The Changing Face of the Aluminum Component Industry

Evolving market dynamics and growing demand increase the desirability of aluminum manufacturers
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KEY TAKEAWAYS

- Over the next five years, the global aluminum market is expected to grow at a rate of 5.9 percent annually, a significant increase in growth compared to the approximately 3.0 percent annual growth seen since 1970.

- Many industries, such as automotive manufacturing, are looking for effective alternatives to cut down on weight without sacrificing durability. Replacing heavier metals with aluminum is a viable way to achieve significant weight reductions.

- Aluminum also has significant advantages as a construction material, and today over 20 percent of aluminum consumed is used by the building and construction industry.

- The demand for aluminum also is expected to be driven by its use in emerging applications such as oil and gas drilling and transportation, solar energy, electronics, and telecommunications.

- With environmental awareness taking on increasing importance in the decision making process regarding which raw materials to use, aluminum is becoming an increasingly popular material due to its ability to be easily recycled. Approximately 75 percent of aluminum consumed can be reused, and reclaimed aluminum can be recycled indefinitely.

- Demand for high-quality North American aluminum component manufacturers is expected to increase, primarily due to re-shoring of industrial manufacturing. As a result, aluminum manufacturing capacity will likely be at a premium in upcoming years.

- The increasing demand for aluminum products across broad end markets and the favorable macroeconomic dynamics in the component manufacturing industry combine to make aluminum fabricators highly attractive M&A targets.
INDUSTRY SHIFTS TO ALUMINUM

Aluminum is the second most widely used primary metal on earth, with annual global production exceeding 50 million tons. Aluminum is a relatively modern metal; it was first produced in a pure state in 1825, and until the late 19th century was exceedingly rare, commanding prices in line with precious metals such as gold and silver. By the early 20th century, however, aluminum production had become much cheaper, and it was beginning to be used in construction, shipbuilding and the budding aviation industry.

Today, the aluminum industry is once again facing a turning point. Over the next five years, the global aluminum market is expected to grow at a rate of 5.9 percent annually, a significant increase in growth compared to the approximately 3.0 percent annual growth seen since 1970. An increasing focus on environmental impact is causing industries that previously relied more on steel to turn to aluminum for its recyclability, light-weighting capabilities and longevity. The automotive industry, which has seen significant growth since the economic downturn in 2008, is beginning to replace steel components with lighter aluminum in order to increase fuel efficiency and meet tightening Corporate Average Fuel Economy (CAFE) standards. Growth in worldwide demand for aluminum is also expected to be driven by the building and construction market, as green building standards become more important in developed nations, and developing countries look to construct modern infrastructure. Additionally, the use of aluminum in high growth and emerging industries such as oil and gas drilling, electronics, telecommunication, and alternative energy will also contribute to the aluminum industry’s favorable near-term outlook.

But what does this mean for aluminum manufacturers in the U.S.? The broader global trends in the aluminum industry will likely have a significant impact on demand for aluminum components here at home. Domestic aluminum fabricators are already seeing the effect of the increasing use of aluminum in automotive manufacturing, and modern industries such as LED lighting and solar energy are also driving demand for aluminum components. Additionally, outsourcing, slower historical growth and the recent recession have created a shortage of high quality domestic aluminum manufacturers. Therefore, as demand increases and manufacturing begins to return to the U.S., component manufacturing capacity will be at a premium. This could lead to increased pricing leverage and improved margins for U.S. aluminum fabricators. All of these factors combine to create an optimistic outlook for both the global and domestic aluminum industries, and lead to heightened interest in top aluminum manufacturers as acquisition targets.

Aluminum in the Automotive Industry

Many industries are looking for effective alternatives to cut down on weight without sacrificing durability. At the forefront of this trend is the automotive industry, which is under constant pressure to adhere to increasingly strict fuel economy standards. With CAFE standards becoming increasingly stringent, automobile manufacturers have been forced to continually find new ways to increase fuel economy. Manufacturing lighter vehicles has been the primary strategy to improve gas mileage, and the

1 Yuliya Fedorinova and Marina Sysoyeva, “Carmakers Use Aluminum over Steel in Boost for Rio: Commodities”, Bloomberg, February 6, 2013
most popular method of reducing vehicle weight has been replacing steel parts with aluminum. Over time, aluminum has been progressively incorporated into automotive doors, trunks, hoods, and engines. Today, aluminum makes up a much more significant percentage of the vehicle. According to Ducker Worldwide, aluminum is now the leading material used in the manufacturing of engines and wheels in automobiles. Audi has been manufacturing an all-aluminum structure for its A8 model for nearly 20 years, and other companies in the industry are beginning to follow suit. Currently, Ford is developing an all-aluminum structure for its F-150 pickup, the best-selling vehicle in North America.

Heavy usage of aluminum in automobiles first began with Audi’s 1994 A8 model. Since then, standard consumer automobile manufacturers have been amplifying the aluminum used in their vehicles and are beginning to transition to primarily aluminum-based vehicle bodies. Ford has become one of the pioneers in aluminum usage for the automobile body, aiming to release an aluminum-body F-150 in 2015. Changing the body from steel to aluminum is expected to cut the weight of the car by about 700 pounds, or 15 percent of current vehicle weight, which would increase fuel economy by as much as 25 percent. The decreased weight in the vehicle also improves towing, hauling, acceleration, and stopping abilities making it an all-around more efficient vehicle than its steel-based counterpart. Because the F-150 is the undisputed leader in American pickup truck sales as well as the best-selling automobile in North America, other large automobile manufacturing companies are likely to follow suit and incorporate greater amounts of aluminum into the body of their vehicles. A shift from steel to aluminum in the body of vehicles by more than just Ford could help the demand for aluminum increase by as much as 40 percent in the upcoming years.

Below is an image from Alcoa that represents the current aluminum used in automobiles and what is expected to be aluminum-based by 2025.

Figure 2: Breakdown of Aluminum in an Automobile
Source: www.alcoa.com, 2014

The trend of using aluminum to reduce a vehicle’s weight is expected to continue throughout the industry. Aluminum is lighter, more energy efficient to process, and has comparable pound-for-pound durability to steel. Steel’s heavy nature has become a burden on fuel efficiency. While aluminum has been identified as the most effective material for light weighting, its use often involves a tradeoff of strength for weight when compared to steel. Structural durability of aluminum components is often considered

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3 www.aluminiumleader.com
4 Yuliya Fedorinova and Marina Sysoyeva, “Carmakers Use Aluminum over Steel in Boost for Rio: Commodities”, Bloomberg, February 6, 2013
their biggest drawback; however, even that is less of a concern as aluminum can be made nearly as structurally strong as steel through processes such as heat-treating. A majority of the aluminum used in the body of vehicles is 6000-series alloy aluminum, which is heat-treated to the end user's desired strength. The strength of heat treated aluminum alloy is capable of exceeding that of some grades of steel while still retaining its light weight and malleability. Power tools that cannot be used with steel can cut through or hammer down aluminum leading to both cost and speed advantages in the production cycle.\(^5\) Aluminum can also be designed to absorb as much as two times the crash energy compared to mild steel.

Aluminum, when replacing steel in today's vehicles, could save approximately 44 million tons of \(\text{CO}_2\) emissions per year, and nearly 90 percent of the aluminum used in vehicles is recycled at the end of its lifecycle.\(^6\) The automotive industry is expected to continue to grow in the U.S., and aluminum is expected to play an increasingly important role in this attractive market. Results from an Alcoa study have shown that for every ten percent reduction in vehicle weight, fuel economy can improve between five and seven percent.\(^7\) Additionally, as many as 83 percent of car buyers are willing to spend more for a fuel efficient vehicle,\(^8\) further motivating automotive manufacturers to focus more efforts on light weighting.

Aluminum use in the automotive industry has been increasing at a CAGR of approximately five percent over the past few years and is expected to grow more rapidly over the next decade as environmental trends and government regulations on fuel efficiency continue to tighten.

**Aluminum in Building and Construction**

Aluminum was first introduced as a building material in the 1920s when it was used to supplement steel in the production of early skyscrapers such as the Empire State Building. It has continued to grow in popularity and has since become a prominent material in the industry, providing advantages such as low maintenance, durability, and environmental benefits. The greatest advantages of aluminum as a construction material are its light strength-to-weight ratio, sustainability, recyclability, and versatility. The building and construction industry is currently responsible for approximately 20 percent of the world’s aluminum consumption.\(^9\) Aluminum’s use as a building material is expected to grow in the foreseeable future, as it will increasingly be used for new construction. The high corrosion resistance and incredible strength-to-weight of today’s aluminum alloys are essential for the construction of modern day skyscrapers. On average, aluminum buildings weigh 35 to 80 percent less than those made primarily of steel, allowing for significantly taller structures.

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\(^5\) Michael Kasten, “Strength of Aluminum vs. Strength of Steel”, 2010  
\(^6\) The Aluminum Association  
\(^7\) Yuliya Fedorinova and Marina Sysoyeva, “Carmakers Use Aluminum over Steel in Boost for Rio: Commodities”, *Bloomberg*, February 6, 2013  
\(^8\) The Aluminum Association  
\(^9\) www.aluminiumleader.com
Aluminum is a material that can also be used in buildings to provide a number of environmental benefits. As a building material, aluminum is in compliance with Leadership in Energy and Environmental Design (LEED) standards and can be used to help a building qualify for green building status. LEED was developed in 1994 by the U.S. Green Building Council with only one standard for buildings and new construction and has since become a complete system of green building standards. Aluminum is one of the most common materials used to increase a building’s compliance with LEED standards. It is now being used to comprise the roofs of some buildings, and it is able to reflect 95 percent of sunlight away from the building which works as a cooling mechanism and drastically increases the energy efficiency of the building.  

Aluminum is not only being used for new building construction, but also for renovating and refurbishing old structures. LEED accreditation comes with the benefits of being able to minimize operational and maintenance costs and provide a safer and healthier environment for the occupants of the building, as well as reflecting favorably upon the builders and property owners.

Another environmental benefit of building with aluminum is its potential to decrease carbon dioxide emissions and reduce raw material consumption. Like in automobiles, nearly 90 percent of the aluminum used in buildings can be recycled at the end of the building’s lifecycle, further contributing to the green features aluminum has to offer. In building and construction today, it is estimated that approximately 85 percent of the aluminum used comes from recycled materials. Recycled aluminum requires considerably less energy to be reused compared to the production of new aluminum. Overall, the near-term outlook for building and construction is strong as a large amount of infrastructure will require rebuilding and refurbishing, and aluminum will likely be a material of choice to replace old concrete and steel-reinforced structures.

**Aluminum in Emerging Industries**

In addition to trends that see the use of aluminum increasing in long established industries such as automotive manufacturing and building and construction, the demand for aluminum is also expected to be driven by its use in emerging applications such as oil and gas drilling and transportation, solar energy, electronics, and telecommunications. Aluminum’s light weight, conductive properties and ability to resist corrosion make it an ideal material for a variety of applications in these rapidly expanding markets.

Both the global and domestic oil and gas industries are expected to grow rapidly over the next ten to twenty years. In the U.S. alone, natural gas production is expected to increase by more than 55 percent by 2040, and domestic crude oil production is already approaching a 40 year high. Growth in the oil and gas industry will require significant investments in exploration and production, where aluminum plays a key role. Aluminum is a popular material for use in casing and drill pipes for both on- and off-shore facilities, where its light weight and corrosion resistance allow for deeper drilling and less maintenance.

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10 Aluminum.org/sustainability  
11 The Aluminum Association  
12 U.S. Energy Information Administration, AEO2014 Early Release  
13 “The Outlook for 2020 Mega Trends for the Aluminum Industry in the Middle East”, Frost and Sullivan, 2010
Aluminum is also an important material in the growing solar energy market, where the majority of the solar panel’s frame is constructed using aluminum extrusions. Aluminum sheet and casted studs are also used in the panel’s reflective surface. As such, growth in construction of new solar facilities will support increased demand for aluminum. This likely will be an important market for aluminum component manufacturers in upcoming years, since the annual investment in new renewable power capacity is expected to increase by as much as 230 percent by 2030.14

Finally, aluminum’s heat conducting properties make it one of the most effective materials for heat sinks, which are widely used in electronic applications such as large CPUs, power transistors, LED lighting systems and wireless communication towers. A heat sink is an extruded or cast aluminum component that acts as a passive heat exchanger, dissipating heat through the body of the heat sink and cooling the surrounding device. The outlook for all of these industries is very favorable: the LED lighting market is expected to grow by as much as 40 percent per year through 2016 and global telecom tower construction is expected to increase by about 7 percent annually as developing nations continue to build out their communication networks.15 As these high tech industries continue to grow, the demand for aluminum heat sinks is likely to increase as well.

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15 www.aluminiumleader.com
DRIVERS BEHIND ALUMINUM’S INCREASED APPEAL

Figure 6: Pros and Cons of Aluminum

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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<tr>
<td>Light Weight</td>
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<tr>
<td>Recyclability</td>
<td>Inherent Strength</td>
</tr>
<tr>
<td>Flexibility</td>
<td></td>
</tr>
<tr>
<td>Malleability</td>
<td></td>
</tr>
<tr>
<td>Corrosion Resistance</td>
<td></td>
</tr>
<tr>
<td>Environmental Impact</td>
<td></td>
</tr>
</tbody>
</table>

Environmental Concerns

With environmental awareness taking on increasing importance across many industries, aspects such as recyclability and carbon footprint begin to play a role in the raw material selection process. Aluminum is becoming an increasingly popular material due to its ability to be easily recycled. Approximately 75 percent of all aluminum can be reused, and reclaimed aluminum can be recycled indefinitely. This allows for environmentally friendly disposal after a product’s completed life cycle, resulting in a smaller environmental footprint. Around 90 percent of the aluminum used in both automobile production and building and construction can be reused or recycled at the end of its initial lifecycle. This reclaimed aluminum loses very little of its original quality, evidenced by the fact that about 75 percent of aluminum that has been produced since 1888 is likely still in use today.\(^{16}\) The environmental benefits of recycling aluminum go beyond the obvious conservation of material resources; recycling aluminum uses only about five percent of the energy required to process new aluminum, and emits only five percent of the carbon dioxide compared to producing aluminum from scratch.\(^{17}\)

Aluminum’s environmental advantages also extend to the end products in which it is used. In a 2013 study conducted by the Oak Ridge National Laboratory (ORNL), it was found that aluminum-intensive vehicles have a significantly lower emission impact across their entire lifecycle compared to vehicles comprised primarily of steel.\(^{17}\) The ORNL study confirmed that using aluminum to replace steel in a vehicle’s body is the best way to cut back on carbon emissions and energy consumption in automobiles. A 32 percent reduction in total energy consumption can be achieved simply by changing the car body from mostly steel to an aluminum intensive frame. In addition, this change also reduces the CO\(_2\) emissions created by the vehicle by 29 percent.\(^{18}\) While an aluminum body does result in slightly higher emissions during the manufacturing process, the production phase of the vehicle accounts for less than 10 percent of total emissions created throughout a vehicle’s useful life. On average, it would only take a steel vehicle 9,300 miles of usage to surpass the emission output of an aluminum

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\(^{17}\) Motavalli

vehicle. Overall, an estimated 660 million tons in greenhouse gas emissions can be saved on a global scale simply by switching from entirely steel automobile bodies to aluminum-based bodies.

**Government Regulations**

Corporate Average Fuel Economy (CAFE) standards were first introduced in 1975 in response to the Arab Oil Embargo and the resulting increase in fuel prices. Originally a regulating standard for a vehicle’s fuel efficiency, CAFE standards also began incorporating a vehicle’s carbon emissions in 2011. This change has increased the stringency of CAFE standards, driving automobile companies to seek cost effective ways to increase the fuel economy of vehicles sold in the U.S. Using aluminum to replace steel has become a common way to shed weight on the car’s frame, which allows it to obtain better gas mileage. The transition to aluminum in the automotive industry is heavily influenced by the desire to meet these CAFE standards since monetary penalties can be levied onto companies that fail to achieve required fuel economy and emission standards. CAFE requirements are only expected to increase in the future, and the 2016 fuel economy standard is projected to be 34.1 mpg, up from 29.7 mpg in 2012. By 2025, standards are expected to be as high as 54.5 mpg, which is more than most high-end hybrid vehicles are currently achieving. Decreasing a vehicle’s weight will play an important role in meeting these increased fuel economy standards, and relying more heavily on aluminum is one of the easiest ways auto manufacturers can reduce the overall weight of a vehicle without compromising durability. Aluminum versions of vehicles, such as the planned Ford F-150, can eliminate as much as 700 pounds of total weight and increase fuel economy by approximately 25 percent.

**Figure 8: CAFE Standards**

*Source: National Highway Traffic Safety Administration*

<table>
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<tr>
<th>Year</th>
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<th>Light Trucks</th>
<th>Combined</th>
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<tr>
<td>2012</td>
<td>33.3</td>
<td>25.4</td>
<td>29.7</td>
</tr>
<tr>
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<td>34.2</td>
<td>26.0</td>
<td>30.5</td>
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<td>34.9</td>
<td>26.6</td>
<td>31.3</td>
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<tr>
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<td>36.2</td>
<td>27.5</td>
<td>32.6</td>
</tr>
<tr>
<td>2016</td>
<td>37.8</td>
<td>28.8</td>
<td>34.1</td>
</tr>
</tbody>
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**Tight Tolerances and Longevity**

A significant advantage aluminum possesses over many other metals is its ability to be fabricated to extremely tight tolerances. Aluminum’s properties allow it to be formed or machined down to the tight tolerances required by automotive, industrial and aerospace engineers. This precision makes aluminum a desirable metal for the production of highly technical components requiring extreme precision.

Aluminum is also more malleable and elastic compared to other metals and can be cut and measured to tighter tolerances than steel, iron, and titanium. Because aluminum is highly resilient, it is much more
flexible in the production process and can often be bent or stretched to fit forms that would break or crack steel. This allows for far greater precision in components made from aluminum.

In addition to its ability to be manufactured to extremely tight tolerances, aluminum has a greater resistance to corrosion than steel. Standard steel will generally need to be painted multiple times throughout the course of its useful life to prevent corrosion, and while stainless steel is corrosion resistant, the cost of chromium makes it more expensive than most aluminum. Aluminum requires minimal treatment to prevent corrosion, and untreated aluminum degrades significantly slower than standard steel. This is another aspect that factors into cost when comparing aluminum to other metals. The maintenance that materials such as steel require is often much higher than that of aluminum. Aluminum is naturally coated with an oxide layer that significantly slows corrosion even in areas that are exposed to water and other moisture. Steel needs to go through the process of galvanization to produce a similar outcome, and this process often requires costly upkeep to prevent the layer of protection from wearing off and exposing the metal to corrosion.

Aluminum’s corrosion resistance makes it an effective material for building in areas with inclement weather conditions such as heavy rain and exposure to sunlight. Aluminum’s ability to be essentially “weather-proof” cuts down on the maintenance costs that other materials may require, and makes it an ideal material for demanding outdoor applications such as off-shore drilling and oil and gas pipeline components.

**Figure 9: Types of Aluminum Manufacturing Processes**

*Source: Norsk Hydro*

### Rolling
- Most common method of aluminum processing
- Involves moving metal blocks through a series of heavy rolls, with each roll further reducing the thickness of the aluminum
- Rolled aluminum is used in products ranging from aircraft components to aluminum cans

### Casting
- Process of manufacturing shapes by forming molten metal using molds or dies
- Three common casting methods; sand casting, permanent mold casting, and die casting
- Casted components can range from a few ounces to over one hundred pounds, and can achieve very tight tolerances without significant additional machining

### Extrusion
- Involves heating aluminum billets to just below the melting point and forcing it through shaping tools using a horizontal press
- Preferred method for manufacturing construction materials such as window and door framing
- Also used to produce intricate parts for automotive and electronics markets

**Thermal Properties**

Aluminum is a highly thermally conductive metal, meaning that heat can pass through it relatively easily. Pure aluminum has an average thermal conductivity of about 205 watts per meter kelvin (W/(m*K)). This is significantly higher than other metals of similar strength such as stainless steel, which has a thermal conductivity of only about 20 W/(m*K). Aluminum’s high thermal conductivity allows it to attract and dissipate heat very effectively, and makes aluminum an ideal material from which to make heat sinks and other thermal management components. Heat sinks are vital cooling components that are often found in large lighting and electronic devices. They work by absorbing and dissipating heat across a large surface area, moderating the temperature of the device. In addition to heat sinks, aluminum is used to produce other components of lighting and electronic devices, primarily due to its ability to dissipate heat without significantly raising the temperature of the surrounding device.

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19 Adam Hornbacher, “Steel versus Aluminum – Weight, Strength, Cost, Malleability Comparison”, Wenzel Metal Spinning
U.S. ALUMINUM COMPONENT MANUFACTURERS ARE IN HIGH DEMAND

Looking towards the future, global demand for aluminum is expected to increase at an above average rate for the next five to ten years. As discussed, this demand will be driven primarily by the increased use of aluminum across diverse industries. Aluminum’s favorable properties make it an ideal material for many applications, and as recyclability, weight and precise tolerances begin to play increasingly important roles in material selection, global aluminum consumption will likely continue to increase as well.

While these dynamics will drive the growth of the global aluminum market at all levels of the supply chain, there are several factors that are expected to impact U.S.-based aluminum fabricators more directly. As broader demand for aluminum increases, manufacturers of aluminum components can expect to see this reflected in larger customer orders and exposure to new end markets. In addition to the overall increased demand for aluminum components, domestic metal fabricators are also experiencing the effect of the re-shoring of manufacturing to the U.S, as well as increased pricing leverage resulting from a shortage of remaining high-quality domestic fabricators. These trends, in conjunction with overall growth in aluminum use, will allow domestic aluminum manufacturers on the high end of the quality spectrum to expand their margin profile, while at the same time making them highly attractive acquisition targets.

Re-shoring of Component Manufacturing

Since the early 1970s, the number of metal parts manufacturers in the U.S. has steadily declined. Extremely cheap overseas labor, primarily in China, allowed OEMs to source components from foreign manufacturers and ship them to the U.S. very cost-effectively. Recently, however, this trend has begun to shift. Wages in China have been on the rise, increasing about 15 percent annually for the past five years. Combined with continually increasing shipping costs, this has led many component buyers to turn to domestic suppliers to manufacture the parts they need.

High shipping costs in the metal product industry provide added incentive to seek out domestic suppliers. In addition to transportation cost savings, the lead time advantages and improved communication associated with a domestic component supplier are also an important factor to OEMs. As more manufacturers look to domestic metal fabricators as suppliers, demand for high quality, highly efficient component manufacturers is likely to increase.

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Shortage of High Quality Aluminum Component Manufacturers

The number of aluminum component manufacturers in the U.S. has been slowly declining since the 1970s, driven primarily by the move to overseas production. In 1974, there were over 1,300 custom aluminum die casters in the U.S. Today, there are only around 225. This trend was not limited to die casters, as the number of other types of aluminum fabricators in the U.S. has also declined significantly. The recent economic downturn also took a major toll on the North American aluminum component manufacturing industry, with total industry capacity decreasing by as much as 30 percent from 2006 to 2010. In recent years, however, this decline has begun to reverse and the outlook for U.S. manufacturing is highly optimistic. With the production cost gap between the U.S. and China expected to decrease to below 15 percent in 2014, many manufacturers are once again looking to U.S. manufacturers to supply aluminum components. This has led to a dramatic shortage in U.S. aluminum manufacturing capacity. Following the recession, many middle market manufacturers remain wary of the future market and therefore are slow to invest in growth, resulting in recession level capacity attempting to meet unusually high demand. This capacity shortage is allowing high quality domestic component manufacturers to be more flexible than ever with their pricing and enabling rapid returns on investments in increased capacity.

Figure 11: U.S. Purchasing Manager’s Index*

Source: Institute for Supply Management, Federal Reserve

Aluminum Processors are Becoming Increasingly Attractive Acquisition Targets

The increasing demand for aluminum products across broad end markets and the favorable macroeconomic dynamics in the component manufacturing industry combine to make aluminum fabricators highly attractive M&A targets. The lack of domestic component manufacturers has put a premium on aluminum processing capacity and made small to middle market U.S. manufacturers desirable as strategic acquisitions for larger companies. Additionally, improving margins and strong growth opportunities in the industry have attracted the attention of private equity investors. Global M&A activity across the metal industry is also increasing, with post-recession deal volumes significantly higher than in the decade preceding the economic downturn. And unlike many other heavy industries, global increases in metal and mining M&A activity are being driven primarily by developed nations, with North America representing 22 percent of target proceeds in 2013.21

21 EY Global Mining and Metals Transactions
RECENT ALUMINUM INDUSTRY M&A ACTIVITY

American Metal Technologies’ Acquisition of Kotobuki-Reliable Die Casting Inc.
On August 26, 2014 Milwaukee, WI-based American Metal Technologies acquired Kotobuki-Reliable Die Casting Inc. for an undisclosed sum. Kotobuki-Reliable is a provider of aluminum die casting and precision machining services based in Xenia, Ohio. The acquisition complements American Metal Technologies existing machined components business, and allows the company to expand its production capacity significantly. Following the acquisition, Kotobuki-Reliable will operate under the name Destin Die Casting.

Aavid Thermalloy’s Acquisition of Allcast, LLC
On July, 1 2014, Aavid Thermalloy, a New Hampshire-based designer, manufacturer, and distributor of thermal management solutions, announced the acquisition of Allcast, LLC. Allcast is an Allentown, WI-based custom die casting and tooling company that offers a variety of highly engineered, precision aluminum high-pressure die casting and machining services. This acquisition provides Allcast with much needed capital to achieve its next level growth. The deal valued Allcast at a relatively high multiple for a die caster of its size.

Quinpario Acquisition Corp.’s Acquisition of Jason Inc.
On July 1, 2014, Quinpario Acquisition Corp. acquired Jason Incorporated (Nasdaq: JASN) for $539 million. The acquisition combines the expertise of Quinpario’s executive leadership team with Jason’s global family of market-leading manufacturing businesses. Jason Incorporated is a diversified global manufacturing company specializing in finishing and seating products, aluminum components, and automotive acoustics. It was founded in 1985 and is based in Milwaukee, WI. Quinpario Acquisition Corp. acquired Jason Incorporated through a stock purchase agreement.

Wynnchurch Capital’s Acquisition of U.S. Manufacturing Corporation
On June 30, 2014, Wynnchurch Capital, a middle-market private equity firm, acquired U.S. Manufacturing Company (USM), a manufacturer of highly specialized extruded aluminum products. The acquisition provides USM access to capital as well as Wynnchurch’s VARI-LITE process to expand into new markets and continue to grow in its current market. U.S. Manufacturing Company is a domestic manufacturer of extruded tubular products and machined components for the automotive industry.
Shiloh Industries Inc.’s Acquisition of Finnveden Metal Structures
On June 30, 2014 Shiloh Industries Inc. (Nasdaq: SHLO), a manufacturer of metal parts primarily for the automotive and commercial vehicle markets, acquired Finnveden Metal Structures for $74 million. Finnveden Metal Structures is a Swedish provider of aluminum, magnesium and steel castings and related services to customers primarily in the automotive space. The acquisition expands Shiloh’s aluminum and magnesium manufacturing capabilities and strengthens the company’s commitment to providing metal products with a focus on light weighting.

Columbus McKinnon’s Acquisition of Unified Industries
On February 28, 2014, Columbus McKinnon (Nasdaq: CMCO) acquired Unified Industries for $12 million. Columbus McKinnon is a publicly held company that designs, manufactures, and markets industrial handling equipment. Unified Industries designs, manufactures, installs, and provides after-the-sale service for handling equipment in the U.S. automotive industry. Unified Industries was one of the first companies to provide an aluminum-based overhead rail system for industrial applications. Columbus McKinnon acquired Unified Industries as an add-on for its hoist product portfolio. The acquisition of Unified Industries increases the product base for this division of Columbus McKinnon’s portfolio and should help to strengthen ties with OEMs.

SRS International Holdings’ Acquisition of Empire Die Casting Co., Inc.
On December 31, 2013 SRS International acquired Ohio-based Empire Die Casting Co. for $11 million in cash. Empire Die Casting Co. manufactures aluminum and zinc die castings for customers across diverse end markets including automotive, electronics, consumer products, and HVAC. SRS acquired the company through a stalking horse bidding process and plans to leverage existing relationships and industrial expertise to improve Empire’s operations.
RECENT GRACE MATTHEWS TRANSACTIONS

- **Avid Thermalloy** has been acquired by
  - **Aleco**
  - **Grace Matthews, Inc.** advised

- **Grace Matthews, Inc.** advised

- **Northern Wire** has been acquired by
  - **Audax Group**
  - **Grace Matthews, Inc.** advised
  - **Northern Wire**

- **Trivest** has acquired
  - **Grace Matthews, Inc.** advised
  - **Trivest Partners**

- **Samuel Mann-Tech Inc.** has been acquired by
  - **Grace Matthews, Inc.** advised
  - **Northland Stainless, Inc.**

- **LORD** has sold its Resilient Floor Coatings Business to
  - **AkzoNobel**
  - **Grace Matthews, Inc.** advised
  - **LORD Corporation**

- **3M** has acquired
  - **NorthStar Chemicals, Inc.**

- **Raabe Corporation** has been acquired by
  - **Main Steel Polishing**
  - **A-C Equipment Services**
  - **Grace Matthews, Inc.** advised
  - **Raabe Corporation**

- **Allcast, LLC** has been acquired by
  - **Northern Wire**
  - **Trivest Partners**

- **Ashland** has acquired
  - **Northland Stainless, Inc.**

- **3M** has acquired
  - **NorthStar Chemicals, Inc.**

- **Spraylat Corporation** has sold certain assets to
  - **PPG**
  - **Grace Matthews, Inc.** advised
  - **Spraylat Corporation**

- **Raabe Corporation** has been acquired by
  - **Main Steel Polishing**
  - **A-C Equipment Services**
  - **Grace Matthews, Inc.** advised
  - **Raabe Corporation**

- **Shale-Inland** with an equity investment in Shale-Inland from
  - **The Stephens Group**
  - **Grace Matthews, Inc.** advised
  - **Main Steel Polishing**

- **Safeway** has been acquired by
  - **Brockway Moran & Partners**
  - **Grace Matthews, Inc.** advised

- **Ashland** has acquired
  - **Northland Stainless, Inc.**

- **3M** has acquired
  - **NorthStar Chemicals, Inc.**

- **Trivest Partners** has acquired
  - **Brockway Moran & Partners**

- **Grace Matthews, Inc.** advised

- **GSI General Materials, LLC** has been acquired by
  - **Trivest Partners**
  - **Grace Matthews, Inc.** advised
  - **Main Steel Polishing**

- **Grace Matthews, Inc.** advised

- **White Cap**
  - **GSI General Materials, LLC**

Grace Matthews
Grace Matthews’ industrial investment banking group provides merger, acquisition, and corporate finance advisory services for industrial companies both in the U.S. and internationally. We have extensive experience serving businesses in a variety of industrial markets, including metal fabrication, packaging, heavy and niche manufacturing, construction services, industrial services and business and professional services. Our practice is global in scope and well known for its strong track record of success dating back to the early 1990s. Our three main practice areas are sell-side transactions (private companies, divestitures for large multi-national corporations and private equity-owned businesses); buy-side projects (typically for major multi-nationals); and financing, where we raise debt and/or equity capital to support private equity-sponsored management buy-outs or recapitalizations. For more information on Grace Matthews’ Industrial practice, visit gracematthews.com/construction.

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