Industrial Research

February 15, 2018

2018 US Economic & Transportation Outlook: Optimism (Finally) Emerges in a Cycle Unlike Any Other

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Please refer to Appendix – Important Disclosures and Analyst Certification

A Look Back at 2017

A Tale of Two Halves:

1H17's Bid Season Was Challenging

- Hangover from 2016's US industrial slowdown
- Early 2017 retail inventory destocking

But, the Tide Turned in Late 2Q17

- A cyclical bottom in the pricing cycle was found
- Spot activity improved markedly beginning mid-May
- Storm-related activity in September amplified trends

Incorporating late December's ELD mandate implementation + rising business & consumer confidence lays the foundation for accelerating pricing across modes in 2018

A Look Ahead to 2018 and Beyond

1. **<u>Prepare for higher freight rates in 2018 – and likely 2019 and 2020</u>**
   - Cyclically, supply was drawn down in 2H15 and throughout 2016
   - This drawdown is now compounded by an improving demand environment, new regulations, and rising energy prices

2. **<u>But also prepare for the development of the Logistics 2.0 era</u>**
   - Structural changes are already underway, given regulatory and demographic changes
   - Added to changes and development of new technologies, the transportation market is facing a new “mega-theme” in the 2020s

3. **<u>Implications and beneficiaries from the Logistics 2.0 era</u>**
   - Falling freight rates as per-unit operating costs decline
   - Customer demand for supply chain visibility, flexibility and savings strengthen the hand of scaled, hybrid operating models

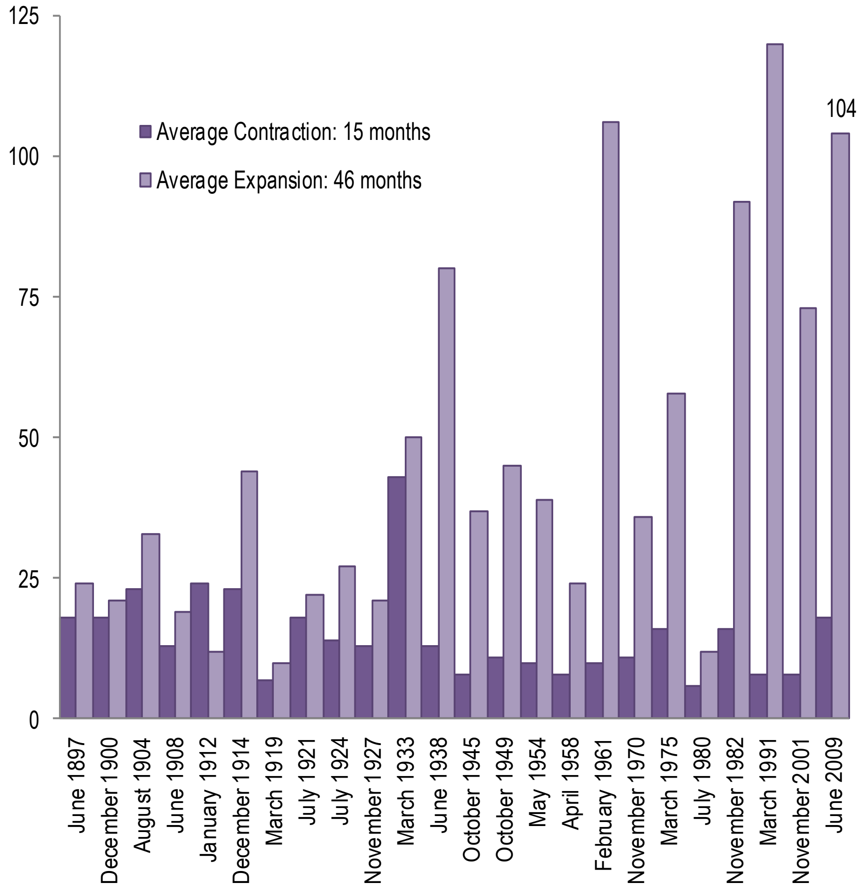
A Look Back At
The Cycle Unlike Any Other

"The four most expensive words in the English language are, *'This time it's different'*."

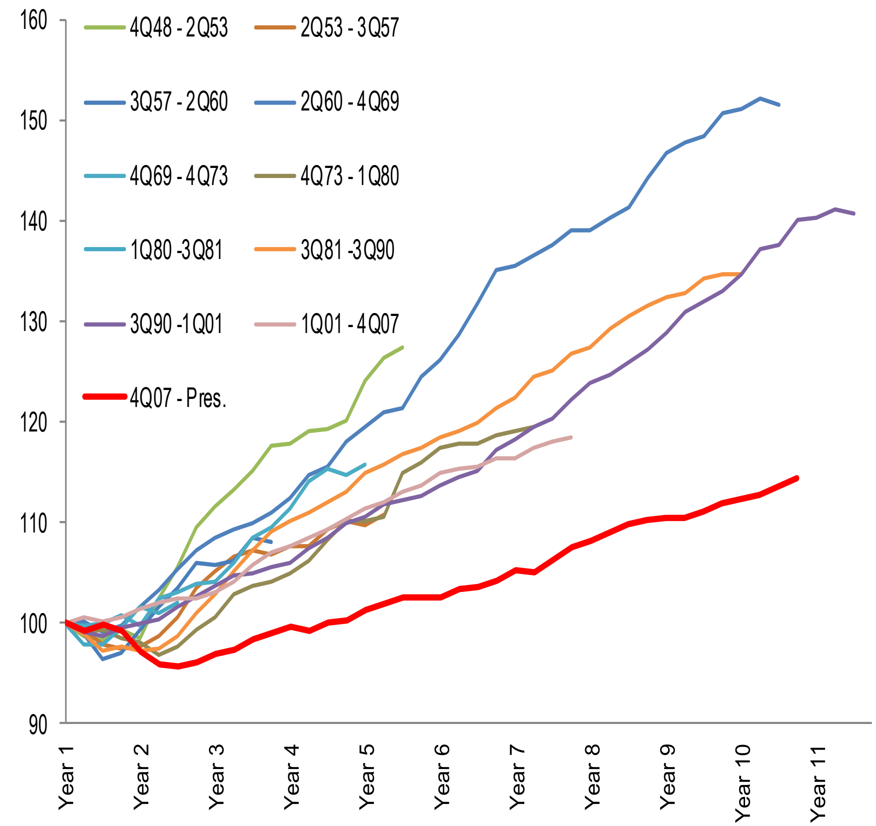
John Templeton

A Look Back At
The Cycle Unlike Any Other

2nd longest economic expansion in 100+ years…



…but growth has been anemic.
(cumulative real GDP by cycle, peak to peak)

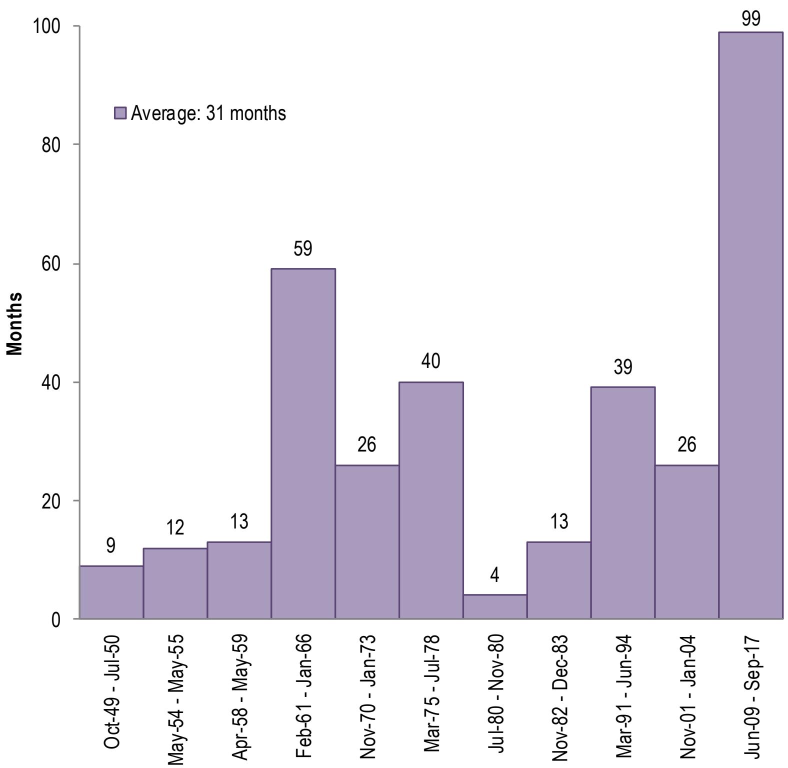


Source: BEA, NBER

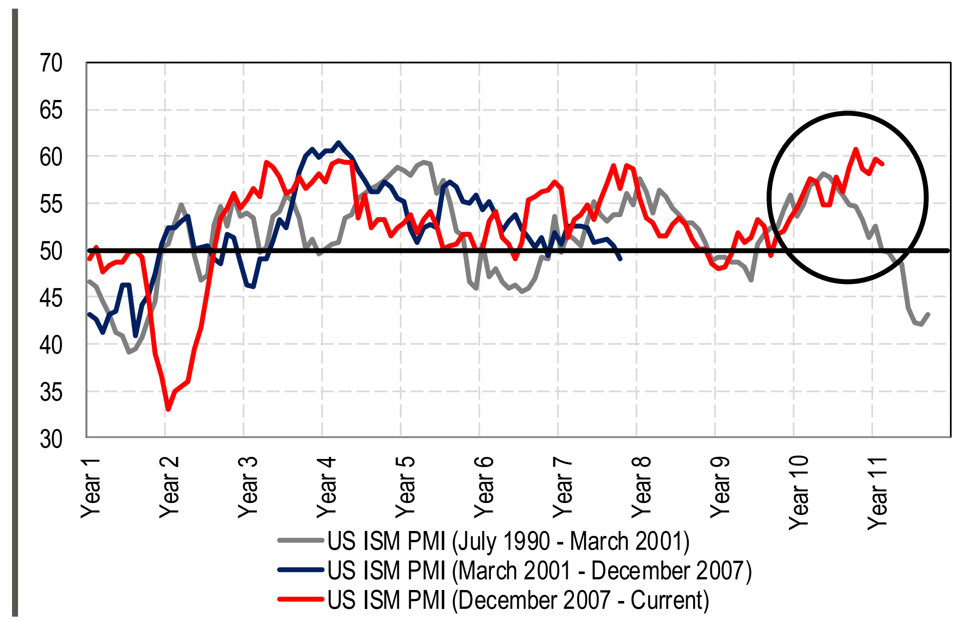
A Look Back At The Cycle Unlike Any Other

Since WWII, the current cycle marks a record from beginning to reaching a US ISM PMI peak – with potential to run further.

Duration from Economic Cycle Start to US ISM PMI Cycle Peak



US ISM PMI by Economic Cycle

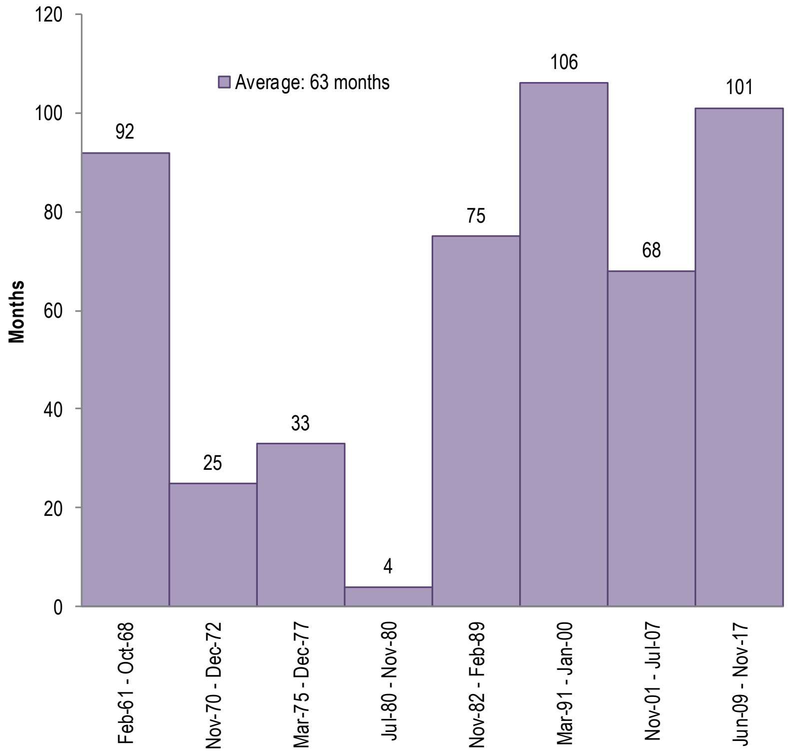


Source: ISM, NBER

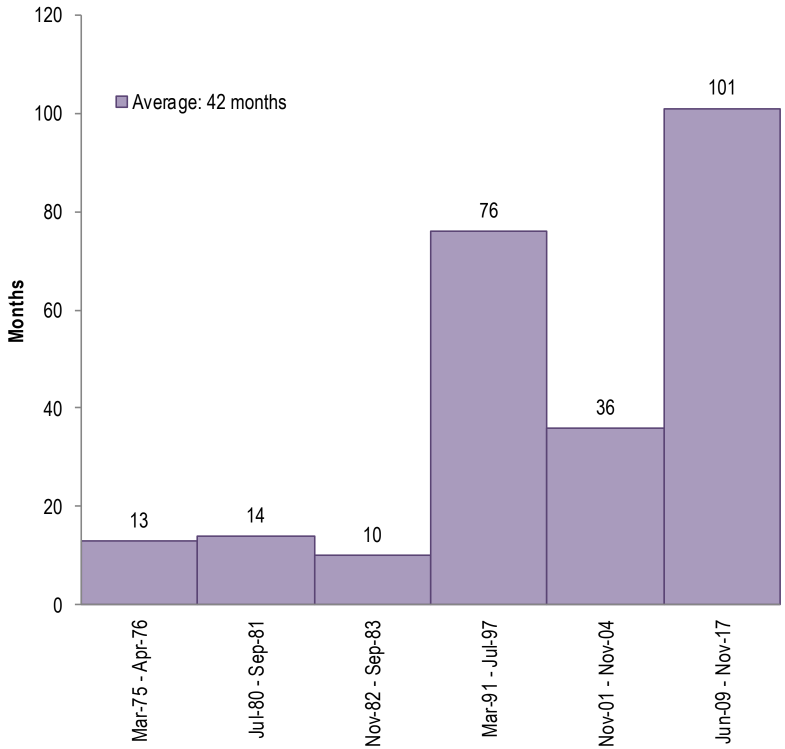
A Look Back At
The Cycle Unlike Any Other

The current cycle also marks a run at/near records from beginning to reaching a sentiment peak – also, with potential to run further.

Duration from Economic Cycle Start to Consumer Confidence Cycle Peak



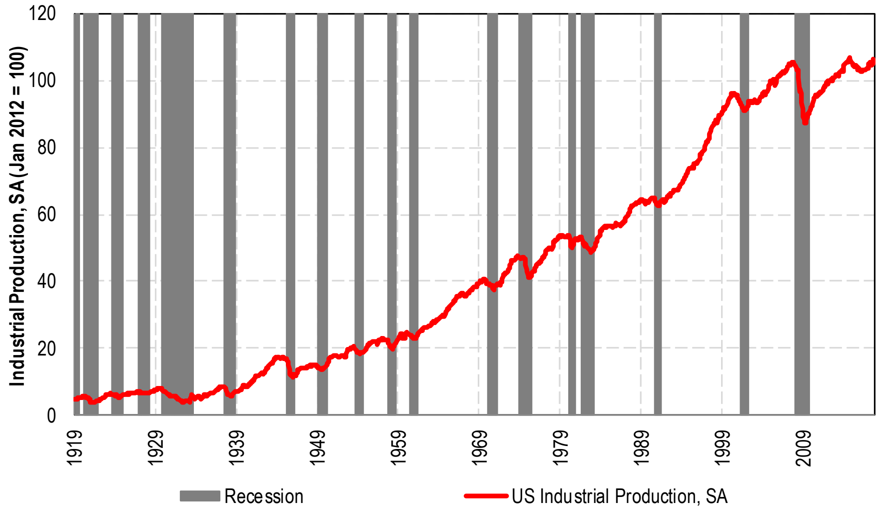
Duration from Economic Cycle Start to Small Business Optimism Cycle Peak



Source: ISM, NBER

A Look Back At The Cycle Unlike Any Other

The potential to run further is supported by this cycle's sluggish growth in US Industrial Production, now aided by tax cut and sentiment stimulus.



US industrial production peak-on-peak growth (cycle's peak IP vs. prior cycle's peak IP)

1. US IP (Jan 1920 - May 1923)	12.0%	10. US IP (Jan 1960 - Oct 1969)	61.9%
2. US IP (May 1923 - Mar 1927)	8.1%	11. US IP (Oct 1969 - Nov 1973)	17.5%
3. US IP (Mar 1927 - Jul 1929)	16.6%	12. US IP (Nov 1973 - Mar 1979)	13.0%
4. US IP (Jul 1929 - May 1937)	5.4%	13. US IP (Mar 1979 - Jul 1981)	-0.6%
5. US IP (May 1937 - Feb 1944)	100.3%	14. US IP (Jul 1981 - Sep 1990)	22.0%
6. US IP (Feb 1944 - Jun 1948)	-12.5%	15. US IP (Sep 1990 - Jun 2000)	47.6%
7. US IP (Jun 1948 - Jul 1953)	35.0%	16. US IP (Jun 2000 - Nov 2007)	9.5%
8. US IP (Jul 1953 - Feb 1957)	12.1%	17. US IP (Nov 2007 - Nov 2017)	1.0%
9. US IP (Feb 1957 - Jan 1960)	9.0%		

vs. average of 22%

Source: Federal Reserve, NBER

Developments During 2017 Bode Well For 2018 Growth

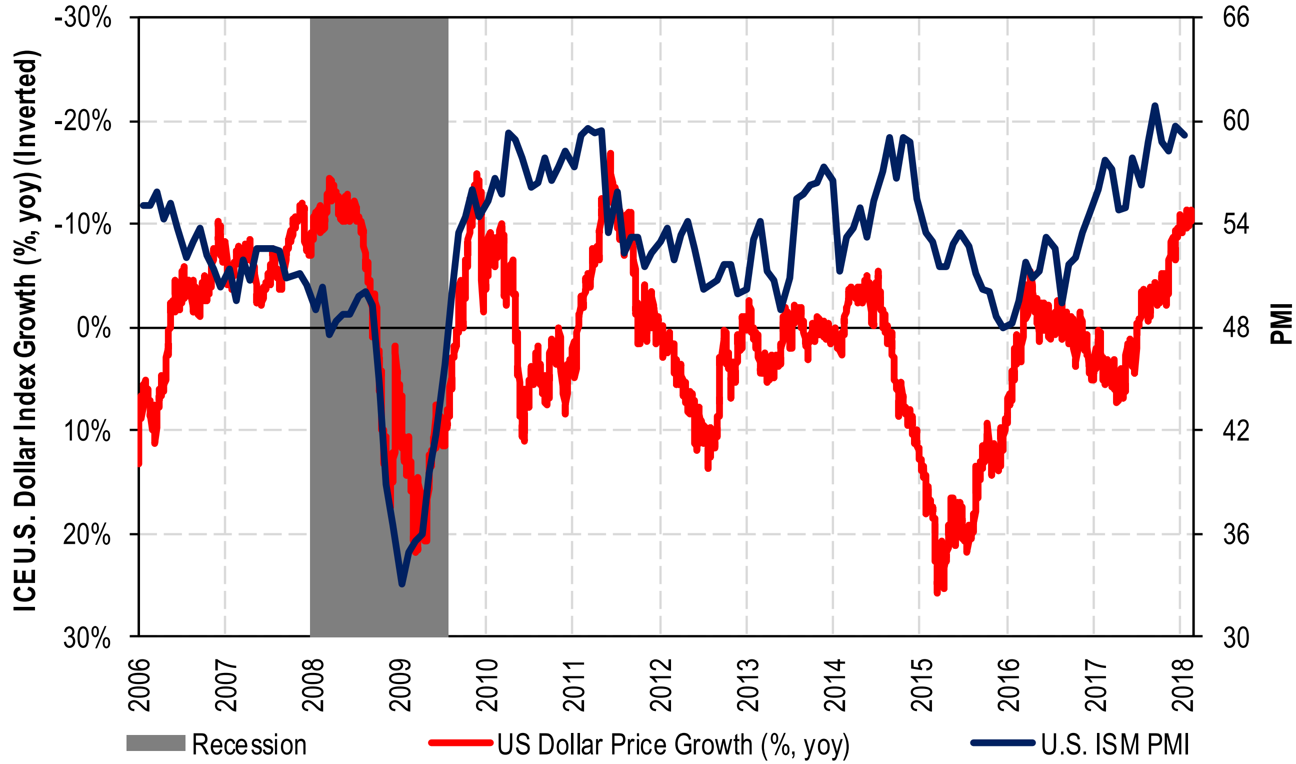
We'll get to contribution from the recent passage of the Tax Cuts and Jobs Act in a minute.

But 2017's story of strengthening US industrial demand began with USD weakness, which fell 10% during 2017.

Source: FactSet

Developments During 2017 Bode Well For 2018 Growth

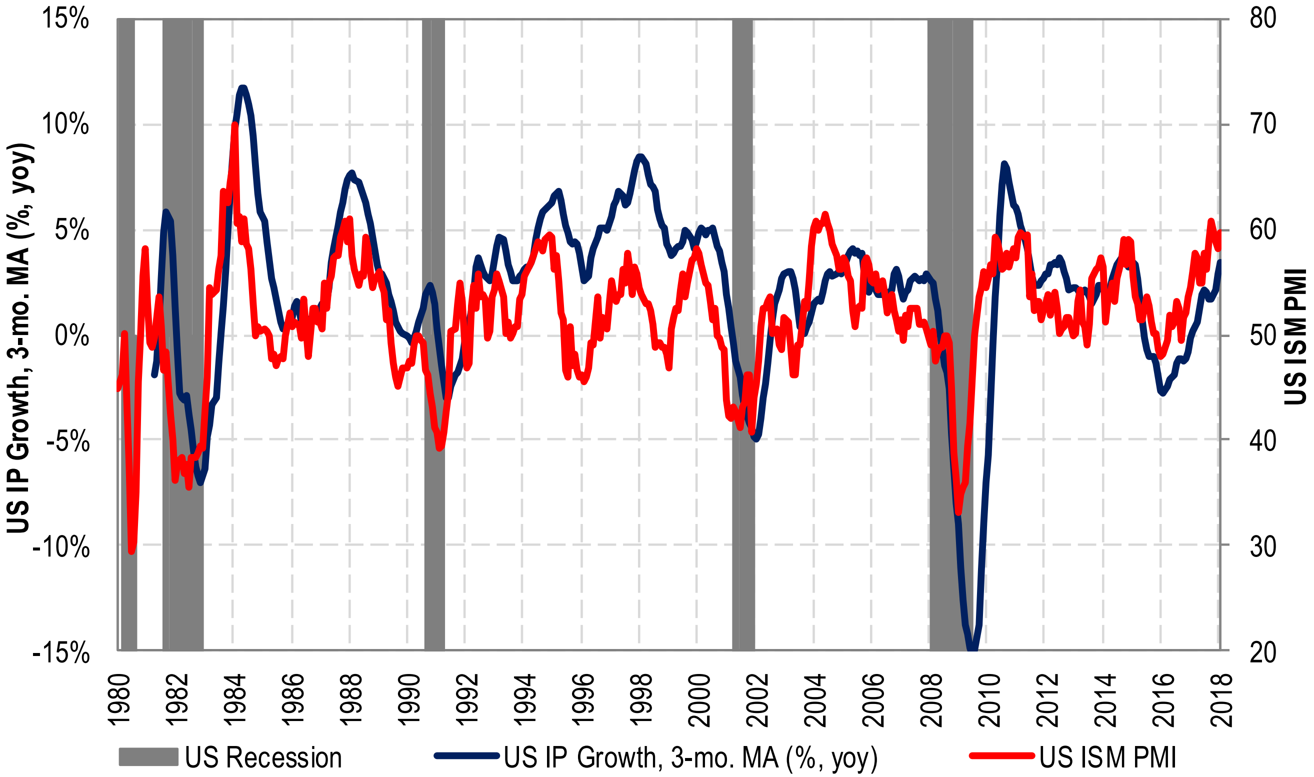
A weak USD typically induces strength in the US ISM PMI.



Source: FactSet, ISM, NBER

Developments During 2017 Bode Well For 2018 Growth

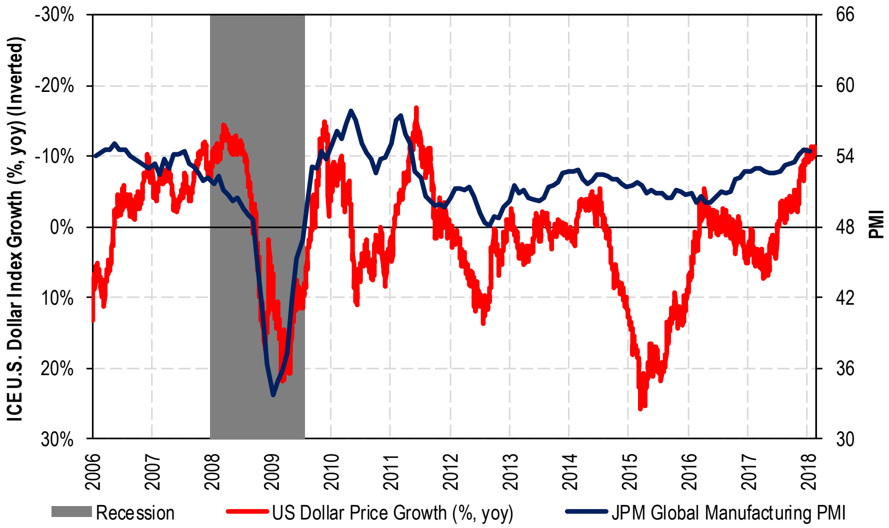
And US industrial production growth lags movements in the US ISM PMI by roughly six months.

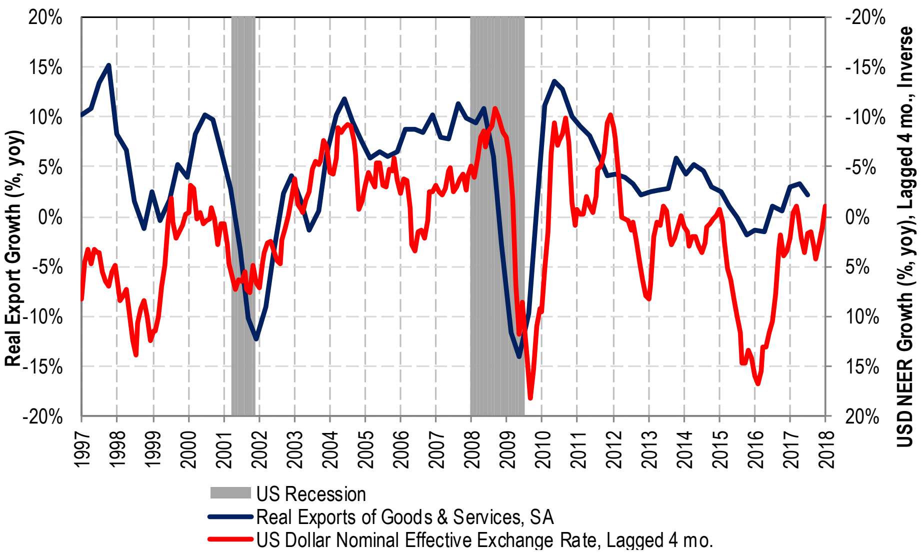


Source: Federal Reserve, ISM, NBER

Developments During 2017 Bode Well For 2018 Growth

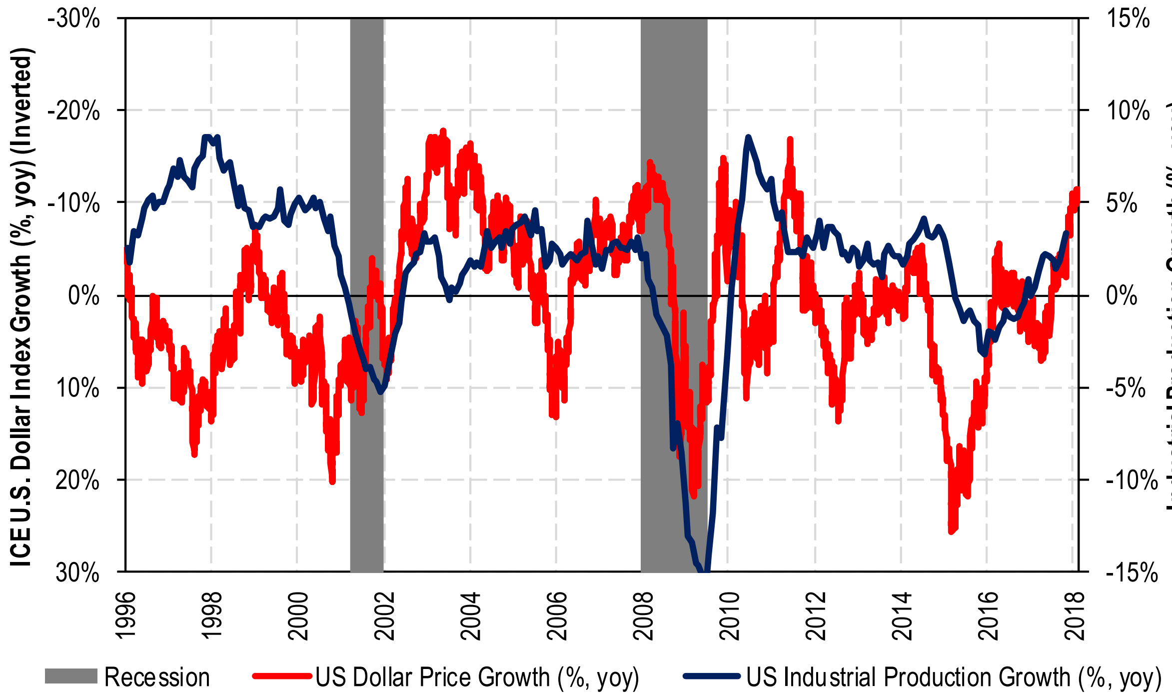
True to form, 2017's USD weakness also coincided with improved global growth activity.





Developments During 2017 Bode Well For 2018 Growth

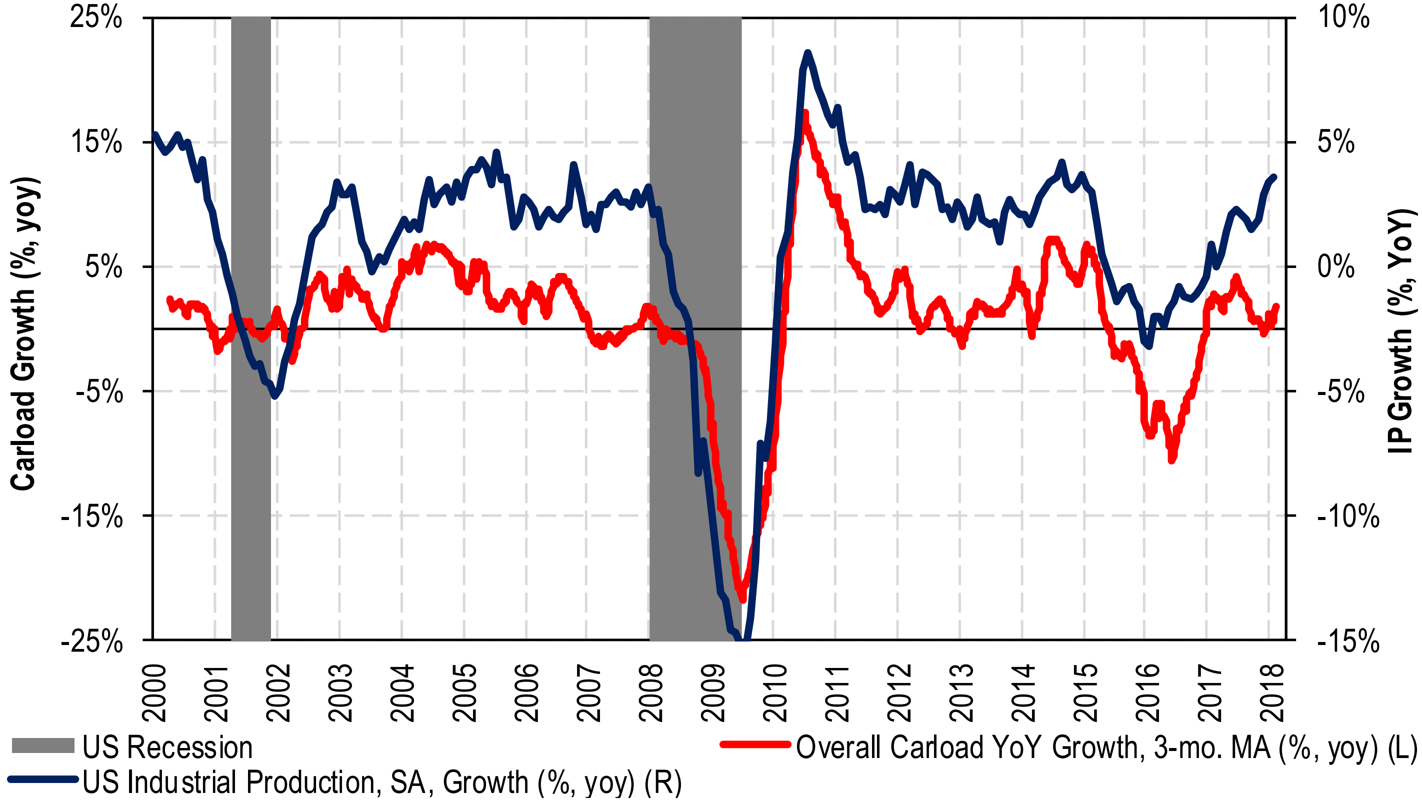
Weakness in the USD during 2017 has stimulated accelerating US industrial production growth to end the year, which is supportive of accelerating freight volumes into 2018.



Source: FactSet, Federal Reserve, NBER

Developments During 2017 Bode Well For 2018 Growth

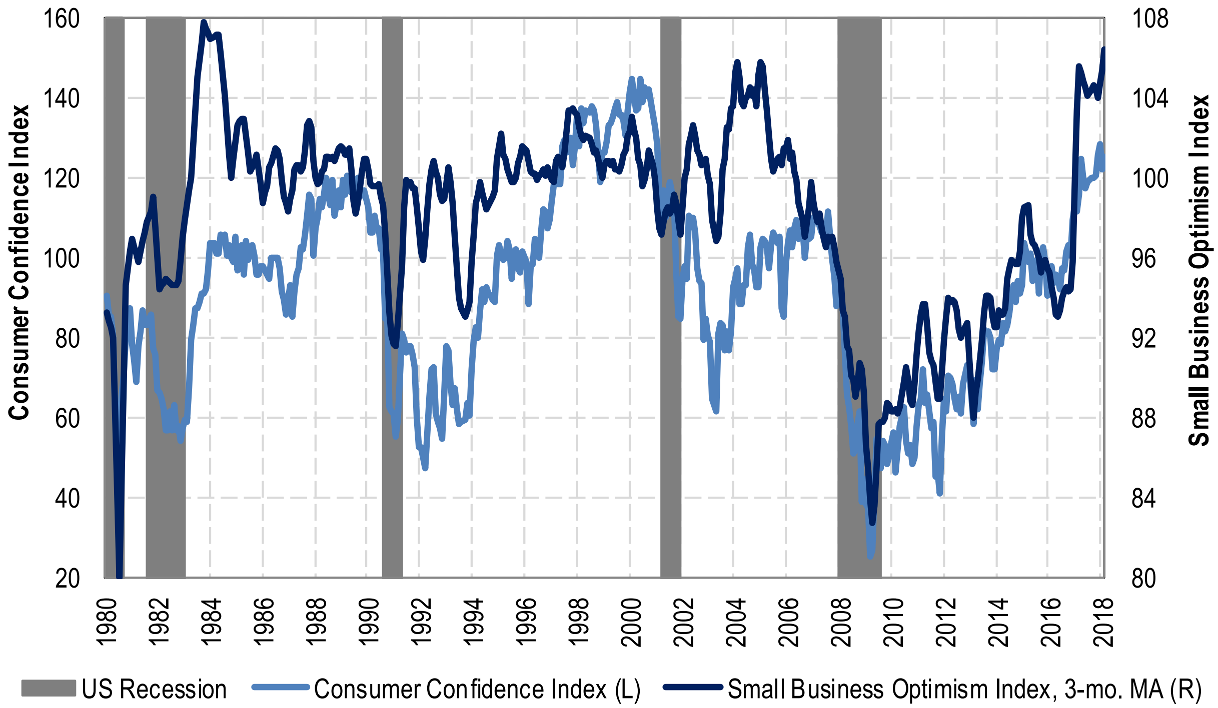
Accelerating US industrial production growth also correlates with overall freight volume growth.



Source: AAR, Federal Reserve, NBER

Developments During 2017 Bode Well For 2018 Growth

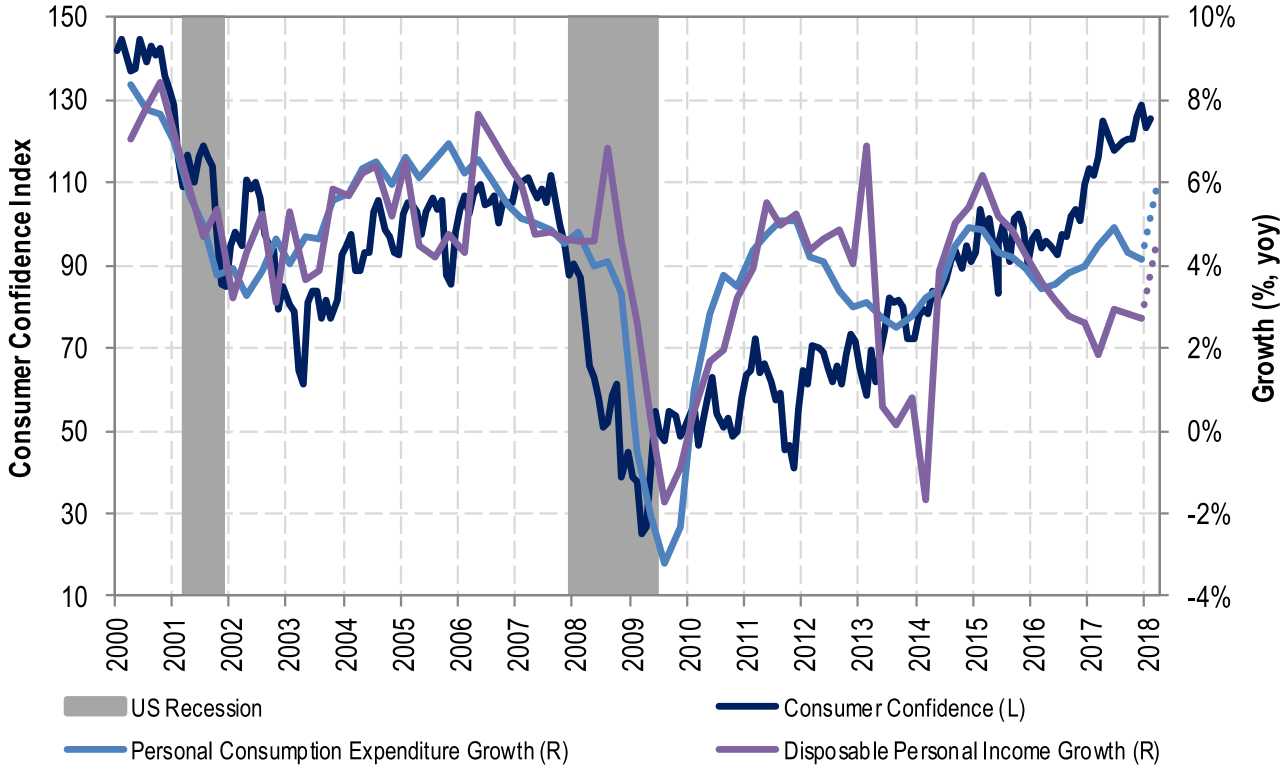
So the outlook for industrial freight activity has improved (~20-25% of US GDP). What about retail/consumer (~65-70% of US GDP)?



Source: NBER, NFIB, The Conference Board

Developments During 2017 Bode Well For 2018 Growth

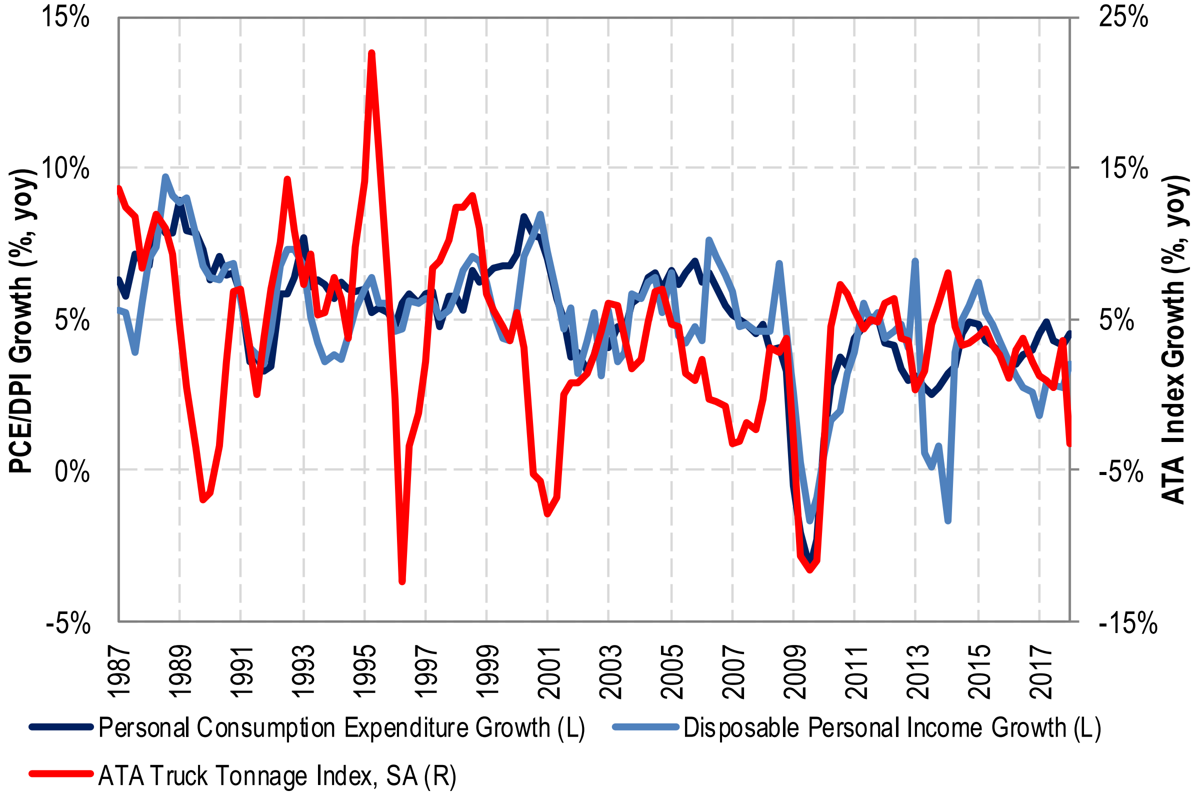
Rising consumer/business confidence supports the potential for accelerating growth in consumption spending.



Source: BEA, Blue Chip Economic Indicators, NBER, The Conference Board

Developments During 2017 Bode Well For 2018 Growth

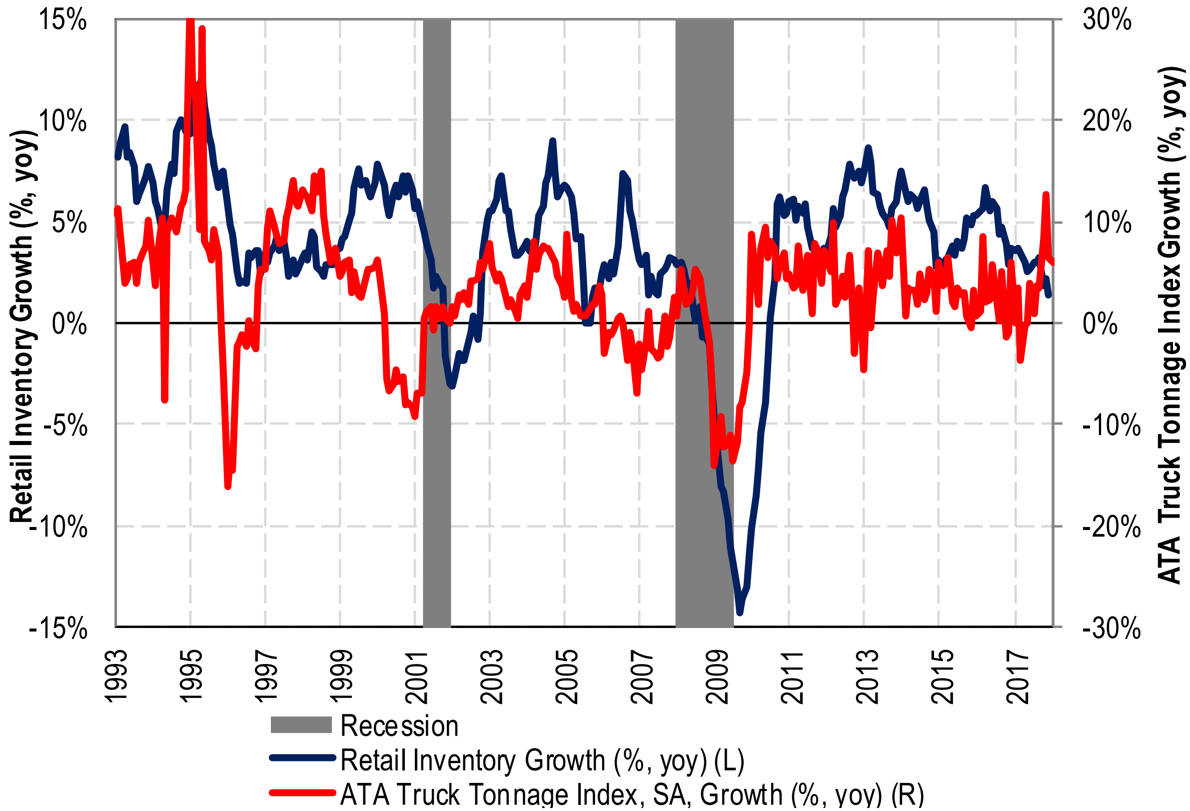
And accelerating growth in consumption spending provides support for accelerating growth in industry volumes.



Source: ATA, BEA, Blue Chip Economic Indicators, Baird estimates

Developments During 2017 Bode Well For 2018 Growth

An abating headwind from retail inventory destocking (noted during 1Q17) should also support an improving freight volume growth outlook.

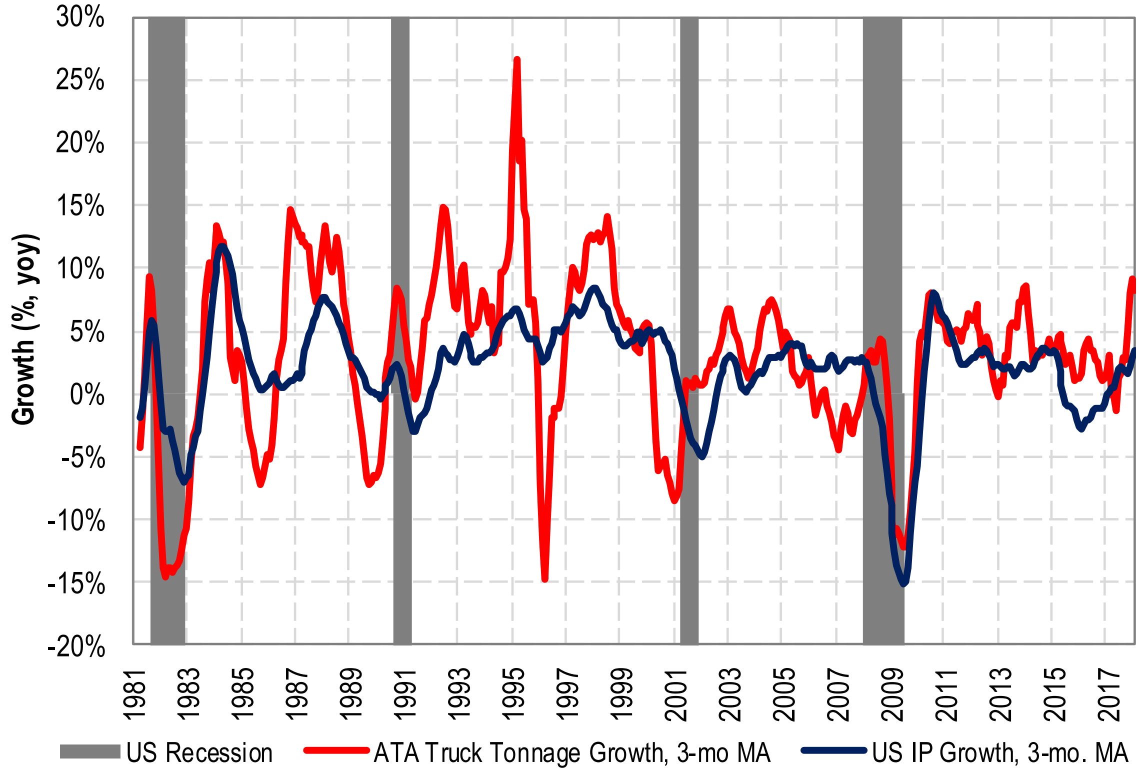


Source: ATA, Census Bureau, NBER

A Look Ahead to Transport Fundamentals In 2018 and Beyond

Truckload Industry Pricing Growth Poised To Accelerate in 2018

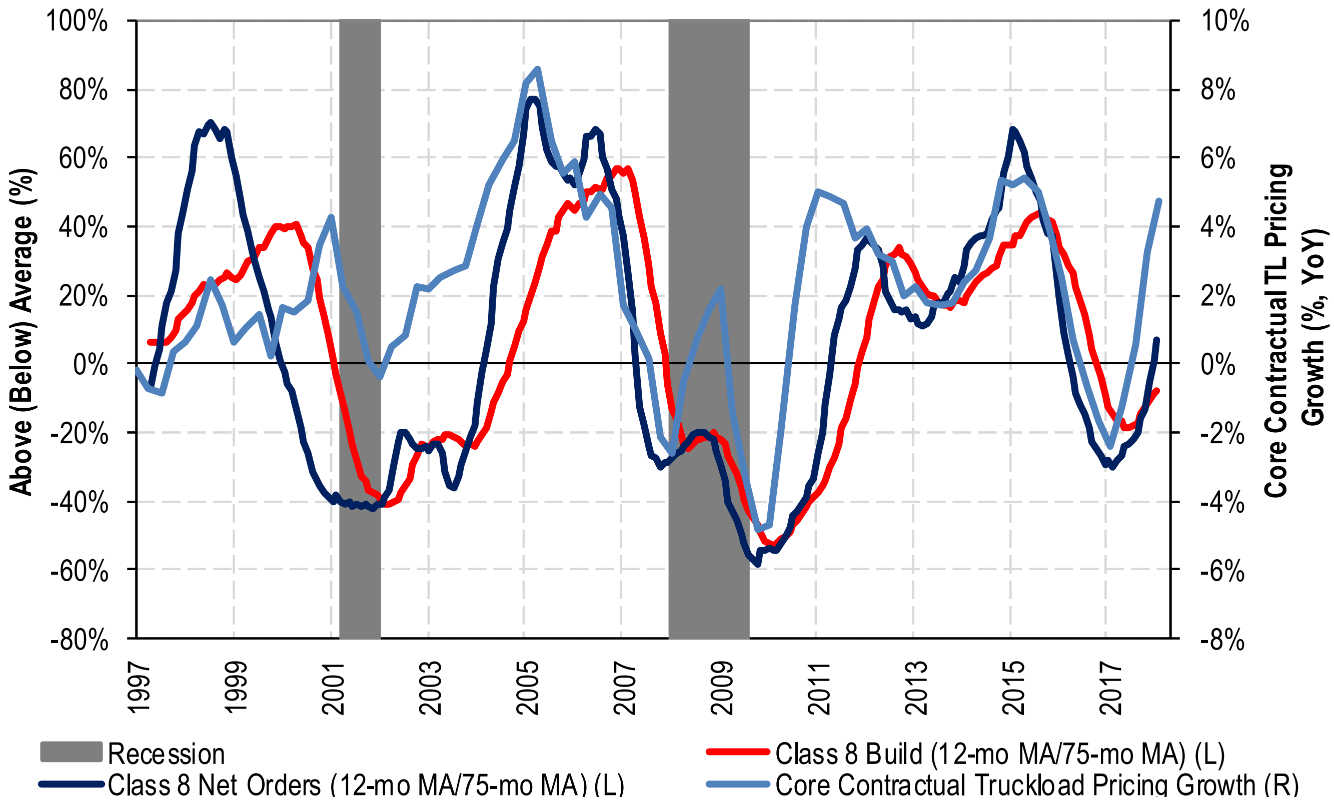
Accelerating US industrial production growth in 2018 supports **accelerating truck freight volume growth** in 2018.



Source: ATA, Federal Reserve, NBER

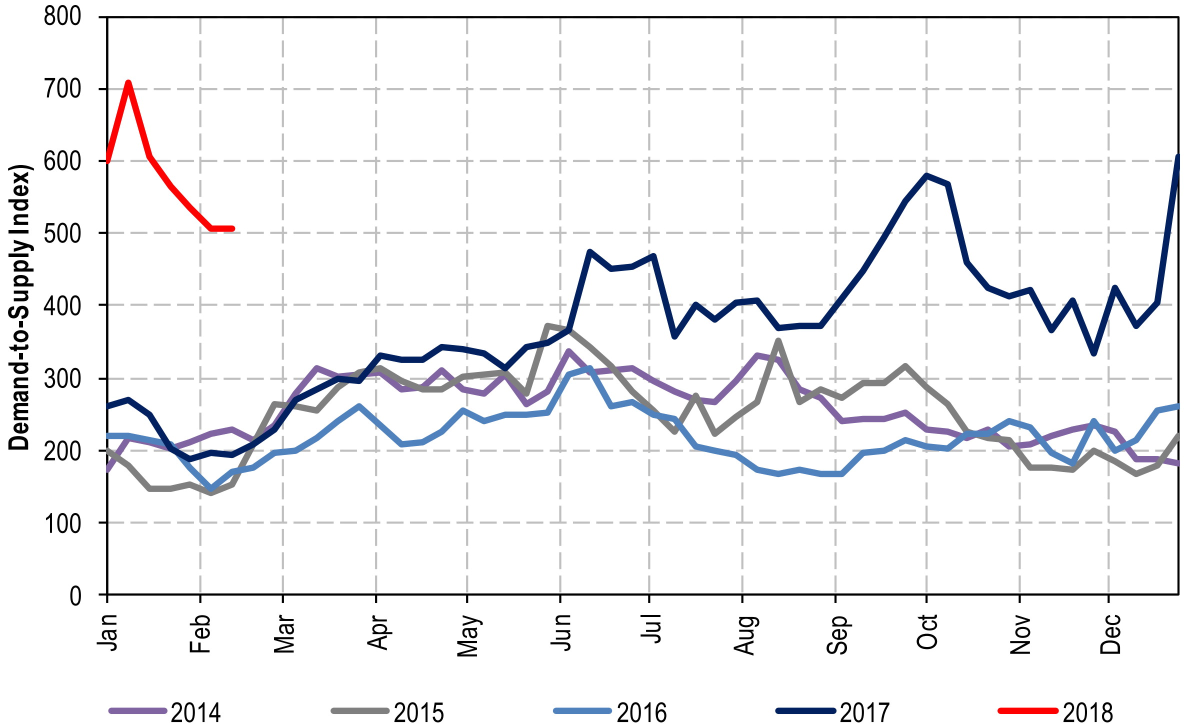
Truckload Industry Pricing Growth Poised To Accelerate in 2018

The improved demand outlook ***adds to*** the cyclical inflection in industry pricing growth that began during 2017, in our view.



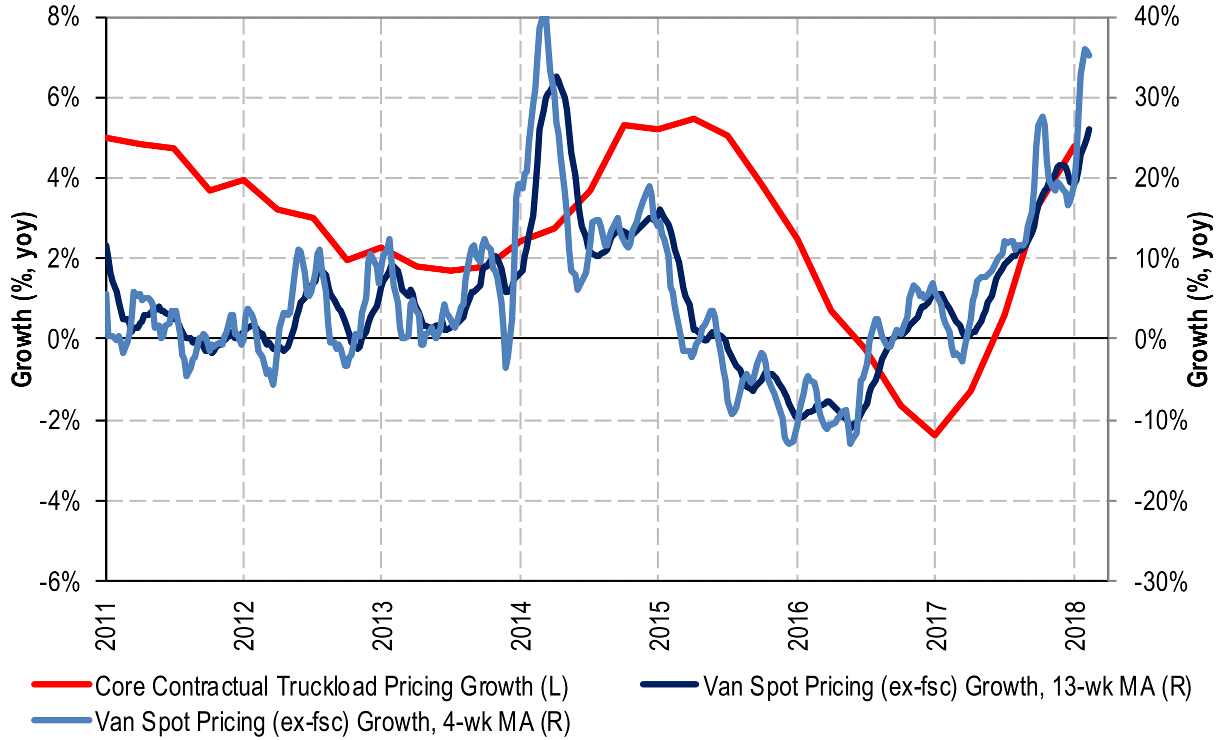
Truckload Industry Pricing Growth Poised To Accelerate in 2018

Spot market fundamentals began to improve, just as 2017's bid season was winding down. Note that spot fundamentals were strong before – and remained strong after – the lift from the hurricanes in late 3Q17.



Truckload Industry Pricing Growth Poised To Accelerate in 2018

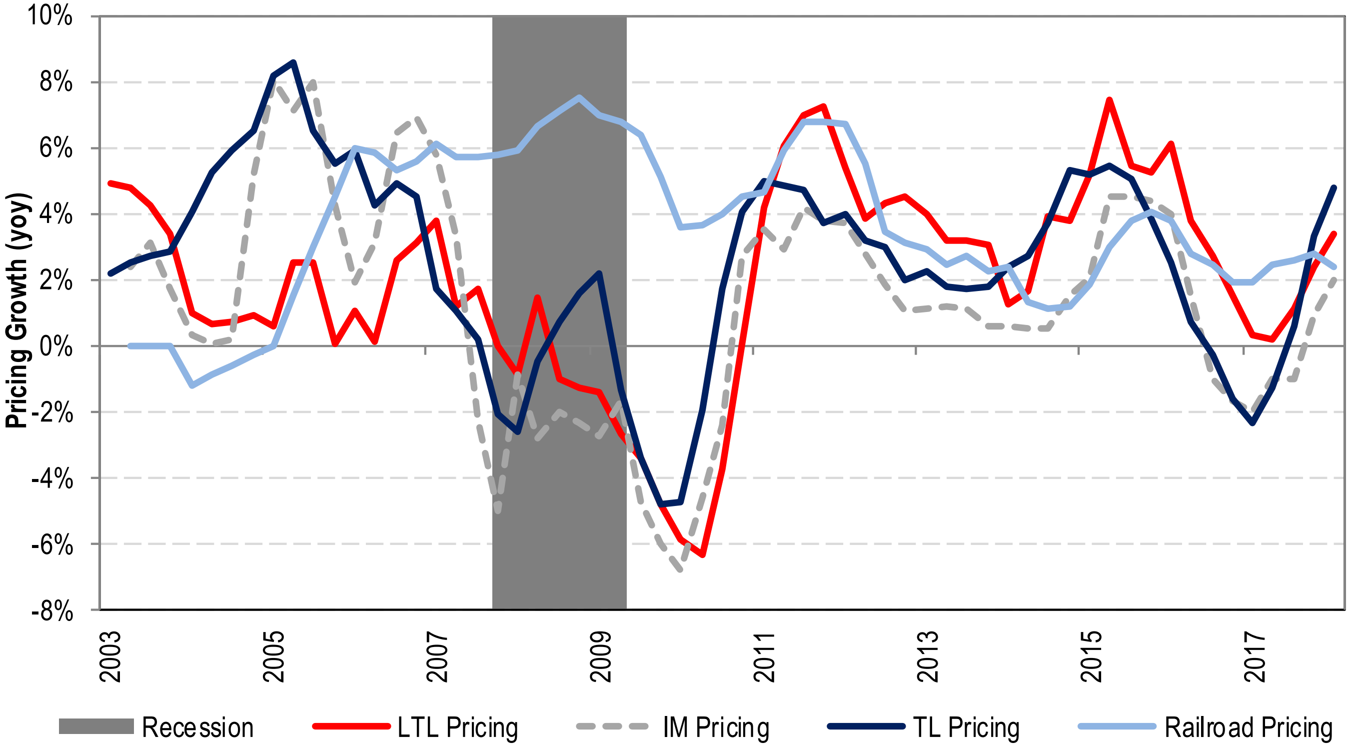
As a result, spot pricing growth (ex-fuel) has remained greater than 10% yoy since mid-July – providing cover for accelerating core contractual truckload pricing growth in 2018.



Source: Internet Truckstop, Baird estimates

Truckload Industry Pricing Growth Poised To Accelerate in 2018

What's good for core contractual truckload pricing growth is good for pricing growth across domestic US modes.

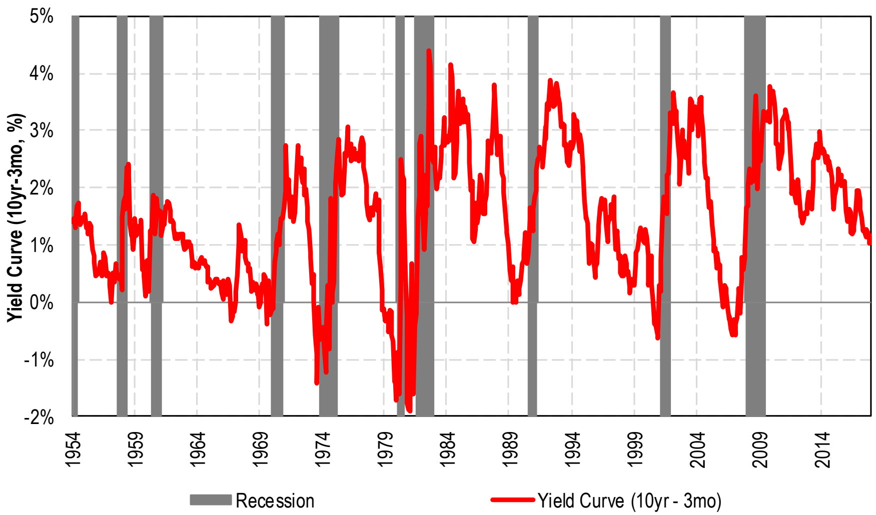


Source: Company data, Baird estimates

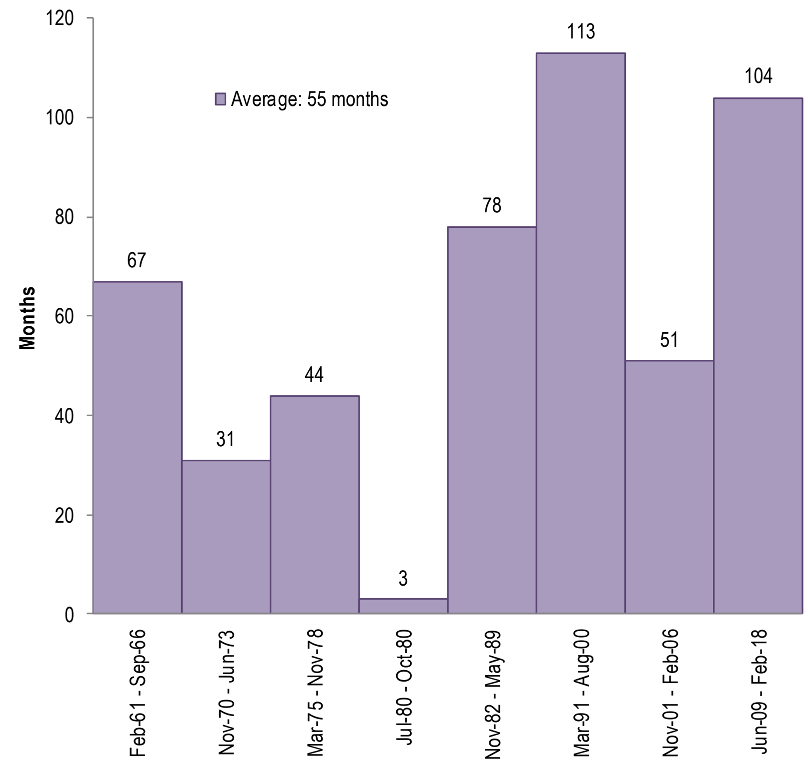
Risks & Focal Points During 2018

Remain Mindful of Cycle Risks Despite Growing Euphoria

Expect increased discussion about the yield curve during 2018. Note that this cycle is among the longest from start to inversion (which hasn't yet occurred).



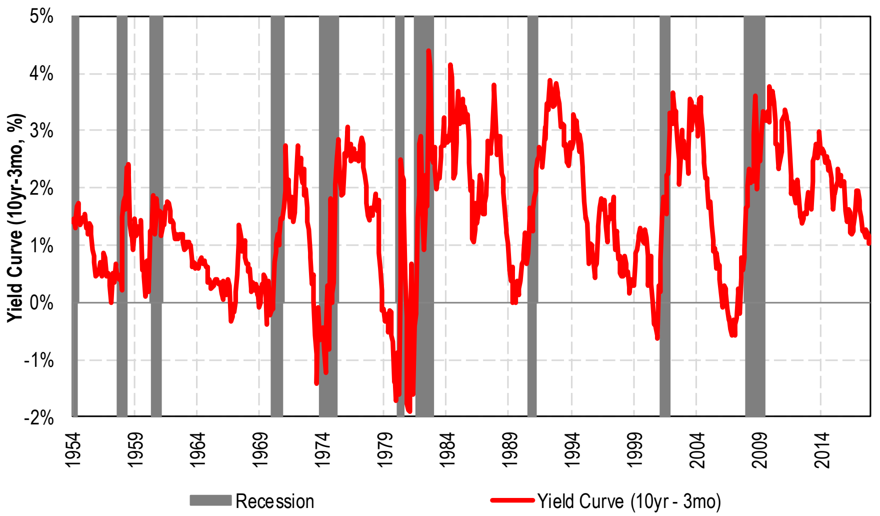
Duration from Economic Cycle Start to Yield Curve Inversion



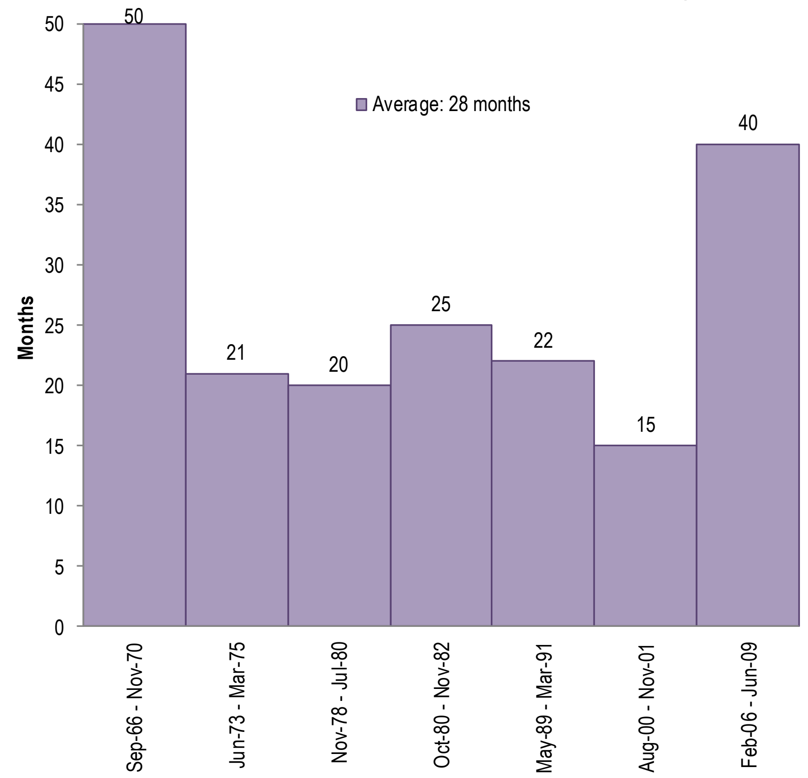
Source: FactSet, NBER

Remain Mindful of Cycle Risks Despite Growing Euphoria

However, it's important to note that an inversion of the yield curve does not necessarily *immediately* trigger the end of a cycle.



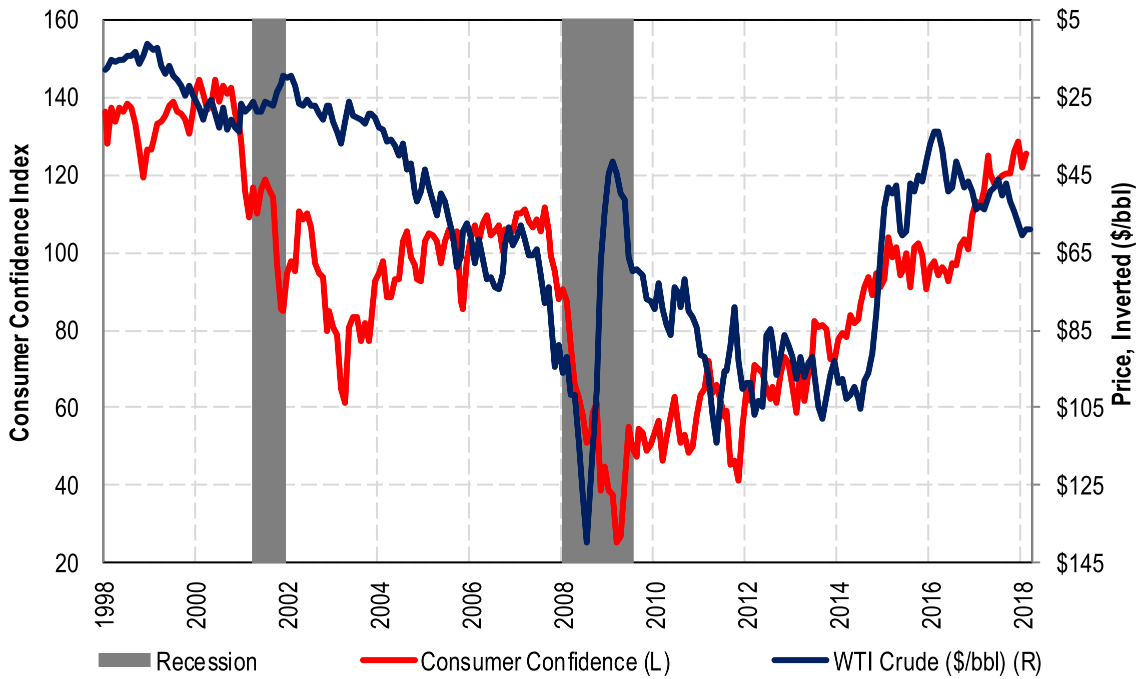
Duration from Yield Curve Inversion to Economic Cycle End



Source: FactSet, NBER

Remain Mindful of Cycle Risks Despite Growing Euphoria

With a weak USD comes rising energy prices. Though crude oil prices are well below mid-2014 levels and the superspike of 1H08, recent WTI prices are rising (roughly +25% over the last six months). Current prices have returned to 2006 levels, at which point consumer confidence began to erode.

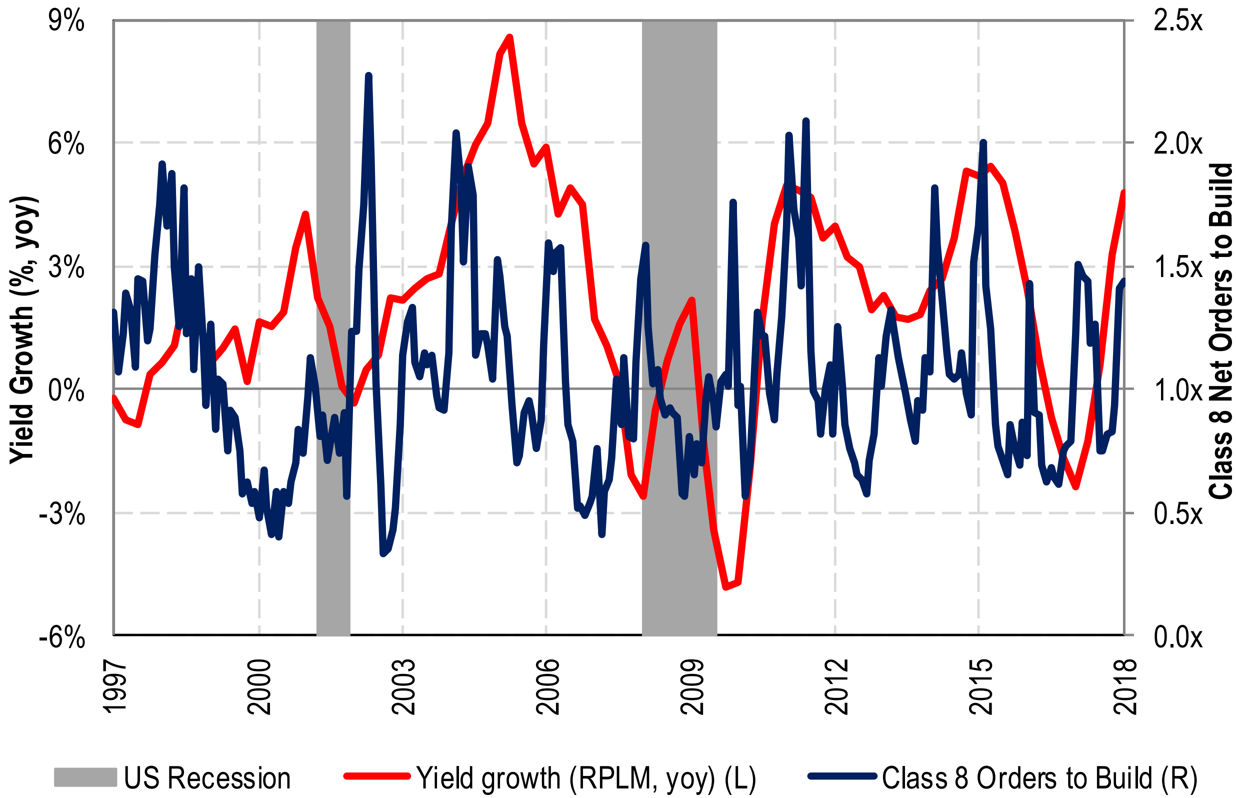


Source: FactSet, NBER, The Conference Board

Remain Mindful of Cycle Risks Despite Growing Euphoria

Three other key points of risk as 2018 develops:

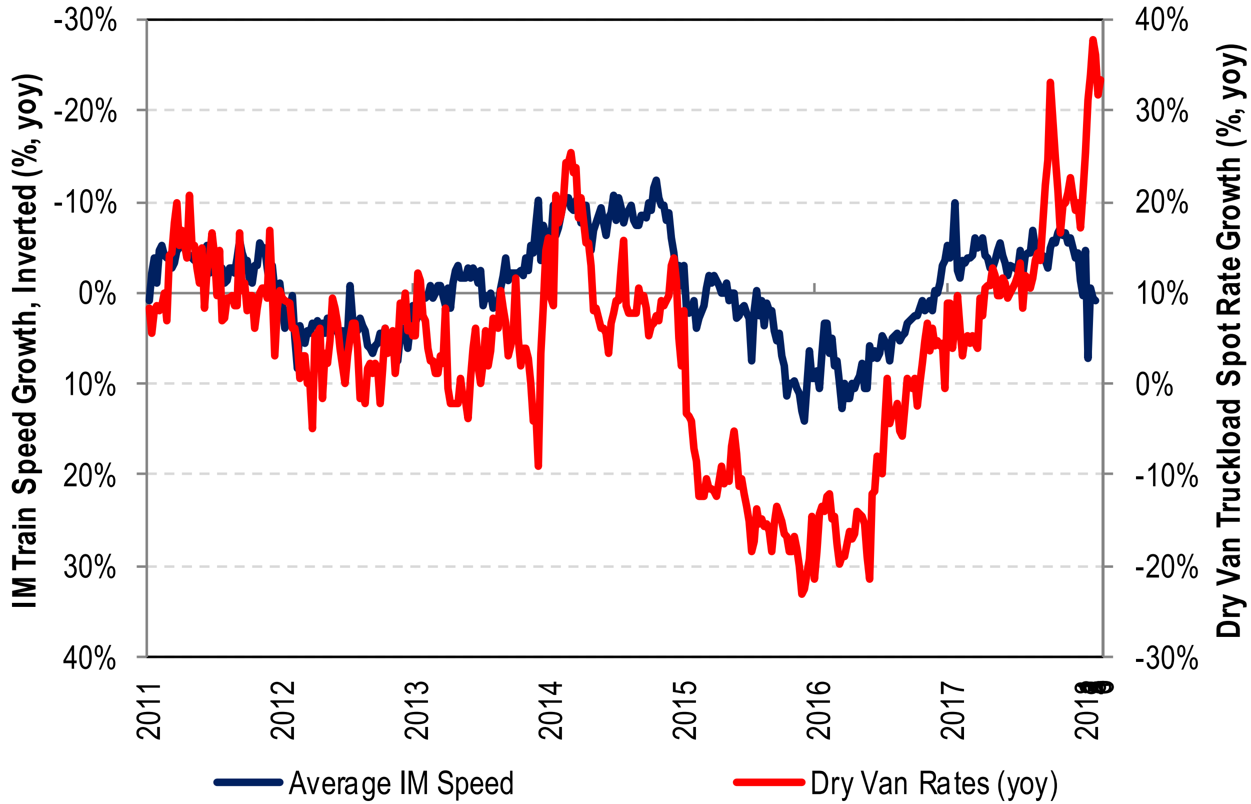
1) Capacity additions – perhaps this time isn't different after all.



Source: ACT Research, NBER, Baird estimates

Remain Mindful of Cycle Risks Despite Growing Euphoria

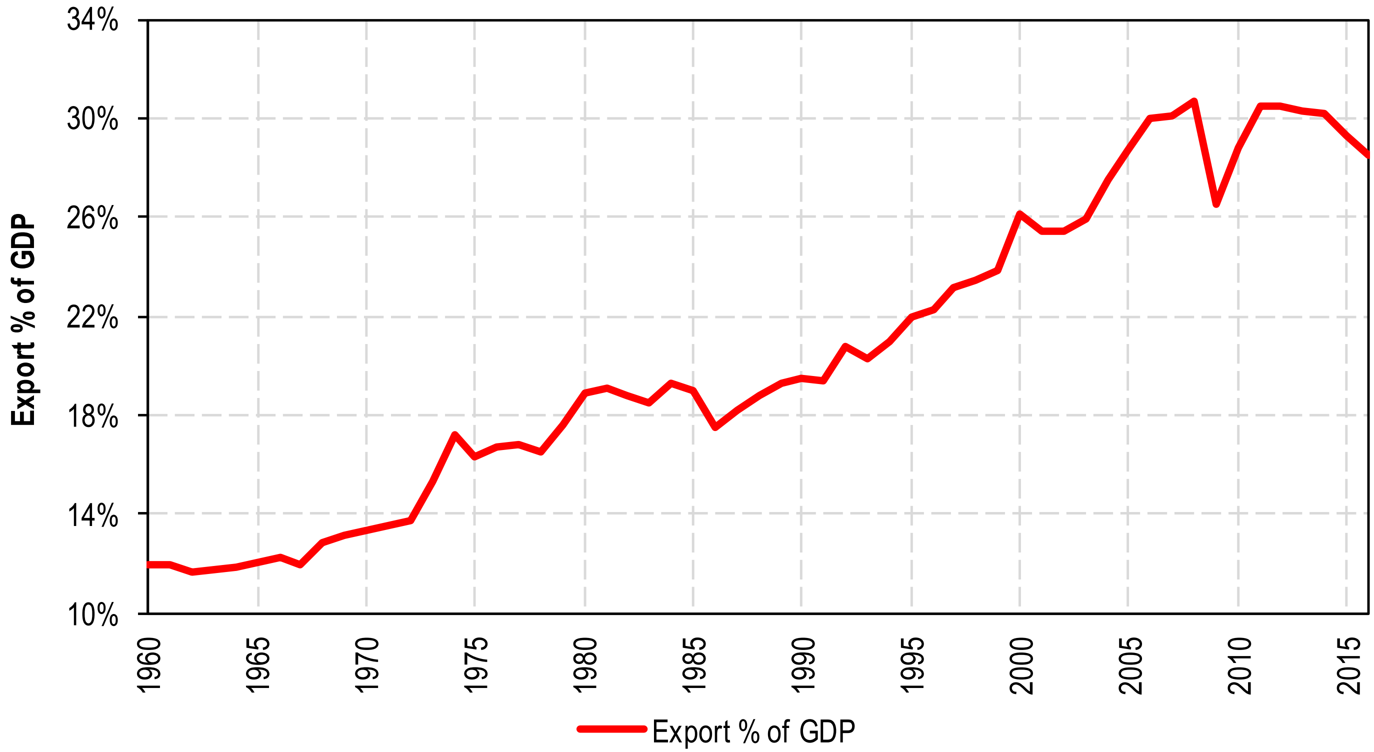
Three other key points of risk as 2018 develops:
2) Improving rail service could relieve some spot market constraints.



Source: AAR, Internet Truckstop

Beyond the Cycle, Growing Global Protectionism Risk Looms

Three other key points of risk as 2018 develops:
3) Rising global protectionism and reduced trade openness.



Source: World Bank

Beyond the Cycle, Three Emerging Structural Themes

1. Regulatory changes
    - The recently implemented ELD mandate garners disproportionate attention
    - Cumulative effect from increased driver qualification scrutiny raises operating costs, reduces supply, and supports base rate increases
    - Beneficiaries include scaled TL/LTL carriers & domestic intermodal

2. Demographic changes
    - Aging driver population is well known
    - Aging of **ownership** base of brokers/carriers is overlooked

3. Technology changes
    - Facilitates creation of "end-to-end" supply chain visibility and raises barriers to entry in the logistics space
    - Also revolutionizes retail by enabling e-commerce
        - Growth engine for LTL, particularly as "oversized" surcharges are implemented

Beyond the Cycle, Three Emerging Structural Themes

In our view, the net result of these three emerging themes will drive:

“Hybridization” of operating models

- Blurring the traditional line between “asset-based” and “non-asset-based”

Consolidation of brokers & carriers

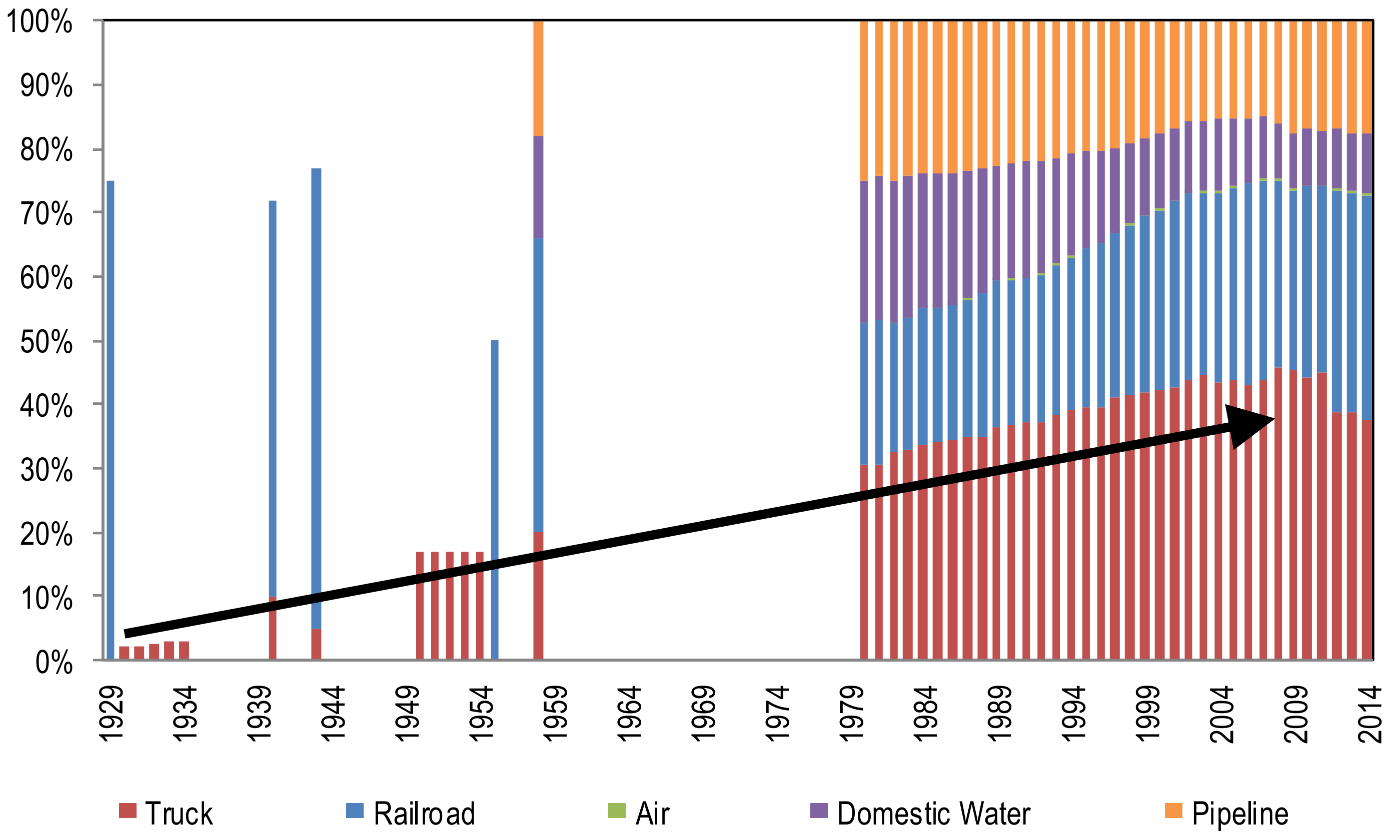
- Rising barriers to entry (higher per-unit operating costs, increased demand for IT-enabled capabilities) create share gain opportunities for brokers & carriers with scale

A Review of Transportation Mega Themes (Since WWII)

- Late 1950s: Development of the interstate highway system
- Late 1970s/early 1980s: Deregulation
- Late 1990s: Logistics 1.0 + first phase of consolidation
- Late 2010s/early 2020s: Logistics 2.0 + the next phase of consolidation
    1. Development of supply chain visibility
    2. Emerging vehicle technologies
    3. Continued evolution of commerce

Late 1950s: Interstate Highway System

Creation of the US interstate highway system drove a doubling of truck share of transportation through improved truck competitiveness.

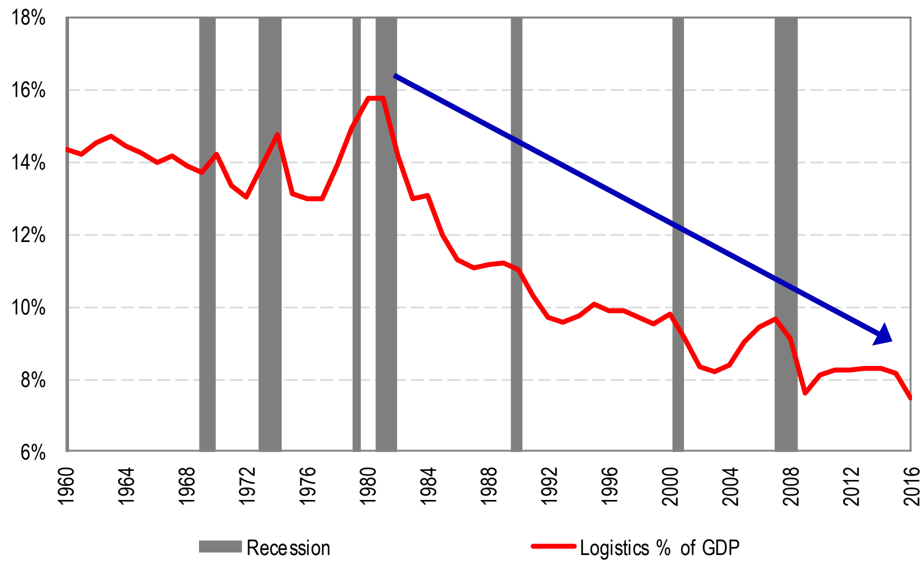


Late 1970s / Early 1980s: Deregulation

Several pieces of legislation deregulated transportation:

- Railroad Revitalization & Regulatory Reform Act (1976)
- Motor Carrier Act (1980)
- Air Cargo Deregulation Act (1977)
- Staggers (Rail) Act (1980)
- Shipping Act of (1984)

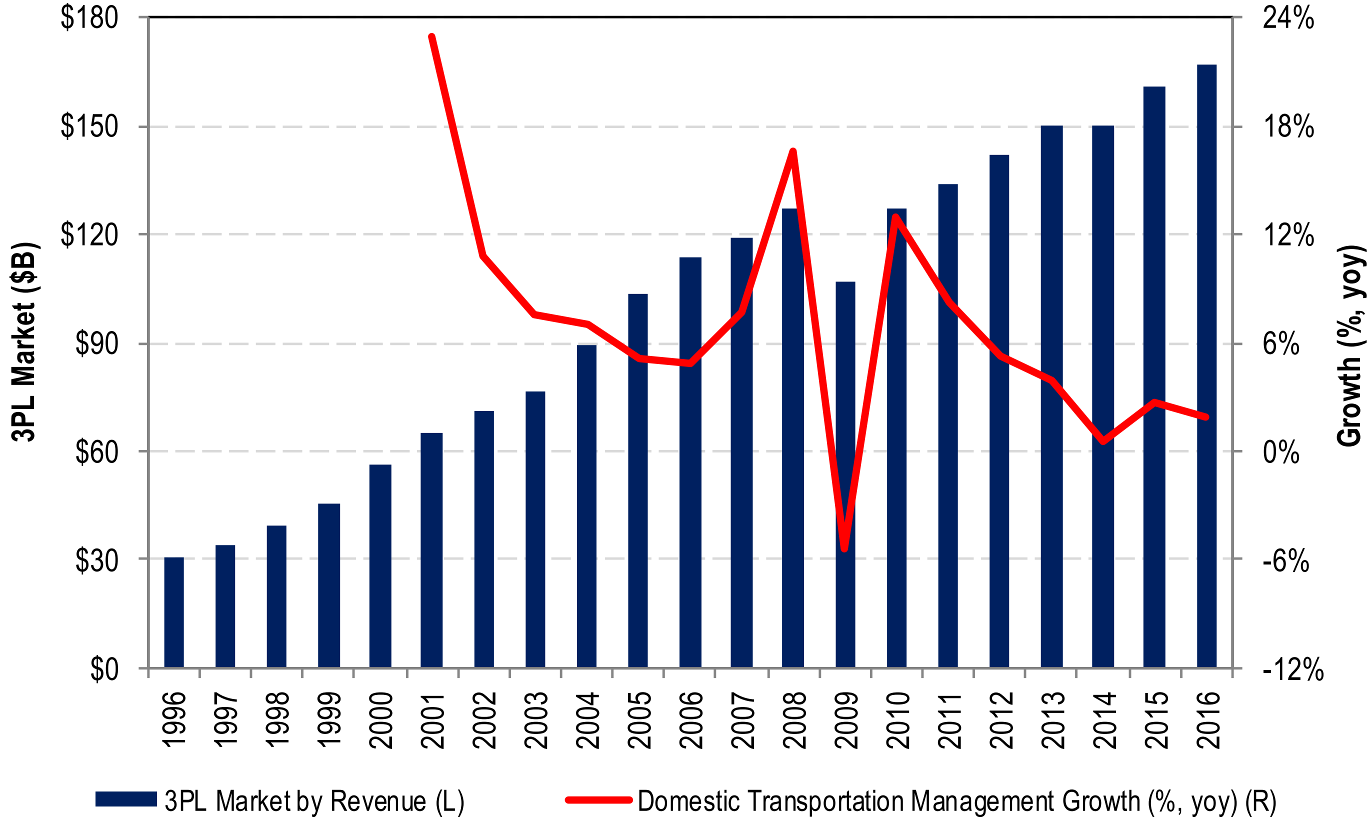
Net result: Logistics-related costs as % of GDP fell.



Source: Council of Supply Chain Management Professionals, NBER

Late 1990s: Logistics 1.0 + First Phase of Consolidation

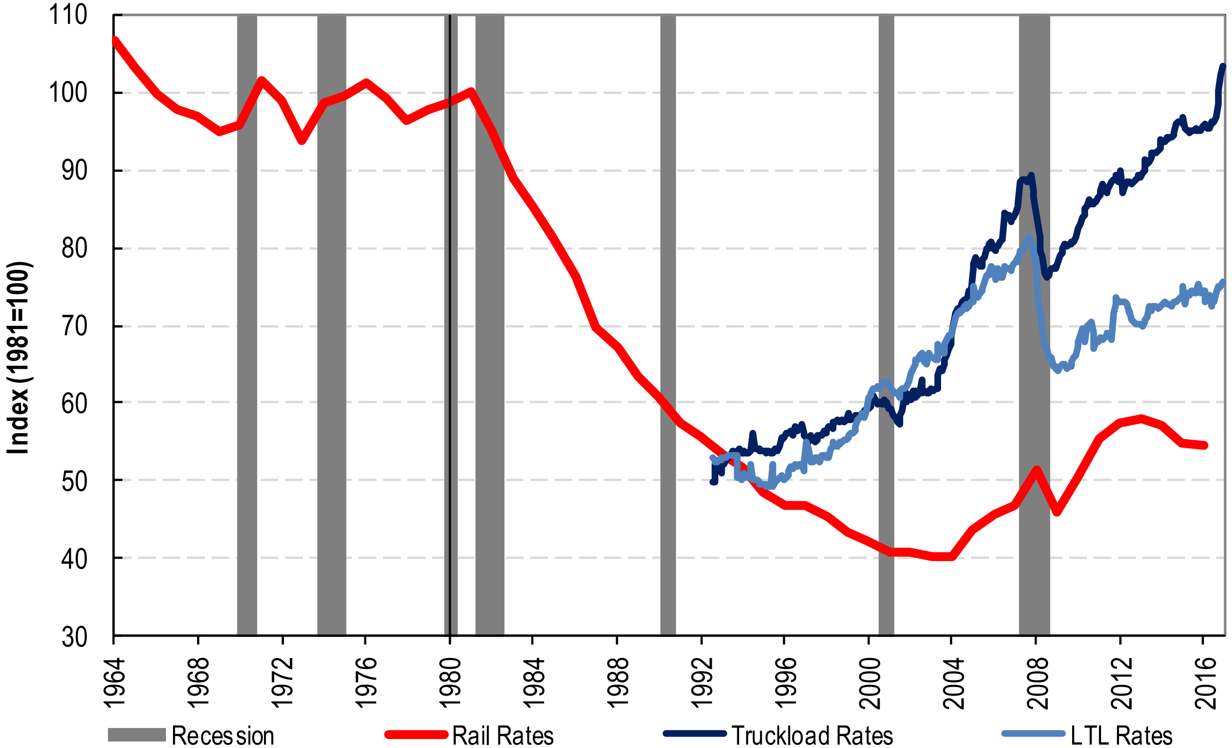
The robust growth in logistics began in the mid-1990s amid the commercialization of IT, though growth has tapered over the last decade.



Source: Armstrong & Associates, Baird estimates

Late 1990s: Logistics 1.0 + First Phase of Consolidation

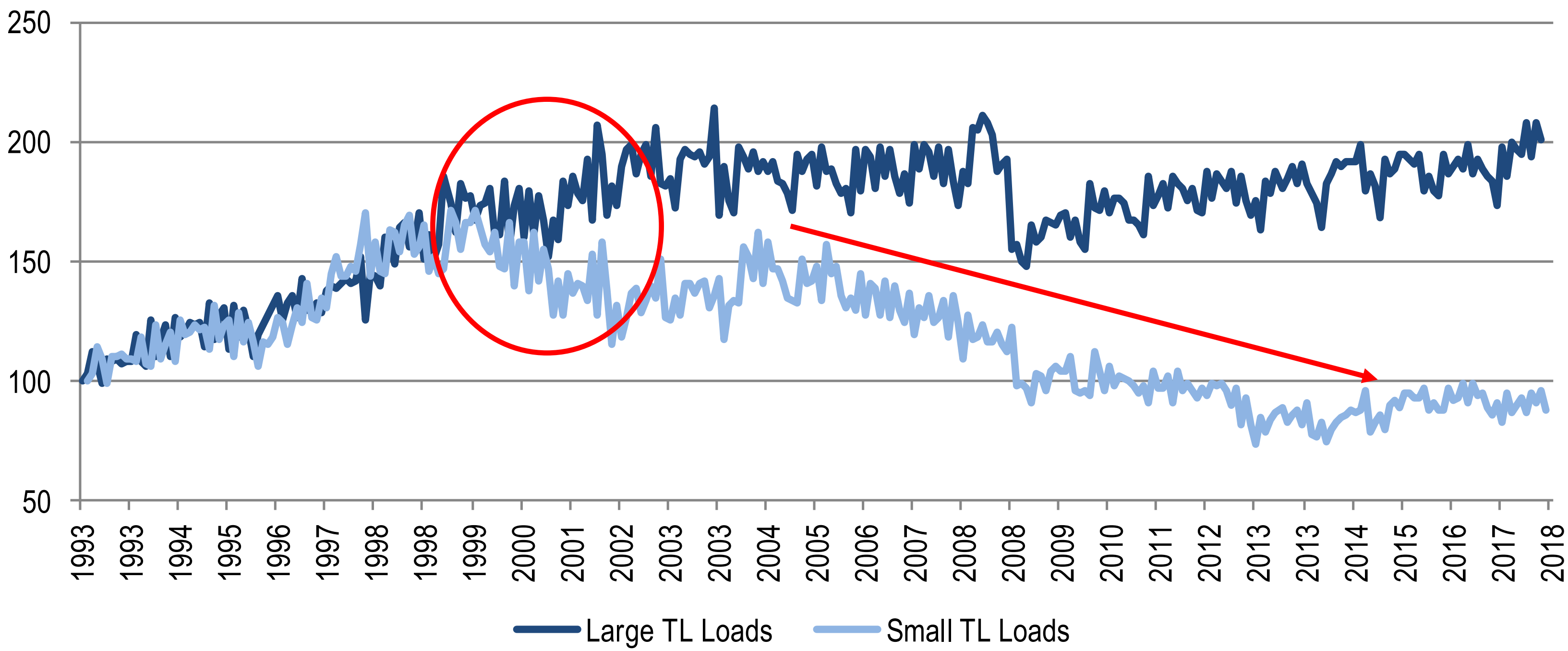
Also note deregulation's depressing impact to freight rates during the 1980s/1990s, which gave way to rising rates in the 2000s amid rail and truckload/LTL industry consolidation and rising fuel prices.



Source: AAR, ATA, NBER, Baird estimates

Late 1990s: Logistics 1.0 + First Phase of Consolidation

The period of rate growth during the 2000s followed both the rise of energy prices in the late 1990s and truckload industry consolidation.



Source: ATA

Late 2010s/Early 2020s: Logistics 2.0 + The Next Phase of Consolidation

Several factors driving **freight rate increases** in 2018, and likely through the end of the decade.

However, the development of the "Logistics 2.0" era in transportation likely creates the possibility for **freight rate declines** during the 2020s, given:

1. Development of supply chain visibility
2. Emerging vehicle technologies

Combined with the continued evolution of commerce, the Logistics 2.0 era is likely to coincide with another phase of industry consolidation.

1. Development of Supply Chain Visibility

Customer demand for supply chain visibility is rising.

TOP 5 OBJECTIVES ASSIGNED TO SUPPLY CHAIN (INDEX 2017 VS 2015)

	2017 RANK	2015 RANK	SHARE OF RESPONDENTS EVOLUTION
Ensure OTIF (On-Time, In-Full) deliveries	#1	#1	=
Improve product availability or delivery	#2	#2	↗
Improve end-to-end Supply Chain visibility	#3	#6	↗
Optimize inventory costs	#4	#7	↗
Reduce transport and warehousing costs	#5	#4	↗

Source: Geodis 2017 Supply Chain Wordwide Survey

1. Development of Supply Chain Visibility

Visibility has a broad scope…

- In-transit inventory visibility (e.g., origin to final destination)
- Production visibility (e.g., real-time production status)
- On-hand visibility
- Cost visibility (e.g., true, landed costs)

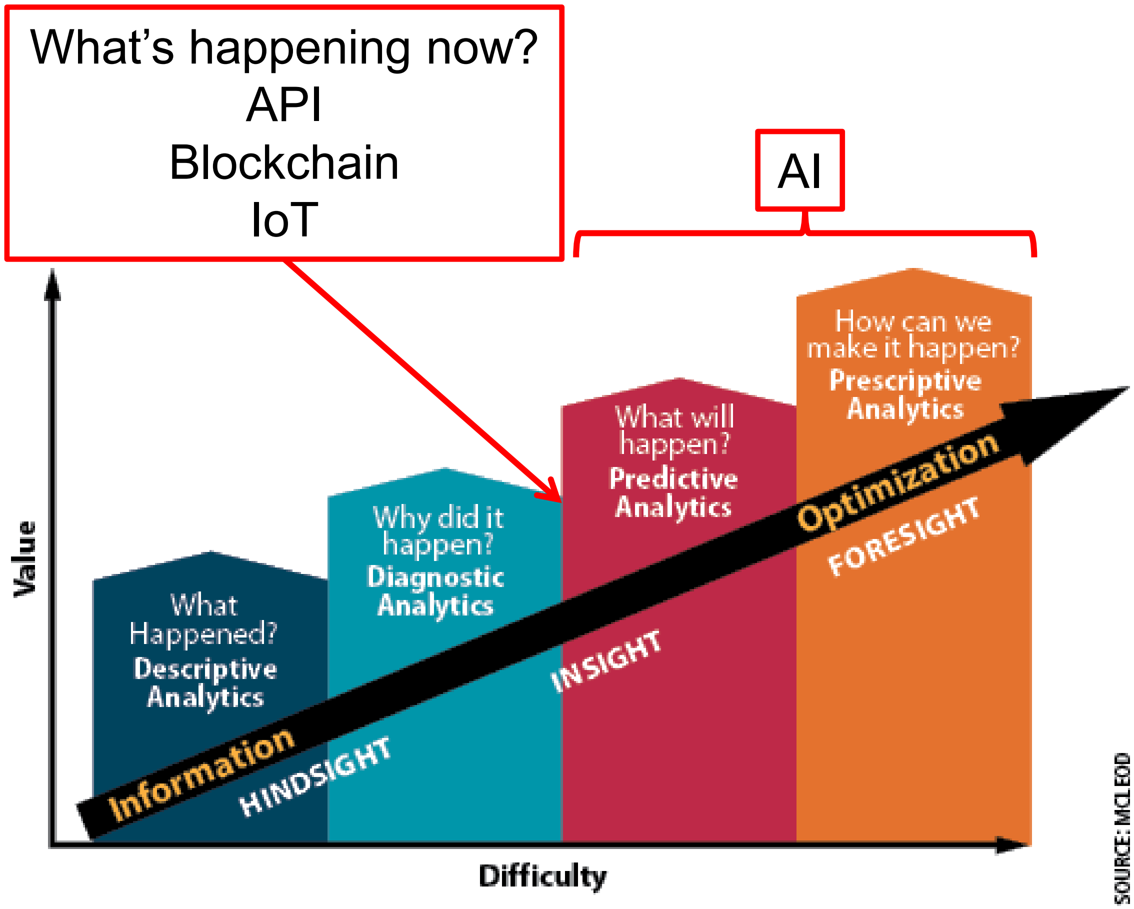
…with one purpose: helping reduce supply chain friction

- Better inventory management (location of goods, lead time)
- Proactively manage customer service issues
- Respond quickly to revenue opportunities

<u>Enablers of improving supply chain visibility</u>

- Transition from EDI to API
- Internet of Things (IoT)
- Blockchain
- Artificial Intelligence (AI)

1. Development of Supply Chain Visibility

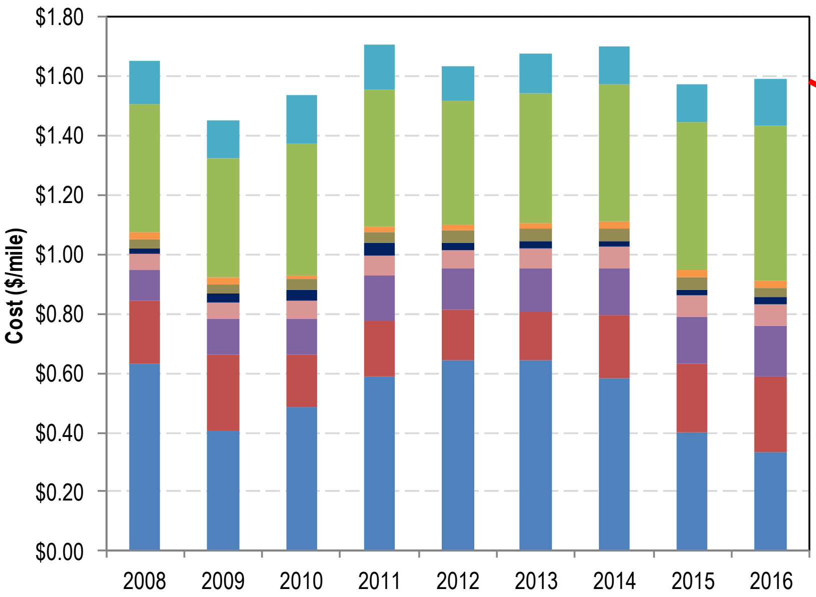


Source: Heavy Duty Trucking, McLeod

2. Emerging Vehicle Technologies: Electric Vehicles

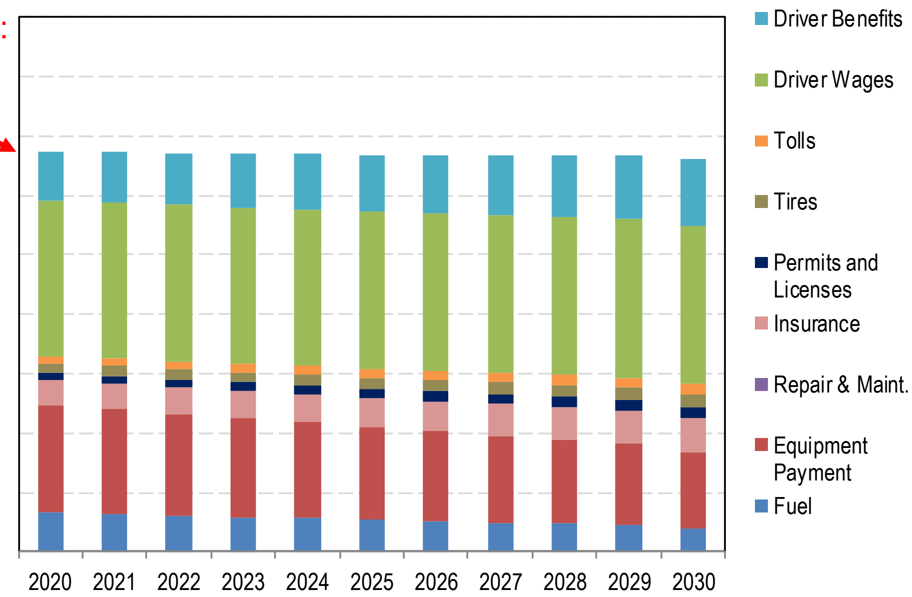
Development of electric vehicle technology is advancing – and has the potential to reduce fleet operating costs given both **<u>reduced maintenance and energy costs.</u>**

Est'd Diesel Truck Cost Per Mile



Potential savings: 15%

Est'd Electric Truck Cost Per Mile



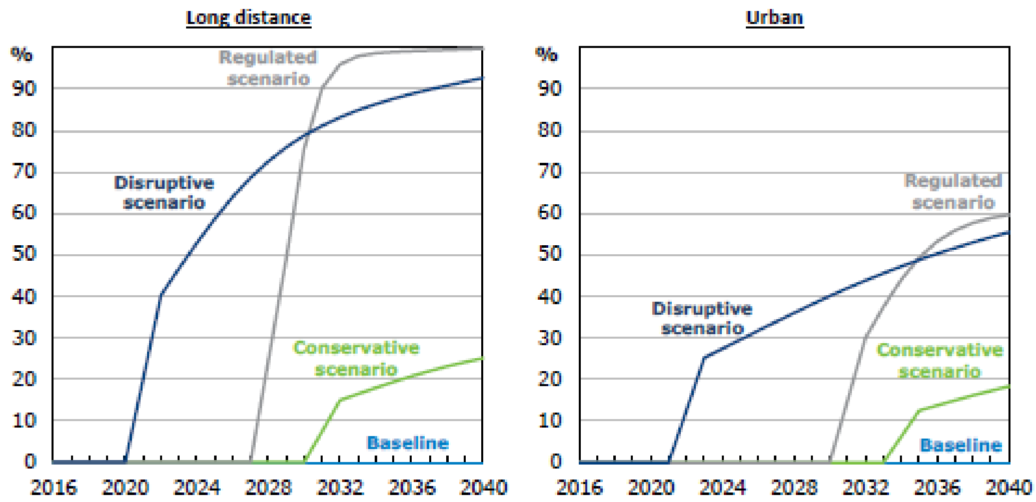
Source: ATRI (left), Baird estimates (right)

2. Emerging Vehicle Technologies: Autonomous Vehicles

The dream of autonomous vehicles "disruption" addresses numerous constraints:

- Driver shortage, reducing ~one-third of fleet operating costs
- Improved overall fleet productivity through connectivity
- Improvement in other operating costs (insurance & claims, fuel)

Level 4 autonomy is likely available in 2-3 years. However, Level 5 autonomy is still likely 10-30 years away – **given not only technological, but also regulatory and societal hurdles.**

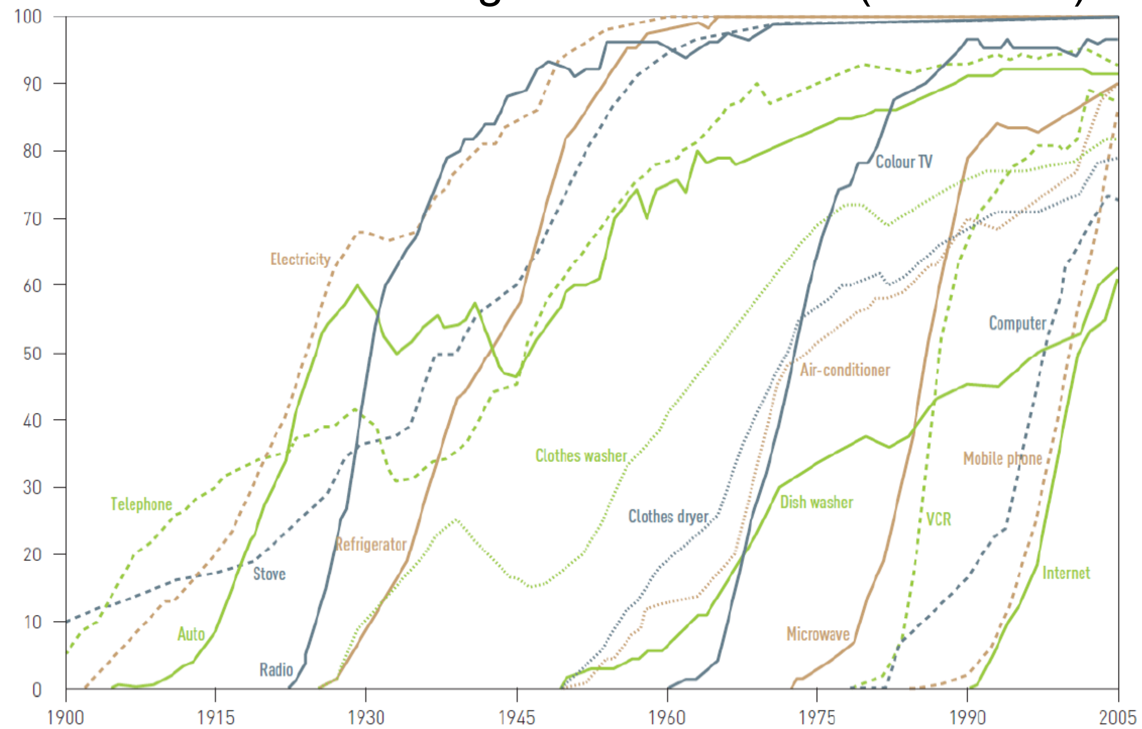


Source: International Transport Forum

2. Emerging Vehicle Technologies: Autonomous Vehicles

Even though Level 5 autonomy is still likely 10-30 years away, appreciate the pace of change and adoption of new technologies historically.

Technology adoption curves for modern innovations among US households (% of total)

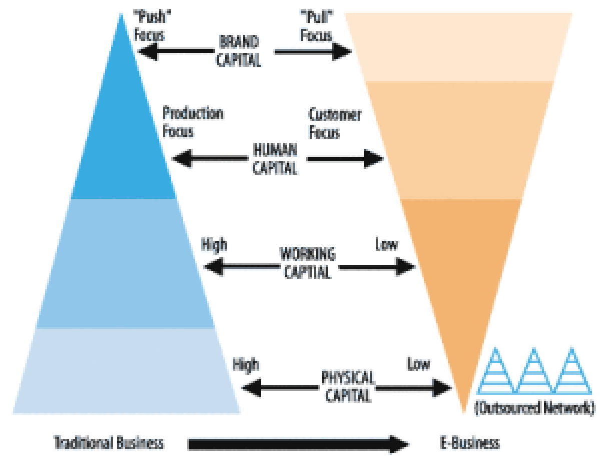


Source: State Government of Victoria, International Transport Forum

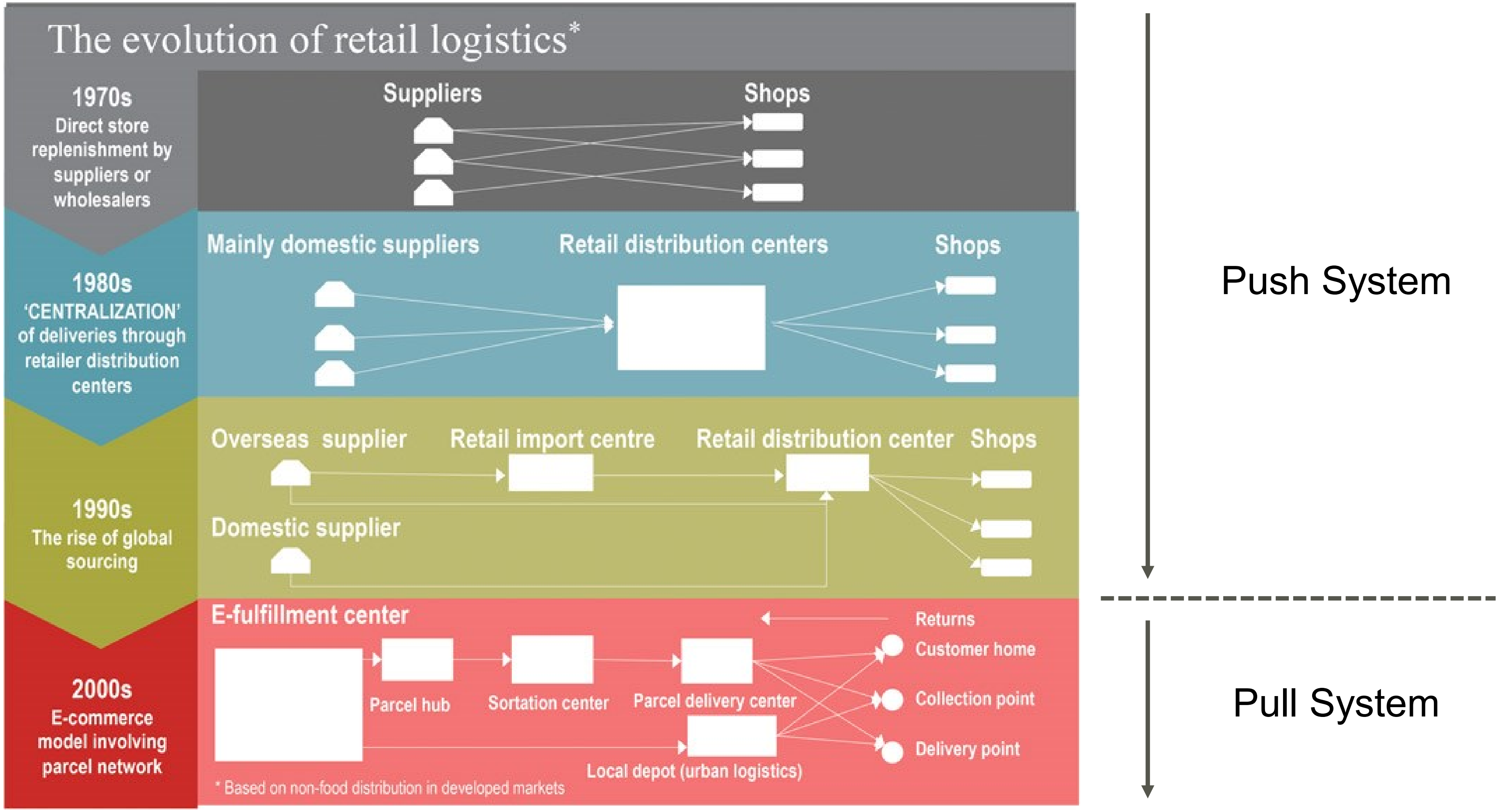
3. Continued Evolution of Commerce

<u>E-commerce fits the definition of a genuinely "disruptive" change.</u>
The dominant driver of disruption stems from a transition from a "push" focus in retail (projected demand drives the supply chain) to one of a "pull" focus.

Working capital needs fall (lower inventory carrying costs, improved cycle times and limited physical infrastructure needs), freeing capital to focus on maximizing consumer satisfaction.



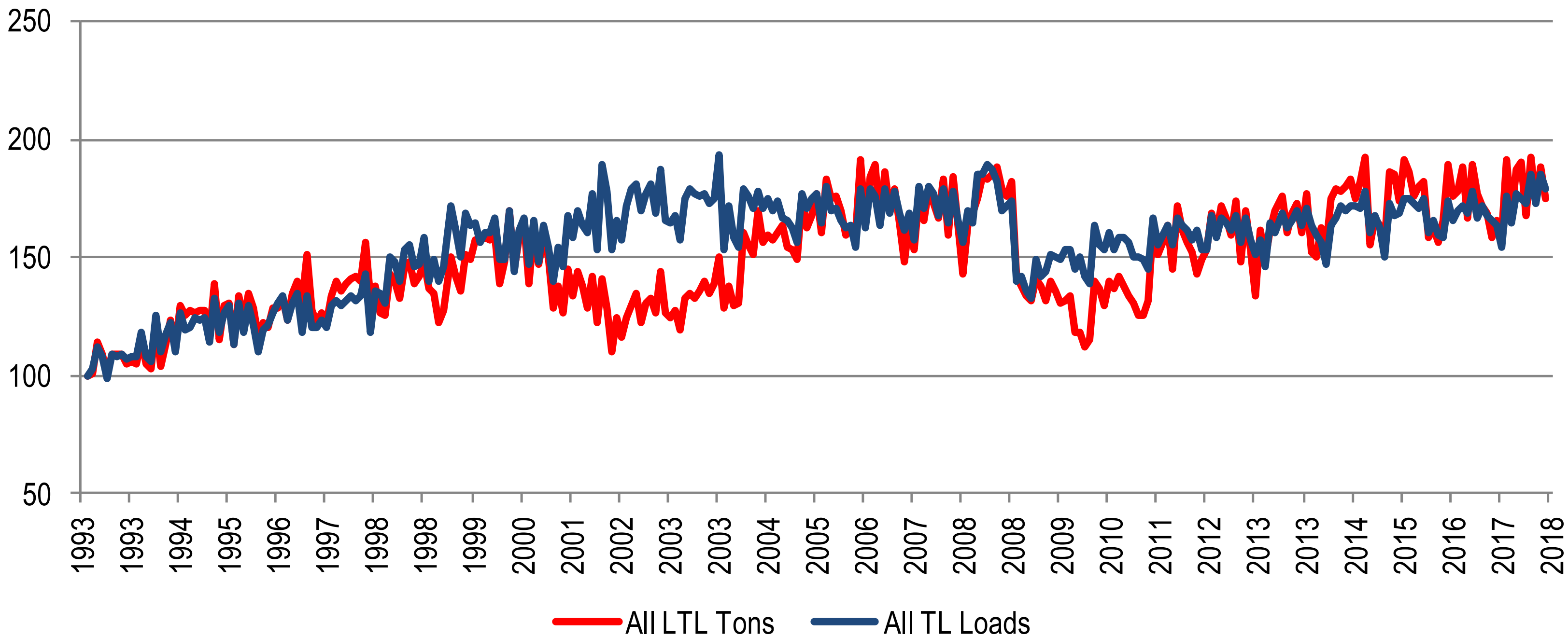
3. Continued Evolution of Commerce



Source: Jones Lang LaSalle

What Role Will LTL Play in B2C?

Conceptually, LTL stands to benefit from the development of e-commerce, particularly within heavier weight shipments as the channel matures and as parcel providers implement “oversized” surcharges. However, little evidence of share gain has yet emerged.



Implications & Conclusions

1. **Prepare for higher freight rates in 2018 – and likely 2019 and 2020**
   - Cyclically, supply was drawn down throughout 2016
   - This drawdown is now compounded by an improving demand environment, new regulations and rising energy prices

2. **But also prepare for the development of the Logistics 2.0 era**
   - Structural changes are already underway, given regulatory and demographic changes
   - Added to changes and development of new technologies, the transportation market is facing a new “mega-theme” in the 2020s

3. **Implications and beneficiaries from the Logistics 2.0 era**
   - Falling freight rates as per-unit operating costs decline
   - Customer demand for supply chain visibility, flexibility and savings strengthen the hand of scaled, hybrid operating models

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