US Autos & Auto Parts

Back to School with MIT: Don't Forget the Driver in Autonomous Driving

Equities

Americas

Automobiles

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UBS hosted 2nd set of meetings with MIT's leading professors in auto research

Professors Mindell & Reimer specialize in autonomous technology & HMI. Both see 'fully' autonomous (no hands or feet) as far away, with niche applications near term (range bound, low speed). They also are focused on the need to incorporate human involvement. Mindell points out that autonomous tech is years ahead in aviation, space flight, and deep sea vehicles, but all evolved toward vehicles that require human interface. Adoption requires trust and transparency; the operator ultimately needs to know what's happening. He noted that Google pushed its goal of fully autonomous from 2020 to 30 years away. He prefers Toyota's measured approach which is looking at autonomous along with AI as a safety enhancement. Professor Reimer's research focuses on driver attention. Autonomous needs human input. The driver is not capable of staying focused during autonomous driving (it's boring). This creates risks when the driver needs to take over. He said Google has a huge head start on the industry with more data and therefore able to create better algorithms. He believes Apple is looking at a servicing model. For safety, driver state detection is important as it picks up on issues like fatigue. Surprisingly, both question if autonomous systems will initially improve safety since we really don't know what human actions may prevent accidents.

Li-ion was invented for handheld devices, not storage or auto

Professor Sadoway is a battery expert and founder of a liquid metal battery (LMB) start up. He believes that li-ion is an outdated technology that cannot scale well to stationary storage applications due to safety and degradation concerns. Depending on the battery use, he estimates in 5-7 years Li batteries could be at 70% of capacity, a point that batteries may need to be replaced, whereas a LMB retains >99% capacity after 10 years. At an ICE cost of $0.24/mile, a 200 mile range battery pack must cost $150/kWh to be at parity. This implies a cell cost of $50-75, which he believes is unfeasible.

Positive reads for BWA & DLPH; cautious on TSLA

On fuel saving technologies, the professors were cautious on EVs (negative for TSLA). Heywood expects limited EV adoption given higher expected cost, while turbos are expected to accelerate (positive for BWA). On autonomous driving, the professors see more semi-autonomous features to boost safety (positive for DLPH).

Five years behind US CAFE standards; PHEVs more promising

Professor Heywood expects improvement in technology to cut the relative fuel consumption gap between conventional gas vehicles and BEVs from 1:0.23 in 2010 to 0.51:0.14 in 2050. He believes the industry is running five years behind CAFE targets and expects ICE to make up 80% of US sales in 2030 (11% hybrid, 5% PHEV, 3.5% BEV, & 1.5% FCHEV). He sees PHEVs significantly more promising than BEVs due to barriers to BEVS: battery performance and cost, range, and recharging time. He sees GDI/Turbo penetration around 15% in the US today, going to majority penetration in 20 years. He is also broadly bullish on hybrid technology; he expects the cost now at ~$5000 to decrease 50% over two decades.

Valuation Method and Risk Statement

The global auto industry is highly cyclical, vulnerable to sudden shifts in consumer sentiment, employment, interest rates, and general economic activity. Auto companies have high fixed costs, and therefore earnings and cash flows can dramatically change with sudden shifts in vehicle demand. A significant and sudden decline in demand would negatively impact automaker liquidity and increase the financial distress on the supply base. OEMs also faces risks associated with the impact of discount rates and asset values on legacy obligations. In addition, the auto industry is highly competitive, and therefore automakers may face pricing pressure from competitors looking to gain market share. Moreover, Detroit 3 North American operations have historically been dependent on light truck sales, and therefore the continued shifts toward cars will remain a headwind. Parts suppliers are further exposed to customer pricing pressure, shifts in OEM market share, volatile production schedules, and unforeseen changes in technology. Through its building efficiency segment, JCI is also exposed to non-residential and residential construction. JCI is also exposed to lead, steel, resin, foam chemicals, copper, and fuel costs. BWA is heavily dependent on the European market, and in particular diesel engines. In addition, BWA's drivetrain segment supplies transfer cases for SUVs in the US market. Consequently, the continued shift toward cars from light trucks and SUVs will negatively impact this segment. BWA also is exposed to steel and nickel pricing. LEA is exposed to fluctuations in the price of steel, polypropylene, and copper. Both Visteon and Dana mitigated a number of their former risks in bankruptcy and have emerged as much healthier and more streamlined businesses. Given the companies have corrected a large portion of their former operational and liquidity issues, we view the biggest near-term risks to be similar to those of their publicly traded supplier peers - including commodity exposure, OEM pricing pressures, and production schedule shifts. In addition to these end market risks as a supplier Meritor is also exposed to customer pricing pressures, commodity price risks (primarily steel), shifting OEM share and volatile OEM production schedules. Auto dealers are also exposed to shifts in OEM market share, changes in OEM marketing incentives, and changes to OEM warranty coverage. AutoNation's and Sonic's results may be worse than the industry average due to differences in brand performance and geographic mix. In addition, failure to meet CSI standards and franchise contract market share limitations may impede their ability to acquire new franchises. ESL Investment, an investment firm controlled by Edward Lampert, owns over 25% of the outstanding shares, and the sale of a significant portion of this position could raise investor concern. Dealer earnings are also dependant on LIBOR interest rates. For Sonic, voting control for the shares rests with O. Bruton Smith and family, leaving public shareholders with only minority rights.

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Buy	FSR is > 6% above the MRA.	48%	36%
Neutral	FSR is between -6% and 6% of the MRA.	39%	28%
Sell	FSR is > 6% below the MRA.	12%	22%
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Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 31 December 2015.
1:Percentage of companies under coverage globally within the 12-month rating category.
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UBS Securities LLC: Colin Langan, CFA; Eddie Hsieh.

Company Disclosures

Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
BorgWarner Inc.[16]	BWA.N	Buy	N/A	US$34.78	06 Apr 2016
Delphi Automotive Plc[16]	DLPH.N	Buy	N/A	US$71.66	06 Apr 2016
Tesla Motors[16, 18]	TSLA.O	Sell	N/A	US$265.42	06 Apr 2016

Source: UBS. All prices as of local market close.
Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date

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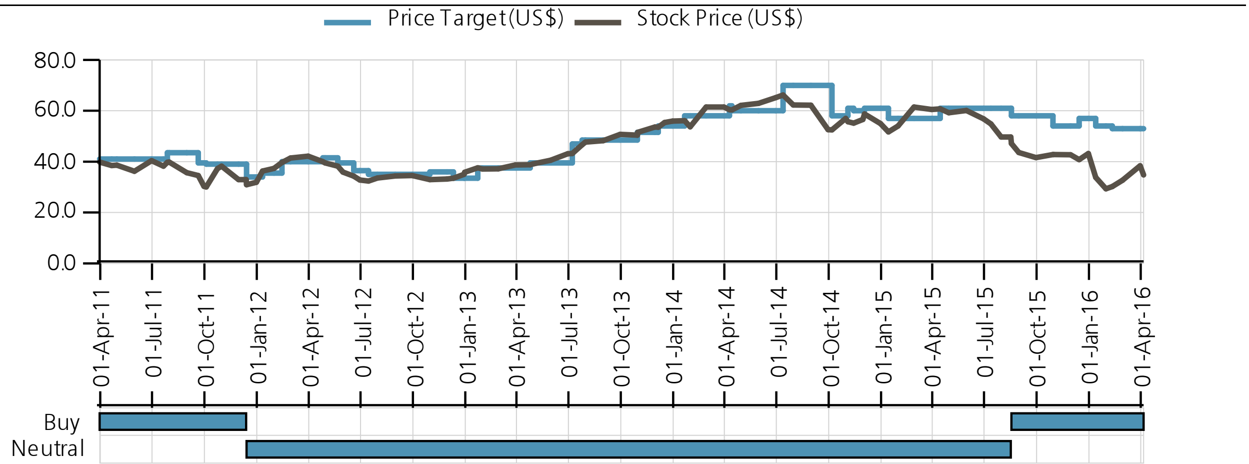
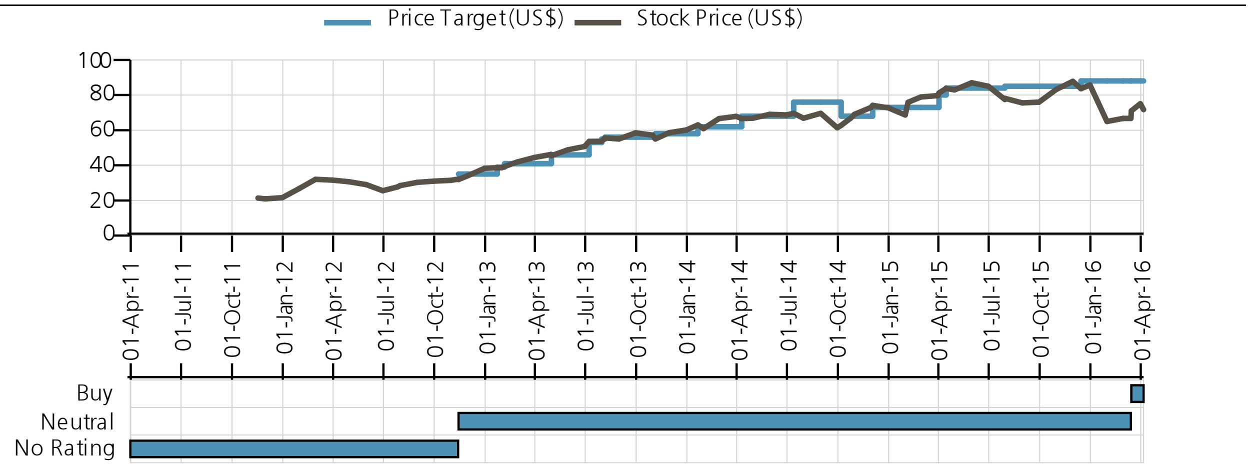


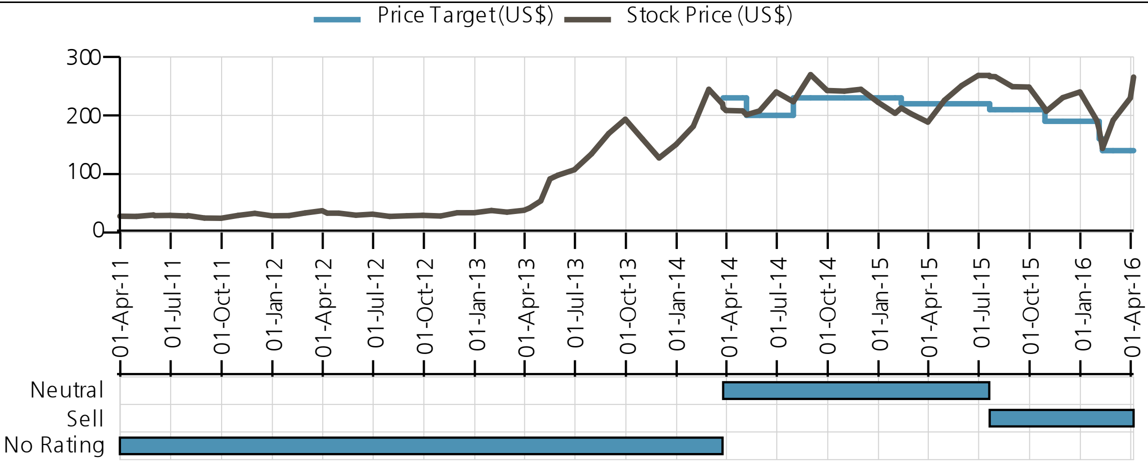
Source: UBS; as of 06 Apr 2016

Delphi Automotive Plc (US$)



Source: UBS; as of 06 Apr 2016

Tesla Motors (US$)



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