

## Hitachi Maxell (6810, JP)

Exchange: Tokyo Stock Exchange 1

Sector: Electric Parts

Market Cap: JPY120.5 billion

P/B: 1.0x (3/16 act)

Recommendation: Outperform

Share Price: JPY2,257 (12/30/2016)

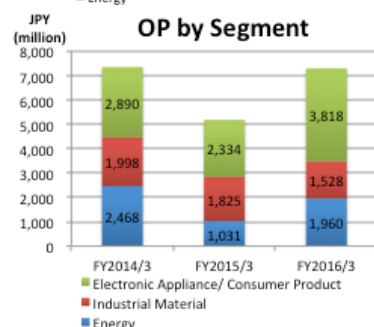
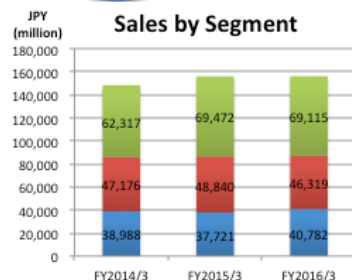
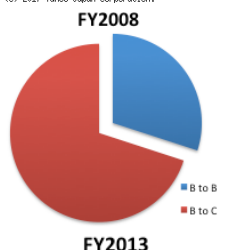
Target Price: JPY2,826

P/E: 30.6x (3/17 CE)

Div. Yield: 1.6% (3/17 CE)

### Highlight

Titlis maintains 'Outperform' and raises target price to JPY2,826 from JPY2,799 after 3Q financial reporting. Positive outlook has remained intact, as reorganization of business portfolio is more likely to advance at solid pace. The share price has been rising on its positive outlook but seems still undervalued and maintains more room for rising on the expectation of further improvement in its business portfolio. Hitachi Maxell finally undertook real restructure on legacy business of Magnetic Tape in this fiscal year. In addition, the company will soon take measures for Lithium-Ion battery for smartphone. Through these reorganization, its profitability would show acceleration. For full year FY03/2017, the earnings are expected to beat the company guidance mainly led by strong growth of Car camera lenses and Car LED headlamp lenses. In mid-term projection, the market growth and competitive positioning of its growth products such as automotive related and beauty care appliance are intact for FY03/2020 (E). Consequently, the share price really looks cheap on clearer earnings prospect as well as lower valuation on its business value added to net cash.



### Business Description

Hitachi Maxell was established in 1961 and has expanded its business from battery and magnetic tape of its core products since founded. Maxell has once become a wholly owned subsidiary of Hitachi Ltd. in 2010 and went to public again, relisted in Tokyo Stock Exchange in 2014 after strengthening its business to shift to B to B from B to C (see 2 pie charts on the left). The current business is divided to 3 segments of Energy, Industrial Material and Electronic Appliance/Consumer Product. Sales and OP by business segment are shown 2 bar charts on the left.

### Energy

Energy segment consists mainly of lithium-ion rechargeable batteries for mainly smartphones, micro batteries and other battery products. Of micro-batteries, heat-resistant coin-type lithium manganese dioxide batteries are a growth driver used for tire pressure monitoring systems (TPMS). Sale and OP of this segment accounts 26% and 27% for FY03/2016.

### Industrial Material

Industrial Material consists of 2 growth products that support automotive technology as high-precision lens units for car camera and LED car headlamp lenses. Other products include Adhesive tape used for packing, protection, and building, and is also combined with new functions for use in the

semiconductor manufacturing process and in electronics, and Magnetic tape. Sale and OP of this segment accounts 30% and 21% for FY03/2016.

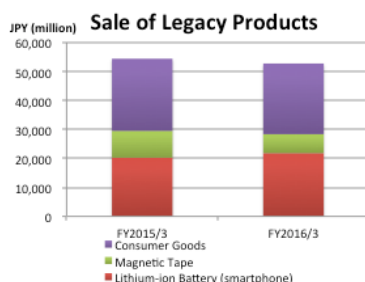
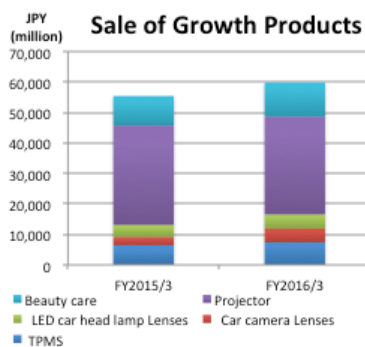
## Electronic Appliance/Consumer Product

Electronic Appliance and Consumer Product sells small electrical equipment, accessories and recording media and dry batteries for consumer market. Projectors and Beauty care appliances have been driving earnings of the segment. Projectors are provided to companies and educational institutions. Sale and OP of this segment accounts 44% and 52% for FY03/2016.

## Industry Overview and Competitive Positioning

### Industry Overview

Maxell is shifting from B to C to B to B, but each segment is comprised of mixed portfolio of growth and legacy products. 2 bar charts on the left show sales of growth and legacy products for FY03/2015 and FY03/2016 respectively. Of growth products, heat-resistant coin-type lithium micro battery is expanding, as an increasing number of countries legislate a law for equipping TPMS (Tire Pressure Monitoring System) in a car. TPMS battery market in the world is expected to grow 11% per annum from 150 million units for 2015 to 219 million units for 2020. Car camera lenses are expected to benefit from ADAS (Advanced Driving Assistant System) that will replace from car view camera to car 'sensing' camera. For instance, more than 10 lenses are used for sensing camera in high-end car models. Car camera (view camera + sensing camera) is expected to increase from 16% per annum from 65 million units for 2014 to 160 million units for 2020. LED car headlamp lenses are also growing on increasing demand of low electricity consumption lights in addition to 'Daytime Running Light' legislated in Europe and U.S. The number of cars equipped LED car headlamp lenses are expected to grow 5% for 2014 to more than 20% for 2020 in worldwide. Projectors have grown, focusing on high-end market for mainly education institutions. Beauty Care appliances maintain upbeat due to growing sale to foreign visitors as well as increasing demand of health and beauty conscious of consumers. Conversely, Lithium-Ion Battery for smartphone has grown slower in line with soft growth of smartphone devices. Magnetic Tape has declined due to substitution by newer technology. Consumer Appliances such as audio accessory and dry battery have deteriorated profitability due to commodity products.



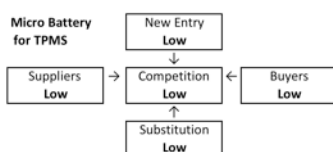
### Competitive Positioning

Competitive Positioning is analyzed each growth and legacy products in 5 Forces.

### Growth Products

#### Micro Battery for TPMS

**Buyers** (Low risk): Maxell as a top manufacturer has close relationship with global 5 major TPMS makers through joint development, having normally long-term contract for its product shipment, although the 3<sup>rd</sup> largest customer implemented temporally in inventory adjustment in 1Q.



**Suppliers** (Low risk): Maxell as a top manufacturer has close relationship with suppliers globally for its plant in Ono, Japan. Commodity prices are currently relatively stable.

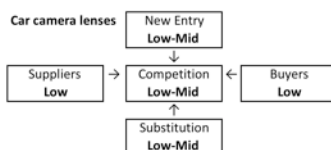
**Competition** (Low risk): Due to limited number of heat-resistant coin-type lithium micro battery and market expansion, competition is moderate. Competitors are Panasonic and Sony.

**New Entry** (Low risk): Mainly due to technology barrier that requires stable quality under -40 degrees Celsius to +125 degrees C, new entrance is limited.

**Substitution** (Low risk): Maxell keeps developing technology, providing battery for direct attached on tire type TPMS module that enables it to linkage with ABS system. TPMS is likely to advance in line with safe driving technology, although 'indirect' type TPMS would be a threat for 'direct' type makers such as Maxell. But it would be lower due to safety point of view at the moment.

## Car camera lenses

**Buyers** (Low risk): Maxell as one of WW 3 manufacturer has close relationship with car camera makers on reliable high quality of products. Sensing camera requires far higher quality in wide range, resolution, heat resistance and water repellency.



**Suppliers** (Low risk): Maxell as a top manufacturer has close relationship with suppliers globally for its plant in Japan and Malaysia. Relatively stable commodity prices are benefit to the company.

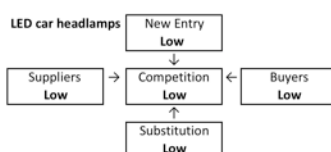
**Competition** (Low-Mid risk): Due to its high technology, competition would be limited. Plastic lenses are lower cost, but while sensing camera lenses are expanding, they require increasingly higher specification of aspheric hybrid lenses made of glass and plastic.

**New Entry** (Low-Mid risk): Due to its high technology mentioned above, threat of new entry would be limited in high-end camera lenses.

**Substitution** (Low-Mid risk): Due to cost of production, substitution risk by plastic lenses is likely in future. However, demand of high-specified lenses for sensing camera, glass/plastic hybrid lenses would be advantageous for the time being.

## LED car headlamp lenses

**Buyers** (Low risk): Maxell as a top manufacturer has close relationship with car LED light makers such as Koito on reliable high quality of products.



**Suppliers** (Low risk): Maxell as a top manufacturer has close relationship with suppliers globally for its plants in Japan, China and Malaysia. Relatively stable commodity prices are benefit to the company.

**Competition** (Low risk): Due to limited number of LED makers, competition would be limited. Maxell has high advantages of establishing production line from metal mold to fine processing to finished products.

**New Entry** (Low risk): Due to its high technology and established production system, threat of new entry would be marginal.

**Substitution** (Low risk): As the leading company of LED headlamp lenses, its technology is highly advanced, as LED headlamp lenses are leading in Japan to any other region in the world. LED headlamp lenses equipped in Japanese cars are approximately 40% compared with 10% in world wide as of 2016. Due to its technology and cost of production, substitution risk is low.

## Projectors

**Buyers** (Mid risk): Maxell uses niche market strategy, focusing on high-end projectors for schools and large size theater or convention centers, and selling globally, in particular China and Asia of increasing demand market. However, due to sharp downturn in demand in China for 2H in FY03/2016, the sale receded substantially.

**Suppliers** (Low-Mid risk): Maxell has close relationship with suppliers globally. However, Kumamoto quake in April 2016 suspended shipment of image sensor to projectors makers, as only supplier Sony provides sensor. Projectors have been slower shipment for 1H of FY03/2017.

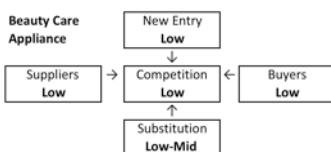
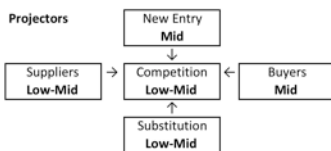
**Competition** (Mid risk): Seiko Epson is a strong competitor, covering all categories of projectors, whereas Maxell focuses on high-end market. High-end market is expanding but volume market is decreasing. This is a tailwind for the company. But the competition is likely to be intense, as overall market is less likely to grow (+2% per annum from 2014 to 2017).

**New Entry** (Mid risk): Due to its high specification, such as high brightness, threat of new entry into high-end market would be relatively lower than volume market. However high technology of Maxell, competitors are likely to enter into high-end market from soft growth of volume market.

**Substitution** (Low-Mid risk): Currently there would be less risk of substitution of projector. However, innovation influences possible substitution in future. Maxell continues developing next generation projector as 'compact smart projector.'

## Beauty Care Appliance

**Buyers** (Low risk): Maxell as one of the largest makers in Japan providing the consumer products to develop customer need backed by higher consciousness of beauty and health care.



**Suppliers** (Low risk): Maxell as a top manufacturer has close relationship with suppliers in Japan. Relatively stable commodity prices are benefit to the company.

**Competition** (Low-Mid risk): Reliable brand of 'Hitachi' is advantage for the company. Another top brand of 'Panasonic' is also strong. But due to developing value added on high specification, the company's products are supported by consumers.

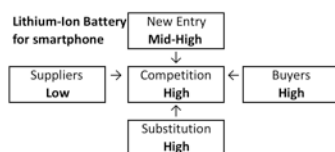
**New Entry** (Low risk): Due to nature of luxury goods that are used by touching his/her own body directly, reliable brand is highly advantageous in Japan.

**Substitution** (Low-Mid risk): Due to nature of consumer goods, substitution risk by innovation is less likely slower than industrial goods. It would take some time to spread reputation of a technology for beauty care among consumers.

## Legacy Products

### Lithium-Ion Battery for smartphone

**Buyers** (High risk): Its major customer is Samsung and the order comes average 2 month in advance of shipment based on weekly forecast. The large change in quantity of order in particularly for new-models is a big risk for the company. Maxell has implemented its fixed cost reduction for 3Q of FY03/2015. However, due to further reduction of shipment, the sale has dip under break-even.

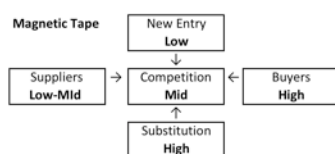


**Suppliers** (Low risk): Maxell as a large manufacturer has close relationship with suppliers globally for its plant in Kyoto and China. Relatively stable commodity prices are benefit to the company.

**Competition** (High risk): Maxell mainly ship the Korean company mainly square-type battery that is used for volume-zone. Hence, the company's products are more likely to come under downward pressure on prices than smartphones rather than laminated type battery for high-end devices. In case of appreciation of JPY rates, its profitability is deteriorating.

**New Entry** (Mid-High risk): Due to its commodity type of products mentioned above, threat of new entry is likely.

**Substitution** (High risk): In line with technology development and shifting to high-specified devices, laminated battery is replaced from square-type battery.



### Magnetic Tape

**Buyers** (High risk): In line with decrease of demand as well as market size, bargaining power of buyers is increasing, as consumer market has already decreased.



Suppliers (Low-Mid risk): Magnetic tape was Maxell's core business in 70s and 80s, but due to declining production volume, it would be more difficult to maintain procurement at lower cost.

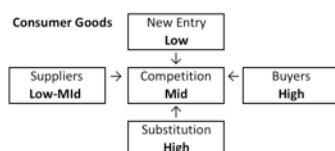
Competition (Mid risk): Despite limited number of magnetic makers, competition has not been eased and Maxell finally decided to leave the market. Fuji Film would have survivorship benefit.

New Entry (Low risk): Due to declined market, no one enters into the market.

Substitution (High risk): Information storage point of view, magnetic tape has some advantages but has been already replaced to newer technology.

## Consumer Goods

Buyers (High risk): Due to commodity nature of products, the prices come under downward pressure.



Suppliers (Mid-High risk): Maxell is selling the consumer goods as EMS. Current depreciation of JPY would deteriorate its profitability of imports into Japan.

Competition (High risk): Maxell finally decided to focusing more on high-end products, and plans to improve close to break-even in 2H of FY03/2017. Optical disk benefits from decline market as a survivor.

New Entry (High risk): Due to its commodity type of products mentioned above, threat of new entry is very likely.

Substitution (High risk): The products are matured and declining volume. In line with technology development, production cost of newer products is getting lower on the increase of volume.

## Investment Summary

### Business Outlook

Titlis expects OP margin to increase to hit over 5% for FY03/2017 (E) led by strong growth of LED headlamp lenses and lower loss of legacy products despite of lower sale than FY03/2016 due to negative effect by quake in April 2016. In mid-term view, the earnings are expected to accelerate on solid growth of TPM battery, Car camera lenses, LED car headlamp lenses and Projectors and Beauty care appliances (see more detail below 'Business Outlook' and tables in Appendix).

### Competitive Positioning and Risks

Hitachi Maxell's competitive positioning should be examined each product basis as its business portfolio is mixed by growth and legacy products. Growth products are mostly expected low-to-mid risk based on its high technology and reliable quality of products. For instance, TPMS battery, Car camera

lenses and LED car headlamp lenses require stable quality on safety driving technology. Consumers buying Beauty care appliances also want to buy reliable brand and quality as they use them touching their body directly. Conversely, legacy products are in high risk. They are reliable on declining market and many of them have been mostly replaced by newer technology. Maxell undertaken cost reduction of Lithium-ion battery for smartphone in 2015 and Consumer goods like audio accessory and dry battery in 2016, and finally will implement restructure of Magnetic tape in 2016. Overall business portfolio is getting stronger and will be seen different picture in near future.

## Valuation

Titlis tries to assess valuation, analyzing each business value in 3 business segment and net cash. The Sum-of-the-Parts value (SOTP NAV) is estimated JPY2,799 a share for FY03/2017 (E) and JPY3,051 a share for FY03/2020 (E). Even though excluding long-term investment and land, SOTP NAV for FY03/17 (E) is JPY2,262 and JPY2,450 for FY03/2020 (E). EV/EBITDA is also support lower valuation than closing price as of December 30<sup>th</sup> 2016.

## Financial Stability

Maxell has strong balance sheet and positive net cash and net working capital backed by stable free cash flow. As strengthening business portfolio through restructure, profitability and ROE will move higher soon. In fact, OP margin increased higher than 5% in 3Q for the first time since relisting in 2014, and operating cash flow has already expanded for 03/2016 (see cash flow statement on Appendix).

## Business Outlook

### 3Q FY03/2017

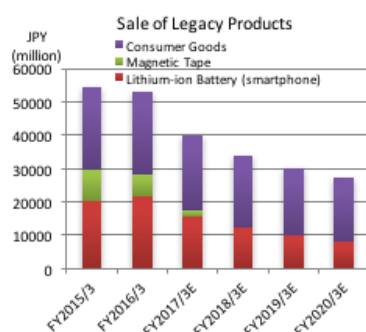
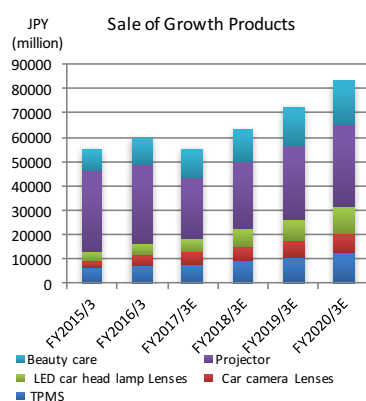
Total sale was down 15.2% YoY to JPY101,054 million, OP down 9.6% YoY to JPY5,379 million, RP down 9.3% YoY to JPY5,167 million and NP down 14.4% YoY to JPY3,209 million. For the 9-month period, negative effect by stronger JP rates from USD/JPY=107 from USD/JPY=120 a year ago as well as Kumamoto quake still put downward pressure on the sales and profits, but recovered substantially from 2Q to 3Q led by slid growth of automotive use camera lenses, LED headlamp lenses and TPMS battery.

### Full Year FY03/2017 Outlook by Company

Maxell kept its previous outlook and dividend on hold for full year FY03/2017. Sale is expected to decrease 10.4% YoY to JPY140,000 million, OP down 16.4% YoY to JPY600,000 million, RP down 16.4% YoY to JPY5,600 million and NP down 0.8% YoY to JPY3,900 respectively. Dividend will be paid JPY18 a share for semiannually (annually JPY36 a share). At the same time, Maxell posted property disposal profit of JPY4 billion. This would be used additional restructuring of business portfolio.

## Full Year FY03/2017 by Titlis

Titlis expects sale to slightly miss but profits to beat its guidance led by strong growth of LED headlamp lenses and lower loss of legacy products. Sale is expected to be flat +0.1% YoY to JPY156,216 million, OP increase 5.2% YoY to JPY7,685 million and RP up 50.0% YoY to JPY7,685 million and NP up 27.7% YoY to JPY5,020 respectively (see tables below of By Products Analysis and financial statements in Appendix).



	FY2015/3 (act)		FY2016/3		1Q		2Q		FY2017/3E		3Q		4Q		Full Year	
	Sales	OP	Sales	OP	Sales	OP	Sales	OP	Sales	OP	Sales	OP	Sales	OP	Sales	OP
<b>Growth Products</b>																
<b>Moderate Growth products</b>																
<b>Legacy Products</b>																
<b>Energy</b>																
Lithium ion battery (LB)					8,381	193	8,997	441	8,781	468						
Lithium-ion Rechargeable Battery (smartphone)	20,270	-237	21,850	-33	3,543	-142	4,434	-9	4,055	20	3,420	-17	15,452	-147		
Laminated LB Rechargeable (automobile)	200	4	159	3	45	0	50	2	30	1	23	0	148	3		
Coin Type LB Rechargeable (multiple use)	1,640	25	1,900	38	430	0	424	17	380	15	616	18	1,850	55		
HEMS (newly developed)	680	20	165	-107	56	-48	50	-45	30	-37	3	-1	139	-131		
sub total	22,790	-187	24,074	-98	4,074	-185	4,958	-35	4,495	-1	4,061	1	17,588	-220		
<b>Micro battery</b>																
TPMS	6,465	1,104	7,440	1,453	1,955	209	1,614	234	1,854	260	2,215	310	7,638	1,013		
Cylindrical Type LB (smart meter)	4,380	364	5,230	565	1,389	159	1,584	230	1,500	195	1,430	186	5,903	770		
Silver Oxide Battery (watch)	3,940	39	3,812	38	762	8	840	13	932	14	798	8	3,332	42		
sub total	14,785	1,217	16,482	2,056	4,106	376	4,038	476	4,286	469	4,443	504	16,873	1,825		
Others	146	1	225	2	201	2	0	0	0	0	122	1	323	3		
Total	37,721	1,031	40,781	1,960	8,381	193	8,997	441	8,781	468	8,626	506	34,784	1,608		
<b>Industrial Material</b>																
Adhesive Tape					10,649	635	10,409	787	10,746	953						
Medical & Construction	6,080	447	6,510	391	1,570	157	1,520	190	1,754	219	1,790	179	6,634	745		
Automobile	1,360	15	1,410	16	382	19	342	21	388	23	377	23	1,490	86		
Electronics	3,730	32	4,020	44	851	51	1,090	76	1,098	93	989	84	4,028	305		
Other tapes	5,850	29	4,447	22	1,300	14	1,133	17	1,215	21	700	11	4,348	62		
sub total	17,020	523	16,387	473	4,103	241	4,085	304	4,454	356	3,856	296	16,499	1,198		
<b>Optical</b>																
Camera Lenses	8,130	123	7,350	74	1,400	14	1,166	12	1,085	0	1,120	11	4,771	37		
Car camera Lenses	2,740	548	4,450	890	891	143	1,079	173	1,175	217	1,488	275	4,633	808		
LED car head lamp Lenses	3,960	642	4,720	944	1,300	202	1,353	223	1,637	303	1,547	286	5,837	1,014		
Others	4,090	20	2,595	26	620	6	946	9	607	10	864	9	3,037	35		
sub total	9,910	1,333	19,115	1,933	4,211	364	4,544	417	4,504	531	5,019	581	18,278	1,893		
Magnetic Tape	9,280	-66	6,550	-937	1,194	-11	480	10	387	0	120	-6	2,181	-7		
Others (EF2)	1,595	36	3,667	80	1,141	34	1,300	47	1,400	56	1,628	65	5,470	202		
Total	48,840	1,826	45,719	1,549	10,649	635	10,409	787	10,746	953	10,624	945	42,427	3,320		
<b>Electronic Appliance/ Consumer Product</b>																
Consumer					13,668	285	13,891	574	15,532	943						
Optical Disk	8,270	83	8,560	482	2,595	260	1,903	190	2,430	279	2,400	276	9,328	1,005		
Dry cell battery	7,190	96	5,800	45	1,050	5	1,080	5	1,600	16	1,120	11	4,850	38		
Other Consumer products	9,440	-430	10,032	-472	2,179	-34	2,475	-26	2,984	173	1,430	83	9,068	196		
sub total	24,900	-251	24,392	54	5,824	231	5,458	169	7,014	469	4,950	370	23,246	1,239		
Projector	32,660	1,939	32,120	2,514	4,984	-289	5,788	93	6,065	194	6,745	216	23,583	213		
Beauty care	9,680	606	11,240	1,209	2,856	343	2,600	312	2,322	279	3,048	366	10,825	1,299		
Others	2,232	39	1,363	14	3	0	45	0	131	1	348	3	527	5		
Total	69,472	2,334	69,115	3,790	13,668	285	13,891	574	15,532	943	15,091	955	58,181	2,757		
Grand Total	156,033	5,191	155,615	7,300	32,697	1,113	33,297	1,802	35,058	2,364	34,340	2,406	135,392	7,685		

(Note) \*actual growth rate is based on sales growth of FY2015/3 1-4Q Vs. FY2016/3 1Q-4Q. Estimated OPM, growth rate and OP for each product are estimated by titlis.

## Mid-term Projection FY03/2020 by Titlis

Titlis expects growth products to maintain solid expansion for FY03/2020, as TPMS, Car sensing camera and LED car headlamp lenses are very likely to keep strong demand (see bar chart on the left). These products are also expected to maintain profit margins due to the strong competitive position. On the other hand, legacy products are expected to decrease sale (see bar chart on the left). Assuming currency rate such as USD/JPY staying at current rate, weaker JPY is expected to help Lithium-Ion battery for smartphones positively, but import of consumer goods such as AV accessory are affected negatively. Lithium-Ion battery for smartphone decreases faster than company projection and additional cost reduction would be needed soon. Also, dry battery that is Maxell's core products since its foundation would need



further solution to pick up the profit margin, although the earnings are projected to recover to break-even for FY03/2017.

## Valuation

Maxell share price has been staying at discount all the time since I issued Buy recommendation in September 2015. The background of undervalued price would be difficult to see its earnings only a glance at the income statement, as total sale has stayed around JPY140 billion since relisting in 2014 and OP margin has not hit 5% of FY03/2014 due to mixed business portfolio with growth and legacy. However, things are doing much better. OPM recovered 5% at 3Q and drastic solution would be finally implemented on Magnetic Tape for this fiscal year, although additional measure would need for Consumer Goods and Lithium-Ion for smartphone in near future. Somehow issue on all 3-legacy products have been implemented and the losses would no longer affect its overall earnings significantly and going forward growth products will accelerate the earnings going forward. In this point, the share price should positively appreciate and move higher to its real value.

## Sum-of-the Parts Value

Sum-of-the-Parts (SOTP) value is business value of each business segment that is normalized EBIT, EBITDA and FCF from FY03/2014 to FY03/2017(E) by multiples, added to net cash and long-term investment securities and land. SOTP value for FY03/2017(E) is estimated to be JPY2,826 a share (20% discount of closing price of February 13<sup>th</sup> 2017). SOTP value for FY03/2020(E) is estimated to be JPY3,039 a share (26% discount of closing price of February 13<sup>th</sup> 2017), as shown table below. Even though subtracting LT investment and land, the NAV is JPY2,288 for FY03/2017 (E) and JPY2,501 a share for FY03/2020 (E). The share price as of February 13<sup>th</sup> 2017 is lower than both values above. Additionally, net cash is expected to be JPY747 a share for FY03/2017 (E) and JPY831 a share for FY03/2020 (E). If Maxell uses cash on hand for future growth successfully, the earnings and value will move further higher. Coincidentally, Maxell posted acquisition of imaging business from Renesas Semiconductor Package & Test Solutions Co., Ltd. This would boost Maxell's earnings in future.

NAVs:			NAVs:		
Sum of the parts NAV FY2017/3 (E):			Future NAV 2020/3 (E):		
Energy	366	5x EBITDA	Energy	376	5x EBITDA
Industrial Material	531	15x FCF	Industrial Material	598	15x FCF
Electronic Appliance/	678	15x FCF	Electronic Appliance/ Cc	728	15x FCF
Cash	875	1x Book	Cash	959	1x Book
Investment Securities	64	0.75x Book	Investment Securities	64	0.75x Book
Land	474	0.75x Book	Land	474	0.75x Book
Debt	(128)	1x Book	Debt	(128)	1x Book
Minority Interest	(32)	1x Book	Minority Interest	(32)	1x Book
Total SOTP NAV	JPY 2,826	79.9%	Total Future NAV	JPY 3,039	74.3%

## EV/EBITDA

EV/EBITDA for FY03/2017(E) is estimated to be 6.4x and will decline to 3.7x for FY03/2020 (E). Adjusted EV/EBITDA that includes long-term investment and land will go down to 3.4x for FY03/2017(E) and 1.6x for FY03/2020 (E).

	Mar-14	Mar-15	Mar-16	Mar-17(E)	Mar-18(E)	Mar-19(E)	Mar-20(E)
Avg. Mkt. Cap	JPY 114,811	JPY 99,818	JPY 96,779	JPY 119,263	JPY 119,263	JPY 119,263	JPY 119,263
EV	JPY 107,094	JPY 69,202	JPY 63,330	JPY 81,171	JPY 76,671	JPY 72,018	JPY 66,755
EV/EBITDA	8.91	6.74	5.28	6.40	4.91	4.29	3.67
*EV (+LT Investn)	JPY 61,885	JPY 32,770	JPY 25,102	JPY 42,943	JPY 38,443	JPY 33,790	JPY 28,527
*EV/EBITDA	5.15	3.19	2.09	3.39	2.46	2.01	1.57
EV/EBIT	14.56	13.33	8.67	10.56	7.30	6.15	5.10
EV/FCF	124.38	197.16	6.00	12.40	11.97	10.99	9.32

## Financial Analysis

As shown key financial ratios in table below and financial statements summary in Appendix, Maxell has strong balance sheet, as net cash and net working capital are positive backed by relatively stable free cash flow over years. On the other hand, profitability is not high enough. Lower ROE is caused by lower financial leverage and in particular lower profit margin. Moreover, OP margin has not increased sufficiently, but Operating Cash flow generated JPY14 billion for 03/2016 and is expected to maintain solid going forward (see cash flow statement on Appendix).

Financial Ratios:	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17(E)	Mar-18(E)	Mar-19(E)	Mar-20(E)
ROE		6.30%	5.90%	3.38%	4.37%	6.70%	7.16%	7.64%
Gross Margin	20.16%	22.10%	20.33%	21.25%	22.47%	24.51%	25.04%	25.47%
EBITDA Margin	3.82%	8.09%	6.58%	7.67%	9.37%	11.47%	11.83%	12.06%
EBIT Margin	1.65%	4.95%	3.33%	4.68%	5.68%	7.72%	8.24%	8.67%
Return on Assets	0.31%	4.79%	4.25%	2.55%	3.30%	5.04%	5.39%	5.74%
Return on Fixed Assets	2.36%	26.92%	29.24%	18.30%	23.37%	36.82%	41.01%	45.84%
Revenue / Assets	69.49%	95.66%	97.25%	101.21%	88.90%	86.69%	86.81%	87.85%
Depreciation / Capex	42.58%	78.11%	91.00%	123.26%	76.92%	78.46%	78.46%	78.46%
Depn / Sales	2.17%	3.14%	3.25%	3.00%	3.69%	3.75%	3.59%	3.38%
Capex / Sales	5.10%	4.02%	3.57%	2.43%	4.80%	4.78%	4.58%	4.31%
Depn / Net FA	11.41%	16.88%	21.75%	21.78%	23.28%	23.74%	23.74%	23.74%
Asset / Equity	1.27	1.38	1.35	1.36	1.32	1.31	1.30	1.30
Equity / Asset	78.75%	72.33%	74.01%	73.74%	75.99%	76.62%	76.87%	76.99%
Total Debt / EBITDA	1.29	0.59	0.61	0.57	0.54	0.44	0.41	0.38

## Investment Risks

### Global economic downturn (Likely, Mid Risk)

In case of global recession, the business will be soft as the earnings slowed for 2H of FY03/2016 due to decline in business confidence led by China's economy. Projectors suffered from the slowdown temporarily at that time, but in mid-term view 3 growth products are expected to continue expanding in automotive area, as ADAS and safety driving technology will be accelerating.

### Softened market of smartphone (Likely, Mid Risk)

Lithium-ion battery for smartphone is decelerating. Currently the earnings are under break-even and further drastic solution is required, as the product is used for low-to-middle zone devices.

**Strong JPY rate (Likely, Low-Mid Risk)**

Currency risk is mostly on export to Lithium-ion battery for smartphone. But the sale is getting smaller by 10%-20% per annum and the impact will be smaller year-by-year. Additional cost-reduction in this product would be inevitable soon in any case.

**Ownership of Hitachi (Less-likely, Mid-High Risk)**

Hitachi Ltd. reduced its ownership 1,546,800 shares to 15,597,100 shares (29.52%) from 17,143,900 shares (32.44%). Maxell has been collaborating with Hitachi Ltd. in basic research and using 'Hitachi' brand name for consumer products. Management of Maxell stated the current ownership would be comfortable as the company has more free hands for business decision-making while using resources of Hitachi. We should closely watch how collaboration with Hitachi is maintained and the shareholders, Nichia Chemical, Nippon Zeon and Ube Industrial are co-working with Maxell going forward.

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## Appendix

FY2014, JPY million	Sales	COGS	COGS/S	Gross Profit	SGA	SGA/S	OP	OPM	RP	EBT	Tax	MinorityNet Profit	EPS	P/E
1Q (act)	29,403	-23,074	-78.5%	6,329	-5,901	-20.1%	428	1.5%	789	1,112	-182	-7	923	
2Q (act)	39,946	-31,397	-78.6%	8,549	-6,919	-17.3%	1,630	4.1%	1,611	1,477	-379	-47	1,051	
3Q (act)	40,788	-31,274	-76.7%	9,514	-6,254	-15.3%	3,260	8.0%	3,807	4,460	-948	-88	3,424	
4Q (act)	38,344	-29,926	-78.0%	8,418	-6,380	-16.6%	2,038	5.3%	1,859	1,648	394	-8	2,034	
Full Year	148,481	-115,671	-77.9%	32,810	-25,454	-17.1%	7,356	5.0%	8,066	8,697	-1,115	-150	7,432	118.20
FY2015, JPY million	Sales	COGS	COGS/S	Gross Profit	SGA	SGA/S	OP	OPM	RP	EBT	Tax	MinorityNet Profit	EPS	P/E
1Q (act)	35,870	-28,652	-79.9%	7,218	-6,459	-18.0%	759	2.1%	573	577	-102	-24	451	
2Q (act)	39,652	-31,714	-80.0%	7,938	-6,632	-16.7%	1,306	3.3%	1,813	1,817	-443	-67	1,307	
3Q (act)	42,072	-32,672	-77.7%	9,400	-6,864	-16.3%	2,536	6.0%	2,887	-1,609	-609	-100	-2,318	
4Q (act)	38,439	-31,272	-81.4%	7,167	-6,578	-17.1%	589	1.5%	197	8,038	-630	-28	7,380	
Full Year	156,033	-124,310	-79.7%	31,723	-26,533	-17.0%	5,190	3.3%	5,470	8,823	-1,784	-219	6,820	129.07
FY2016/3	Sales	COGS	COGS/S	Gross Profit	SGA	SGA/S	OP	OPM	RP	EBT	Tax	MinorityNet Profit	EPS	P/E
1Q (act)	37,335	-29,486	-79.0%	7,849	-6,573	-17.6%	1,276	3.4%	1,450	1,486	-292	-61	1,133	
2Q (act)	41,231	-32,237	-78.2%	8,994	-6,613	-16.0%	2,381	5.8%	2,346	2,310	-452	-130	1,728	
3Q (act)	40,598	-32,017	-78.9%	8,581	-6,396	-15.8%	2,185	5.4%	1,903	1,903	-1,158	145	890	
4Q (act)	37,052	-29,283	-79.0%	7,769	-6,305	-17.0%	1,464	4.0%	-476	-476	673	-17	180	
Full Year (act)	156,216	-123,023	-78.8%	33,193	-25,887	-16.6%	7,306	4.7%	5,223	5,223	-1,229	-63	3,931	74.4
Full Year (CE)	157,000						6,500	4.1%	6,100			4,000	122.1	30.3
FY2017/3 (E)	Sales	COGS	COGS/S	Gross Profit	SGA	SGA/S	OP	OPM	RP	EBT	Tax	MinorityNet Profit	EPS	P/E
1Q (act)	32,698	-25,866	-79.1%	6,832	-5,719	-17.5%	1,113	3.4%	689	496	-104	-14	378	
2Q (act)	33,297	-25,983	-78.0%	7,314	-5,512	-16.6%	1,802	5.4%	1,667	1,659	-324	-18	1,317	
3Q (act)	35,059	-27,031	-77.1%	8,028	-5,664	-16.2%	2,364	6.7%	2,811	2,132	-547	-71	1,514	
4Q (E)	34,340	-26,090	-76.0%	8,250	-5,844	-17.0%	2,406	7.0%	2,406	2,406	-496	-99	1,811	
Full Year (E)	135,394	-104,970	-77.5%	30,424	-22,739	-16.8%	7,685	5.7%	7,573	6,693	-1,471	-202	5,020	95.0
Full Year (CE)	140,000						6,000	4.3%	5,600			3,900	73.8	30.6
FY2018/3 (E)	Sales	COGS	COGS/S	Gross Profit	SGA	SGA/S	OP	OPM	RP	EBT	Tax	MinorityNet Profit	EPS	P/E
1Q (E)	32,016	-24,039	-75.1%	7,978	-5,600	-17.5%	2,378	7.4%	2,378	2,378	-491	-98	1,790	
2Q (E)	33,302	-25,280	-75.9%	8,022	-5,513	-16.6%	2,510	7.5%	2,510	2,510	-518	-103	1,889	
3Q (E)	35,262	-26,842	-76.1%	8,421	-5,697	-16.2%	2,724	7.7%	2,724	2,724	-562	-112	2,050	
4Q (E)	35,539	-26,596	-74.8%	8,944	-6,048	-17.0%	2,896	8.1%	2,896	2,896	-598	-119	2,180	
Full Year (E)	136,120	-102,756	-75.5%	33,364	-22,857	-16.8%	10,507	7.7%	10,508	10,507	-2,168	-431	7,908	149.7
Full Year (CE)	170,000						12,000	7.1%				9,900		15.1
FY2019/3 (E)	Sales	COGS	COGS/S	Gross Profit	SGA	SGA/S	OP	OPM	RP	EBT	Tax	MinorityNet Profit	EPS	P/E
1Q (E)	33,243	-24,690	-74.3%	8,553	-5,814	-17.5%	2,738	8.2%	2,739	2,738	-565	-112	2,061	
2Q (E)	34,535	-26,046	-75.4%	8,489	-5,717	-16.6%	2,772	8.0%	2,772	2,772	-572	-114	2,086	
3Q (E)	36,624	-27,715	-75.7%	8,909	-5,917	-16.2%	2,992	8.2%	2,993	2,992	-617	-123	2,252	
4Q (E)	37,593	-27,994	-74.5%	9,599	-6,397	-17.0%	3,202	8.5%	3,202	3,202	-661	-131	2,410	
Full Year (E)	141,995	-106,445	-75.0%	35,550	-23,845	-16.8%	11,705	8.2%	11,706	11,705	-2,415	-480	8,809	166.7
Full Year (CE)														722.2
FY2020/3 (E)	Sales	COGS	COGS/S	Gross Profit	SGA	SGA/S	OP	OPM	RP	EBT	Tax	MinorityNet Profit	EPS	P/E
1Q (E)	35,168	-25,931	-73.7%	9,237	-6,151	-17.5%	3,086	8.8%	3,086	3,086	-637	-127	2,323	
2Q (E)	36,501	-27,365	-75.0%	9,136	-6,042	-16.6%	3,094	8.5%	3,094	3,094	-638	-127	2,329	
3Q (E)	38,749	-29,161	-75.3%	9,588	-6,260	-16.2%	3,327	8.6%	3,328	3,327	-686	-137	2,504	
4Q (E)	40,403	-29,951	-74.1%	10,451	-6,875	-17.0%	3,576	8.9%	3,576	3,576	-738	-147	2,692	
Full Year (E)	150,821	-112,408	-74.5%	38,412	-25,329	-16.8%	13,084	8.7%	13,085	13,084	-2,699	-537	9,847	186.4
Full Year (CE)														0.0

(Source) Hitachi Maxell, titlis

Cash Flow Analysis:	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17(E)	Mar-18(E)	Mar-19(E)	Mar-20(E)
Net Income	490	7,432	6,820	3,931	5,020	7,908	8,809	9,847
Dep.	2,374	4,661	5,073	4,679	5,000	5,100	5,100	5,100
Amortization	0	0	0	0	0	0	0	0
Other non-cash charge	-2,328	-7,788	-7,592	-2,524	0	0	0	0
Changes in WC	-45	2,523	1,625	8,267	3,025	-105	-854	-1,282
Op. Cash Flow	491	6,828	5,926	14,353	13,045	12,903	13,056	13,665
Per share	JPY 11.18	JPY 108.59	JPY 112.15	JPY 271.62	JPY 246.87	JPY 244.18	JPY 247.07	JPY 258.60
Capex	-5,575	-5,967	-5,575	-3,796	-6,500	-6,500	-6,500	-6,500
Free Cash Flow	-5,084	861	351	10,557	6,545	6,403	6,556	7,165
Per share	(JPY 115.72)	JPY 13.69	JPY 6.64	JPY 199.79	JPY 123.87	JPY 121.17	JPY 124.06	JPY 135.59
Beginning Cash	21,304	26,683	28,808	38,187	42,017	46,660	51,160	55,814
Net cash used	5,379	2,125	9,379	3,830	4,643	4,500	4,653	5,263
Ending cash	26,683	28,808	38,187	42,017	46,660	51,160	55,814	61,076

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By Segment (JPY million)	Energy		Industrial Material		Electronic Appliance/		Total	
	Sales	OP	Sales	OP	Sales	OP	Sales	OP
<b>FY2016/3</b>								
1Q (act)	10,070	364	11,521	404	15,744	508	37,335	1,276
2Q (act)	11,203	631	11,609	534	18,419	1,216	41,231	2,381
3Q (act)	10,132	485	11,612	498	18,854	1,202	40,598	2,185
4Q (act)	9,377	480	11,577	92	16,098	892	37,052	1,464
Full Year (act)	40,782	1,960	46,319	1,528	69,115	3,818	156,216	7,306
Full Year (CE)	38,000	1,700	50,000	2,200	69,000	2,600	157,000	6,500
<b>FY2017/3 (E)</b>								
1Q (act)	8,381	193	10,649	635	13,668	285	32,698	1,113
2Q (act)	8,997	441	10,409	787	13,891	574	33,297	1,802
3Q (act)	8,781	468	10,746	953	15,532	943	35,059	2,364
4Q (E)	8,626	506	10,624	945	15,091	955	34,340	2,406
Full Year (E)	34,785	1,608	42,428	3,320	58,182	2,757	135,394	7,685
Full Year (CE)	34,500	1,300	41,000	1,900	64,500	2,800	140,000	6,000
<b>FY2018/3 (E)</b>								
1Q (E)	8,200	532	9,488	840	14,328	1,006	32,016	2,378
2Q (E)	8,613	512	10,115	916	14,574	1,082	33,302	2,510
3Q (E)	8,484	546	10,681	1,029	16,097	1,149	35,262	2,724
4Q (E)	8,526	614	11,030	1,082	15,983	1,200	35,539	2,896
Full Year (E)	33,824	2,205	41,314	3,866	60,982	4,437	136,120	10,507
Full Year (CE)	40,700	2,900	52,800	4,200	76,500	4,900	170,000	12,000
<b>FY2019/3 (E)</b>								
1Q (E)	8,248	628	9,863	936	15,132	1,174	33,243	2,738
2Q (E)	8,491	602	10,640	1,024	15,404	1,146	34,535	2,772
3Q (E)	8,436	634	11,369	1,156	16,819	1,202	36,624	2,992
4Q (E)	8,658	702	11,896	1,222	17,040	1,278	37,593	3,202
Full Year (E)	33,833	2,566	43,768	4,337	64,394	4,801	141,995	11,705
Full Year (CE)	40,700	2,900	52,800	4,200	76,500	4,900	170,000	12,000
<b>FY2020/3 (E)</b>								
1Q (E)	8,508	734	10,571	1,107	16,089	1,246	35,168	3,086
2Q (E)	8,607	702	11,503	1,169	16,391	1,223	36,501	3,094
3Q (E)	8,617	733	12,427	1,327	17,705	1,267	38,749	3,327
4Q (E)	9,007	804	13,121	1,402	18,274	1,371	40,403	3,576
Full Year (E)	34,739	2,973	47,621	5,004	68,460	5,107	150,821	13,084
Full Year (CE)	40,700	2,900	52,800	4,200	76,500	4,900	170,000	12,000

(Source) Hitachi Maxell, titlis



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	2013/3	2014/3	2015/3	2016/3	2017/3 (E)	2018/3 (E)	2019/9 (E)	2020/9 (E)
<b>Assets</b>								
<b>Current Assets</b>								
Cash and Cash Equivalents	5,163	15,297	38,770	42,017	46,660	51,160	55,814	61,076
Short-Term Investments	1,375	1,004	-	-	-	-	-	-
Notes and Accounts	23,644	30,804	32,587	29,543	25,605	25,742	26,854	28,523
Allowance for Doubtful	(377)	(408)	(339)	(458)	(397)	(399)	(416)	(442)
Inventories	19,112	21,285	18,657	13,900	12,047	12,112	12,635	13,420
Deferred Income Taxes	869	1,057	1,714	1,702	1,475	1,483	1,547	1,643
Other Current Assets	35,201	10,415	5,310	5,617	4,868	4,894	5,106	5,423
Total Current Assets	84,987	79,454	96,699	92,321	90,259	94,993	101,538	109,643
<b>Property, Plant and</b>								
Land	40,616	40,908	34,146	33,678	33,678	33,678	33,678	33,678
Buildings	10,132	11,485	8,127	7,665	9,984	12,304	14,623	16,943
Machinery and Equipment	9,161	14,429	13,221	12,302	16,025	19,747	23,470	27,193
Construction in Progress	1,506	1,697	1,977	1,513	1,971	2,429	2,887	3,344
Total	61,415	68,519	57,471	55,158	61,658	68,158	74,658	81,158
Accumulated Depreciation	-	-	-	-	-	-	1	2
Net Property, Plant and	61,415	68,519	57,471	55,158	61,658	68,158	74,659	81,160
Software & Other	570	1,288	1,025	1,047	1,047	1,047	1,047	1,047
Goodwill	-	-	-	-	-	-	-	-
	570	1,288	1,025	1,047	1,047	1,047	1,047	1,047
<b>Other Assets</b>								
Investments in and	-	-	-	-	-	-	-	-
Investment Securities	7,458	4,301	2,286	4,550	4,550	4,550	4,550	4,550
Software & Others	(10)	(209)	(241)	(225)	(225)	(225)	(225)	(225)
Deferred Income Taxes	443	534	535	477	477	477	477	477
Other	2,336	1,328	2,677	1,028	1,028	1,028	1,028	1,028
Total Other Assets	10,227	5,954	5,257	5,830	5,830	5,830	5,830	5,830
<b>Total</b>	<b>157,199</b>	<b>155,215</b>	<b>160,452</b>	<b>154,356</b>	<b>158,794</b>	<b>170,028</b>	<b>183,074</b>	<b>197,680</b>
<b>Liabilities and</b>								
<b>Current Liabilities</b>								
Bank Loans	1,633	1,694	-	-	-	-	-	-
Notes and Accounts	14,498	20,386	20,822	20,288	17,584	17,678	18,441	19,587
Accrued Expenses	6,750	6,701	6,234	6,946	6,020	6,052	6,314	6,706
Income Taxes	173	408	865	201	174	175	183	194
Other Current Liabilities	1,752	3,574	3,195	2,252	1,952	1,962	2,047	2,174
Current Portion of Long-	-	-	-	35	35	35	35	35
Total Current Liabilities	24,806	32,763	31,116	29,722	25,765	25,903	27,019	28,697
Long-Term Debt	-	6	325	457	457	457	457	457
Deferred Income Taxes	3,642	3,693	4,299	3,735	3,735	3,735	3,735	3,735
Termination and	3,733	5,429	5,934	6,350	6,350	6,350	6,350	6,350
Other Long-Term Liabilities	1,226	1,050	35	266	266	266	266	266
	1,633	1,700	325	492	492	492	492	492
<b>Total Liabilities</b>	<b>33,407</b>	<b>42,941</b>	<b>41,709</b>	<b>40,530</b>	<b>36,573</b>	<b>36,711</b>	<b>37,827</b>	<b>39,505</b>
<b>Stockholders' Equity</b>								
Common Stock	12,203	12,203	12,203	12,203	12,203	12,203	12,203	12,203
Additional Paid-in Capital	55,679	33,578	33,578	33,527	33,527	33,527	33,527	33,527
Legal Reserve	62,484	74,172	75,998	77,313	3,118	6,006	6,907	7,945
Retained Earnings	-	-	-	-	-	-	-	-
Treasury Stock	-	(996)	(996)	(996)	(996)	(996)	(996)	(996)
Total Stockholders' Equity	130,366	118,957	120,783	122,047	47,852	50,740	51,641	52,679
<b>Accumulated other</b>								
Comprehensive Income	1,512	954	529	303	72,643	80,851	91,880	103,770
Warrant	0	0	0	0	0	0	0	0
Minority Interests in	281	1,455	1,895	1,726	1,726	1,726	1,726	1,726
<b>Total Stockholders' Equity</b>	<b>123,792</b>	<b>112,274</b>	<b>118,743</b>	<b>113,826</b>	<b>122,221</b>	<b>133,317</b>	<b>145,247</b>	<b>158,175</b>
<b>Total</b>	<b>157,199</b>	<b>155,215</b>	<b>160,452</b>	<b>154,356</b>	<b>158,794</b>	<b>170,028</b>	<b>183,074</b>	<b>197,680</b>

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