Based on the NADCA Business Barometer, overall shipments were forecast to be up slightly over 3% in 2017 versus 2016. Forecasts vary for automobiles and light trucks, our largest market, from 17.1 million units to 17.9 million units. With 2015 and 2016 being back-to-back record setting years, 2017’s actuals will most likely come in about the same as the 17.5+ million in 2016, whether slightly higher or slightly lower. Estimates for 2018 indicate a bit of softening with sales of 16.7 million predicted. New housing starts are forecast to hit a fairly healthy near 1.2 million units and analysts don’t expect the market to reach much above this level until 2020. All considered, actual overall die casting shipments may be slightly up this year but may be down a few percent in 2018.

The following provides information on issues surrounding the new administration, a quick look at macro-economics, and a closer view of end markets and shipments.

Is the New Administration Doing Any Good?

Top focus areas of the new administration include: healthcare reform, tax reform, regulation reduction, trade balancing, and infrastructure spending.

Figure 1 shows the how CEOs rated challenges at the end of Q3 2016 and Q2 2017. In 2017, rising healthcare costs are still at the top of the list, but unfavorable business climate dropped from #2 (73%) to #3 at (55.7%), which is an indication that manufacturing has some trust in the new administration doing some good. Second on the list is attracting and retaining a quality workforce. Technical education is one way of retaining and ensuring a quality workforce. It should be noted that although a technical education bill has been pending for over 10 years, the government is supportive of apprenticeship programs and several research projects funded by government agencies have a workforce development requirement as well as education for K-12 and college students. Furthermore, the National Network for Manufacturing Innovation has a focus on workforce development.

Healthcare:

As seen in Figure 2, individual monthly premiums for healthcare have doubled since 2013, even on healthcare.gov. In addition, according to the World Health Organization (WHO), the U.S. continues to spend more on healthcare than any other country. Insurance carrier options are fewer as some carriers no longer support certain States. It is no wonder why the administration has been working feverishly to get a new healthcare bill passed which repeals and replaces Obamacare. Thus far, however, any formulation of a reform bill has failed to pass approval of capitol hill.

Figure 1 - Manufacturing CEO’s Rate Challenges Yesterday (top) and Rate Challenges Today (bottom). (Source: www.nam.org/Outlook)

Figure 2 - Average monthly premiums in the individual market for healthcare.gov states.
No Tax Reform as Yet:
By the time of this publishing, tax reform may have already occurred in December 2017. However, a budget resolution may set the stage for tax reform. Hence, any tax bill will probably not take place until early 2018, but likely by the end of March. The Corporate Tax Rate cannot be as low as 15%, but will probably be under 25%. The current word is 22.5%. It is not only the tax rate that will be changed, deductions will be changed as well. To determine whether a company may be better or worse off, the question that needs to be answered, for example, is - is it an advantage to have the lower rate if you are currently at 27% but can no longer deduct equipment and interest?

Regulatory Reform:
There are a number of things going on in the arena of regulatory reform. The EPA has suffered staff cuts and has less resources now. The Clean Power Plan is still in its early re-write stage and a delay in the ground level ozone rule is being challenged. There is a possibility of a reversal of both the 54.5 mpg fuel efficiency standard and DOL/NLRB electronic reporting requirements. As for OSHA, electronic recordkeeping is in effect but is being reconsidered. The overall direction in this arena appears to be helping manufacturers. Figure 3 shows how manufacturers have indicated they would benefit from lower compliance costs.

Trade Balance:
NAFTA negotiations officially began on August 16, 2017. The focus is on revising the 62.5% N.A. content up to 75% or higher and setting a minimum U.S. content. The U.S. is seeking changes on currency, rules of origin and dispute resolution. The target for completing any changes is January 2018 and the earliest the president can sign a new agreement is March 21, 2018. Roughly 6 months later, the new NAFTA goes before Congress for a required vote. If a good balance in trade is not met, there could be a phase-out of NAFTA. Since any change to NAFTA requires a 6-month notification, the earliest any change would be in effect is roughly March 21, 2019.

Infrastructure Plan
According news sources, the $1 trillion infrastructure plan promise has an obstacle - the president’s own budget cuts. There has been $255 billion in cuts for existing infrastructure programs that are considered to be wasteful. The president has made statement such as, “We will create the first-class infrastructure our country and our people deserve” and, “It’s time to rebuild our country to bring back our jobs”. These are great statements, but is a new plan on the horizon? There doesn’t appear to be any sign that an infrastructure plan/bill will be passed soon.

Macro-Economics
GDP growth rose to 3.1% in Q2 2017 and 3.0% in Q3 2017. The highest quarter in 2016 was a growth of 2.8%. Compared to an average growth of 1.6% in 2016, 2017 is forecast to hit 2.6%. Unemployment declined in 2017, consumer sentiment has remained high, and although personal consumption has tailed down slightly it remains fairly high. Personal consumption has remained fairly high because people are feeling more secure in their jobs and reasonably good about the economy and apt to spend money. Spending assist in sparking the economy.

Figure 4 – GDP Growth was 2.6% in 2015, 1.6% in 2016. 2.5% is expected for 2017.

Figure 5 – Consumer sentiment remains high.

Figure 6 – Consumption ties to sentiment and helps to spark the economy. Increased since recession but currently tailing down a bit in percent change.

Manufacturing Capacity Use is at 75.5% and has been running between 75% and 76.5% since 2014. Although it has increased tremendously from the most recent recession period, it has not hit the highs that were achieved prior to the recession. From an efficiency perspective it typically desirable to be above 80-82%.
End Market Analysis

The top two markets served by the die casting industry are the automotive industry (#1) and the housing industry (#2). Thus, following the trends and forecasts for these industries provides insight for forecasting die casting industry business level. Light vehicle sales in 2016 reached 17.55 million units. A stellar year for the second year in a row that some predicted would not be sustained in 2017, however, the seasonally adjusted rate for 2017 in October 2017 indicated that sales may slightly exceed that of 2016. Currently, analysts predict that the actual 2017 sales will be from 17.1 million units to 17.9 million units. Regardless of which is correct, the sales in 2017 will be close to that of 2017, whether slightly more or slightly less. The most recent forecast from NADA (the National Automobile Dealers Association) predicts 16.7 million units in 2018 and that 2017 levels will not be sustained. If this is correct, the die casting industry may see a bit of softening in 2018, but this could be somewhat offset by continued growth in structural die castings for the automotive industry and growth in non-automotive industries.

Figure 7 – Historic manufacturing capacity use. Shaded areas denote U.S. recessions.

Overall, it appears that manufacturing has been turning the corner in recent months according to NAM’s Manufacturers’ outlook survey. Production and sales growth rates for the respondents were shown to be up by 4.5% over a 12-month period. Capital investments were up 2.7%, exports were up 1.3%, and process were up 1.8%. The outlook index, also published by NAM shows an increase of indices in the 30s to 40s in 2016 to indices in the high 50s and 60s in 2017 for small, medium, and large size firms. All signs of U.S. manufacturing moving in a positive direction.

Percentage of Respondents Positive in Their Own Company’s Outlook
89.8%  
(June: 89.5%)

Small Manufacturers: 85.1% (June: 84.8%)  
Med-Sized Manufacturers: 89.8% (June: 90.6%)  
Large Manufacturers: 94.9% (June: 92.8%)

NAM Manufacturing Outlook Index 61.0  
(June 60.8 - revised)

Expected Growth Rate for SALES Over the Next 12 Months  
↑4.5%  
(June: ↑4.8%)

Expected Growth Rate for PRODUCTION Over the Next 12 Months  
↑4.5%  
(June: ↑4.8%)

Expected Growth Rates for EXPORTS Over the Next 12 Months  
↑1.3%  
(June: ↑1.1%)

Expected Growth Rates for CAPITAL INVESTMENTS Over the Next 12 Months  
↑2.7%  
(June: ↑3.2%)

Expected Growth Rates for PRICES Over the Next 12 Months  
↑1.8%  
(June: ↑1.7%)

Expected Growth Rates for FULL-TIME EMPLOYMENT Over the Next 12 Months  
↑2.2%  
(June: ↑2.7%)

Expected Growth Rates for INVENTORIES Over the Next 12 Months  
↑1.0%  
(June: ↑1.3%)

Expected Growth Rates for EMPLOYEE WAGES Over the Next 12 Months  
↑2.2%  
(June: ↑2.1%)

Expected Growth Rates for HEALTH INSURANCE COSTS Over the Next 12 Months  
↑8.3%  
(June: ↑8.4%)

U.S. Light Vehicle Sales

Figure 8 – NAM Manufacturers’ outlook survey: third quarter 2017.

Figure 9 – The seasonally adjusted rate for light vehicle sales up in October 2017 from the prior year’s seasonally adjusted rate of 17.75M.

New housing starts have followed a monotonically increasing slope since the last recession period. The annual rate for housing starts was 1.13 million in September 2017 and jumped to an estimated 1.29 in October 2017. The year-end actual number of new housing starts is estimated to be right near the 1.2 million mark. This is indicative of a fairly healthy housing market, but hitting levels above the 1.2 million mark is required for a real healthy market. Although last year, the growth in housing was forecast to be 9% for 2018, current estimates are showing about 1.1 mil-

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Expected Growth Rates for HEALTH INSURANCE COSTS Over the Next 12 Months  
↑8.3%  
(June: ↑8.4%)

“Do you think the U.S. is headed in the right direction, or is the country on the wrong track?”
RIGHT TRACK: 46.4%  WRONG TRACK: 21.4%  UNSURE: 32.2%  
(June: Right Track: 56.9%, Wrong Track: 14.3%, Unsure: 28.9%)

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lion new starts in 2018 and close to 1.3 million by the year 2020. Tied to the housing market are die cast products such as door and window hardware and faucets as well as items containing die castings such as appliances, and heating and cooling systems. All considered the housing market appears to be fairly flat through 2020.

Figure 11 - The housing market is shaping up but still shy of being healthy.

Looking at household appliances individually, production is expected to have grown about 3% in 2017. Initially, more growth was expected for 2018, however with the housing market hanging steady over the next few years, appliances will most likely be flat through the end of 2019. Although not major markets for die casting, electronics, medical equipment, telecommunication all appear to be on the rise.

Figure 12 - Household appliance production grew 4% in 2016 and is forecast to grow 3% in 2017, and then flat through 2019.

The NADCA Business Barometer indicated capacity utilization for Q3 2017 was an average of 59%, down from the Q2 average of 64%. The automotive average was 64%, down from Q2’s 77% and non-automotive was an average of 57%, down from Q2’s average of 59%.

Figure 13 - Die casting capacity use in Q3 2017.

Q3 2017 business barometer data indicates the current overall average energy cost is $0.21/lb shipped. Automotive average energy cost is $0.17/lb. Non-automotive average energy cost is $0.23/lb. 2015 and 2016 overall average was about $0.13/lb. 2014 overall average was about $0.15/lb. This graph helps the die caster to see where their operation is, compared to the rest.

Figure 14 - Energy cost ($/lb shipped, Q3 2017).

Overall shipments were down about 0.8% in Q3 of 2017 as compared to Q2 of 2017. Automotive was down less than non-auto (-0.43% versus -1.40%) and this is driven by aluminum being down by 1.17%. Zn was up 2.84% and magnesium was up 12.36% in Q3 as compared to Q2 2017. Based on data from the Aluminum Association, the total U.S. die casting shipments were 3.2 billion pounds for 2015 and 3.4 billion pounds 2016. The total for the first 2 quarters of 2017 was 1.65 billion pounds. Die castings comprise over 65% of the total shipments of aluminum castings. Total shipments of all Al castings in 2016 was 5.19 billion pounds.

<table>
<thead>
<tr>
<th>Shipment Comparison by Quarter</th>
<th>Overall</th>
<th>Automotive</th>
<th>Non-Auto</th>
<th>Al</th>
<th>Zn</th>
<th>Mg</th>
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<tbody>
<tr>
<td>4th Q’17 vs 3rd Q’17</td>
<td>-0.77%</td>
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<td>-1.40%</td>
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<td>3rd Q’17 vs 2nd Q’17</td>
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<td>3.44%</td>
<td>7.49%</td>
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<td>1st Q’17 vs 4th Q’16</td>
<td>3.87%</td>
<td>3.06%</td>
<td>4.27%</td>
<td>3.44%</td>
<td>7.49%</td>
<td>-11.48%</td>
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</tbody>
</table>
Based on the data from the Q3 2017 business barometer, the shipment forecast is 3.44% growth in 2017 as compared to 2016, even though overall shipments were down 0.8% in Q3 of 2017 as compared to Q2 2017.

**Table: Forecast for 2017**

<table>
<thead>
<tr>
<th></th>
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<th>Non-Auto</th>
<th>Zn</th>
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<tbody>
<tr>
<td>2017 Actual vs 2016</td>
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<td>2017 vs 2016 Forecast (Q3)</td>
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<td>2017 vs 2016 Forecast (Q2)</td>
<td>0.2%</td>
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<td>6.6%</td>
<td>-0.4%</td>
<td>-0.4%</td>
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**Conclusions**

The Trump administration may be doing some good, however, healthcare reform, tax reform and trade balance have yet to be delivered. There has been much well publicized push-back on many issues leading to delays of several onerous regulations.

Manufacturing in general seems to be turning the corner. Sales, production and investments are all up for all manufacturing. Die casting shipments in 2017 will be about the same as for 2016 to slightly higher. Major markets have hung fairly steady. However, softening of the automotive market is forecast for 2018 and may result in die casting shipments declining a few percent unless the growth in structural die castings for the automotive industry and growth in non-automotive industries offset the automotive market softening.

**Figure 15** - Aluminum association second quarter 2017 shipment report.

**Figure 16** - Snapshot of Q3, 2017.