State of the Automotive Market and Outlook
*A Financial Analyst’s Perspective*

2018 SAA Automotive Outlook Conference
Sunday, January 14th, 2018

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State of the Automotive Market and Outlook: A Financial Analyst’s Perspective

➢ Introduction:
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➢ SAAR Outlook: New Sales Poised to Fall as Used Sales Rise
  ➢ “The War on the Second Car”

➢ Credit: Expect normalization, not a bursting bubble.

➢ Future of Autonomous: Many players racing to be first to market, with Waymo, Cruise and Tesla currently in the lead. Meaningful adoption and monetization is still years away (2020+).

➢ Online vs. Physical: Research, appraisals, financing and even transactions are increasingly done online with wide-ranging implications for auto dealers and auto repair/service companies.

➢ From Scrap to Profits: Favorable macro tailwinds to persist for auto auctions.
Demand and Vehicle Affordability: The War on the Second Car

- **The War on the Second Car**
  - In the next 10 years, we believe consumers' desire to own (and be alone) will compete against the falling cost of (much improved) shared mobility services programs.
  - Higher vehicle transaction prices will push more consumers to the brink of either (a) cycling to older, used vehicles or (b) opting against the purchase/lease of a second vehicle to utilize semi-public ride-sharing/dynamic shuttle programs.

- **Used vs. New Demand**
  - The gap between new lease and used loan payments is poised to widen, rendering used vehicles increasingly affordable relative to new.
  - Underpinned by ramping off-lease supply.
  - CER is modeling 2018 U.S. SAAR of 16.2 MM (we believe this is at the lower end of Street consensus).
Autonomous Vehicles: Exciting Potential but Monetization Still Years Away

- **Monetization**
  - Massive total addressable market (TAM) opportunity.
  - Ride-sharing/hailing less than <0.3% of U.S. vehicle miles traveled today.
  - Penetration will meaningful increase as cost per mile falls through eliminating driver costs.
  - “Per mile” economics.

- **Competition is intense**
  - Winner take all, oligopoly or fragmented market?
  - Partnerships and collaboration between OEMs and technology companies are inevitable.

- **Full scale implementation is still many years away**
  - Technology development has many miles and many years before mainstream acceptance and usage.
  - Need scale players to reduce cost per mile.
  - Regulatory environment seems supportive at this time given potential to reduce accident frequency.

*We assume a fully autonomous future in our long-term valuation analysis and ignore the cost of a human driver.*

Sources: CER Analysis, Company reports, comScore, U.S. Department of Transportation.

![U.S. Ride-Hailing Share of VMT](chart1)

![U.S. Industry Ride-Hailing Revenue ($ bn)*](chart2)
Online vs. Physical

- **Online penetration is growing.** Research, appraisals, financing and even transactions are increasingly done online with wide-ranging implications for dealers, rentals, aftermarket and auto auctions.

- **Online used car dealer, Carvana (EW, $23 TP), exemplifies this trend.**
  - Over 20% of customers are completing the entire used car purchase on their *mobile device*.
  - We estimate Carvana will be a top 10 used car dealer in the U.S. by the end of 2018.
  - Other auto dealers are now rapidly building out online capabilities to make the process more convenient for the customer with some companies even testing home delivery.

- **Digital strategy and online partnerships are also key for aftermarket service/repair companies and tire retailers.**
  - Need to drive website traffic, increase conversion and make the transaction more convenient for the consumer.

- **Closely monitoring Amazon and eBay Motors.**
Automotive Credit: A Normalizing Environment

- **Normalization**
  - We see no evidence to suggest the automotive credit environment is a bursting “bubble”.
  - Market is placing too much emphasis on credit risk and inappropriately discounted stocks with credit divisions throughout 2017, in our view.

- **Delinquencies**
  - Rising slowly, but trends are not alarming.
  - Delinquency rates still well below historical trends.

- **Credit quality remains strong**
  - “Super Prime” and “Prime” penetration is growing, while “Subprime” mix is shrinking.

- **Loans outstanding and originations growing**
  - Banks remain willing lenders.

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**Annualized NCOs and 30+ Day Delinquencies (COF Auto Loans)**

Sources: Company reports, CER estimates.
We see key tailwinds for auto auctions in the years ahead:
- Expanding car park
- Rising vehicle age
- Increasing vehicle miles traveled
- Steeper repair costs
- Higher total loss frequency
- Ramping off-lease supply

These forces are well-known in the marketplace.
- Along with high margins and disciplined capital allocation, these trends have manifested in valuations for auto auctions that are the high-end of our coverage universe.

What could the Street be missing or underappreciating?
- Ability to drive operating leverage and reduce costs.
- International growth opportunity.
- “Call option” for certain digital initiatives (i.e., enabling dealer-to-dealer transactions).
- Tax reform.
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