

Key Takeaways

Technical advances in lighting are paving the way for new products in the automotive lighting ecosystem and are changing the dynamics among automotive lighting suppliers. Consumers' increasing desire for personalization, convenience, safety, and aesthetics is set to further impact the lighting landscape in the coming years as manufacturers will have to balance investments in new equipment and the price sensitivities of end customers. With the dawn of autonomous vehicles, the automotive lighting industry is set to transition into an intelligent lighting era, lifting the technological bar even further. But as autonomous vehicles become a reality, this may lead to changing priorities between exterior lighting and interior lighting as the passengers' attention shifts from the road to inside the car. In combination, there are many challenges on the road ahead for the automotive lighting industry – the theme of our Q1 2018 Automotive Quarterly Newsletter:

Advancements in Lighting Technology Are Changing the "Face" of the Automobile

- Automotive lighting is witnessing the transition from halogen to new technologies such as LED and lasers which offer increased efficiencies and new functionalities
- Increased use of LED headlamps and other next generation light sources is bound to increase content per vehicle for automotive suppliers

Future Mobility Solutions Will Require Smart Lamps and Ambient Lighting Solutions

- The adoption of Advanced Driver Assistance Systems allow for the integration of semiconductors and lighting components, with sensors being embedded in the lighting architecture creating new lighting functions
- Flexible lighting designs and changing consumer use cases are driving the development of ambient lighting solutions inside an automobile

Valuation Observations and Sector Performance

 Global OEM multiples have increased over the previous quarter while multiples for suppliers declined, further widening the valuation gap between the two groups

At the end of Q1'18 the average EV / LTM EBITDA multiples were:

NA Auto Parts Manufacturers

7.1x -0.4x Q-o-Q

Global OEMs

9.3x +0.4x Q-o-Q

Automotive M&A Activity

- The automotive supplier M&A market remained active in Q1 2018 with the U.S. leading the acquisition table in terms of deal volume
- Technological disruption continues to be a driving force for new M&A activity with rising notions of crosssector acquisitions and collaboration to cope with the ongoing challenges

KPMG Corporate Finance



America's M&A Transactions Advisory Services Firm of the Year -2017



Consumer Discretionary Deal of the Year 2016 In the global mid-market segment, KPMG was the #1 M&A advisor with the most transactions over the last 5 years

rage /

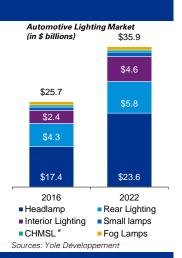
Sources: Capital IQ, analyst reports, and other publicly available sources.

Automotive Quarterly M&A Newsletter - Q1 2018

Automotive Lighting

The Changing Landscape of Automotive Lighting

Lighting is an integral subsystem for all automobiles that ensures proper vision for the driver, indicates the presence and position of the vehicle to others, and accentuates different aspects of the vehicle's interior. According to the market research firm Yole Développement, the global automotive lighting market was valued at \$27.7 billion in 2017 and is expected to grow at a CAGR of 5.7% to reach \$35.9 billion in 2022. The automotive lighting landscape is evolving from being a simple lighting function to a distinctive feature due to the rapid shifts in lighting technology. The adoption of electronic and digital technologies is having a transformational effect on the automotive lighting industry, offering design flexibility, increased efficiencies, and new functionalities. Light emitting diode (LED) lights are gaining traction due to energy efficiency, safety, and aesthetic reasons. The advent of these higher priced products in new car models is leading to increased content per vehicle and is creating opportunities for innovative automotive lighting manufacturers to gain market share and increase the average selling price faster than the underlying car market's growth.



Exterior Lighting

Exterior lighting represents the largest segment of the automotive lighting market, with headlamps being the largest product category generating more than two-thirds of the total market revenue. The headlight segment includes daytime running lights, parking lights, standing lights, and dim-dip lights. Approximately 17% of the market revenue is represented by rear lighting which includes tail lights, brake lights, number plate lights, direction indicator lights, and reversing lights. Fog lights and small lamps such as side-turn signals, side marker lights, and reflectors account for the rest.

Halogen has been the main stream lighting technology in headlamps, with over 70% global market share as per IHS, especially in some emerging markets, due to its cost effectiveness. High intensity discharge (HID)/Xenon lamps, which where introduced to the market in the 1990s offer greater functionality than halogen, but both take longer to turn on and brighten, and offer limited size and design flexibility. These are likely to lose relevance with the spread of new technologies such as LEDs and laser.

Technology	Halogen	Xenon (HID)	LED	Laser	
Lifespan	~1,000h	~2,500h	~25,000h	n/a	
Source Efficacy	<=25 lm/W	45-75 lm/W	75-100 lm/W	170 lm/W	
Energy Consumption	~ 55W	~ 35W	<= 20VV	< 10W	
Projection Distance	Up to 100M	Up to 150M	Up to 250M	Up to 600M	
Design Possibility	Limited	Limited	High Design Flexibility	Design Flexibility > LED	
Price	Cheap	2-3x halogen	2-3.5x halogen	5x LED	



Sources: BMW, Hella, Valeo, Equinet research. Sources: Technavio, Global Automotive Lighting Market 2016-2020

Growth in LED headlamps reflects the growing demand for lower power consumption (especially for EVs), longer product lives, greater safety, and more flexible design options. LEDs consume just a third of the power of halogen and thus, have a smaller carbon footprint. The mainstream adoption of EVs is set to further increase the importance of lighting as a unique design feature for car makers given the diminishing importance of the powertrain as a differentiating factor.

Technological advancements have led to the introduction of laser lamps as a next-generation light source. According to Samsung Securities, laser lights are 1,000 times smaller than LEDs but 5x brighter and can illuminate the road twice as far as LEDs. However, the high price tag of this technology (five times LED) limits their current application to only a handful of premium models.

^{*} Center High-Mounted Stop Lamp

Automotive Quarterly M&A Newsletter - Q1 2018 Automotive Lighting (Cont.)

Integration of Lighting and Electronics - Enabling Smart Lighting Solutions

Autonomous driving creates a demand for automotive lamps to become more intelligent as advanced driver assistance systems (ADAS) redefine the way lamps function in vehicles. Lighting systems embedded with sensors allow for the creation of new functions like adaptive front lighting system (AFLS) and glare-free lighting. AFLS is a smart headlamp that, via an onboard camera, processes information of oncoming vehicles and depending upon vehicle speed and steering input, enhances the driver's visibility by optimizing the distribution of light from the headlights.

With further advancement, ADAS L3 (conditional automation) will see the integration of sensors with a variety of components such as fog lamps, side mirrors, (panoramic) room mirrors and the grille to achieve a fairly high level of automation. These innovations have already made lamp firms an appealing target for sensor and electrical part makers with several acquisitions occurring in the space.

ADAS Level*

Lighting Functions



Sources: Automotive Lighting, Technology, Industry and Market Trends, Yole Développement, Oct 2017

* ADAS Level: L0: Driver Only; L1: Driver Assistance; L2: Partial Automation; L3: Conditional Automation; L4: High Automation; L5: Full Automation

Interior Lighting

Automotive interior lighting application can be found in roof and floor lighting, backlighting for the controls and instrument panels, and door panels. The interior lighting market is forecast to grow at a CAGR of 11.5% from 2016 to 2022 to reach \$4.6bn, primarily driven by the flexibility of LED technology and changing preferences of consumers. The variability of LED lighting creates an entirely new class of ambient lighting solutions with emphasis on space, convenience, comfort, design, and utility. Ambient lighting is the use of light pipes, light rings, LED pin spot lights, and diffuser lenses to create a distinct atmosphere inside automobiles.

The dawn of autonomous vehicles might result in a significant shift toward ambient lighting with various lighting modes being used to create a psychologically pleasant experience during travel. Self-driven vehicles will enable the driver to utilize his/her travel time on other productive or leisure activities and could see the introduction of smart lighting components for communication and entertainment purposes.

The continuous progress in automotive lighting may soon set the stage for use of Organic LEDs (OLEDs) in automotive cockpits and displays. OLED is an advanced lighting technology being used in smartphones and televisions. It offers more colors and levels of brightness than LEDs, and their slenderness and lightness are ideal for lighting the curved surfaces in automobiles. Although the high cost of OLED displays are currently prohibitive, its prospects however are bright and their penetration should increase rapidly as costs come down.

Thrive, Survive, or Dive

The automotive lighting industry is going through a transformational period with the introduction of several new technologies leveling the playing field for established companies and market entrants alike.

<u>Thrive</u> by becoming an innovation leader

LED technology has already found its place in the automobile. New technologies are already on the horizon and converging with the sensor technology needed for autonomous vehicles. In order to thrive in such an environment, suppliers must focus on innovation via internal R&D as well as pursue select technology acquisitions to tap product know-how from other converging fields.

<u>Survive</u> via cost leadership and consolidation While advanced lighting technologies become more popular, halogen remains the most costeffective technology and is expected to see steady demand especially in emerging markets. This could create consolidation opportunities, especially as smaller suppliers are challenged by the ever increasing pricing pressure from OEMs in an overall shrinking market.

Do nothing and *Dive*

As halogen lighting is likely to stay around for at least another decade, the decline of an evereroding market can be a slow one. Downsizing might be an effective way to counter these market conditions initially. However, the ultimate end-game for halogen will be a niche market with few survivors at best.

Automotive Quarterly M&A Newsletter - Q1 2018

Selected Public Automotive Parts Manufacturers

	HQ Country	Market Data			LTM Financials		Valuation Multiples - Enterprise Value To:				
Company		Market Cap (\$mm)	Enterprise Value (\$mm) ⁽¹⁾	Share Price ⁽²⁾	% 52 Wk High	Revenue	Revenue Growth	EBITDA % ⁽³⁾	LTM EBITDA ⁽³⁾	NTM Revenue	NTM EBITDA (
North American Auto Parts Manufac	cturers										
Aptiv PLC	GB	22,572	25,343	84.97	80.9%	12,884	6.9%	16.2%	12.1x	1.84x	10.8x
Magna International Inc.	CA	20,169	23,417	56.28	96.9%	38,946	4.1%	10.7%	5.6x	0.58x	5.4x
Lear Corporation	US	12,453	13,165	186.09	91.9%	20,467	6.2%	10.3%	6.3x	0.61x	5.8x
BorgWarner Inc.	US	10,586	12,338	50.23	86.3%	9,799	8.7%	16.6%	7.6x	1.16x	6.8x
Gentex Corporation	US	6,317	5,673	23.02	95.6%	1,795	7.5%	34.7%	9.1x	2.94x	8.5x
Adient plc	IE	5,579	9,040	59.76	69.2%	16,391	4.6%	6.5%	8.4x	0.53x	6.1x
Delphi Technologies PLC	GB	4,230	5,591	47.65	78.9%	4,849	4.3%	17.0%	6.8x	1.11x	6.7x
Nexteer Automotive Group Limited	US	3,773	3,702	1.51	57.9%	3,878	5.1%	13.9%	6.9x	0.91x	5.5x
Dana Incorporated	US	3,747	5,228	25.76	73.0%	7,209	9.4%	10.9%	6.6x	0.66x	5.4x
Linamar Corporation	CA	3,567	4,238	54.58	87.3%	5,220	15.9%	15.9%	5.1x	0.72x	4.4x
Visteon Corporation	US	3,409	3,220	110.24	78.4%	3,146	3.4%	9.3%	11.0x	0.99x	8.5x
Tenneco Inc.	US	2,822	4,036	54.87	83.7%	9,274	5.7%	7.7%	5.7x	0.41x	4.3x
Cooper-Standard Holdings Inc.	US	2,200	2,471	122.81	91.0%	3,618	0.0%	12.3%	5.5x	0.68x	5.2x
American Axle & Manufacturing	US	1,699	5,301	15.22	75.1%	6,266	11.1%	16.7%	5.1x	0.76x	4.4x
Gentherm Incorporated	US	1,248	1,290	33.95	83.2%	986	8.2%	14.5%	9.0x	1.21x	8.0x
Martinrea International Inc.	CA	1,025	1,476	11.81	90.7%	2,943	(2.9%)	10.5%	4.8x	0.53x	4.4x
Stoneridge, Inc.	US	778	841	27.60	91.0%	824	2.9%	11.6%	8.8x	0.99x	7.7x
Tower International, Inc.	US	570	842	27.75	82.5%	1,988	7.7%	10.2%	4.1x	0.39x	3.6x
North American Auto Parts Manufac	cturers Mean				83.0%		6.0%	13.7%	7.1x	0.95x	6.2x
North American Auto Parts Manufacturers Median 83.4%					5.9%	12.0%	6.7x	0.74x	5.6x		
Global OEMs											
Toyota Motor Corporation	JP	186,989	330,661	64.26	87.4%	259,595	5.5%	13.4%	9.5x	1.21x	11.8x
Volkswagen Aktiengesellschaft	DE	100,328	263,660	198.82	83.9%	276,996	4.4%	11.0%	8.7x	0.89x	6.2x
Daimler AG	DE	90,904	226,431	84.97	90.2%	197,322	3.6%	10.5%	10.9x	1.08x	9.0x
BMW AG	DE	70,482	167,618	108.41	90.7%	118,489	2.2%	13.5%	10.5x	1.35x	9.4x
Honda Motor Co., Ltd.	JP	61,282	108,345	34.46	88.2%	135,037	9.4%	9.3%	8.6x	0.74x	8.1x
General Motors Company	US	50,895	126,788	36.34	77.7%	145,588	1.7%	15.3%	5.7x	0.93x	5.8x
Tesla, Inc.	US	44,955	55,098	266.13	68.3%	11,759	63.3%	0.3%	NM	2.87x	NM
Ford Motor Company	US	44,244	172,169	11.08	82.2%	156,776	1.5%	8.6%	12.7x	1.16x	16.6x
Nissan Motor Co., Ltd.	JP	40,648	114,998	10.39	92.2%	106,390	0.7%	8.3%	13.0x	1.02x	12.7x
Renault SA	FR	32,590	76,177	121.35	97.7%	70,569	4.9%	10.2%	10.5x	1.00x	9.0x
Fiat Chrysler Automobiles N.V.	GB	31,505	38,273	20.33	81.7%	133,028	4.2%	10.4%	2.8x	0.27x	2.1x
Global OEMs Mean					85.5%		9.2%	10.1%	9.3x	1.14x	9.1x
Global OEMs Median					87.4%		4.2%	10.4%	10.0x	1.02x	9.0x

Source: CapitalIQ and company filings.

All figures in USD, where applicable, converted at rates as of March 31, 2018.

⁽¹⁾ Enterprise Value (EV) equals Market Capitalization plus Debt, Preferred Equity, and Minority Interest, minus Cash and Cash Equivalents as of closing price March 31, 2018.

⁽²⁾ Closing share prices as of March 31, 2018.

⁽³⁾ EBITDA equals Earnings before Interest Expense, Income Taxes, Depreciation and Amortization.

Automotive Quarterly M&A Newsletter - Q1 2018 NOTABLE RECENT DEALS

Melrose Industries set to acquire GKN subject to U.K. Government's approval

On March 29, 2018, Melrose Industries has announced that its £8.1bn takeover bid has been accepted by shareholders holding a majority of GKN's shares. The deal is subject to approval by the U.K. government on national security grounds. GKN is a global engineering group which designs, manufactures, and services systems and components for original equipment manufacturers mainly in the aerospace and automotive industries. Earlier in March, there was news of Dana acquiring the Driveline business of GKN. In a statement GKN said: "The board of GKN now intends to work with Melrose to ensure the success of the enlarged company, in the interests of all stakeholders, including employees, customers, and shareholders." With this acquisition, Melrose plans to create a UK industrial powerhouse with a market capitalization of over £10bn.

Liberty House Group set to acquire Amtek Auto Limited

On March 06, 2018, UK-based Liberty House has been chosen as the preferred bidder for Amtek Auto Limited (AAL) assets, an automotive component manufacturer in India making steel and aluminum parts. The auto components maker is facing bankruptcy proceedings with the National Company Law Tribunal (NCLT) since July 24, 2017. "Amtek Auto's liquidation value is pegged at an estimated US\$657.2mm, which amounts to nearly 33% of the company's outstanding loans." The acquisition marks Liberty House's entry into the Indian automobile industry. "This business will be the cornerstone of our strategy to bring 'green metal' to India and expand our footprint in the automotive sector worldwide," Liberty House chairman Sanjeev Gupta said. "We look forward to working closely with the high calibre customer base Amtek Auto enjoys."

Rostra Precision Controls, Inc. agrees to acquire Auer Automotive

On February 9, 2018, Rostra Precision Controls, Inc. agreed to acquire Auer Automotive Inc., a supplier of OEM quality LED daytime running light kits, LED fog light kits, halogen fog light kits, and exterior accessory kits. TCF Capital Funding provided secured financing to support the transaction. "The combination of Rostra and Auer is complementary to both companies. The Auer product line fits well inside the Rostra product portfolio and can be another source of growth in the company's expanding presence in the heavy-duty market," said TCF Capital Funding Assistant Vice President Nick O'Brien.

Cummins acquires Johnson Matthey Battery Systems Limited

On January 31, 2018, Cummins Inc. acquired Johnson Matthey's UK automotive battery systems business, a subsidiary of Johnson Matthey that specializes in high-voltage automotive grade battery systems for electric and hybrid vehicles. "The acquisition of the automotive battery systems business allows Cummins to expand its electrification and energy storage capabilities in its efforts to be a global leader in electrified power. In October 2017, Cummins announced the acquisition of Brammo, which is known for designing and developing low-voltage battery packs for mobile and stationary applications. With the addition of Johnson Matthey Battery Systems high-voltage battery expertise, Cummins now has capability across the entire range of energy storage options."

Chongqing Boao acquires Federal-Mogul's Interior Lighting Business

On January 24, 2018, Chongqing Boao Industrial Co., Ltd acquired the interior lighting business of Federal-Mogul Corporation. The interior lighting business manufactures interior lighting assemblies and components which includes overhead lamps, door and floor lamps, LED ambient lighting, distributed lighting and trunk/under-hood lamps which are sold to light vehicle OEMs and Tier I suppliers. "The facility consists of 140,000 ft² of vertically integrated manufacturing space including injection molding, automated assembly and testing capabilities and bulb manufacturing."

Source: Merger press releases, news releases and analyst reports.

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Date Closed	Target	Buyer	Implied Enterprise Value (\$ mm)	Implied EV/LTM Revenue	Implied EV/LTM EBITDA
Pending	Amtek Auto Limited	Liberty House Limited	-	-	-
Pending	Eminox France	OPTYM-HA SARL	-	-	-
Pending	Auer Automotive Inc.	Rostra Precision Controls, Inc.	-	-	-
Pending	JTEKT Sona Automotive India Ltd.	Sona Koyo Steering Systems Limited	\$54.5	-	-
Pending	Hangzhou Cheung Ho Industrial Co., Ltd	Hangzhou Weiguang Electronic Co., Ltd.	\$17.9	-	-
Pending	Hanns GLASS GmbH & Co.KG	VIAM Manufacturing Inc.	-	-	-
Pending	Car Sun Visor Related Assets Of Motus LLC	Shanghai Daimay Automotive Interior Co., Ltd.	\$147.0	-	-
Pending	Chongqing Futaba Auto Pares Co.,Ltd.	Skyman Auto Chassis (Wuhu) Co.,Ltd	\$0.5	-	-
Pending	Bengbu Tongda Auto Parts Co., LTD	Qing He Xian Yongfeng Auto Parts Manufacturing Co., Ltd.	\$2.3	0.2x	-
Pending	Apojee SAS	Punch Powertrain nv	-	-	-
Pending	Shenyang Jinbei Johnson Controls Automotive Interiors Co., Ltd.	Yanfeng Automotive Interior Systems Co., Ltd.	\$64.3	-	-
Pending	GKN plc	Melrose Industries PLC	\$12,692.2	0.9x	9.5x
Pending	BOSAL Automotive Carrier and Protection Systems GmbH	TowerBrook Capital Partners L.P.	-	-	-
03/24/18	Mft Motoren Und Fahrzeugtechnik Gmbh	PCL (International) Holding B.V.	-	-	-
01/31/18	Johnson Matthey Battery Systems Limited	Cummins Inc.	-	-	-
01/24/18	Federal-Mogul's Interior Lighting Business	Chongqing Boao Industrial Co., Ltd	-	-	-
01/19/18	NEUE HALBERG-GUSS GmbH	Castanea Rubra Assets GmbH	-	-	-
01/05/18	Tiger Accessory Group, LLC	Hopkins Manufacturing Corporation	-	-	-
12/31/17	Tornilleria Lema S.A.	MEK Engineering Knowledge Group S.L.	-	-	-
11/30/17	Team Concepts Pvt. Ltd.	Varroc Engineering Limited	-	-	-

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KPMG Corporate Finance Leading Advisor to the Automotive Sector⁽¹⁾

Select Transactions(1)







acted as financial advisor to Comvest Partners in the sale of Chicago Miniature Lighting to AGM Automotive Partners







KPMG Corporate Finance

acted as buy-side financial advisor to Piston Group on the acquisition of Irvin Automotive Products from Takata





KPMG Corporate Finance

acted as financial advisor to VITEC, LLC in its sale to a confidential acquirer







KPMG Corporate Finance

acted as financial advisor to TriVero Group on raising acquisition financing for the purchase of BTM Company





KPMG Corporate Finance

acted as financial advisor on the sale of Covpress International Ltd to Shandong Youngtai Corp Ltd





KPMG Corporate Finance

acted as financial advisor to Fleetwood Metal Industries on its sale to Milestone Partners



FINNVEDENBULTEN

KPMG Corporate Finance

acted as financial and tax advisor to FinnvedenBulten AB on the disposal of Finnveden Metal Structures AB to Shiloh Industries





KPMG Corporate Finance

acted as financial advisor to C2i in connection with the disposal of majority stake to Korean conglomerate LG Hausys

(1) Represents the Corporate Finance practices of KPMG International's network of independent member firms

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The Corporate Finance practices of KPMG International's network of independent member firms (KPMG) have been ranked collectively as a leading global mid-market advisor based on total deal volume, according to Thomson Reuters SDC. KPMG firms operate in 155 countries with over 2,600 investment banking professionals who are able to meet the needs of clients across the globe. With over 4,000 professionals, the global automotive sector and practices of KPMG International's network of independent member firms is one of the leading professional service providers for the automotive industry (KPMG). We have closed 104 automotive supplier, retailer, and parts transactions over the last five years, sometimes under challenging circumstances and often involving buyers from around the globe. We have the resources and stamina to bring every transaction to a successful conclusion.

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