CASS FREIGHT INDEX REPORT™

December 2018

Economic Outlook from Freight's Perspective

Financial Markets Worry, Transportation Economy Remains Steady

	December 2018	Year-over-year change	2-Year stacked change	Month-to-month change
Shipments	1.142	-0.8%	6.3%	-1.7%
Expenditures	2.903	10.0%	27.7%	1.9%

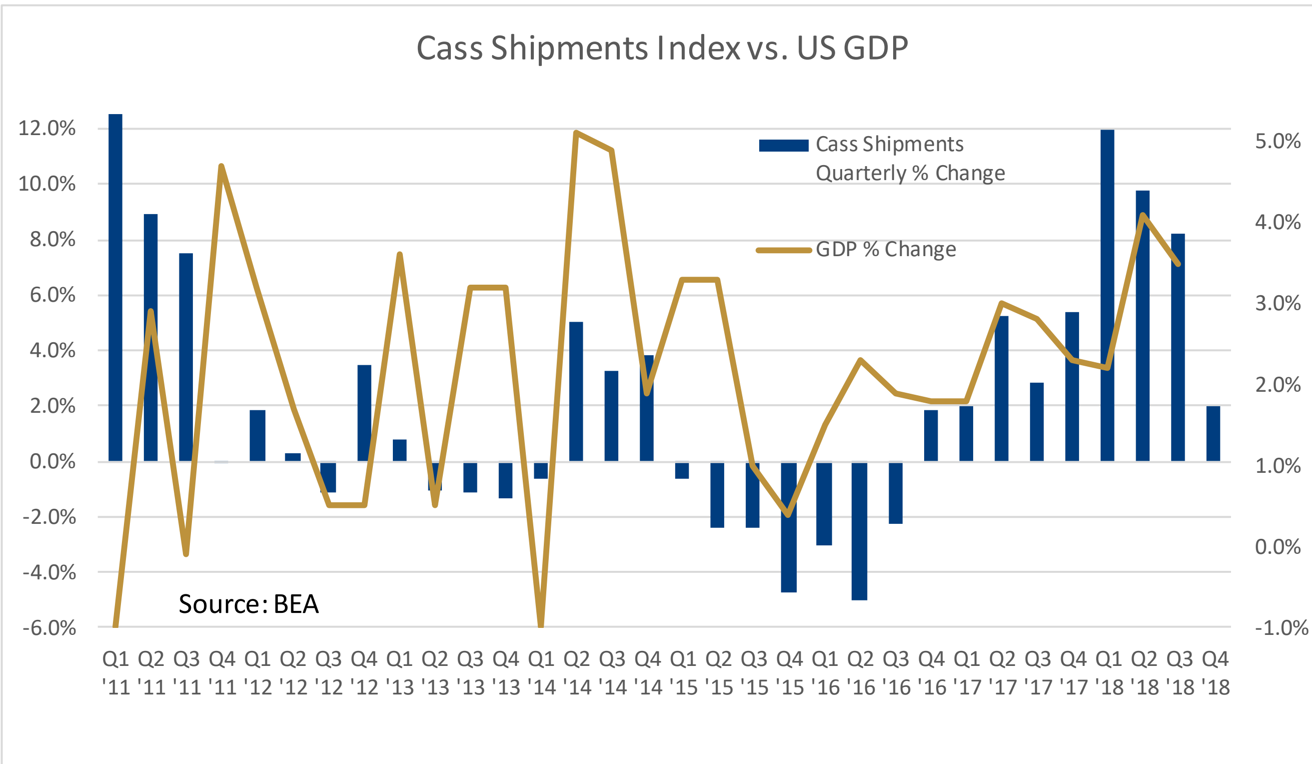
December was a month of growing uncertainty and severe declines in the U.S. financial markets. Equity valuations fell (the Dow Jones fell from 25,826 on December 3rd to as low as 21,792 on December 24th), most commodity prices continued to be weak (oil, copper, lumber, etc.), and interest rates declined (after peaking at 3.24% on November 8th, the 10-year Treasury yield fell from 3.01% on November 30th to 2.56% on January 3rd '19). Large multi-national companies lowered guidance and blamed slowing rates of activity in Europe and—to a lesser extent—Asia. Trade talks with China continued without resolution, and indications that the Chinese economy is beginning to suffer began to leak out.

Despite all the 'hand-wringing' on Wall Street, the transportation economy continues to signal economic expansion. The uninfluenced-by-human-emotion hard data of physical goods flow confirms that people are still making things, shipping things, and buying/consuming things, perhaps not at the scorching pace attained earlier this year, but still at an above-average pace.

For reasons outlined later in this report, we are not yet alarmed about the volume of shipments going negative for the first time in 24 months (-0.8% in the month of December), in part because December 2017 was an all-time high for the month, and in part because of the stabilizing patterns we see in almost all of the underlying freight flows. However, we would be negligent if we did not acknowledge (as we did in last month's report) **two storm clouds on the economic horizon:**

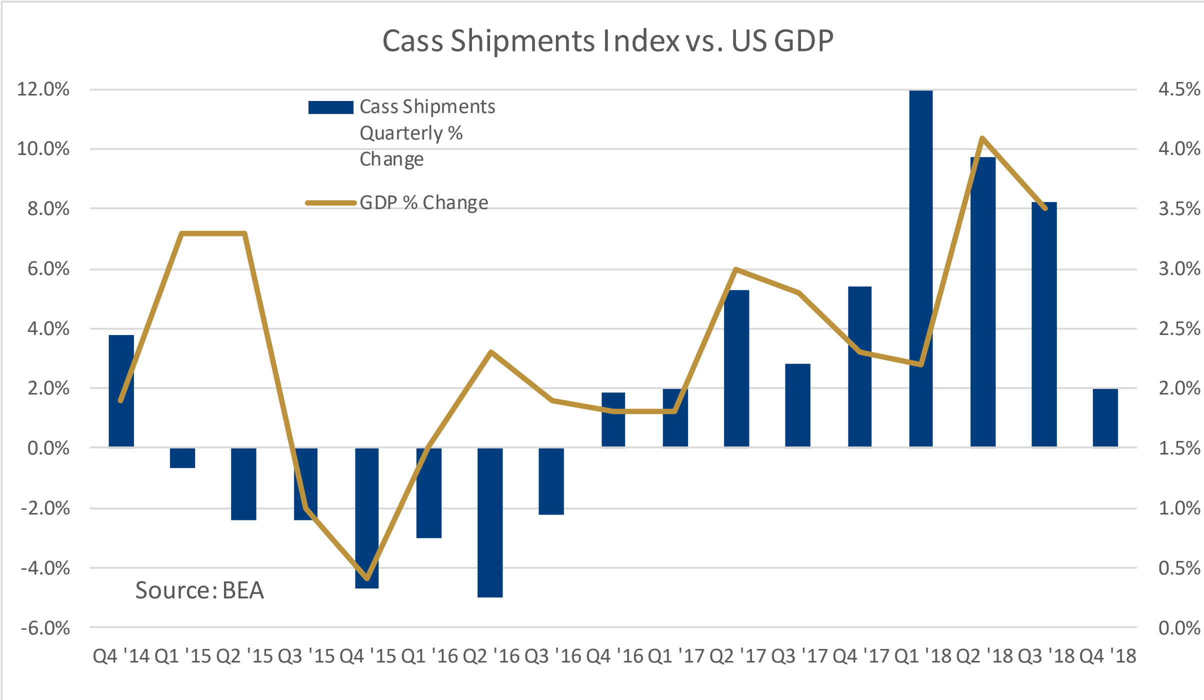
- **the tariffs and threats of even higher tariffs with China,** the world's second largest economy (even though the latest headlines and tweets suggest that there may be a resolution). Tariffs have throttled volumes in some areas of the U.S. economy, most notably agriculture exports and other select raw materials;
- **the decline in WTI crude in December** to as low as $42.50 a barrel. This did not fall below the marginal cost of production for fracked crude in almost all areas of the U.S., but it made it less profitable and significantly lowered the incentive to drill ever more holes, effectively slowing the rate of growth in the industrial economy. *Crude's recent rally (WTI above $52 as we write this) gives us a momentary sigh of relief. Continued strength in the price of crude makes us more confident in our positive outlook for the U.S. industrial economy and less worried about global demand.*

These potential problems acknowledged, we maintain a cautiously bullish outlook since the freight markets, or more accurately goods flow, have a well-earned reputation for predictive value without the anchoring biases that are found in many models which attempt to predict the broader economy. Later in this report we will look at the specific freight flows that are signaling continued growth in specific segments of the economy. Each of these data sets supports our assertion that the Cass Shipments Index is indicative of continued economic expansion. Our confidence in this outlook is emboldened by the knowledge that since the end of World War II (the period for which we have reliable data) there has never been an economic contraction without there first being a contraction in freight flows. Conversely, during the same period, there has never been an economic expansion without there first being an expansion in freight flows. **Bottom line: even if it is at a slower rate, as long as the volume of freight continues to expand, we see no reason to turn bearish in our economic outlook.**



Current consensus estimates of the GDP for the 4th quarter are predicting 2.8%, but using the Cass Shipments Index as a predictive proxy, this would leave us believing the number reported in January may fall short of those estimates.

Although we also subdivide the economy via multiple other data feeds that represent smaller segments of freight flows, **the Cass Freight Shipments and Expenditures Indexes are two of the strongest proxies for what is happening in the overall U.S. freight markets, and as a result they are <u>strong predictive indicators</u> for the U.S. economy.** *We understand that there are other broad proxies for freight flows, but they are either less frequent (only once a quarter) or less timely (reported >4 weeks after the month ended).*



We would remind our readers of a few of the fundamental factors that create disparity between the rate of change in goods flow and the rate of change reported as GDP:

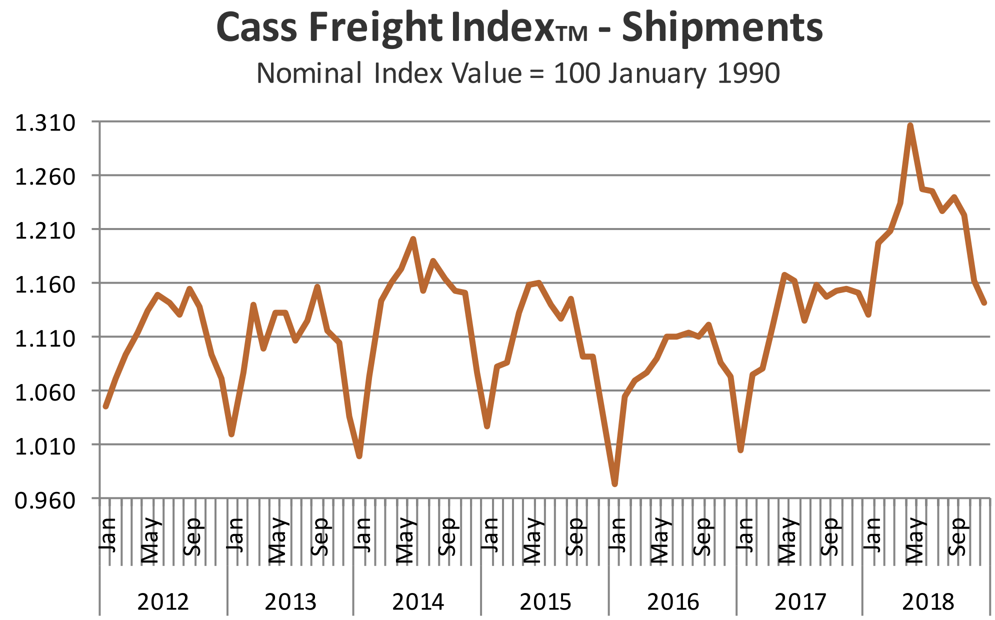
- *Despite the strong pre-ship that was experienced in May and June as firms tried to get ahead of the tariffs, inventories across the U.S. economy actually fell in the second quarter and were a one-percentage point headwind to the GDP (the reduction of inventory is a negative to the calculation of GDP, while the increase of inventory is a positive to the calculation of GDP). Without the drop in inventories that occurred, GDP would have come in at 5.1% in 2Q.*

- *It is our current sense that volumes, especially import container volumes, may lead to a similar disconnect between the actual pace of economic growth and the reported GDP in 4Q. Since all imports are counted as a negative to the calculation of GDP, we could see strong freight volumes but a measurement of GDP that was muted by the strong import volume.*

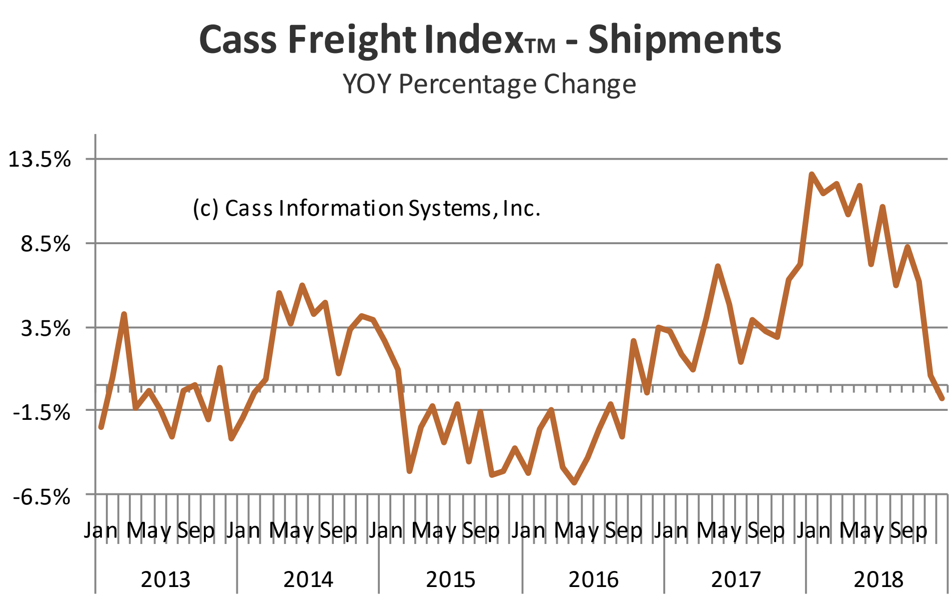
Other reasons the reported economic results in coming months are poised to be lower – still expanding but at a percentage rate less than in early 2018:

- lapping increasingly difficult comparisons;
- infrastructure in many industries is showing signs of being at or near full capacity;
- infrastructure in most modes of transportation is at or near full capacity;
- unemployment is low enough to make growing the active workforce incredibly challenging.

Hence, further large percentage increases in the short term are increasingly difficult without significant investments in equipment and technology. All the intricacies about the limitations on the rate of growth possible on top of already strong growth aside, the Cass Shipments Index is still signaling continued economic growth.



Transportation Continues to be a Leading Indicator
Shipments first turned positive twenty-seven months ago, while expenditures turned positive twenty-four months ago, both providing some of the first indications of the acceleration in the U.S. economy. Despite contracting slightly this month, against a very strong comparison, the 2-year stacked rate of growth remains at a bullish 6.3%. **The current levels of volume and pricing growth are suggesting that the U.S. economy is still growing, just not at the rate it was, and that it may have reached its short-term expansion limit.** Even with the -0.8% YoY decrease in the December Cass Shipments Index, the full year 2018 percentage was 7.9%, which is very robust. However, this is a marked deceleration from the 6.2% achieved in October and is an even more marked deceleration from the low double-digit levels achieved in the first five months of 2018. We are confident that the increased spending on equipment, technology, and people will eventually result in increased capacity in most transportation modes. That said, **many modes are continuing to report "limited amounts of capacity."**



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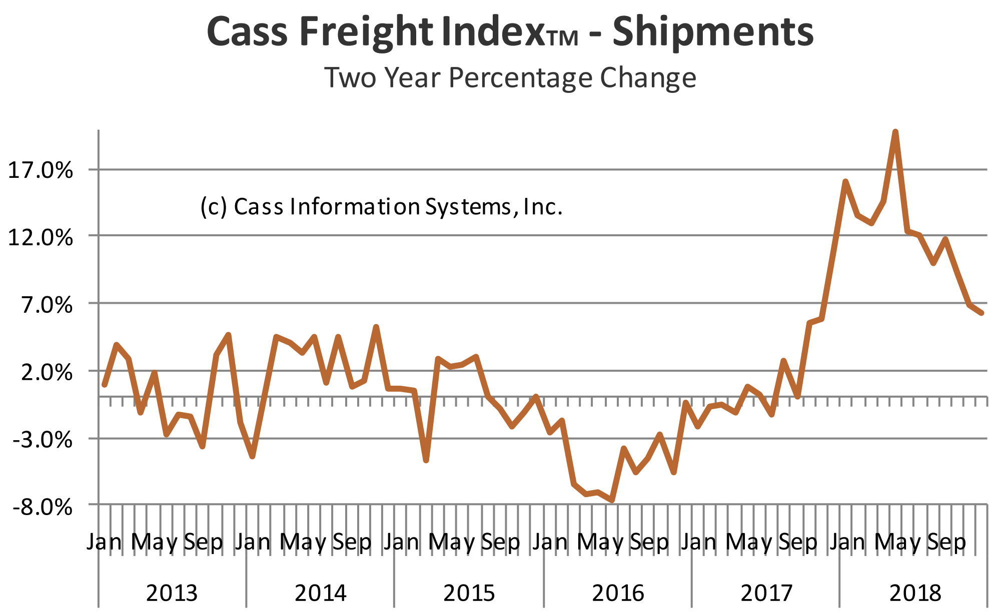
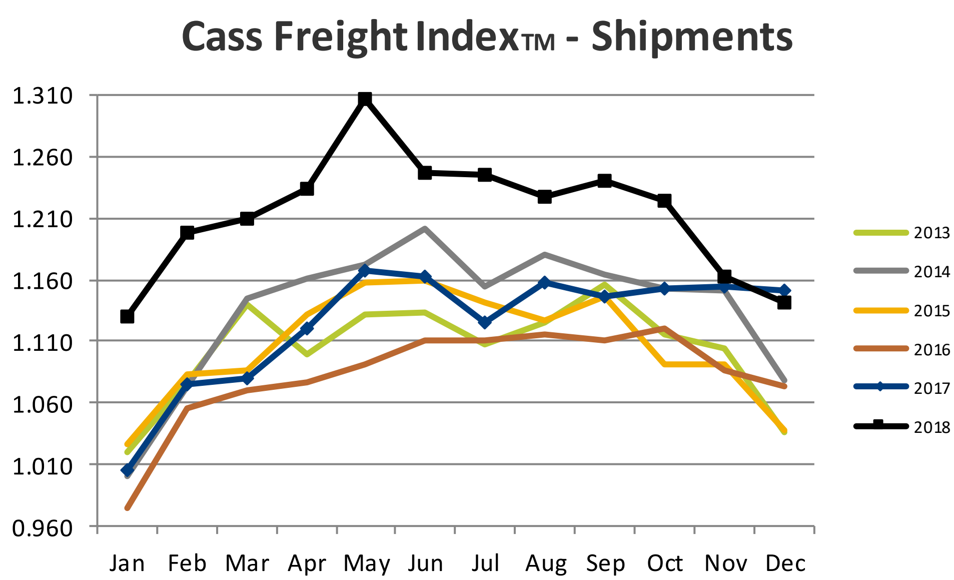


Viewing the percentage change on a 2-year basis loses the predictive value of the index, but provides perspective on how strong the recent expansion has been. With this context, the small rate of November YoY percentage increase and small rate of December YoY percentage decrease seem even less concerning. Alternatively, this highlights how severe the 2015-2016 industrial slowdown actually was.



With all of 2018 ‘in the record books,’ it is clear that 2018 was an extraordinarily strong year for transportation and the economy. Every month from March to October exceeded all levels attained in all months in 2014 (a very strong year), while February was roughly equal to the peak month in 2014 (June 2014 – 1.201 vs February 2018 – 1.198), which is extraordinary. A YoY stacked chart (see above) highlights the surge to higher levels that began in November and December 2017.

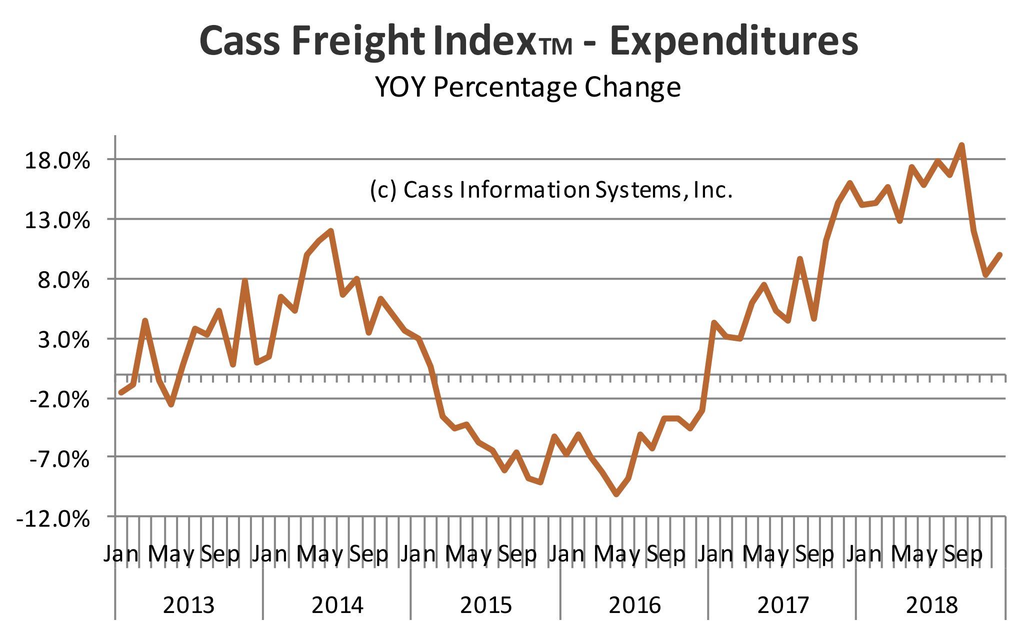
Enough About Volume and Demand, What About Pricing?

The Cass Expenditures Index is signaling continued overall pricing power for those in the marketplace who move freight. Demand is exceeding capacity in most modes of transportation by a material amount. In turn, pricing power has erupted in those modes to levels that spark overall inflationary concerns in the broader economy. Even with the recent decline in the price of oil, the strength in base rates being experienced in many sectors remains strong.

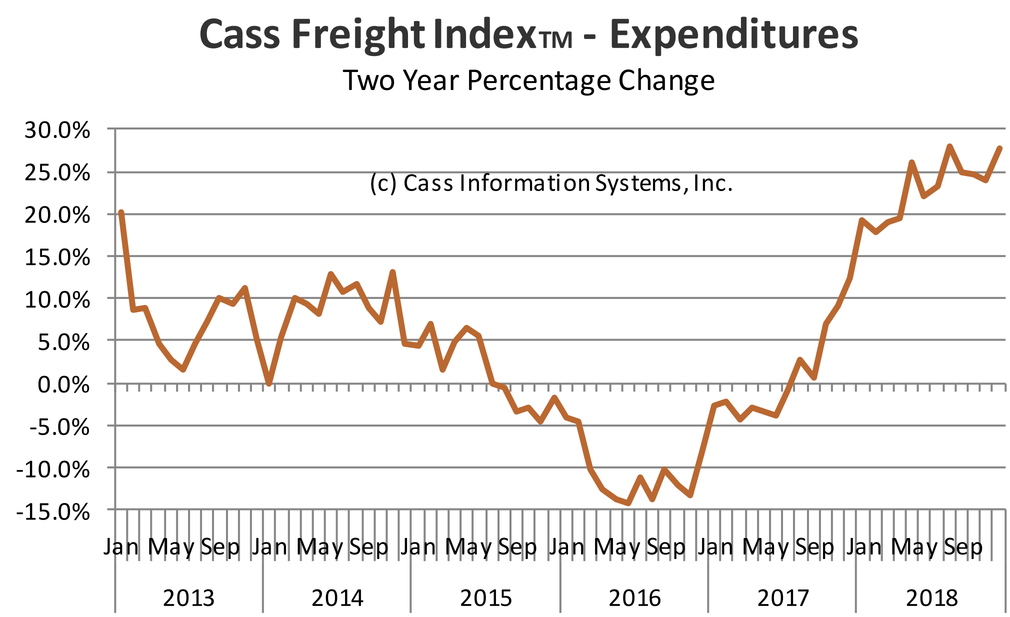
With the Expenditures Index up 10.0% in December, we understand the concerns about inflation, but are comforted by four factors:

1. Almost all modes of transportation are using the current environment of pricing power to create capacity, which will first dampen and eventually kill pricing power;
2. Spot pricing (not including fuel surcharge) in all three modes of truckload freight (dry van, reefer, and flatbed) has already been falling for six months;
3. The cost of fuel (and resulting fuel surcharge) is included in the Expenditures Index, and the cost of diesel was up 6.6% in December (but has been steadily falling in recent weeks, suggesting lower fuel surcharges in coming weeks);
4. Whether driven by capacity addition/creation or lower fuel surcharges—or a combination of both (our best guess)—the Expenditures Index was sequentially declining, before sequentially improving slightly (up 1.9% in December). The November Index was already down 4.9% from its peak in September, and down 2.4% from October.

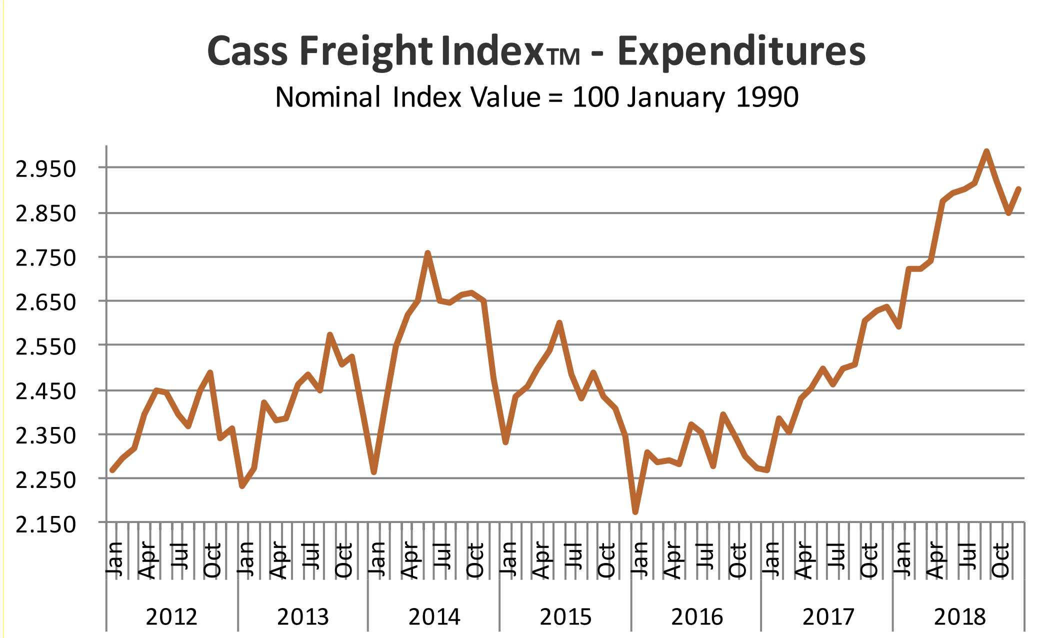
As we explained in previous months, we do not fear long-term inflationary pressure as technology provides multiple ways to ever increase asset utilization and price discovery in all parts of the economy, but especially in transportation. In fact, we are continuing to see more evidence that ELDs (Electronic Logging Devices), which initially hurt the capacity/utilization of truckers (especially small truckers), are becoming an ever smaller impediment to capacity utilization and in some cases actually improving utilization to levels above those achieved before ELD adoption. Many of the truckers who were the most adversely effected are now getting most, if not all, of the original loss in utilization back. This is especially true in the dry van and reefer (temperature control) marketplaces of trucking. Even the flatbed segment of trucking, which initially faced the greatest challenges with productivity after the adoption of ELDs, is learning to adapt.



With all the recent strength in demand, it follows that the Cass Freight Expenditures Index also posted strong percentage increases throughout 2017, and that has continued into 2018. As we commented on the Shipments Index, we have to go back to the easy comparisons of 2009-2010 to find such large percentage increases. The current comparison is anything but easy. We have commented repeatedly that this was indicative of an economy that is continuing to expand. December's 10.0% increase signals that capacity is still tight, demand is strong, and shippers are willing to pay up for services to get goods picked up and delivered in modes throughout the transportation industry.



While the December 10.0% percentage increase is less than October's 12.0%, and dramatically less than September's 19.3%, it is in part because this December's increase was on top of a 16.0% increase in 2017, while October's increase was on top of a 11.2% increase in 2017, and the September 2017 increase was on top of an increase of only 4.6%. Viewed another way that provides more perspective, the 2-year stacked increase (2018 vs. 2016) in Expenditures was 24.8% in September, 24.6% in October, 23.9% in November, and 27.7% in December.



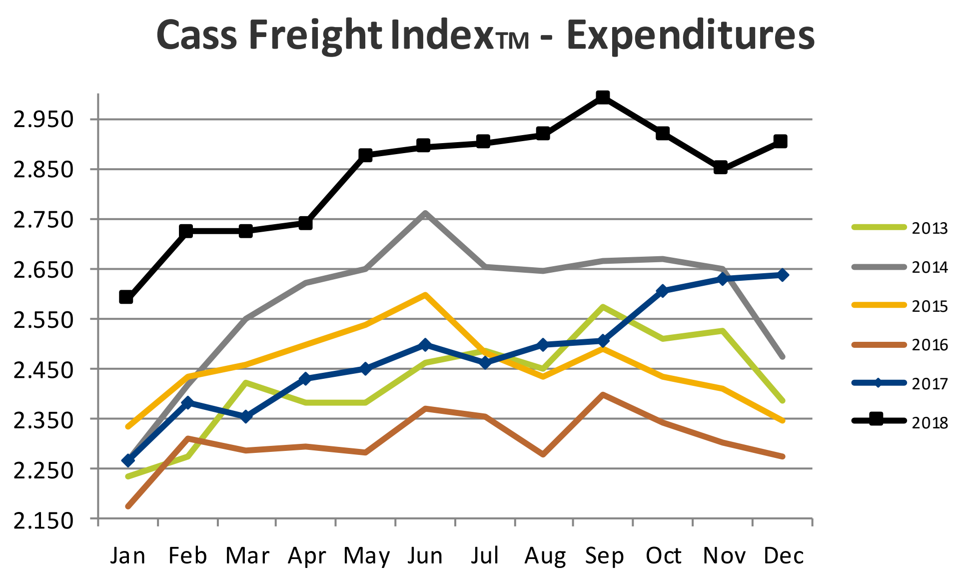
Viewing the Cass Freight Expenditures Index on nominal basis shows how positive the trajectory has been in the last year. On a nominal basis, the index exceeded the all-time high established back in June 2014, and appears poised to stay near record levels in coming months. To put the strength of the underlying pricing is in perspective, we should remind readers that the price of oil was at or above $100 a barrel throughout most of 2014, vs. the price today of $52 a barrel.

Putting it all in Perspective – the Background Story

Expenditures (or the total amount spent on freight) turned positive for the first time in 23 months in January 2017, albeit against an easy comparison. Not since 2011—when the economy was still climbing out of the recession—had this index been so low. Our Expenditures Index in January 2016 was the worst in five years, as demand had weakened and crude oil had fallen below $30 a barrel. Although February and March of 2016 were also weak, they were not nearly as weak as January 2016 and hence a slightly tougher comp. Since fuel surcharges are included in the Expenditures Index, fuel was a positive bias in 2017 and continues to be in the 2018 data, albeit to an ever-lesser degree in recent months.

Throughout much of 2017, fuel was up as much as 75% on a YoY basis (diesel is at $3.01 a gallon on a national average basis as we write this), and we have pointed out that part of the Expenditures increase was a result of the relatively steady increase in the price of fuel and the related fuel surcharges. The YoY increase attributable to fuel is now far less than it was throughout most of 2017 (up an average of only 6.6% on a YoY basis in December). We are also seeing continued improvements in pricing power of truckers and intermodal shippers. As an example, the proprietary Cass Truckload Linehaul Index (which measures linehaul rates and does not include fuel) rose 7.2% on a YoY basis in the month of December to 144.2, establishing another new all-time record high as it surpassed the previous all-time high set two months prior in October (143.4). The proprietary Cass Intermodal Price Index (which does include fuel), increased 8.6% in December to 145.8, which was just shy of the all-time record high on a nominal basis in October of 147.3 (*see those reports here for more details on the data and the underlying trends*).

Similar to the Cass Freight Shipments Index, the Cass Freight Expenditures Index, when viewed on a nominal YoY stacked basis, highlights that the monthly Expenditures Index has exceeded all previous levels for each month respectively throughout 2018, and that since May it has even exceeded all previous levels in any month of any year. **Since oil was markedly higher in 2013 and 2014 (and hence included a much larger fuel surcharge), this data is reflective of stronger core pricing**.



We'd remind readers of two fundamental rules for marketplaces: volume leads pricing, and the long-term value of a commodity is the marginal cost of producing it.

- Repeatedly, we have watched in a host of different markets, that volume goes up before pricing starts to improve and volume goes down before pricing starts to weaken. Even in markets as basic as the weather, the number of hours of sunshine (sunrise to sunset) starts to decline long before the temperature starts to fall. Volume leads pricing.

- Especially to the extent that pricing materially exceeds the marginal cost of creating capacity, market participants will invest heavily in the exact activities which kill pricing power in commodity markets (i.e. expansion of capacity with the belief that the current pricing power will endure for an extended period of time). Transportation may not be a pure commodity marketplace, and we appreciate that there are segments where customers are more motivated by the speed and reliability of the service than the price, but overall, transportation is a commodity-like industry. Significant increases in price are used to attract new workers (drivers, pilots, etc.), buy newer more efficient equipment (with larger capacity when available), and purchase ever more sophisticated technology to increase asset utilization. Pricing power will continue until capacity is expanded enough to meet demand. As capacity eventually grows faster than demand, because participants in commodity markets (especially if the participants are highly fragmented) always overshoot, pricing will fall. Pricing continues to fall until it is below the cost of adding additional capacity, at which point the incentive to add any additional capacity is gone, and pricing stabilizes as long as demand holds steady. If pricing continues to fall dramatically—because either way too much capacity was created or because demand has contracted—capacity will be destroyed or at least idled until pricing stabilizes. This process may create significant oscillations in pricing above and below the marginal cost of creating capacity in the short-term, but those increases and decreases in pricing will be around the marginal cost of production.

Other Issues – Repeated with a Few Updates

The financial world continues to be fixated on "How far into this economic cycle are we?"

Our outlook on the economic cycle is relatively straightforward. We are still early in the economic cycle. To properly dissect and understand the U.S. economy, it must first be divided into the industrial and consumer economies, without ignoring the technology economy (of which the U.S. is the undisputed world leader).

The Industrial Economy - The 2009-2014 period was the first industrial-led economic recovery in the U.S. since 1961. The advent of fracking technology, as advanced by the U.S. oil and gas exploration companies, drove a massive buildup in domestic industrial activity. Beyond the direct inputs into this activity (pumps, pipe, sand, concrete, steel, trucks, railcars, etc.), there was a dramatic build-up of petrochemical assets (eight new refineries and 22 new plastic resin plants). The U.S. surpassed Saudi Arabia and became the world's largest oil producer, and the U.S. plastics industry grew from $229 billion in 2009 to over $404 billion in 2017. This drove a positive 'ripple effect' throughout the rest of the industrial economy and there was an even larger investment in and expansion of industrial infrastructure throughout the U.S. This came to a screeching pause, however, in late 2014 as the price of oil fell from over $100 a barrel in July to $45 a barrel in January 2015 and as low as $26 a barrel in February 2016. Throughout the U.S., there were thousands of DUCs (Drilled UnCompleted wells), because the value of oil that would be produced once those wells were fracked was below the then market value. We estimate that the marginal cost of production of oil in all fracked fields is below $50 (~$40 in the Permian, ~$43 in the Eagle Ford, and ~$48 in the Bakken - it continues to fall as the technology of fracking is being continuously enhanced). As a result, the U.S. industrial economy went into a recession until oil began to rise back above those levels in mid-2016. As oil finally broke and stayed above $50 in October 2017, the industrial economy quickly shifted back into gear and growth returned, first in the Permian, then the Eagle Ford, and finally in the Bakken. Activity has now returned to even the minor shale fields across the country. The industries that support oil and gas exploration returned to growth in early 2017, which in turn drove expansion across industrial America more broadly. As long as WTI oil stays above $50 a barrel, we predict that this part of the U.S. economy will continue to thrive. *[A side note - we should add that the recent increase in the price of natural gas above $4 per MCF (thousand cubic feet) could create incremental industrial activity – first in building infrastructure to capture natural gas that is currently being flared (almost all fracking releases natural gas from the source rock, even if oil is the main objective) as it is widely throughout the Bakken, and eventually (if the price stays high enough long enough) in fracking, in fields such as the Marcellus, which is primarily focused on collecting natural gas.]* Two factors boost our confidence in this view: We are still early in the cycle (it began in October 2017), and the Trump corporate tax cuts (signed into law December 2017).

The simple, straightforward effect of Trump tax cuts is that it lowers the cost of capital for corporations (for most, it dramatically lowers the cost of capital), boosts the incentive to invest capital in hard assets, that produce capacity, and technology, which boosts productivity, and raises the competitive position of the U.S. in the global economy. We understand that this is an 'all other things' being equal statement, and in economics 'all other things' are never equal. Since the passage of the tax reform, there have been significant changes in the value of the U.S. dollar, changes in compensation strategies, and ongoing changes in trade policies (which are still being sorted out). All of those 'other things' aside, the lower corporate tax rate is a boost to the U.S. economy—which just began and should stimulate outsized growth for the next 2 to 3 years. Admittedly, this will be more in the first year than the subsequent years, but a change this significant in tax rates usually has a stimulative effect for several years, and arguably permanently increases the terminal growth rate. Bottom line: we are early in the industrial recovery and the tax cuts should produce a boost to both the rate of growth and the nominal size of the industrial economy when it does reach its peak size.

The Consumer Economy – The 2009-2016 period was a time of extremely slow to no growth for the U.S. consumer. Headlines frequently featured a revolving list of reasons for the lack of growth: e-commerce is killing brick and mortar retailing, millennials will never move out of their parents' basements, investment accounts were still recovering from the 2008-2009 market crash, millennials consumed experiences rather than goods, etc. All these headlines spread fear, but lacked a simple understanding of demographics and long-term sociological trends.

My grandparents married at an earlier age than my parents, who married earlier than I did. As we live longer lives and pursue higher levels of education, is it a surprise that we wait longer to get married? There are more millennials than baby boomers, and as they have finally begun to marry in sizable numbers there has been a steady increase in new household formation. Nothing spurs household formation and the acquisition of household goods like gaining a spouse, and the millennials have started that process in earnest in the last 18 months. Inflation in the value of the baby boomer's retirement accounts is also serving to boost their ability and willingness to assist their grandchildren in the down payment for that first house. As baby boomers begin to pass away, there is for many a transfer of wealth. The parents of the millennials are gaining everything from additional funds for their own retirement and the means to assist their children (the millennials) in the down payment for that first house, to enough funds to buy an additional/vacation house.

Low unemployment is driving steady growth in consumer income, and nothing drives consumer spending stronger than growth in consumer income and new household formation. Bottom line: we are still in the first two years of the consumer recovery, and the size of the millennial demographic (which is larger than the baby boomers) could drive the consumer economy for several years without interruption.

Stay invested and stay tuned, we are just getting started …

About the Cass Freight Index

The Cass Freight Index represents monthly levels of shipment activity, in terms of volume of shipments and expenditures for freight shipments. Cass Information Systems processes more than $25 billion in annual freight payables on behalf of its clients. The Cass Freight Index is based upon the domestic freight shipments of hundreds of Cass clients representing a broad spectrum of industries. The index uses January 1990 as its base month. Visit http://www.cassinfo.com/frtindex.html or call 314-506-5500 to get detailed information about the Cass Freight Index, including historical data.

About the Author: Donald Broughton

Founder and Managing Partner of Broughton Capital, a deep data driven quantimental economic and equity research firm.

Prior to starting Broughton Capital, Mr. Broughton spent nine years as the Chief Market Strategist and Senior Transportation Analyst for Avondale Partners. Before that, Mr. Broughton spent over twelve years at A.G. Edwards. At A.G. Edwards, in addition to being the Senior Transportation Analyst, he was the Group Leader of the Industrial Analysts and served on the firm's Investment Strategy Committee. Prior to going to Wall Street, Mr. Broughton spent eight years in various distribution and operations management roles in the beverage industry, including serving as the Corporate Manager of Distribution for Dr. Pepper/Seven-Up companies and Chief Operating Officer for Bevmark Concepts.

Many in the transportation industry know him for his quarterly tracking of trucking bankruptcies. He is also known for his development of a 'Value to Density Spectrum' study of the tangible goods flow and its economic ramifications.

Broughton's equity research has earned acclaim and is regularly quoted by The Wall Street Journal, Bloomberg, Fortune, Forbes, and numerous other national media outlets. He is a frequent guest on CNBC, Nightly Business Report, CNN, Fox, NPR and other broadcast media.

His stock-picking performance has been repeatedly recognized by The Wall Street Journal, which has ranked him in its "Best on the Street" survey for his picks in both the cargo and railroad industry groups. Forbes has highlighted his performance in its "When Picky Analysts Pick" series. He has been ranked by Zacks Investment Research and Starmine as a 5-Star Analyst (their highest ranking) based on the historical performance of his recommendations.

Beginning in mid-2006, Broughton published reports warning of an impending economic slowdown and by early 2007 published reports explaining why a recession was coming. In early 2009, as the world became convinced that the 'sky was falling' he upgraded large cap industrials and names such as FedEx and Union Pacific. More recently, in July of 2010 and again in September 2011 his "Blue Car Report" explained why fears of a double dip were severely overblown and outlined why the market would have significant rallies by the end of those years. He believes that the current market is struggling to digest the end of the industrial-led recovery and the beginning of the consumer-led recovery in this cycle. But fear not, the consumer both in the U.S. and globally is about to be better than expected.

Other indexes published by Cass and Donald Broughton:

Cass Truckload Linehaul Index – measures fluctuations in U.S. truckload linehaul rates
Cass Intermodal Price Index – measures fluctuations in U.S. domestic intermodal costs
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