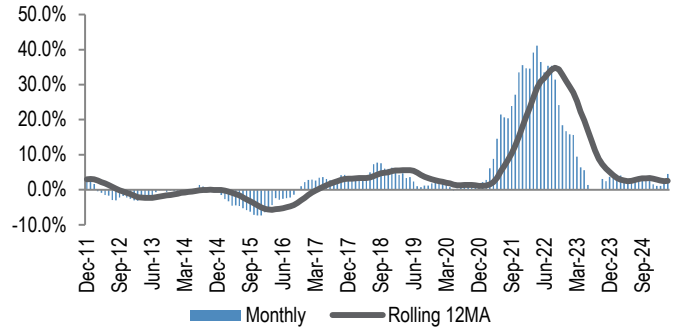
Y/Y % Change



Source: BLS.

Figure 238: Wiring devices – short term

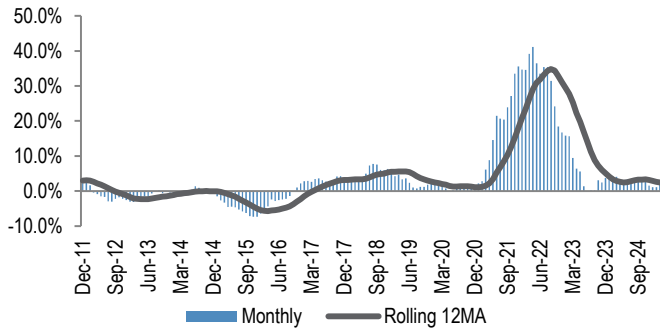
Y/Y % Change



Source: BLS.

Figure 239: Transformers and power regulators – long term

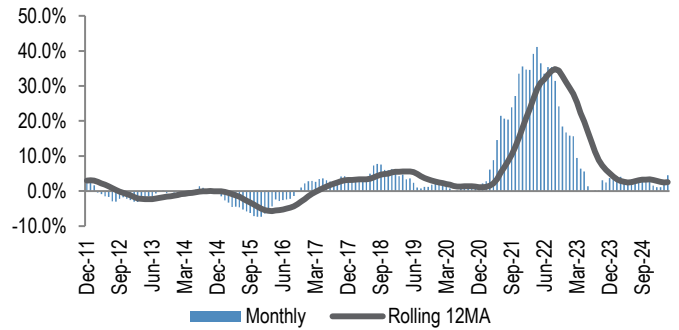
Y/Y % Change



Source: BLS.

Figure 240: Transformers and power regulators – short term

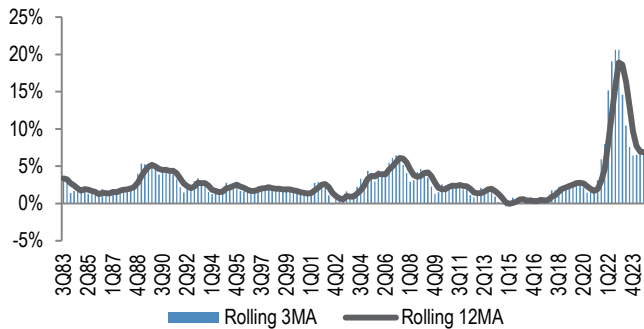
Y/Y % Change



Source: BLS.

Figure 241: Switchgear, switchboard, industrial controls – long term

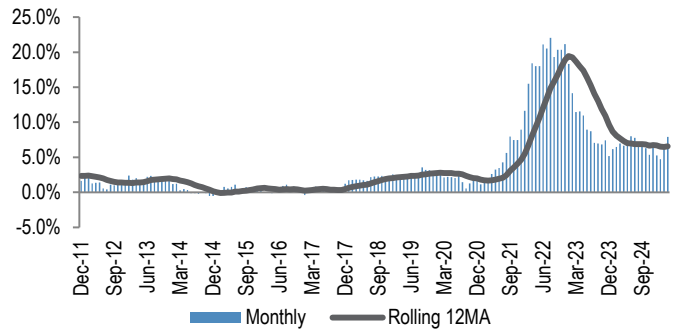
Y/Y % Change



Source: BLS.

Figure 242: Switchgear, switchboard, industrial controls – short term

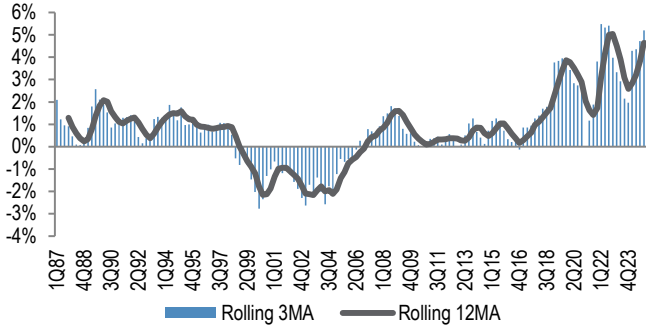
Y/Y % Change



Source: BLS.

**Figure 243: Communications and related equipment – long term**

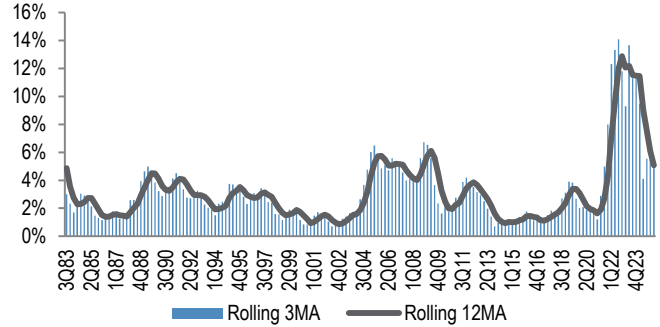
Y/Y % Change



Source: BLS.

**Figure 244: Communications and related equipment – short term**

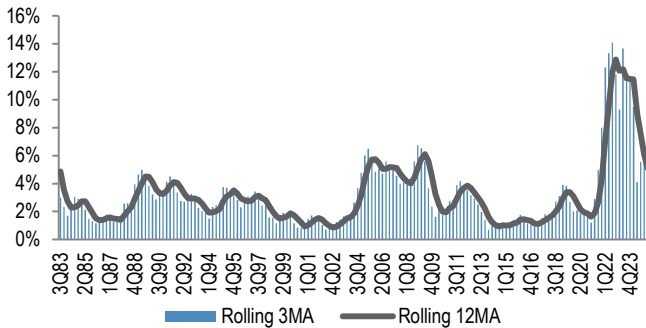
Y/Y % Change



Source: BLS.

**Figure 245: Fluid power equipment – long term**

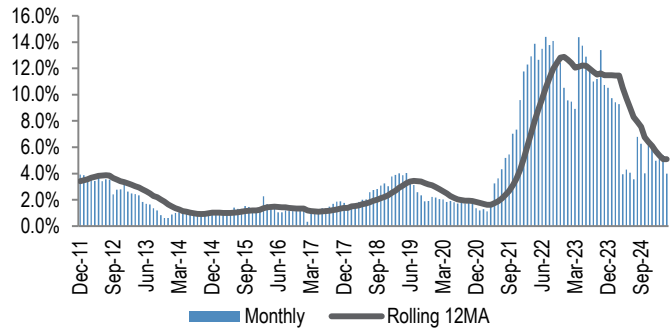
Y/Y % Change



Source: BLS.

**Figure 246: Fluid power equipment – short term**

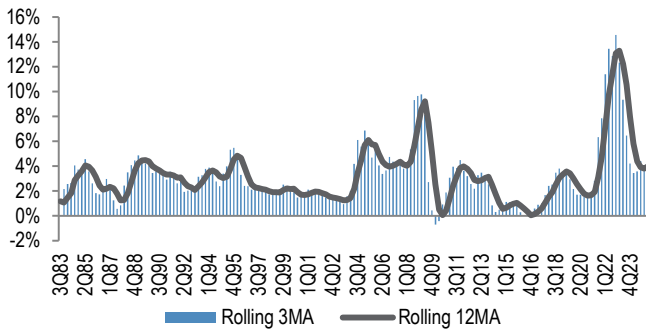
Y/Y % Change



Source: BLS.

**Figure 247: Mechanical power transmission equip – long term**

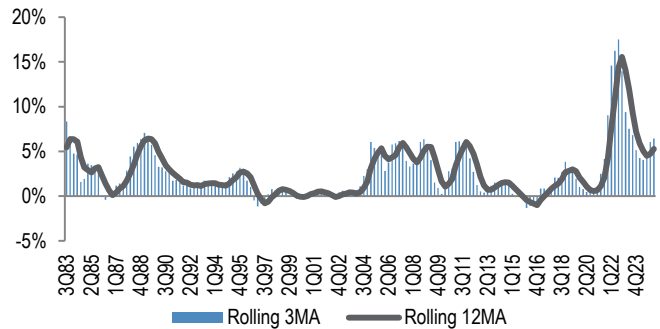
Y/Y % Change



Source: BLS.

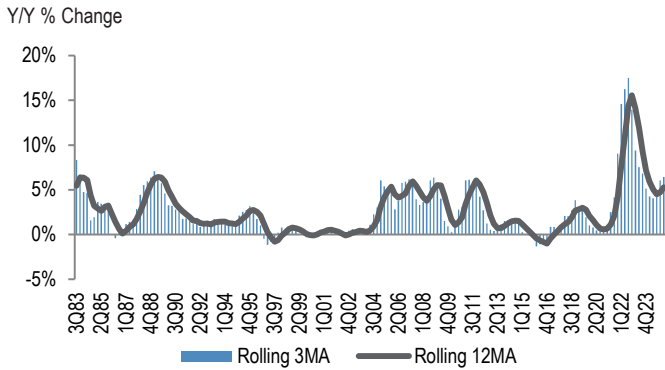
**Figure 248: Mechanical power transmission equip – short term**

Y/Y % Change



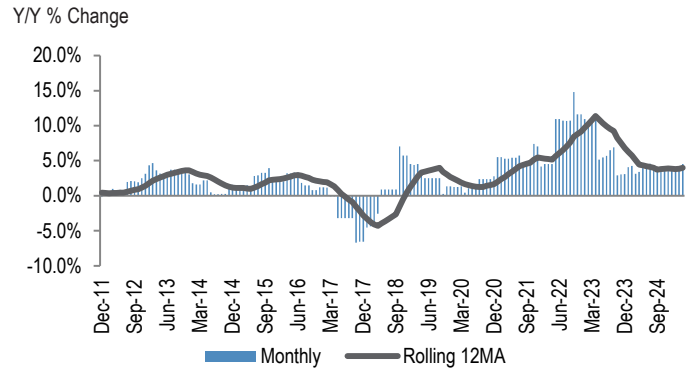
Source: BLS.

**Figure 249: Motors, generators, and gen sets – long term**



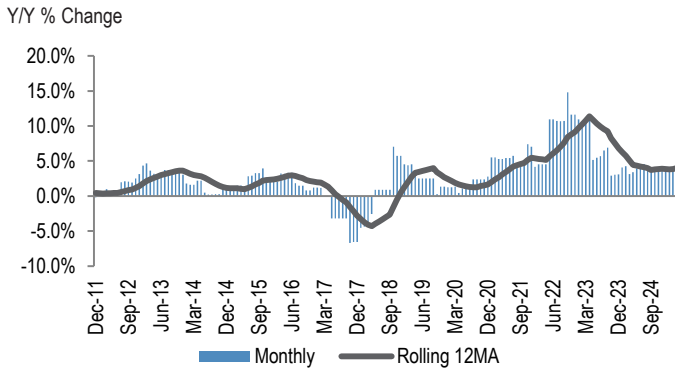
Source: BLS.

**Figure 250: Motors, generators, and gen sets – short term**



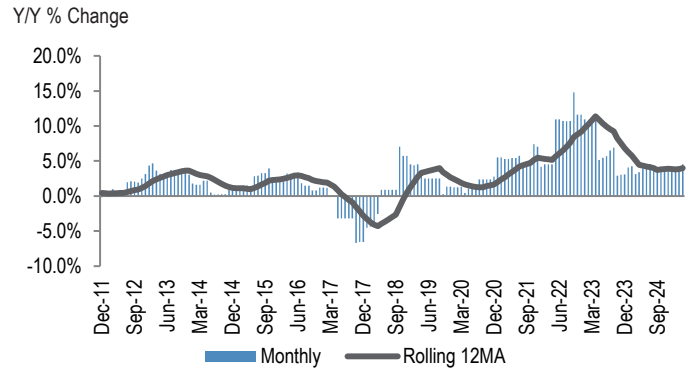
Source: BLS.

**Figure 251: Industrial safety equipment – long term**



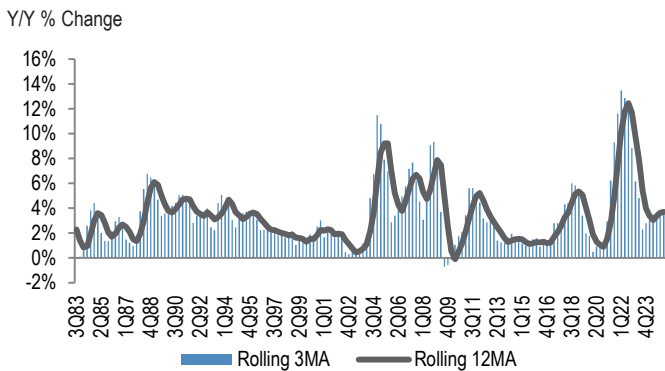
Source: BLS.

**Figure 252: Industrial safety equipment – short term**



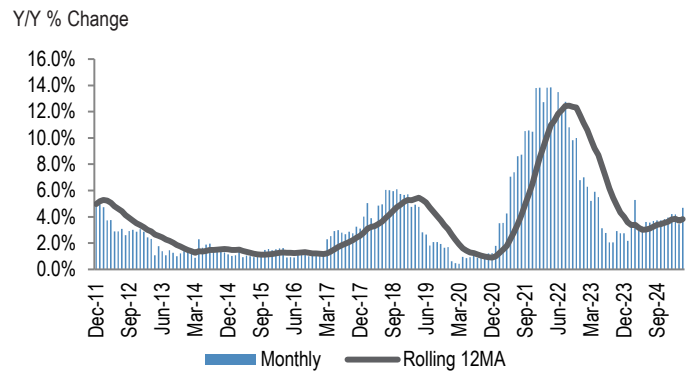
Source: BLS.

**Figure 253: Welding machines and equipment – long term**



Source: BLS.

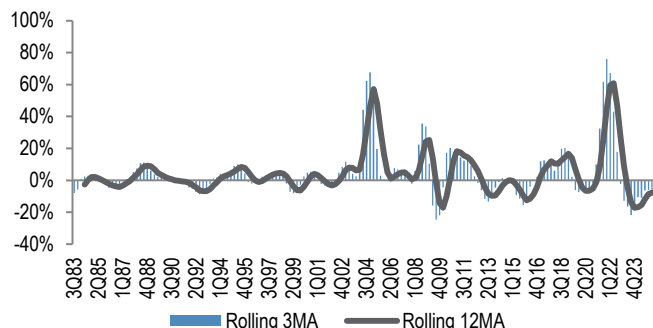
**Figure 254: Welding machines and equipment – short term**



Source: BLS.

Figure 255: Brooms and brushes – long term

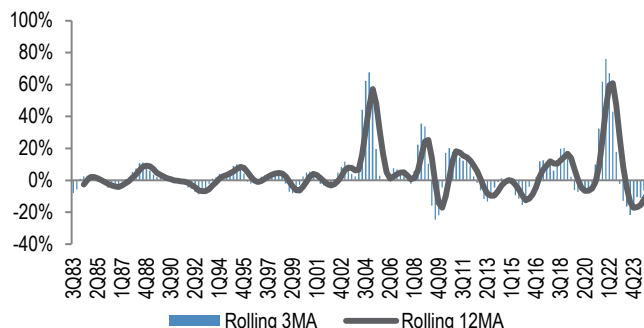
Y/Y % Change



Source: BLS.

Figure 256: Brooms and brushes – short term

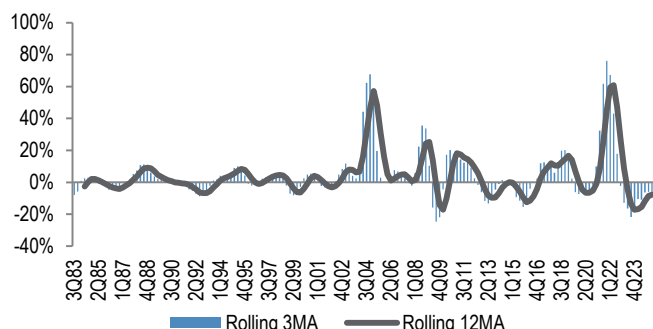
Y/Y % Change



Source: BLS.

Figure 257: Steel pipe and tube – long term

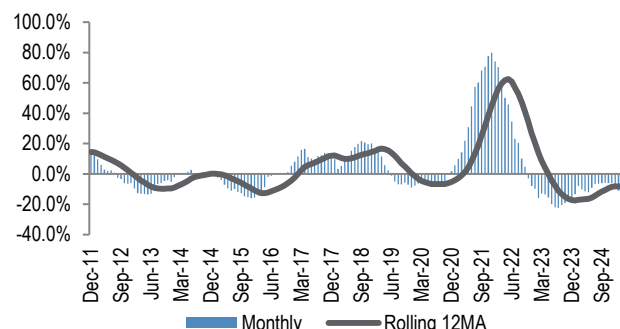
Y/Y % Change



Source: BLS.

Figure 258: Steel pipe and tube – short term

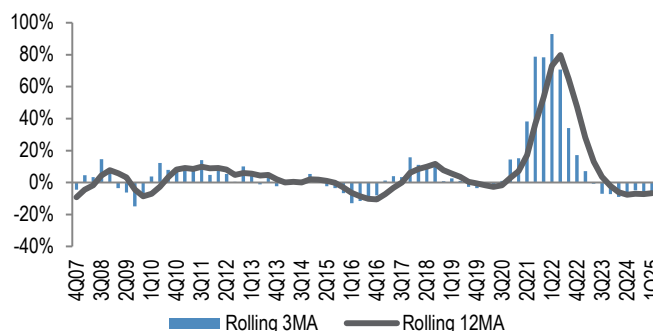
Y/Y % Change



Source: BLS.

Figure 259: Plastics water pipe – long term

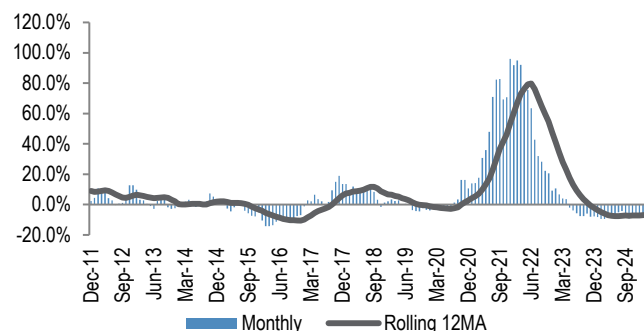
Y/Y % Change



Source: BLS.

Figure 260: Plastics water pipe – short term

Y/Y % Change



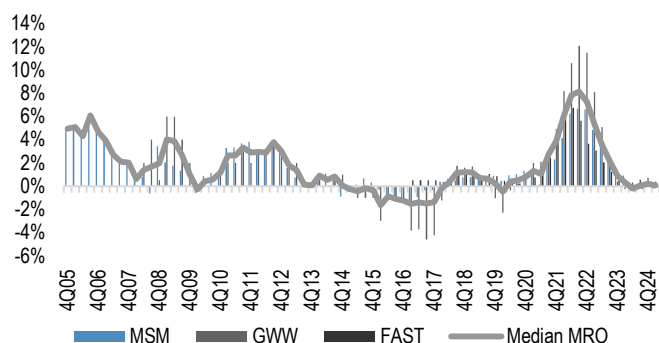
Source: BLS.

### Distributor pricing expected to increase in '25 to reflect tariff-driven cost increases

Pricing from the distributors peaked around mid-year 2022 at rates of increase we have never seen before, though pricing has moderated since then, currently trending flattish for some (FAST/MSM/GWW), slightly up for others (WCC), with some (CNM/FERG) reporting deflationary trends. FAST saw flat price in 1Q, but sees potential for 3-4% in

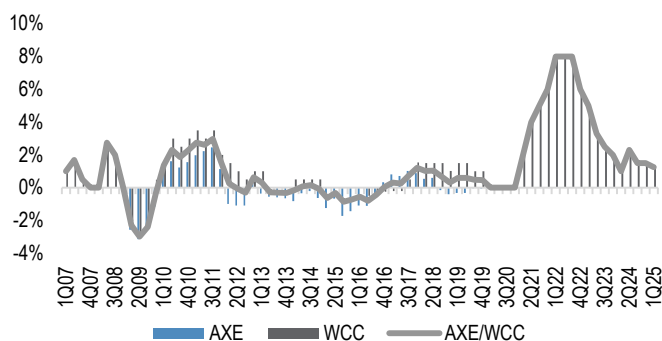
2Q, driven by fasteners, and possibility for that to double in 2H based on enacted tariff rates in place at time of their report. GWW reported flattish price in 1Q with costs from tariffs expected to be passed on as and when they have clarity in timing/amount. They aim to stay price competitive but current guide does not take into account any pricing related upside for the moment. MSM price was flattish in its recent quarter with a small tariff-related price increase put through in late March, primarily on Chinese imports, resulting in a 0.5% top-line price benefit expected. CNM and FERG saw LSD price declines in recent reports, driven by exposure to commodity-intensive products such as pipe (PVC/steel). FERG noted seeing early signs of pricing increases on the steel pipe side related to tariffs. WCC saw 1-2% price increases in 1Q, and noted supplier price notifications in the MSD/HSD % range, but that would not impact the P&L until 3Q at the earliest given lead times required and the project nature of its business. Its outlook also excludes potential benefits from these increases.

Figure 261: Industrial MRO Price/Mix Contribution to Revs



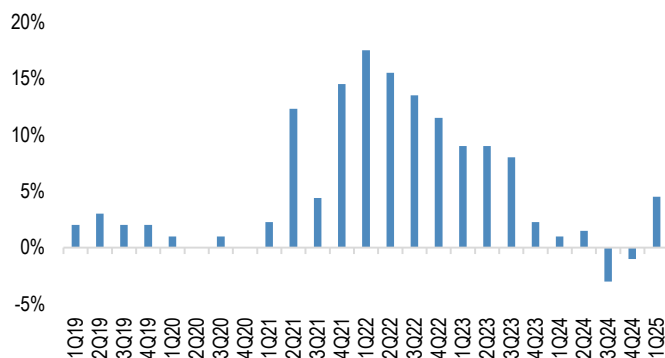
Source: Company reports, and J.P. Morgan estimates.

Figure 262: Electrical Distributors' Price Contribution to Revs



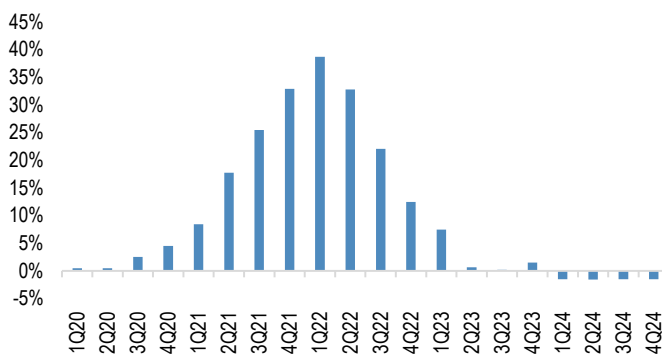
Source: Company reports, and J.P. Morgan estimates.

Figure 263: WSO Resi HVAC Equipment Pricing



Source: Company reports, and J.P. Morgan estimates.

Figure 264: CNM Estimated Price Contribution to Revs



Source: Company reports, and J.P. Morgan estimates.

Note that not all pricing is measured equally. GWW reports price/customer mix increases for its HTS segment as a weighted-average increase on like-for-like SKUs (regardless of customers), for which the overlap is high 80-85% of sales, suggesting it's fairly representative of actual price for this part of the business. However, it doesn't report price on Zoro/other segments (~20% of sales). FAST, meanwhile, just reports price on the ~40-45% of sales dollars it can measure, since most of what they sell is not like for like to the same customer in each reporting period. Therefore, when FAST reported ~5.5% for 2022, we estimated that was really roughly LT % on that part of the business, with some inflation also likely in the other 60% of sales that doesn't get reported. For WSO, the only price that gets reported is the average selling prices (price

+ mix) for its resi A/C equipment (~55% of sales), while for WCC we believe it's difficult for the company to estimate price given the project nature of its business, with practice in the past relying on a third-party electrical price index, similar to the PPI. FERG, meanwhile, takes a weighted average selling price by SKUs for each respective period to establish the overall inflation in its business. In the end, we think the headline price in distributor results likely understates actual price.

**Table 9: Distributor Pricing Measurements Vary**

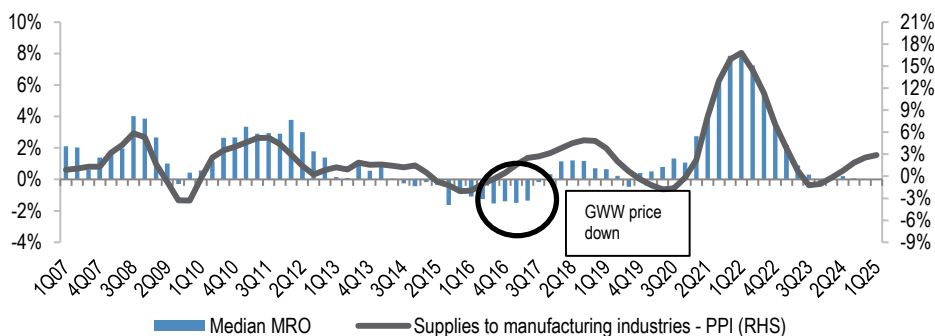
| Company | 1Q price | Comment                                                                                 |
|---------|----------|-----------------------------------------------------------------------------------------|
| FAST    | 0%       | Reported price is for ~40% of sales it can measure (same customer, same SKU)            |
| FERG    | -2%      | Weighted average selling price by SKUs y/y                                              |
| GWV     | 0%       | Price/customer mix on like for like SKUs in HTS segment                                 |
| MSM     | 0%       | Pricing, inclusive of changes in customer/product mix, discounting, and other items     |
| WCC     | 1%       | SBU estimate based on supplier list price increases, timing and % of impacted customers |
| WSO     | 5%       | Reports contribution to sales from average selling prices in resi HVAC equipment        |

Source: Company reports.

The degree of price inflation is directly related to the commodities being sold. For industrial MRO distributors, we watch PPI for supplies to manufacturing index, a subset of the PPI processed goods for intermediate demand. This category is currently up ~LSD, down from MT/HT % growth at the peak in early '22, with distributors reporting flattish price on average currently vs LDD/LT % at the peak.

**Figure 265: Industrial MRO Distributor Pricing vs PPI-Supplies to Manufacturing**

y/y % change

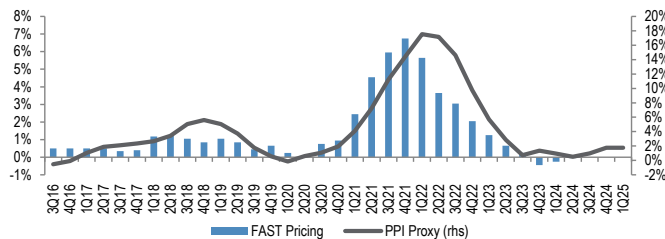


Source: BLS, company reports, and J.P. Morgan estimates.

Looking at specific distributors, we think an approach taking account of the different product categories makes sense. For FAST we assume 35% fasteners PPI and 65% supplies to manufacturing PPI; for GWV we use 100% supplies to manufacturing; and for MSM we use 45% metalworking equipment and 55% supplies to manufacturing. Pricing reported from these distributors lags these PPI indices by two quarters on average.

Figure 266: FAST reported pricing vs PPI proxy

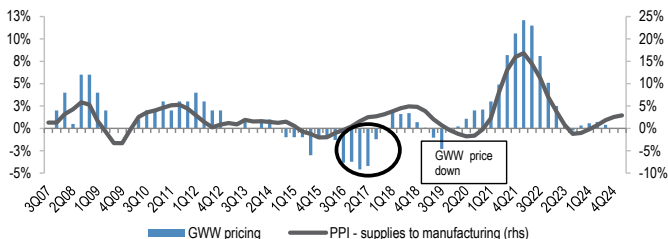
y/y % change



Source: BLS, company reports, and J.P. Morgan estimates. Note: PPI is 35% fasteners, 65% supplies to manufacturing.

Figure 267: GWW reported pricing vs PPI proxy

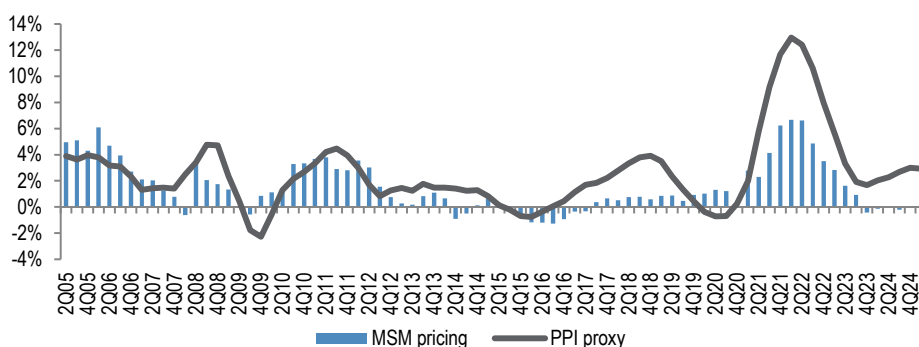
y/y % change



Source: BLS, company reports, and J.P. Morgan estimates.

Figure 268: MSM reported pricing vs PPI proxy

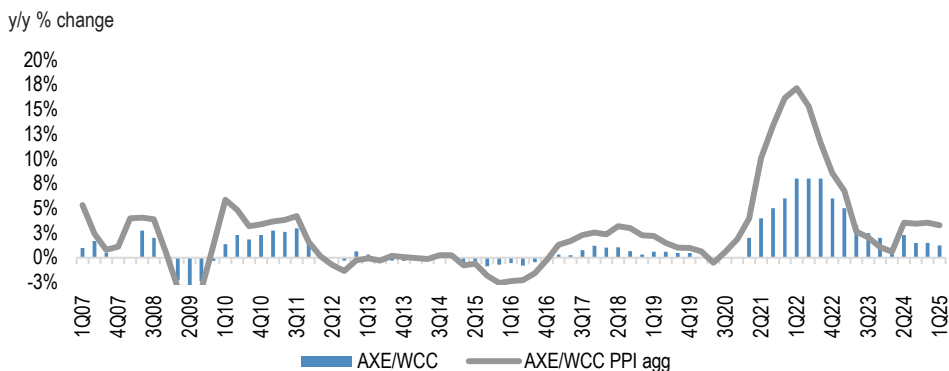
y/y % change



Source: BLS, company reports, and J.P. Morgan estimates. Note: PPI is 45% metalworking, 55% supplies to manufacturing.

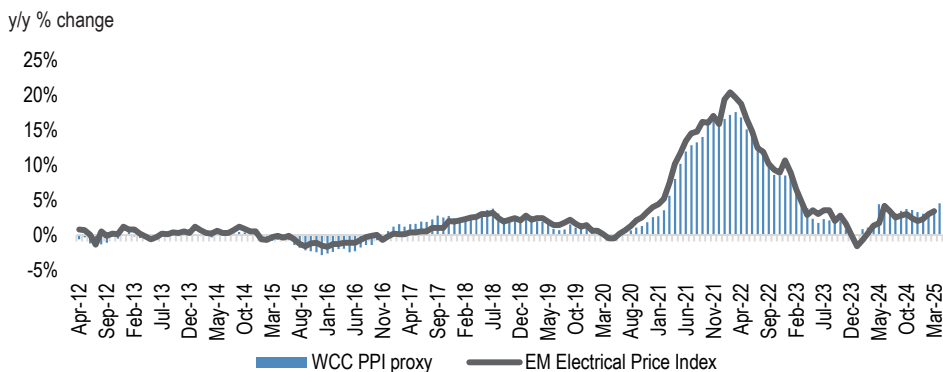
In electrical distribution, we look at a variety of PPI categories, which we aggregate to an index of electrical goods (details provided below). As shown, the index was inflating at a MT/HT % rate in mid 2022, which compared to pricing as reported by WCC that was tracking up at a HSD% rate. The PPI proxy we use for WCC matches closely with Electrical Marketing's price index historically, with both peaking on a y/y basis in early/mid 2022 and more recently accelerating to +3% range in 1Q25, above WCC's 1Q reported price (+1%). Trends in Mar/April look to have become more inflationary with the recent move up in copper prices.

**Figure 269: Electrical distributor pricing vs JPM aggregated PPI electrical goods**



Source: BLS, company reports, and J.P. Morgan estimates. Note: Aggregate PPI averages include the following categories weighted by estimated sales mix: nonferrous wire and cable, wiring devices, lighting fixtures, transformers and power regulators, switchgear, switchboard and industrial controls equipment, communications and related equipment, electronic components and accessories, and supplies to manufacturing industries.

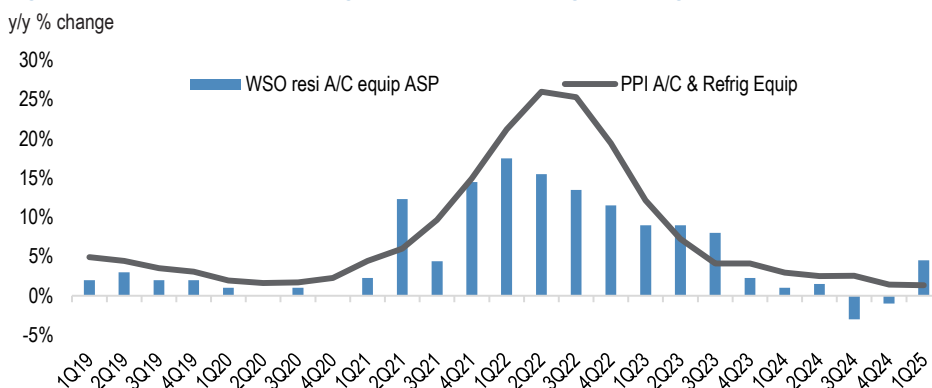
**Figure 270: WCC PPI Proxy vs EM Electrical Price Index**



Source: BLS, Electrical Marketing, and J.P. Morgan calculations.

In HVAC, we look at the PPI for air conditioning, refrigeration and forced air heating equipment, which we compare to average selling price data for resi A/C equipment at WSO (~55% of its sales). WSO has only provided this for the past few years, which limits historical looks. The PPI is currently inflating at a 2% rate, which compares to ASP data as reported by WSO that tracked at a +5% rate in the recent quarter (pure pricing was likely LSD we believe, with the rest driven by mix).

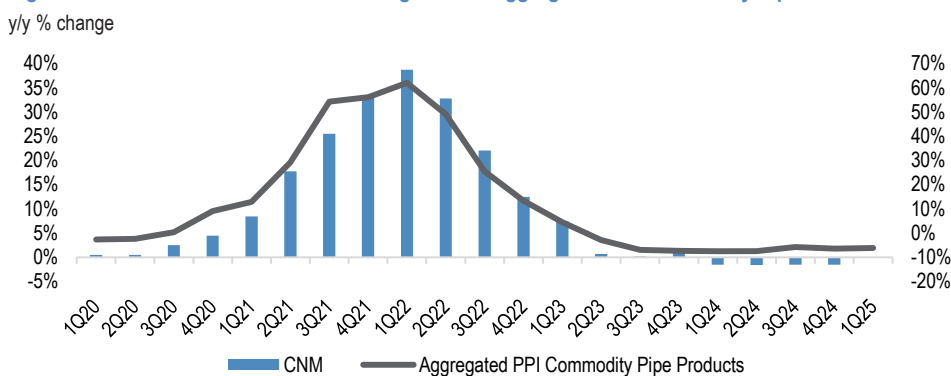
Figure 271: HVAC Distributor Pricing vs PPI Air Conditioning and Refrigeration Equipment



Source: BLS, company reports, and J.P. Morgan estimates.

Next, we show CNM, where the data set is even more limited. On the mix of product types, the company previously disclosed that commodity-based products such as PVC, ductile iron, fusible HDPE, and steel and copper pipe and tubing products represented 32% of sales in FY22. This number wasn't officially updated for FY23, and instead the company described its business as being roughly two-thirds highly specified at a local level where price is sticky, ~5% that more closely tracks commodities (small diameter, copper and steel pipe), and the remaining 25-30% attributed to municipal pipe (large diameter, PVC, and ductile iron pipe), used specifically for the water industry, with limited alternatives on supply, and as such isn't tied to the same extent to underlying commodities. We believe management has repositioned the language to reflect the view that not all "commodity-based products" are necessarily created equal. In any event, we look at a few PPI categories here, which we aggregate into a commodity pipe index, using varied weightings for ductile iron, steel, and PVC pipe. As shown, the index was down by a MSD% rate in 3Q24-1Q25 (down from 50-60% growth early in 2022), which compares to pricing -2% for CNM (down from +20-40% 2021 and 2022) – this would imply the other products at CNM are tracking flattish, down from an estimated increase in the teens % in 2022.

Figure 272: Waterworks Distributor Pricing vs JPM Aggregated PPI Commodity Pipe Products

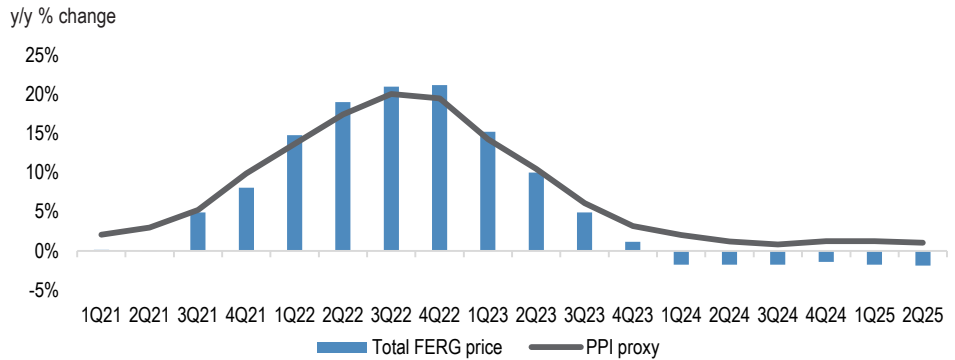


Source: BLS, company reports, and J.P. Morgan estimates. Note: Aggregate PPI averages the following categories, which account for ~30% of sales: ductile iron pipe (33%), steel pipe and tube (17%), and plastics water pipe (50%). After YE23, we have moved to a 50/50 weighting between steel pipe and plastics water pipe.

Lastly, we look at FERG, which for F2Q25 reported -2% price (down low-teens % for the ~14% of sales in commodity products, flattish for the remainder in finished goods).

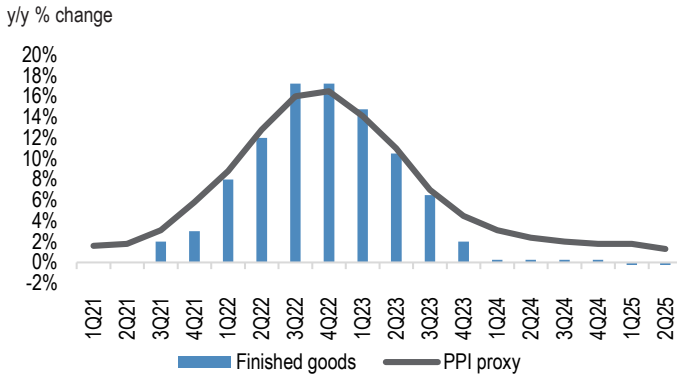
Our PPI proxy here includes one for commodity products (plastic/PVC, ductile iron and steel, and copper pipe and related products) and another for finished goods (HVAC, plumbing, lighting, appliances, etc.), which we weight by % of sales at FERG exposed to each area. Similar to others, pricing increases here peaked in mid 2022 and have decelerated and stabilized since. The April readings suggest rolling 3M price was down LSD% y/y for commodity products and up LSD% y/y in finished goods, suggesting a weighted profile of ~2% increases y/y vs 1% in the prior few months.

**Figure 273: FERG Pricing vs PPI Proxy**



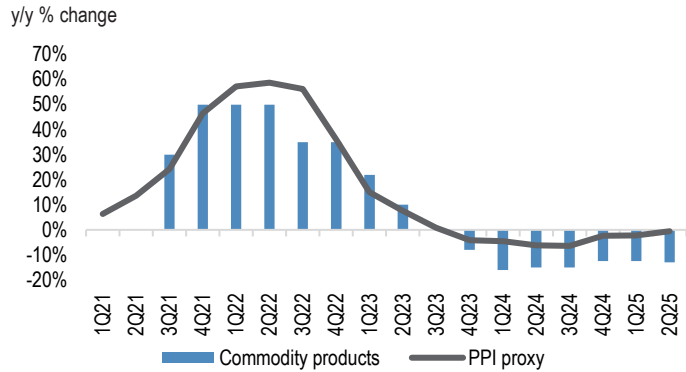
Source: Company reports, BLS, and J.P. Morgan calculations.

**Figure 274: Finished Goods Pricing vs PPI Proxy**



Source: Company reports, BLS, and J.P. Morgan calculations.

**Figure 275: Commodity Goods Pricing vs PPI Proxy**

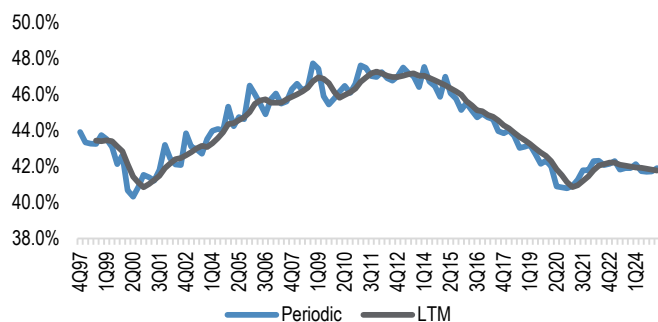


Source: Company reports, BLS, and J.P. Morgan calculations.

### Margins update

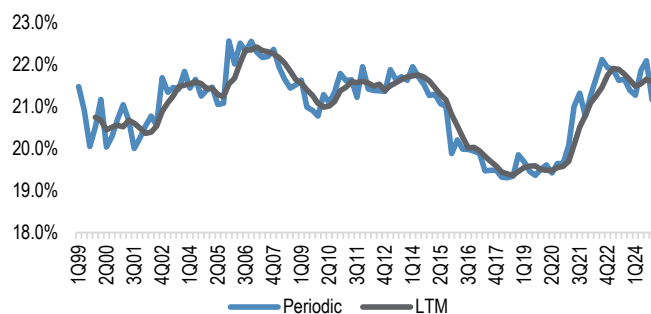
Inflation is often described as a distributor's friend, as higher prices get passed on to customers, helping both revenue growth and SG&A leverage, assuming gross margins are held. For this reason, the companies faced a stiff headwind starting in 2012, when copper and other industrial metals began to roll over, further exacerbated in 2015-16 when oil crashed. The headwind flipped into a tailwind for most distributors in 2021 when commodity prices inflated. We already showed the price impact to revenues in the above section. Looking at gross margins now vs LTM 1Q21, the biggest beneficiaries have been HVAC, followed by waterworks and electrical, while industrial MRO distributors have increased their pre-inflation GMs to a lesser extent, though against a 10-year trend of declines. FERG gross margins initially saw some benefit in 2021, when commodity product prices took off, peaking around 31.5%, up nearly 200bps from the start. But as prices stabilized, FERG GMs reverted, moving back down toward prior levels as product costs caught up to the higher prices they were charging. In the end, normalization of price/cost spread timing looks to have run its course, with several distributors coming out of the post-COVID period with structurally higher GMs (WCC/ WSO/CNM) owing to business model changes.

Figure 276: Industrial MRO distributors' gross margin



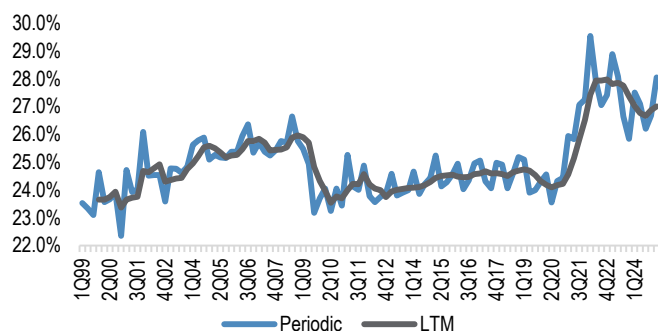
Source: Company reports and J.P. Morgan estimates.

Figure 277: Electrical distributors' gross margin



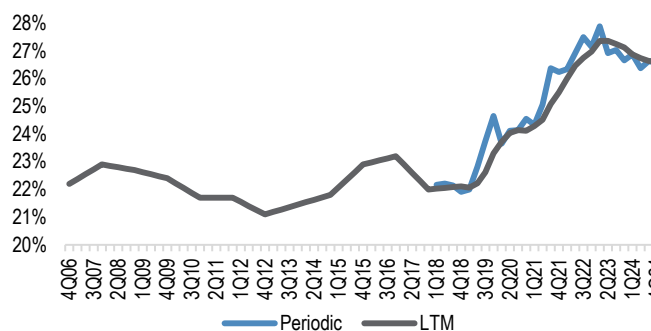
Source: Company reports and J.P. Morgan estimates.

Figure 278: HVAC distributors' gross margin



Source: Company reports and J.P. Morgan estimates.

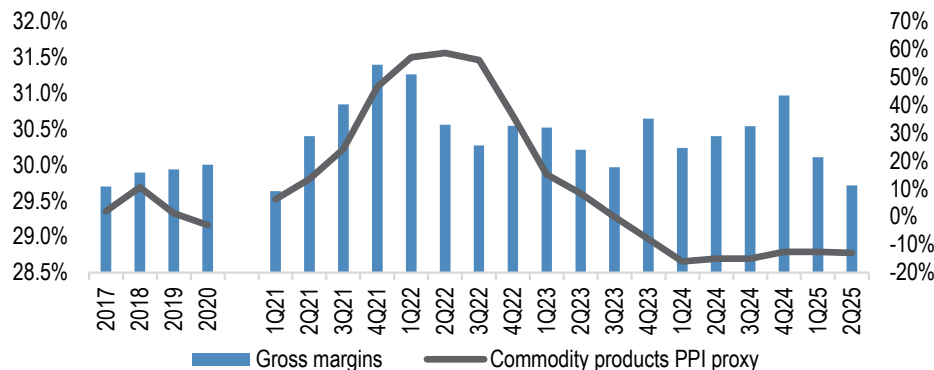
Figure 279: Waterworks distributors' gross margin



Source: Company reports and J.P. Morgan estimates.

Figure 280: FERG gross margin

Gross profit % of sales



Source: Company reports, BLS, and J.P. Morgan calculations.

Figure 281: GM Comparison across Distys vs Pre-Inflation Levels

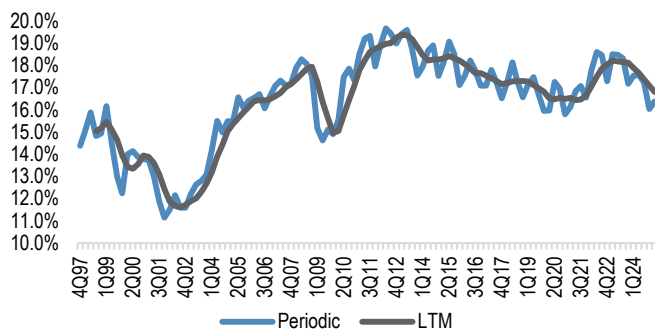
GM % of sales

|            | LTM 1Q21 | LTM 1Q25 | % increase | 2025 cons | % increase | Prior 10-yr Trend |
|------------|----------|----------|------------|-----------|------------|-------------------|
| WSO        | 24.6%    | 27.0%    | 10.0%      | 27.4%     | 11.7%      | Flat to improving |
| CNM        | 24.3%    | 26.6%    | 9.6%       | 26.6%     | 9.5%       | Flat to improving |
| AXE/WCC    | 19.7%    | 21.5%    | 9.4%       | 21.6%     | 9.6%       | Declining         |
| MRO distys | 40.9%    | 41.8%    | 2.2%       | 41.7%     | 2.0%       | Declining         |
| FERG       | 29.9%    | 30.3%    | 1.4%       | 30.4%     | 1.7%       | Flat to improving |

Source: Company reports. Note: CNM show 4Q24 results.

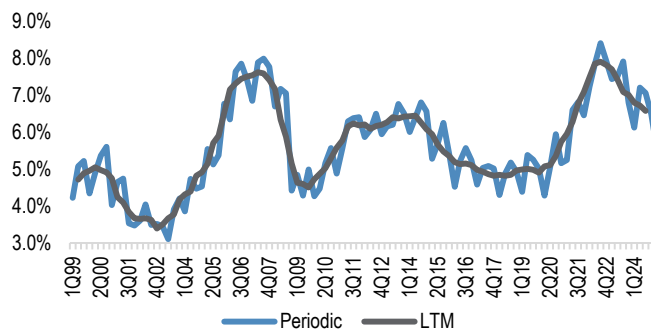
Taking the same approach on EBITDA margins, CNM has seen the strongest improvement since pre-inflation days. WCC and WSO have also seen strong improvement, while the industrial MRO distributors are showing more modest increases but vs a prior 10-year trend that was the most negative. Looking forward, with price/cost normalization having mostly played out in GMs, costs for people/branches/investments are still increasing and will remain sticky unless there is an expectation for volumes to weaken, though most still expect end markets to gradually improve. We have seen this dynamic in recent earnings reports.

Figure 282: Industrial MRO distributors' EBITDA margin



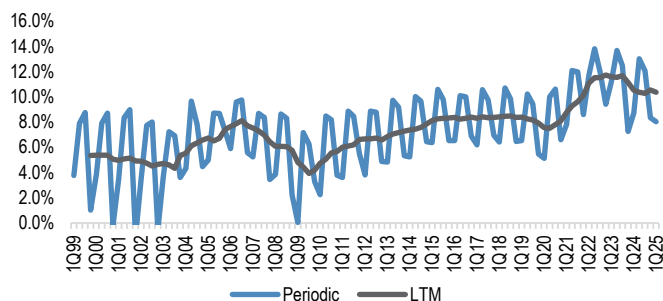
Source: Company reports and J.P. Morgan estimates.

Figure 283: Electrical distributors' EBITDA margin



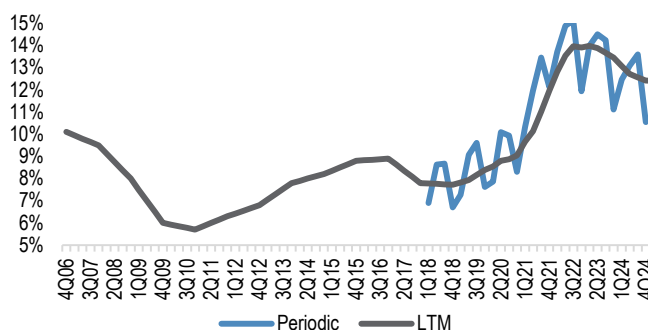
Source: Company reports and J.P. Morgan estimates.

Figure 284: HVAC distributors' EBITDA margin



Source: Company reports and J.P. Morgan estimates.

Figure 285: Waterworks distributors' EBITDA margin



Source: Company reports and J.P. Morgan estimates. Note: 2Q23 is an estimate.

Figure 286: EBITDA Margin Comparison across Distys vs Pre-inflation Levels

EBITDA as a % of sales

|            | LTM 1Q21 | LTM 1Q25 | % increase | 2025 cons | % increase | Prior 10-yr Trend |
|------------|----------|----------|------------|-----------|------------|-------------------|
| AXE/WCC    | 5.3%     | 6.6%     | 22.9%      | 6.7%      | 25.3%      | Flat to declining |
| CNM        | 9.7%     | 12.4%    | 28.4%      | 12.2%     | 25.9%      | Improving         |
| WSO        | 8.8%     | 10.4%    | 18.4%      | 10.2%     | 16.6%      | Improving         |
| FERG       | 9.0%     | 9.6%     | 6.4%       | 10.0%     | 10.5%      | Improving         |
| MRO distys | 16.5%    | 16.8%    | 1.6%       | 16.6%     | 0.6%       | Declining         |

Source: Company reports.

Next we show – where we have PPI data on the wholesale trade industry that is narrow enough in scope (HVAC) – how the spreads implied by the data correlate with company performance.

- *Building materials and hardware suppliers retailing* PPI has grown by 4% on average over time. In the past three months this category has been declining in the LSD range.
- *Building materials, paint, and hardware wholesaling* PPI is up by an average of 2% historically and has been up in the LSD range in the past three months.

While hardware & building materials and supplies retailing PPI tracks Industrial Commodities PPI with no lag, building materials, paint, and hardware wholesaling PPI tracks with a lag of two months, as evidenced by the charts below.

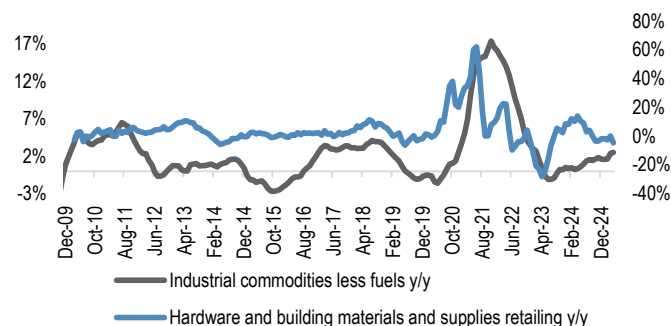
Figure 287: Building Equipment Retailing/Wholesaling Inflation Dashboard

| Building Equipment Retailing                           | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|--------------------------------------------------------|---------------|----------------|-----------------|
| Hardware and building materials and supplies retailing | -5%           | -2%            | 1%              |
| Building materials, paint, and hardware wholesaling    | 3%            | 2%             | 0%              |

Source: BLS.

**Figure 288: Hardware & Building Materials Retailing vs. Industrial Commodities**

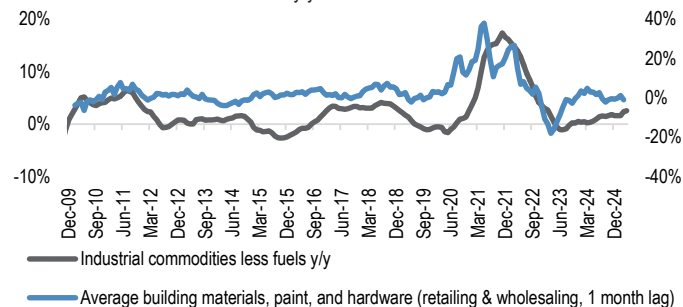
Industrial commodities less fuel PPI y/y



Source: BLS.

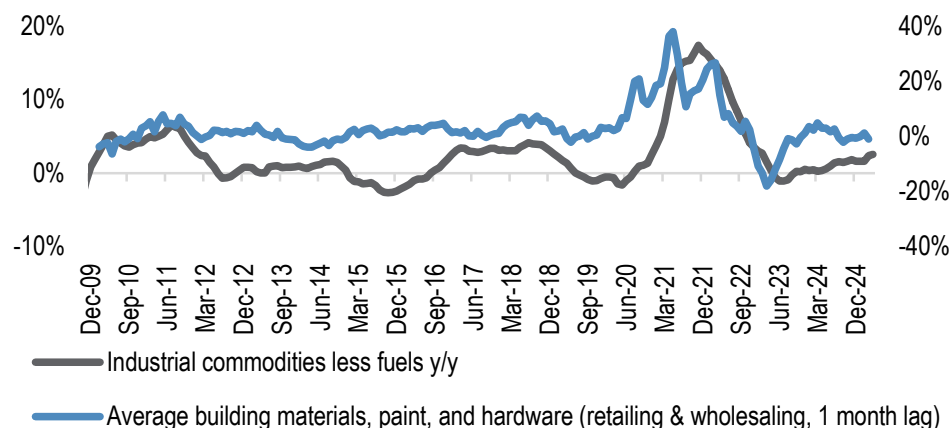
**Figure 289: Building Materials & Hardware Wholesaling vs. Industrial Commodities**

Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 290: Average Building Materials, Paint, and Hardware (Retailing & Wholesaling, 1-month lag) vs Industrial Commodities PPI**



Source: BLS.

- Historically, the *hardware, plumbing, and heating* category has grown at 3%, on average. The category grew in the LSD % range in '19-'20 but accelerated to the LDD % range in 1H21, before peaking at ~26% in Nov/Dec '21. This category has accelerated in May at +11% but has been decelerating since then, declining since Nov '24.

Hardware/Plumbing/Heating Equipment has grown in line with Industrial Commodities PPI, and this category has recently been declining.

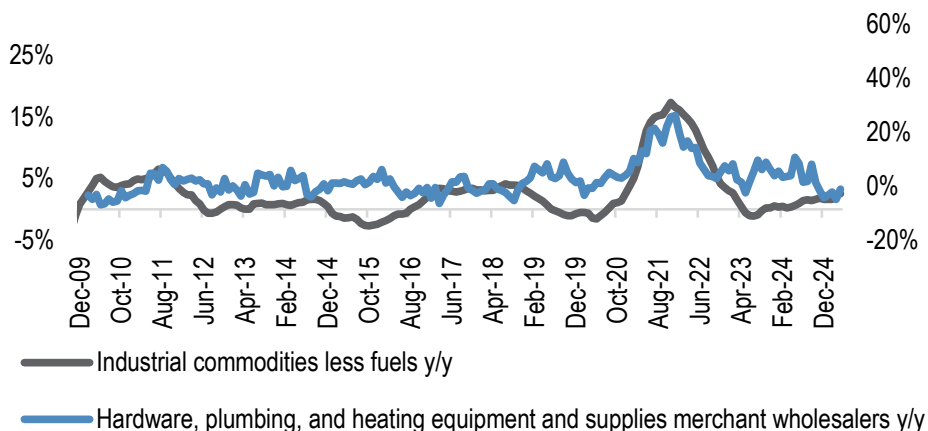
**Figure 291: Hardware/Plumbing/Heating Equipment Inflation Dashboard**

|                                                                          | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|--------------------------------------------------------------------------|---------------|----------------|-----------------|
| Hardware, plumbing, and heating equipment and supplies merchant wholesal | -1%           | -3%            | 1%              |

Source: BLS.

**Figure 292: Hardware/Plumbing/Heating Equipment PPI vs. Industrial Commodities**

Industrial commodities less fuel PPI y/y

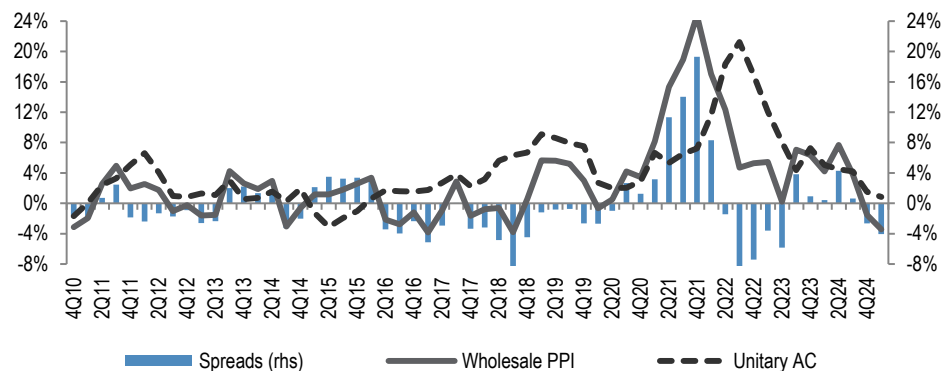


Source: BLS.

As noted above, HVAC distribution looks like one of the sectors that has seen significant lift in GMs vs pre-inflation levels, judging by WSO results. The data suggests a significant increase in implied price vs cost increases since 2Q21, corresponding with the time when WSO's margins began to inflect higher. As shown below, rolling four-quarter spreads were negative in '23 and now down again. We now assume WSO GMs sustain the 27%+ level through 2026, in line with management expectations and vs the historical 24.5-25% level.

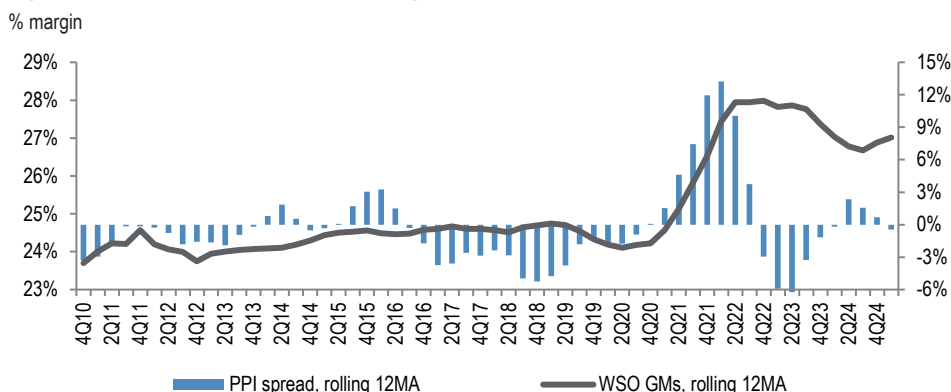
**Figure 293: Hardware, Plumbing, and Heating Equipment and Supplies Merchant Wholesalers PPI Spread**

y/y % change



Source: BLS and J.P. Morgan calculations. Note: Spread assumes 25% gross margin.

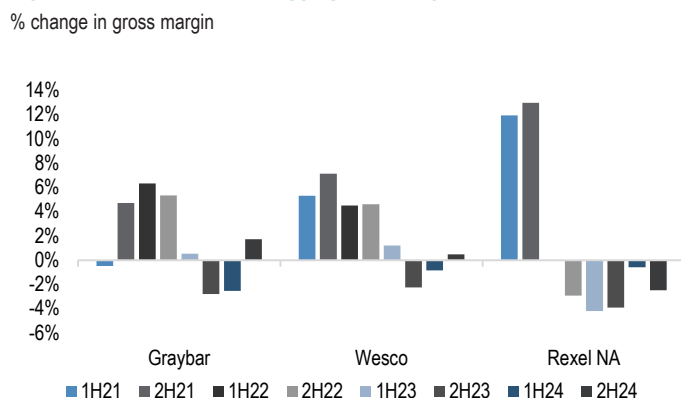
Figure 294: WSO GM vs PPI Spread, Rolling 12MA



Source: BLS and J.P. Morgan calculations. Note: Spread assumes 25% gross margin.

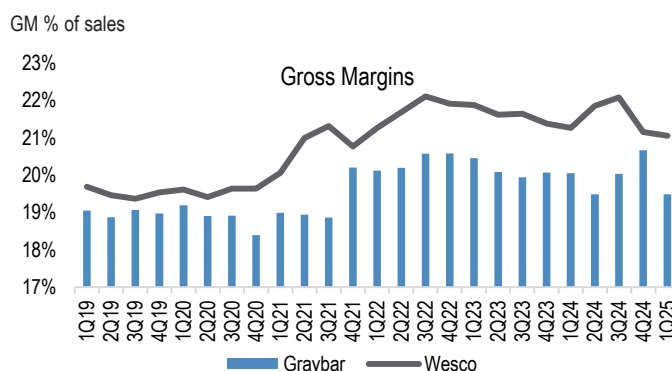
Lastly, we show the impact of LIFO vs FIFO, given inventory accounting differs across distributors. Most report using FIFO-based accounting and are likely to see stronger margins into a more inflationary environment. Those that report using LIFO-based accounting see relative headwinds into inflation (GWW is the only one here). Electrical distribution provides a good window into this, with Graybar reporting on LIFO-based accounting, WCC on average cost method, and Rexel on FIFO. Into an inflationary environment, this suggests Rexel should show the strongest margin performance, while Graybar should be the laggard, with Wesco in between. Since 2H22, we saw all three companies' GMs falling as price/cost benefits faded.

Figure 295: Rexel NA GMs Lagging WCC/Graybar



Source: Company reports and J.P. Morgan calculations.

Figure 296: WCC GMs Inflected before Graybar, but Graybar Has Followed



Source: Company reports and J.P. Morgan calculations.

Figure 297: Inventory Accounting Approach

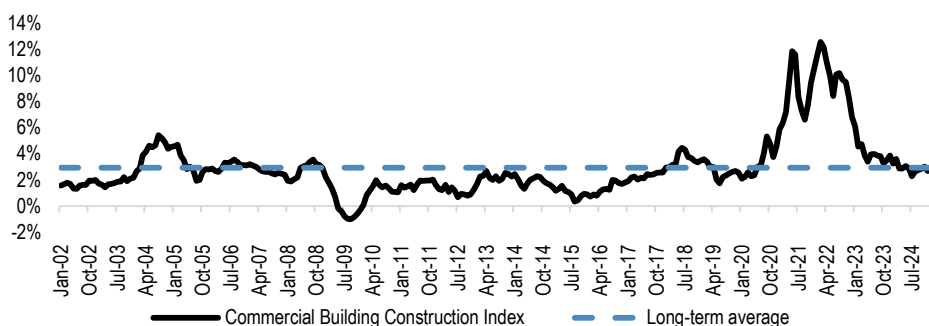
| Stock | Primary accounting                                                                        | Appx % |
|-------|-------------------------------------------------------------------------------------------|--------|
| GWW   | LIFO                                                                                      | 75%    |
| FAST  | Lower of cost (FIFO) or market                                                            | 100%   |
| MSM   | Lower of weighted avg cost or market                                                      | 100%   |
| FERG  | Lower of cost or net realizable value, primarily avg cost method                          | 100%   |
| WCC   | Lower of avg cost or net realizable value                                                 | 100%   |
| WSO   | Lower of cost using weighted-average cost basis and FIFO methods, or net realizable value | 100%   |
| CNM   | Weighted average cost method, lower of cost or net realizable value                       | 100%   |

Source: Company reports and J.P. Morgan.

## Special Non-Res Construction Section

A key aspect of the price/cost discussion is to figure out at what stage project costs get too expensive and ultimately drive demand destruction. We think non-res construction costs are an interesting watch item on this front. To track the average cost of construction, we created a holistic index factoring in labor (45%), construction commodities (32%, including concrete, steel, plywood), and building systems (23%, including HVAC, elevators, pumps, alarms, etc.). The index grew at 3% y/y every month on average over time, but growth picked up materially as the economy emerged out of COVID-19 before moderating to historical levels. The index is now tracking at +3% y/y for the past year.

Figure 298: Commercial Building Construction Cost Index



Source: BLS.

- *New nonresidential building construction* category entered the pandemic with LSD type growth and stayed there through 2Q21 but picked up materially in Oct'21, with 4Q21 tracking at +14%, with momentum persisting through '22, peaking in September 2022. This category saw material deceleration in 2H23 with negative rates in 1H24. The category has been inflating by 2% in the past few months.
- *New warehouse building construction* category was growing at MSD in '19 pre-pandemic, but we saw a step down in growth to flat-LSD in 2020/1H21, rebounding to the 30% range in 2022 before peaking in September 2022. This category saw material deceleration in 2H23 with negative rates from late-2023 to 1H24. This category has been flattish y/y.
- *New office building construction* entered the pandemic with a LSD-MSD growth profile, which was stable through 2020/1H21, before accelerating in 2022, peaking at +24% in July 2022. This category saw material deceleration in 2H23 with negative rates in 1H24. Last few months saw inflation here to the tune of ~LSD%.
- *New industrial building construction* grew at a LSD rate through 1H21, consistent with its historical performance, but we saw a step up in growth in 4Q21 to a low-teens rate, which further accelerated in '22, peaking in July 2022 at 28%. This category saw material deceleration in 2H23 with negative rates in 1H24. The category has been flattish to slightly up.
- *New healthcare building construction* entered the pandemic with a LSD growth rate and we saw a material step up in 4Q21, growing at a LDD rate, further accelerating in '22 before peaking in September 2022 at 21%. This category saw material deceleration in 2H23 with negative rates in 1H24. The category is now inflating by

3-4% y/y.

Construction categories usually lag Industrial Commodities PPI by roughly seven to nine months, as evidenced below, and should continue to inch up gradually.

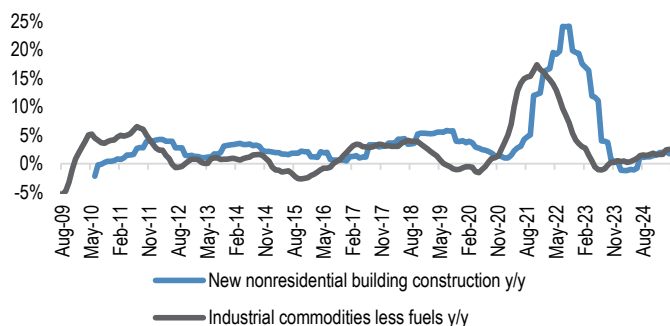
Figure 299: Non-Res Building Construction Inflation Dashboard

| New Non-Res Building Construction                  | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|----------------------------------------------------|---------------|----------------|-----------------|
| New nonresidential building construction           | 2%            | 2%             | 1%              |
| New warehouse building construction                | 0%            | 0%             | 0%              |
| New school building construction                   | 2%            | 2%             | 2%              |
| New office building construction                   | 3%            | 3%             | 2%              |
| New industrial building construction               | 0%            | 1%             | 0%              |
| New health care building construction              | 3%            | 3%             | 1%              |
| Maintenance and repair of nonresidential buildings | 5%            | 6%             | 5%              |
| Adhesives and sealants                             | 3%            | 3%             | 1%              |

Source: BLS.

Figure 300: New Non-Resi Building Construction vs. Industrial Commodities

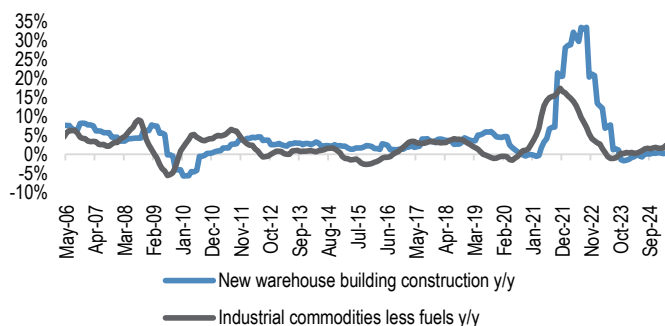
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 301: New Warehouse Building Construction vs. Industrial Commodities

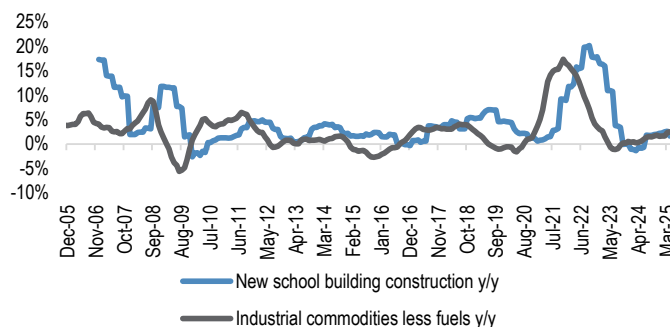
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 302: New School Building Construction vs. Industrial Commodities

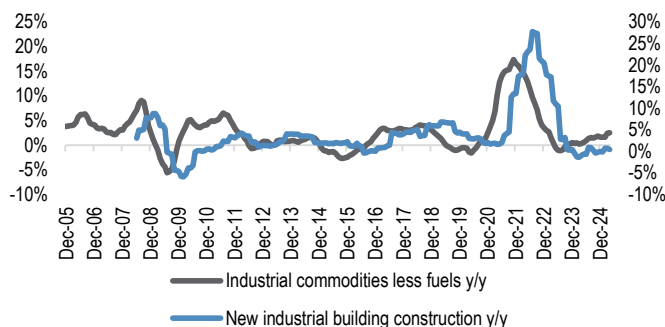
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 303: New Office Building Construction vs. Industrial Commodities

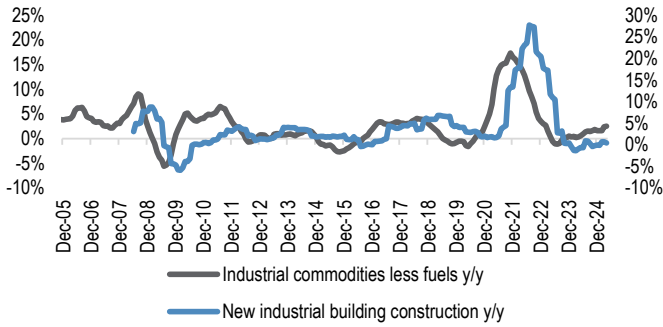
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 304: New Industrial Building Construction vs. Industrial Commodities**

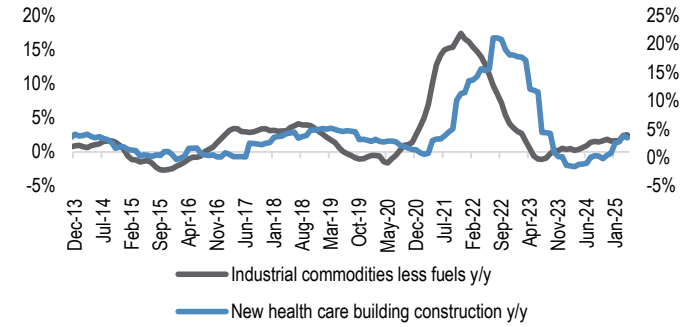
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 305: New Healthcare Building Construction vs. Industrial Commodities**

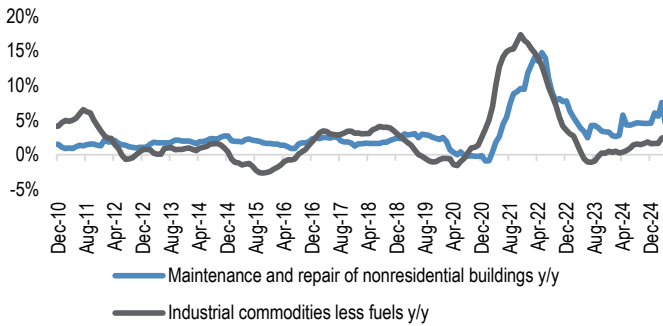
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 306: Maintenance & Repair of Non-Resi Building vs. Industrial Commodities**

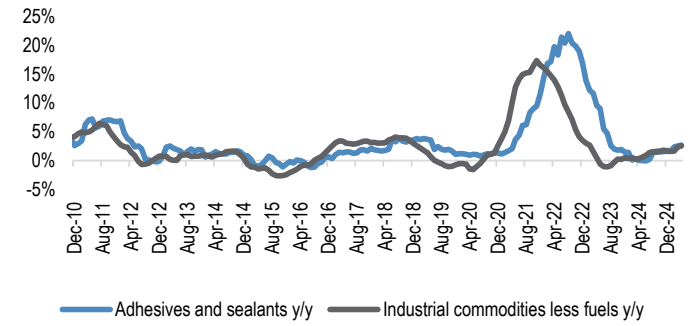
Industrial commodities less fuel PPI y/y



Source: BLS.

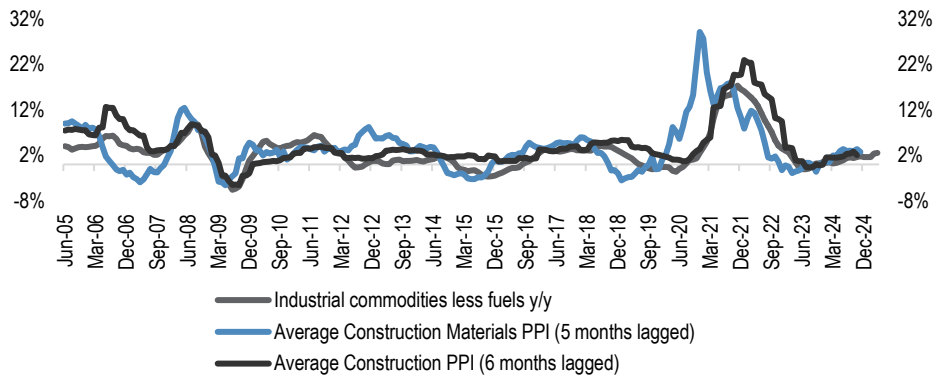
**Figure 307: Adhesives and Sealants vs. Industrial Commodities**

Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 308: Average Construction PPI vs Construction Material PPI vs Industrial Commodities PPI**



Source: BLS.

### Non-Res Inputs: Steel Now Inflating

This section includes core structural components used in construction. Structural materials like iron and steel, pipes, fabricated metals, etc. constitute ~20-25% of total construction costs, and hence a rise in the price of these structural components can have a direct impact on total construction costs.

- *Iron and Steel* PPI declined LDD in '19-'20 but bounced back strongly in '21, with 1H21 growth averaging 46% while PPI almost doubled in Oct/Nov with 101%/105% growth. The category softened in '22 exiting the year at -LDD% range. Declines persisted throughout '23 and most of '24. The category was inflected to +LSD range in April.
- *Steel pipe and tube, stainless steel* was down MSD-HSD in '19 and remained nearly flat in '20 but bounced back in '21, with strong DD growth in mid 30s and entered '22 with the same momentum, peaking in May '22 at ~50%, exiting the year at roughly LT%. The category has continued to decline since early '23 but the rate of decline is slowing.
- *Fabricated structural metal* was trending downward in '19-'20 with flat-LSD declines, but the category returned to growth in '21 with LDD growth in 1H21, which later accelerated to strong DD (mid 30s/40s) growth in 2H21 and in most of '22 before moderating in '23. The category inflected to +MSD range in March/April.
- *Other fabricated metal products* category grew at LSD in '19 but was flat in '20. It returned to growth in '21 with LSD growth in 1H21 but accelerated to the high-teens range in 2H21 and in early '22 before exiting the year at roughly LSD% range and moderated throughout '23. The category is now up in the LSD% range.

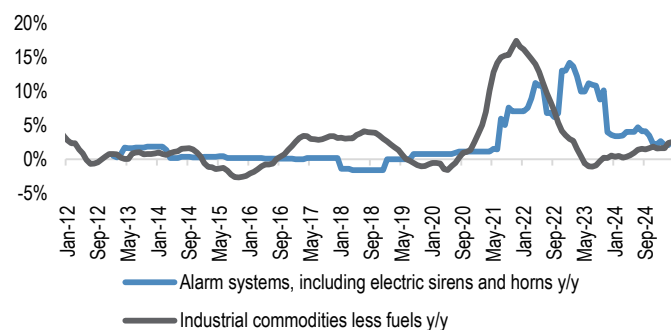
Figure 309: Non-Res Building Construction Inflation Dashboard

| Non-res Structural                                                | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|-------------------------------------------------------------------|---------------|----------------|-----------------|
| Iron and Steel                                                    | 2%            | -5%            | -9%             |
| Steel pipe and tube, stainless steel                              | -3%           | -4%            | -6%             |
| Hot impression die impact, press, and upset carbon steel forgings | -11%          | -4%            | -6%             |
| Fabricated structural metal                                       | 5%            | 3%             | 0%              |
| Other fabricated metal products                                   | 2%            | 1%             | 1%              |

Source: BLS.

Figure 310: Alarm Systems vs. Industrial Commodities

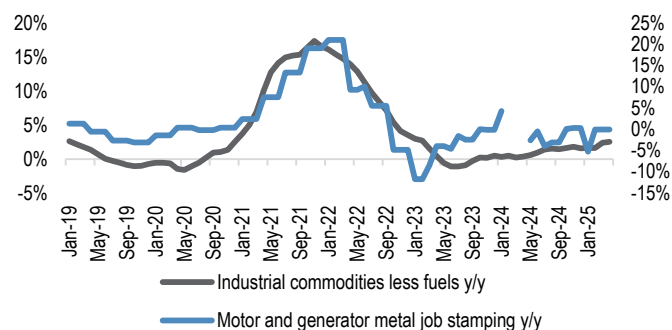
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 311: Motor & Generator Metal Job Stamping vs. Industrial Commodities

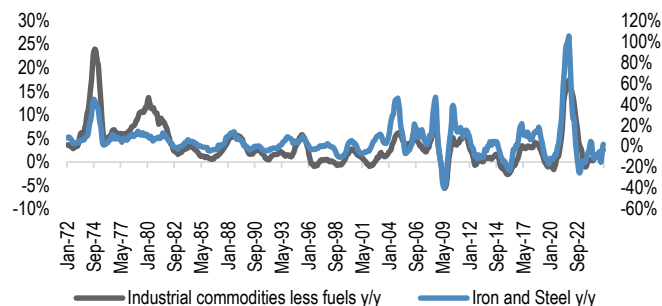
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 312: Iron & Steel vs. Industrial Commodities**

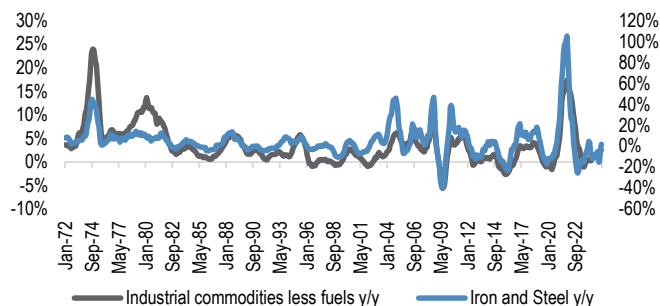
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 313: Steel Pipe & Tube vs. Industrial Commodities**

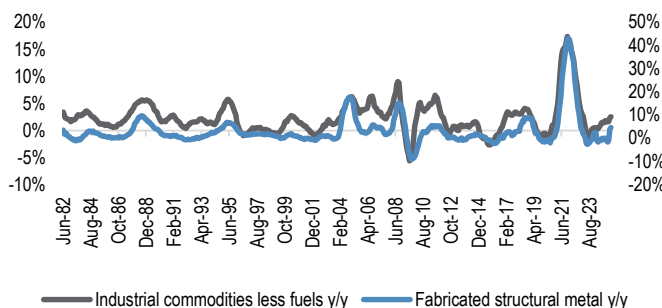
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 314: Hot Impression Die Impact vs. Industrial Commodities**

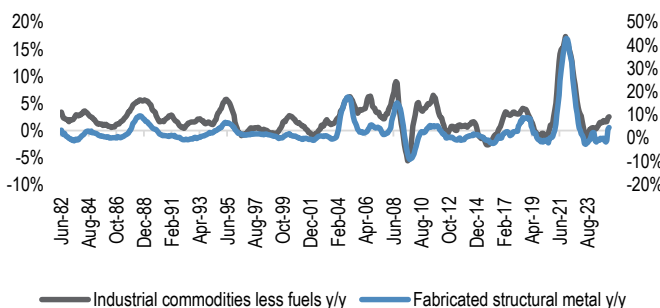
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 315: Fabricated Structural Metal vs. Industrial Commodities**

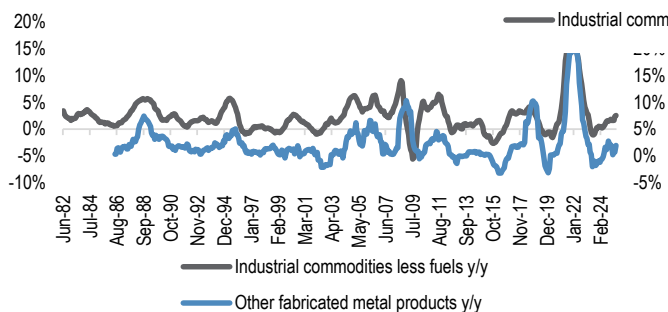
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 316: Other Fabricated Metal Products vs. Industrial Commodities**

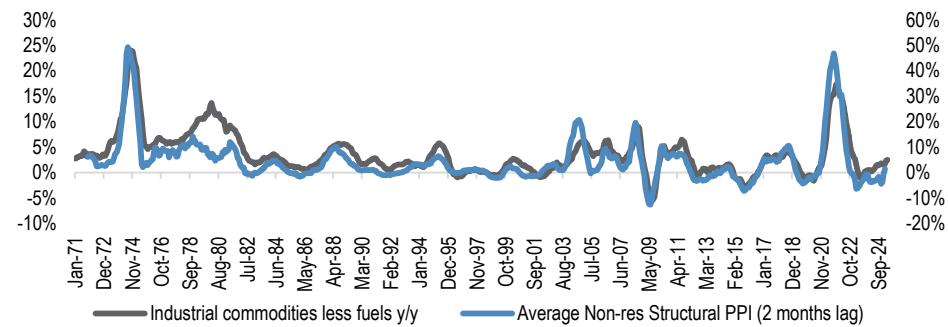
Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 317: Average Non-Res Structural PPI (Iron & Steel, Sheet Metal, Aluminum, Fabricated Metal, 2-month lag) vs Industrial Commodities (ex-fuel) PPI

Industrial commodities less fuel PPI y/y



Source: BLS.

## Construction Materials

Here we see different building materials, like concrete, lumber, asphalt felts, and gypsum products, decelerating over the past several months, with some categories turning negative. This compares to historical average growth rates of 3-4%.

- *Adhesives and sealants* entered the pandemic consistent with its historical LSD growth profile, which accelerated through 1H22, peaking in August '22 at +22%, before declining in the LT% range in early '23. The category has been decelerating and was flat in early '24, now up LSD.
- *Lumber* prices were down LDD in '19, rebounding in 2020/1H21, but then decelerating through 2022. Prices were down during late '22, and this trend exacerbated in early '23. 2024 also saw some declines, but the category is now up in the HSD range.
- *Flat Glass* was growing at LSD in '19 pre-pandemic, in line with its historical growth profile, and continued with LSD growth until 1H21, accelerating to HSD in 3Q-4Q21. Flat glass peaked in August '22 at +12%. The category had been decelerating until early '24, now flattish to up slightly.
- *Asphalt felts and coating* was growing at MSD in '19 but dropped to LSD growth in 2020 and 1H21 and accelerated to LDD in 3Q21, high-teens in 4Q21, peaking in March 2022 (+22%). Since then, growth rates have seen a material decline with the category now flattish to up slightly.
- *Plastic resins and materials* were down HSD/LDD in '19 and continued to decline in '20 but bounced back with strong DD growth in '21 with growth peaking at 50-55% in mid '21. This category has been negative since 3Q22, but the deceleration continued to moderate, and now the category is inflating in the LSD range.
- *Gypsum products* was trending at MSD-HSD declines in '19, which slowly turned to flat growth in '20 and LSD growth in 1H21, peaking in October 2021 at +25%. The category saw declines in late 2023, and since then accelerated, now inflating in the 4% range.

Within construction materials, Lumber, Plastic Resins, and Gypsum products have lagged Industrial Commodities by zero to three months, and these categories are already showing some improvement. By comparison, flat glass and concrete blocks have a lag of about nine months, more or less in line with what current trends suggest.

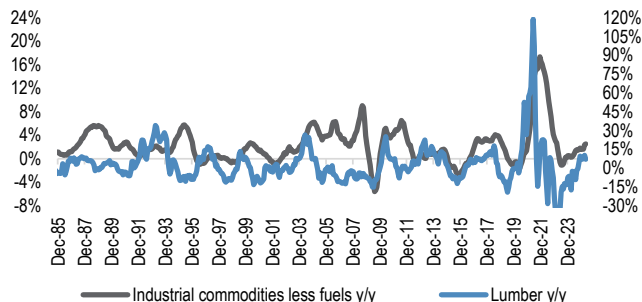
Figure 318: Construction Materials Inflation Dashboard

| Construction Materials                                 | April '25 y/y | Rolling 3M y/y | Rolling 12M y/y |
|--------------------------------------------------------|---------------|----------------|-----------------|
| Adhesives and sealants                                 | 3%            | 3%             | 1%              |
| Lumber                                                 | 7%            | 8%             | 3%              |
| Flat Glass                                             | 0%            | 1%             | 1%              |
| Asphalt felts and coating                              | 1%            | 0%             | 1%              |
| Plastic resins and materials                           | 2%            | 2%             | -1%             |
| Gypsum products                                        | 4%            | 4%             | 4%              |
| Concrete block and brick                               | 4%            | 4%             | 5%              |
| Hardware and building materials and supplies retailing | -5%           | -2%            | 1%              |

Source: BLS.

**Figure 319: Lumber vs. Industrial Commodities**

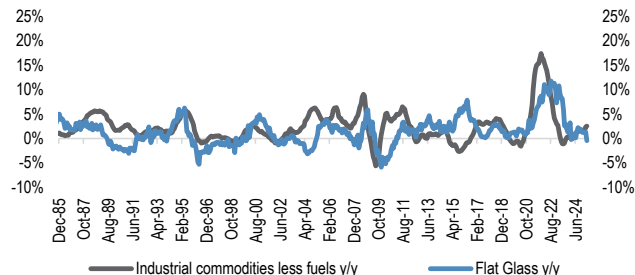
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 320: Flat Glass vs. Industrial Commodities**

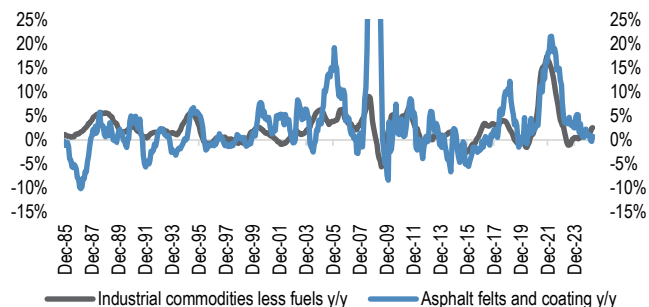
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 321: Asphalt vs. Industrial Commodities**

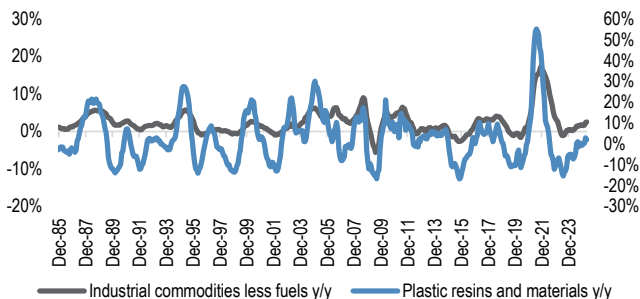
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 322: Plastics vs. Industrial Commodities**

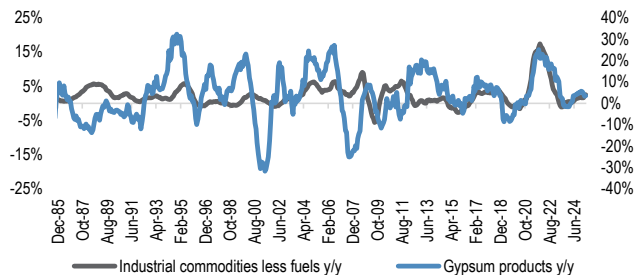
Industrial commodities less fuel PPI y/y



Source: BLS.

**Figure 323: Gypsum vs. Industrial Commodities**

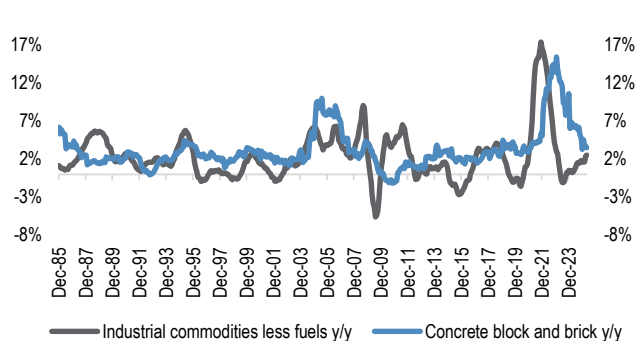
Industrial commodities less fuel PPI y/y



Source: BLS.

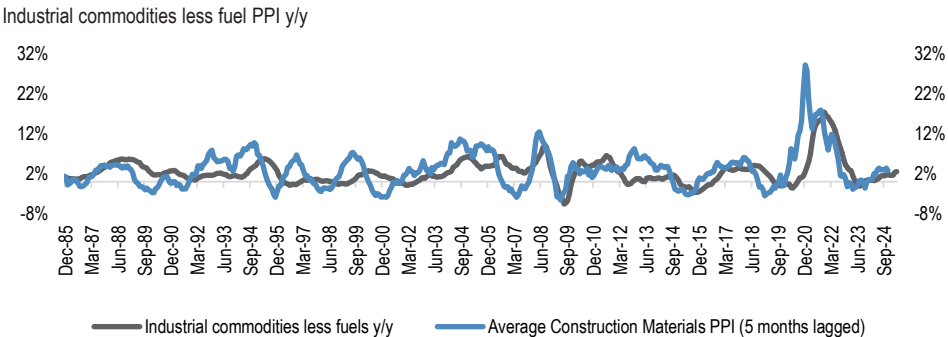
**Figure 324: Concrete Block and Brick vs. Industrial Commodities**

Industrial commodities less fuel PPI y/y



Source: BLS.

Figure 325: Average Construction Material PPI (5 months lag) vs Industrial Commodities



Source: BLS.

## Economic Risks: A Look Back at the 1970s

Here, we switch gears a bit and look back at the 1965-85 period to see how various indicators of industrial and housing activity and consumer sentiment performed when the US economy grappled with oil-led inflation.

### Industrial Activity

Starting with industrial activity, the charts below highlight how ISM total index, orders, production, and new inventories track in an inflationary environment. ISM new orders dropped ~40-50% in '74-'75 when PPI was >15%, while it bounced back ~120% in '75-'76 when PPI was below 10%. New orders shot up around eight to nine months prior to the drop in PPI to gain advantage of the lower price. Inventories contracted significantly (down ~50%) during 2H74-2H76 and in 1980 when PPI was >15%, while it bounced back up in 1H76 and in 1983 as inflation dipped. Inventories and PPI are inversely related as manufacturers sell out their inventory buffers to gain that extra price and build back the buffers when the inflation is low.

Figure 326: US Industrial Production vs US Finished Goods PPI



Source: BLS.

Figure 327: Capacity Utilization vs PPI



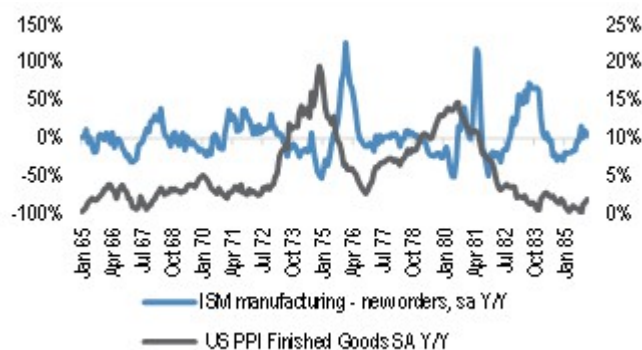
Source: BLS.

Figure 328: ISM Manufacturing Index vs PPI



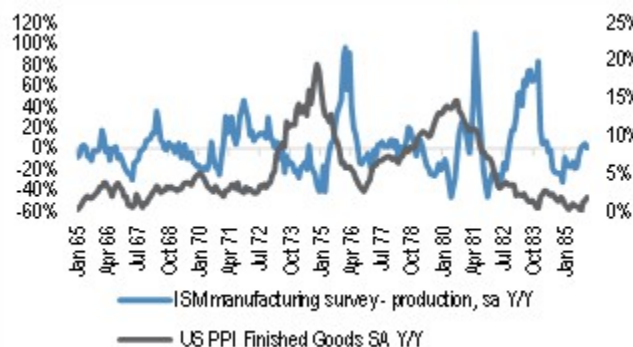
Source: BLS, ISM.

Figure 329: ISM New Orders vs PPI



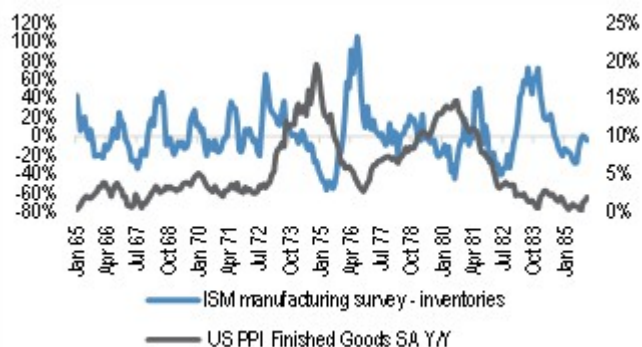
Source: BLS, ISM.

Figure 330: ISM Production vs PPI



Source: BLS, ISM.

Figure 331: ISM Inventories vs PPI



Source: BLS, ISM.

Figure 332: Industrial Production - Materials vs PPI

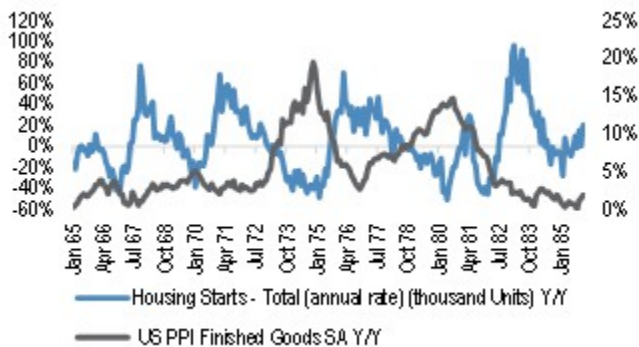


Source: BLS, ISM.

## Housing Activity

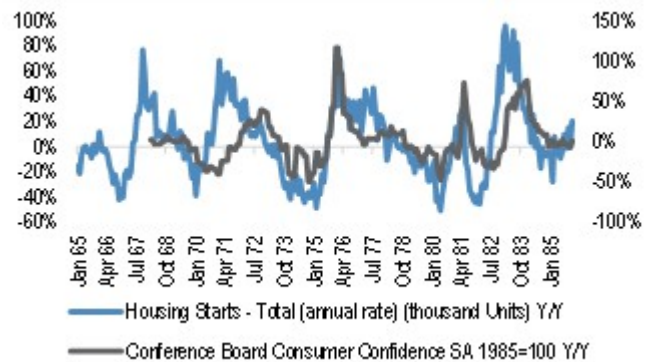
Turning to housing activity, housing starts grew healthily during periods of low inflation (<5%) but declined strong DD when inflation was HSD/low teens. Housing starts growth and IP growth also move hand in hand, but the scale of growth varies as housing starts had much larger swings. Higher industrial activity results in more employment, which could drive higher housing activity.

Figure 333: US Housing Starts vs PPI



Source: US Census Bureau, BLS.

Figure 334: US Housing Starts vs Consumer Confidence



Source: Bloomberg Finance L.P., US Census Bureau.

Figure 335: Housing Starts vs IP



Source: US Census Bureau, BLS.

Figure 336: Industrial Production – Construction Materials vs PPI



Source: US Census Bureau, BLS.

## Consumer Activity

IP largely grows in periods of low inflation (<5%), but when inflation rises beyond 5%, then IP growth starts to slow and even turns negative if inflation rises further. As expected, unemployment rate and IP are inversely related. The average unemployment rate was 6.2% in 1965-1985, while the average IP growth rate was 3.27%. When IP was down ~5% in 1Q71, unemployment shot up to 6% (+60% y/y), while when IP shot up ~10% in 2H72-1H73, unemployment was down at 4.2-4.3% (down 18-20% y/y). Unemployment again shot up in 1H75 to ~9% when IP dipped 10% y/y. IP was up ~10-12% y/y in 2H83-1H84 when unemployment was at 7%. Unemployment doesn't go down that much when IP grows as compared to the rise in unemployment when IP dips.

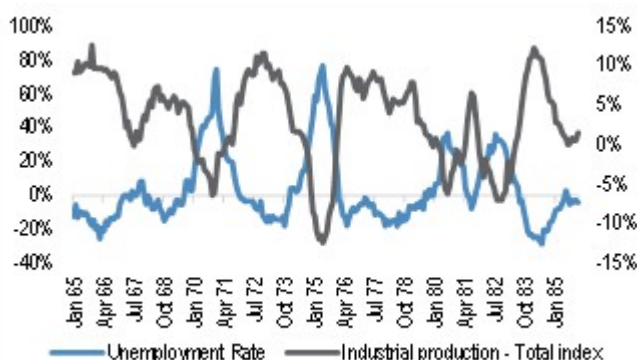
Consumer confidence and consumer inflation volatility are inversely related as consumer confidence dips during periods of high consumer inflation, while consumer confidence and housing growth move hand in hand.

Figure 337: Consumer Confidence vs PPI



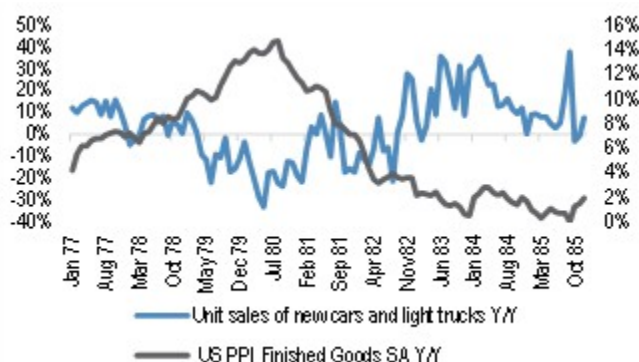
Source: Consumer Confidence Board, BLS.

Figure 338: Unemployment Rate vs IP



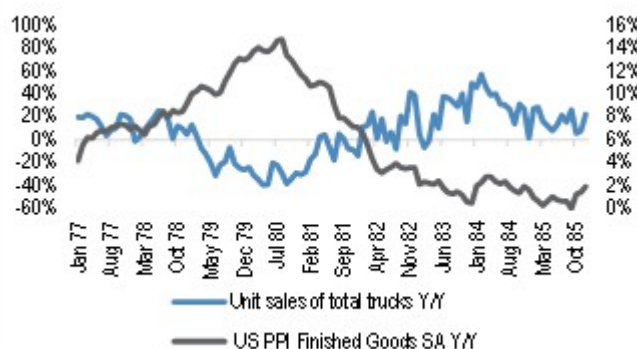
Source: US BEA, BLS.

Figure 339: Auto Sales vs PPI



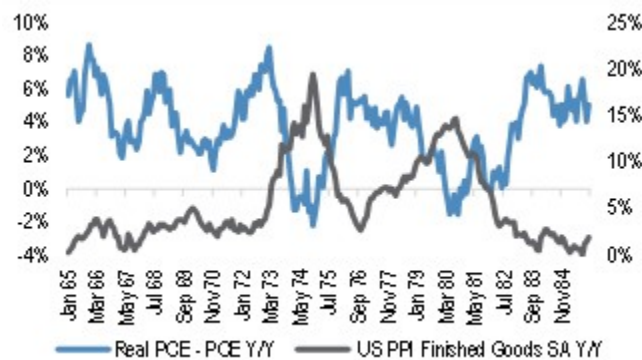
Source: US BEA, BLS.

Figure 340: Truck Sales vs PPI



Source: US BEA, BLS.

Figure 341: Real Personal Consumption vs PPI



Source: US BEA, BLS.

Figure 342: Personal Savings vs PPI



Source: US BEA, BLS.

29 May 2025

**Companies Discussed in This Report** (all prices in this report as of market close on 28 May 2025, unless otherwise indicated) 3M(MMM/\$148.66/OW), Carrier(CARR/\$71.04/OW), Dover(DOV/\$179.54/OW), DuPont De Nemours, Inc(DD/\$68.09/OW), Eaton(ETN/\$325.67/OW), Emerson Electric Co.(EMR/\$119.74/N), Fortive Corp.(FTV/\$71.51/OW), Honeywell(HON/\$224.61/N), Hubbell Inc.(HUBB/\$395.22/N), Johnson Controls(JCI/\$101.49/OW), Lennox International(LII/\$568.24/UW), Otis Corp(OTIS/\$95.16/N), Pentair PLC(PNR/\$98.81/OW), Rockwell Automation(ROK/\$312.39/N), Trane Technologies(TT/\$432.94/N)

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29 May 2025

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Completed 29 May 2025 05:20 AM EDT

Disseminated 29 May 2025 05:20 AM EDT