

## MedTech

Results Comment  
November 15, 2018

(Maintain) **Buy**

Target Price (12M, W) ▼ **33,000**

Share Price (11/14/18, W) **27,250**

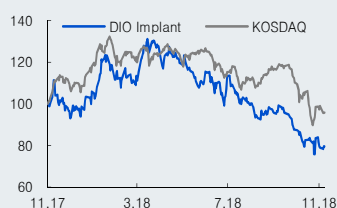
Expected Return **21%**

OP (18F, Wbn) 20  
Consensus OP (18F, Wbn) 27

EPS Growth (18F, %) 54.8  
Market EPS Growth (18F, %) 11.1  
P/E (18F, x) 26.8  
Market P/E (18F, x) 8.3  
KOSDAQ 671.56

Market Cap (Wbn) 413  
Shares Outstanding (mn) 15  
Free Float (%) 69.6  
Foreign Ownership (%) 20.2  
Beta (12M) 0.58  
52-Week Low 26,000  
52-Week High 44,950

(%) **1M 6M 12M**  
Absolute -7.9 -31.7 -26.3  
Relative 0.3 -12.7 -16.9



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[MedTech/Healthcare Solutions]

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# DIO Implant

(039840 KQ)

## Poor performance continues

### 3Q18 review: Earnings shock

For 3Q18, DIO Implant announced revenue of W24bn (-2.9% YoY), sharply missing the market consensus. Despite robust overseas growth (+28.4% YoY), implant revenue contracted 9.8% YoY, dragged down by steep declines in domestic revenue (-25.8% YoY) and exports (-47.3% YoY). On a positive note, revenue from the dental IT business (which is a leading indicator for digital implants) expanded 66.3% YoY.

Operating profit came in at W4.3bn (-40.6% YoY; OP margin of 17.9%), well below the market consensus, hurt by cost pressures caused by top-line contraction.

### Continuous expansion of digital dentistry portfolio

**1) Digital dentistry full lineup:** DIO Implant has diversified its dentistry portfolio (prosthetics, implants, and orthodontics) by expanding its equipment business (from lab-side to chairside solutions), widening its technology lead over competitors. DIO Implant's chairside solutions can allow dental implant surgeries to be completed in two hours, depending on the patient's oral condition. That said, the equipment business has been experiencing some delays in the domestic market. We expect the domestic equipment business to gain traction in 1H19.

**2) Overseas-driven growth to continue:** The company's growth has been mainly driven by overseas markets (2019 forecast: +21.7% YoY). In the core Iran market, the company is exhibiting high growth and margins on the back of its joint venture strategy. We are also optimistic on China, where the company has switched its sales strategy from dealers to direct sales, as well as India, a fast-growing market. It is also worth noting that digital implants have been attracting increasing attention in the US.

**3) Changes in domestic implant policies:** The penetration rate of digital dental implants has been slower than expected. This is unsurprising, given that Korea remains one of the most mature dental implant markets in the world and that digital implant procedures currently cost roughly W100,000 more than conventional surgeries. We expect the reduction of dental implant co-payments in 2H18 (by W240,000-490,000 per implant) to accelerate the domestic adoption of digital dental implants.

### Maintain Buy, but lower TP to W33,000

We lower our target price on DIO Implant to W33,000 (from W44,000), after revising down our operating profit estimate. Still, we maintain our Buy rating, as we believe the stock has 21% upside potential following its recent correction. The stock is currently trading at a 12-month forward P/E of 24.7x, a premium to peers (22.5x).

DIO Implant is continuing to widen its digital dentistry technology lead over competitors with its chairside solutions and digital orthodontics technologies. However, while overseas subsidiaries are faring well, the domestic business is performing worse than expected, hurt by delays in the equipment business. We see potential for earnings improvement in 1H19, driven by the domestic equipment business and top-line growth at overseas subsidiaries.

FY (Dec.)	12/15	12/16	12/17	12/18F	12/19F	12/20F
Revenue (Wbn)	72	88	95	98	113	136
OP (Wbn)	20	27	24	20	24	31
OP margin (%)	27.8	30.7	25.3	20.4	21.2	22.8
NP (Wbn)	9	21	10	15	17	22
EPS (W)	706	1,352	658	1,018	1,122	1,474
ROE (%)	15.8	22.2	8.9	12.5	12.2	14.0
P/E (x)	42.5	29.3	53.9	26.8	24.3	18.5
P/B (x)	5.3	5.0	4.0	2.8	2.5	2.2
Dividend yield (%)	0.0	0.0	0.0	0.0	0.0	0.0

Note: All figures are based on consolidated K-IFRS; NP refers to net profit attributable to controlling interests  
Source: Company data, Mirae Asset Daewoo Research estimates

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Table 1. 3Q18 review

(Wbn, %, %p)

	3Q17	2Q18	3Q18P			Growth	
			Preliminary	Mirae Asset Daewoo	Consensus	YoY	QoQ
Revenue	24.7	23.2	24.0	28.0	28.0	-2.9	3.2
Operating profit	7.2	4.0	4.3	7.3	8.0	-40.6	7.3
OP margin (%)	29.3	17.2	17.9	26.1	28.4	-11.4	0.7
Pretax profit	7.4	4.1	2.2	7.1	7.1	-69.9	-46.0
Net profit	5.9	3.7	2.0	5.2	5.2	-65.6	-44.5

Notes: Based on consolidated K-IFRS; net profit is attributable to controlling interests

Source: FnGuide, company data, Mirae Asset Daewoo Research estimates

Table 2. Earnings forecast revisions

(Wbn, W, %)

	Previous		Revised		% chg.		Notes
	18F	19F	18F	19F	18F	19F	
Revenue	105.4	124.0	97.5	113.1	-7.5	-8.8	
Operating profit	26.7	33.5	20.4	24.1	-23.7	-28.2	
Pretax profit	27.0	32.4	18.4	21.0	-31.9	-35.2	
Net profit	21.7	26.3	15.4	17.0	-28.7	-35.2	
EPS (W)	1,428	1,732	1,018	1,122	-28.7	-35.2	

Notes: Based on consolidated K-IFRS; net profit is attributable to controlling interests

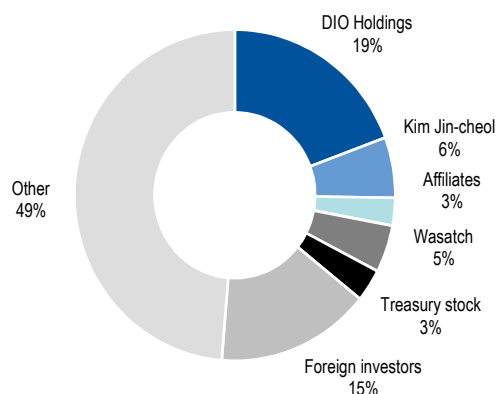
Source: Company data, Mirae Asset Daewoo Research estimates

Table 3. Quarterly and annual earnings

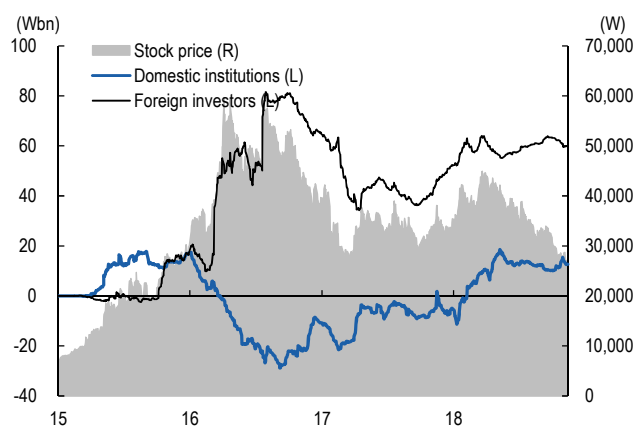
(Wbn, %)

	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18P	4Q18F	2017	2018F	2019F
<b>Revenue</b>	<b>20.9</b>	<b>23.7</b>	<b>24.7</b>	<b>25.2</b>	<b>24.2</b>	<b>23.2</b>	<b>24.0</b>	<b>26.1</b>	<b>94.5</b>	<b>97.5</b>	<b>113.1</b>
Domestic	8.5	12.6	9.9	10.3	10.4	9.3	9.3	11.3	41.3	40.1	45.7
Iran	3.4	3.7	3.5	5.6	3.9	3.9	4.5	4.5	16.2	16.9	20.3
China	0.7	1.3	1.5	3.0	2.1	4.1	3.2	3.6	6.5	13.0	18.3
US	1.4	1.0	0.9	1.0	1.9	1.1	1.7	1.6	4.4	6.4	7.7
Other	6.8	5.1	8.9	5.3	5.9	4.9	5.3	5.0	26.2	21.1	21.2
<b>Operating profit</b>	<b>6.5</b>	<b>6.3</b>	<b>7.2</b>	<b>3.8</b>	<b>7.2</b>	<b>4.0</b>	<b>4.3</b>	<b>4.8</b>	<b>23.8</b>	<b>20.4</b>	<b>24.1</b>
<b>Pretax profit</b>	<b>4.0</b>	<b>7.2</b>	<b>7.4</b>	<b>-3.4</b>	<b>8.0</b>	<b>4.1</b>	<b>2.2</b>	<b>4.1</b>	<b>15.2</b>	<b>18.4</b>	<b>21.0</b>
<b>Net profit</b>	<b>2.2</b>	<b>6.2</b>	<b>5.9</b>	<b>-4.3</b>	<b>6.9</b>	<b>3.7</b>	<b>2.0</b>	<b>2.8</b>	<b>10.0</b>	<b>15.4</b>	<b>17.0</b>
OP margin (%)	31.0	26.4	29.3	15.0	29.9	17.2	17.9	18.5	25.1	20.9	21.3
Pretax margin (%)	19.1	30.3	30.0	-13.5	32.9	17.8	9.3	15.6	16.1	18.9	18.5
Net margin (%)	15.2	26.1	25.7	-18.4	29.0	16.4	10.2	10.9	10.6	15.8	15.1

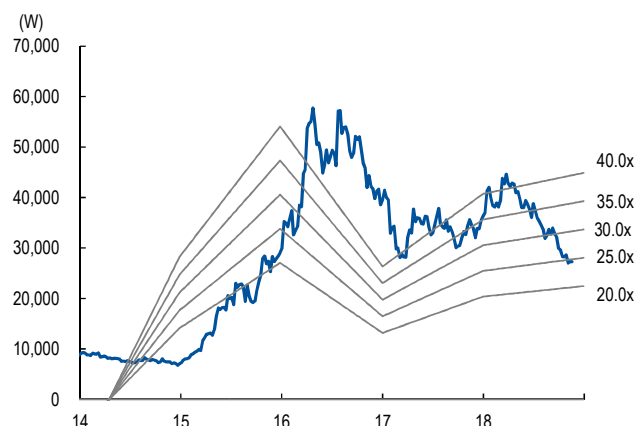
Source: Company data, Mirae Asset Daewoo Research estimates

**Figure 1. Ownership breakdown**

Source: Bloomberg, Mirae Asset Daewoo Research

**Figure 2. Institutional and foreign net buying vs. share price**

Source: Mirae Asset Daewoo Research

**Figure 3. P/E band chart**

Source: Mirae Asset Daewoo Research

**Table 4. Global peer valuation**

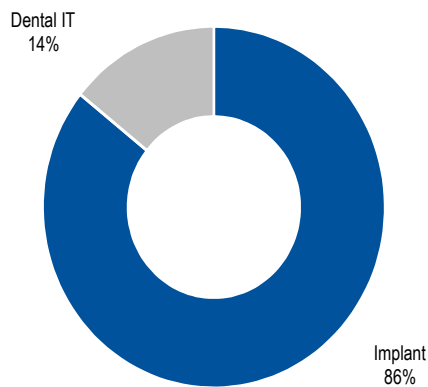
Companies	Market cap	OP margin (%)			P/E (x)			P/B (x)			ROE (%)			EV/EBITDA (x)		
		17	18F	19F	17	18F	19F	17	18F	19F	17	18F	19F	17	18F	19F
Straumann	12,044	25.5	25.6	26.3	40.3	37.1	30.5	9.8	8.4	7.0	30.1	24.1	24.6	33.2	26.9	22.9
Zimmer Biomet	26,162	10.3	26.8	27.2	21.8	14.8	14.4	1.9	1.8	1.7	15.5	13.5	12.3	19.3	11.7	11.6
Dentsply Sirona	9,280	-39.1	15.0	16.3	23.2	18.5	16.5	1.6	1.5	1.4	-26.4	8.1	8.1	-	13.2	11.5
Henry Schein	14,705	6.9	6.7	6.9	21.9	20.6	19.0	4.4	3.6	3.6	13.2	20.1	19.2	15.4	14.2	13.5
Align Technology	19,927	24.0	24.4	24.3	44.8	45.0	37.4	14.7	13.8	11.4	26.4	31.4	29.6	60.8	32.7	25.6
Danaher	79,998	16.5	20.9	21.5	27.2	22.3	20.9	2.5	2.5	2.2	10.4	11.0	10.7	18.4	16.7	15.6
Osstem Implant	708	5.5	8.6	11.2	83.5	39.7	19.0	6.1	4.1	3.3	9.3	14.8	25.5	28.5	13.4	8.9
DIO Implant	413	25.3	20.8	21.2	53.9	27.3	24.4	4.0	2.8	2.5	8.9	11.5	12.1	20.2	16.6	14.0
Dentium	725	27.2	25.3	26.1	22.9	19.6	16.2	3.8	4.1	3.4	26.0	20.5	20.4	15.9	18.5	14.4
<b>Average</b>		<b>11.3</b>	<b>19.3</b>	<b>20.1</b>	<b>37.7</b>	<b>27.2</b>	<b>22.0</b>	<b>5.4</b>	<b>4.7</b>	<b>4.1</b>	<b>12.6</b>	<b>17.2</b>	<b>18.1</b>	<b>26.5</b>	<b>18.2</b>	<b>15.3</b>

Source: Bloomberg, Mirae Asset Daewoo Research

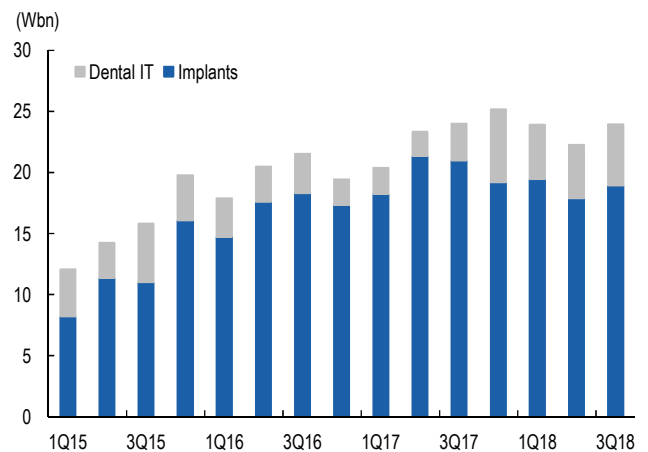
**Table 5. Overview of digital implants by generation**

Method	Gen.	Extraoral scanning	Plaster cast	Intraoral scanning	CAD/CAM	Process	Surgical guides	Details
Analog	1G	2D panorama	O	X	X	Manual	2D stent	- Extraoral images are used as references - Analog stents are made based on plaster casts
	2G	3D CBCT	O	X	X	Manual	2D stent	- Equivalent to 1G
	3G	3D CBCT	O	X	O	Milling machine/ 3D printers	3D stent	- 3D CBCT is used to fabricate guides
Semi-digital	4G	3D CBCT	O	O (impression scanners)	O	Milling machine/ 3D printers	3D stent	- Plaster casts are scanned via impression scanners - Images of extraoral structures (CBCT) are processed via CAD/CAM
Digital	5G	3D CBCT	X	O (oral scanners)	O	Milling machine/ 3D printers	3D stent	- Oral structures are scanned through intraoral scanners - Images of extraoral structures (CBCT) are processed via CAD/CAM

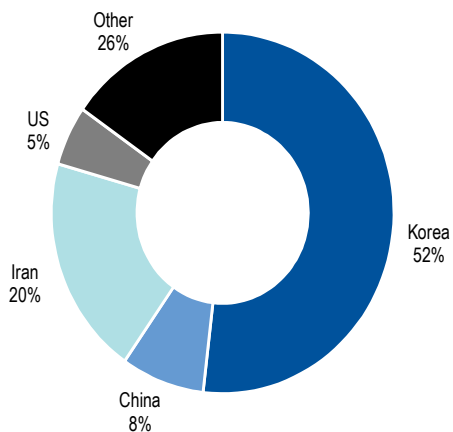
Source: Mirae Asset Daewoo Research

**Figure 4. Revenue breakdown by category (2017)**

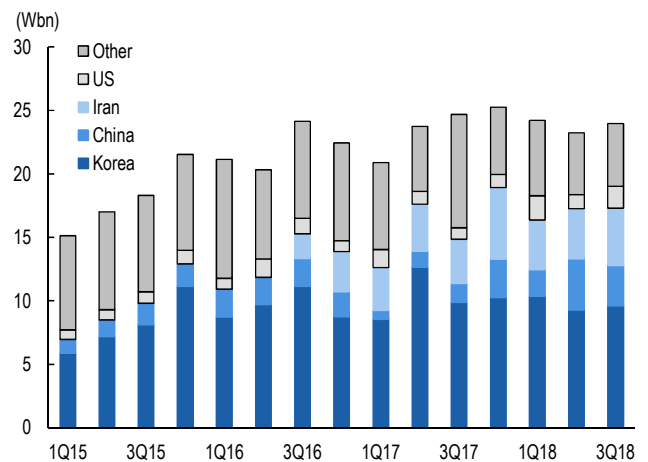
Source: Company data, Mirae Asset Daewoo Research

**Figure 5. Revenue from key products**

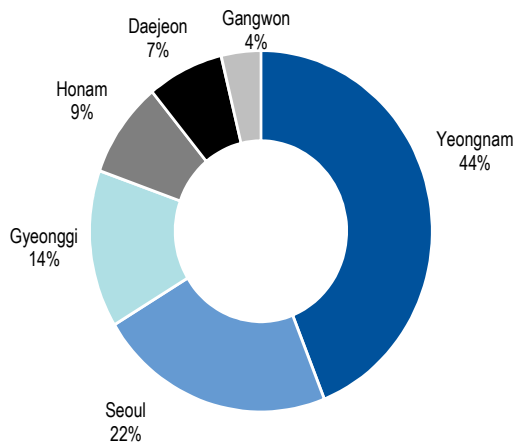
Source: Company data, Mirae Asset Daewoo Research

**Figure 6. Revenue breakdown by region (2017)**

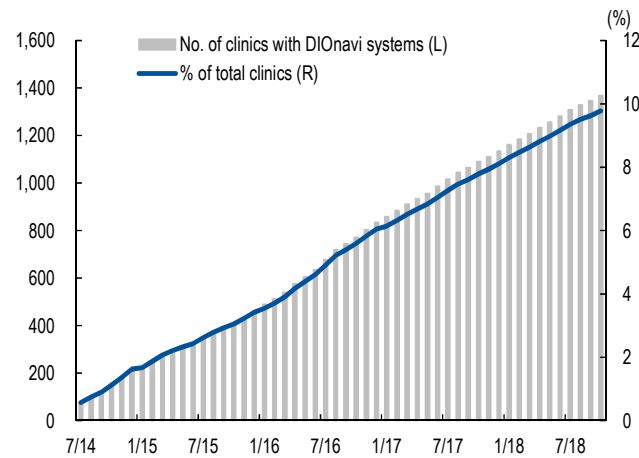
Source: Company data, Mirae Asset Daewoo Research

**Figure 7. Revenue in key regions**

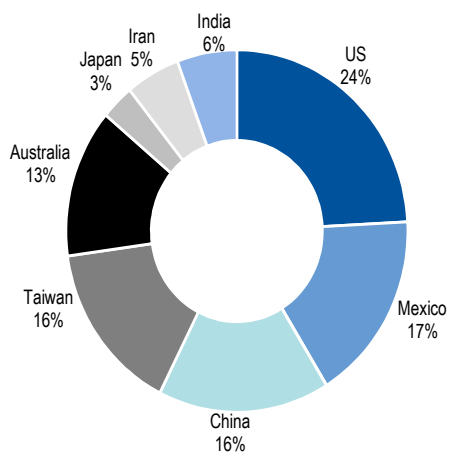
Source: Company data, Mirae Asset Daewoo Research

**Figure 8. Domestic implant revenue by region**

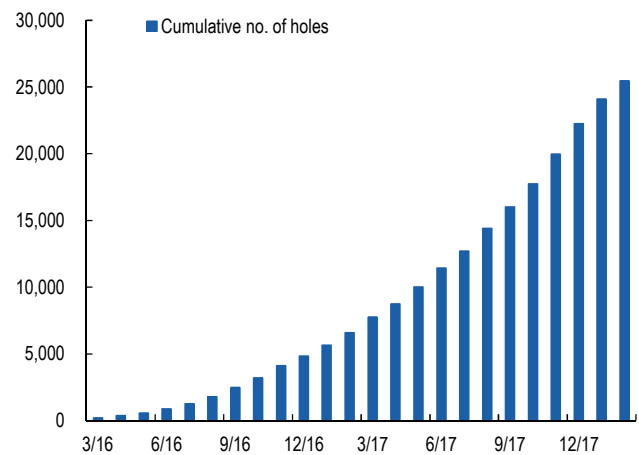
Source: Company data, Mirae Asset Daewoo Research

**Figure 9. No. of clinics in Korea with DIONavi systems; % of total clinics**

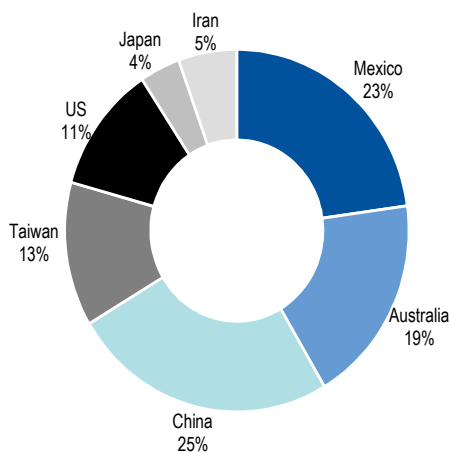
Source: Company data, Mirae Asset Daewoo Research

**Figure 10. Breakdown of pilot holes (cumulative) created via DIONavi by country**

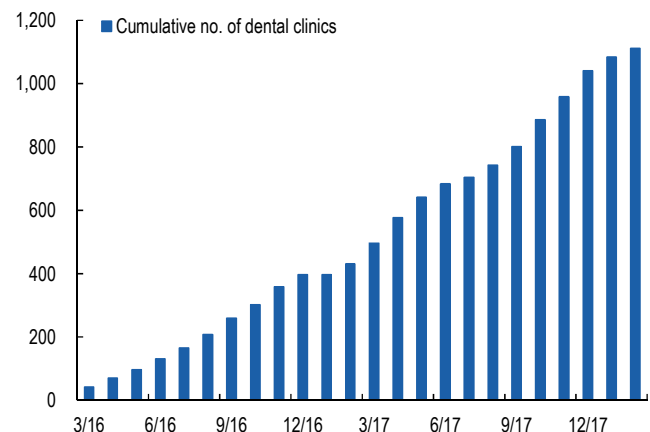
Source: Company data, Mirae Asset Daewoo Research

**Figure 11. Cumulative no. of implants placed overseas via DIONavi (based on no. of pilot holes)**

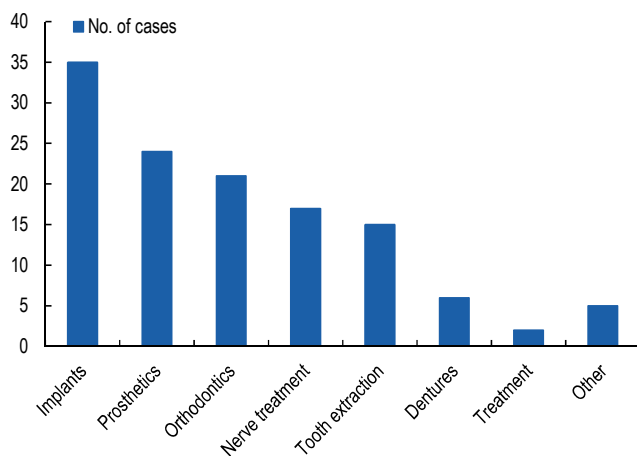
Source: Company data, Mirae Asset Daewoo Research

**Figure 12. Breakdown of clinics with DIONavi systems by country (overseas)**

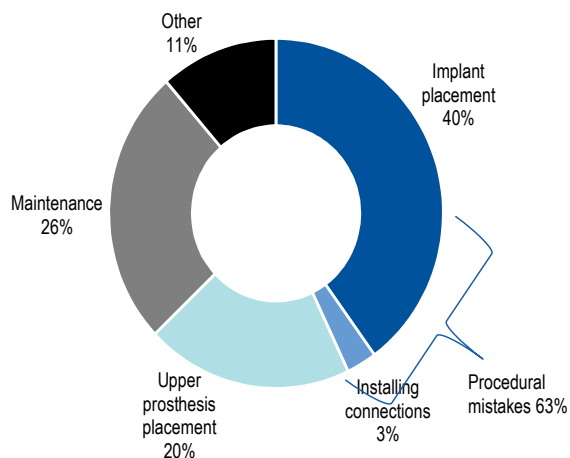
Source: Company data, Mirae Asset Daewoo Research

**Figure 13. Cumulative no. of clinics with DIONavi systems in overseas markets**

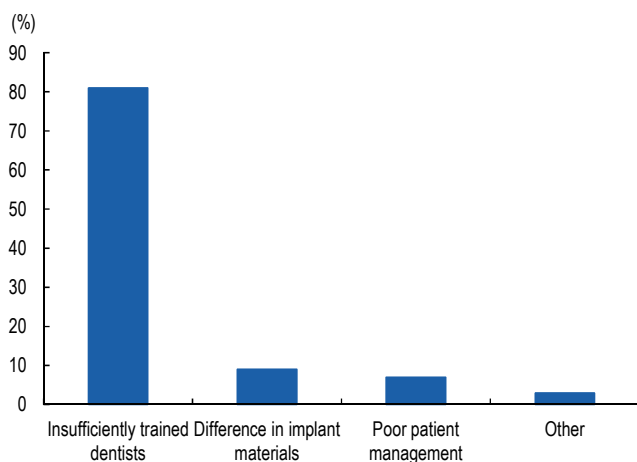
Source: Company data, Mirae Asset Daewoo Research

**Figure 14. Medical dispute cases by category**

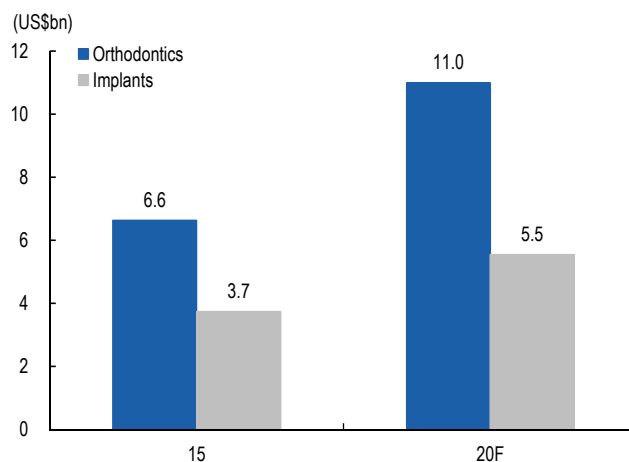
Source: KCA, Mirae Asset Daewoo Research

**Figure 15. Dental implant-related disputes stem mainly from procedural mistakes**

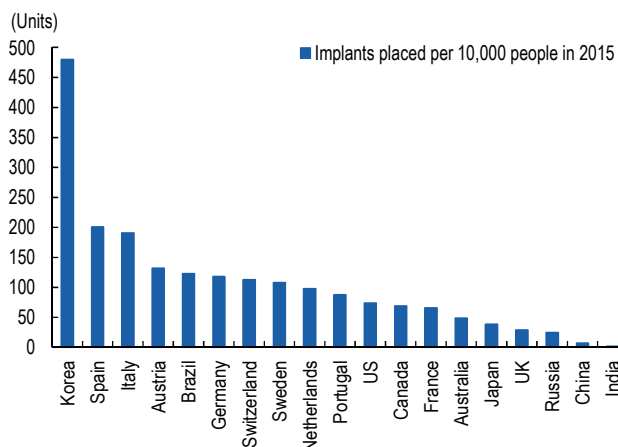
Source: Korea Consumer Agency, Mirae Asset Daewoo Research

**Figure 16. Contributors to implant failure**

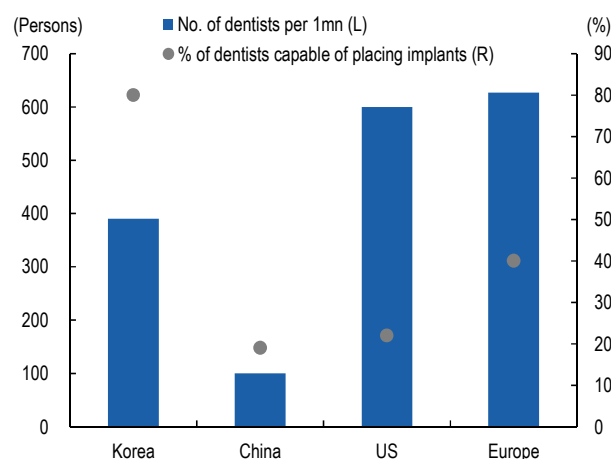
Source: KCA, Mirae Asset Daewoo Research

**Figure 17. Orthodontics market is 1.8 times larger than dental implant market**

Source: MarketsandMarkets, Transparency Market Research, Mirae Asset Daewoo Research

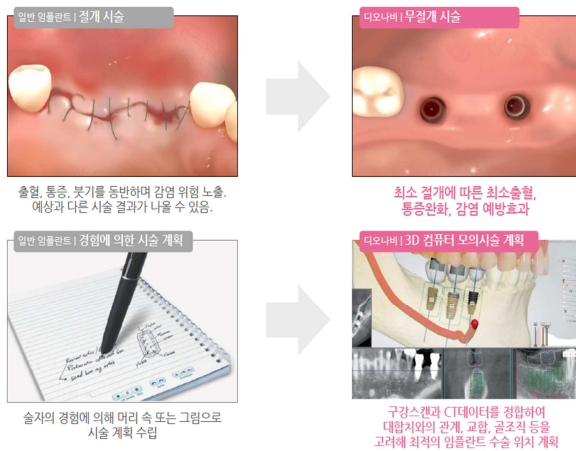
**Figure 18. Implants placed per 10,000 people in key countries**

Source: MRG, Straumann, Mirae Asset Daewoo Research

**Figure 19. No. of dentists vs. % of dentists capable of placing implants**

Source: Company data, Mirae Asset Daewoo Research

Figure 20. 3D intraoral scanner



Source: 3Shape, Mirae Asset Daewoo Research

Figure 21. DIONavi ensures greater accuracy than rivals

	DIONavi	Megagen	Nobel Biocare
Accuracy of Installed Guide			
Method	Full Digital	Half Digital	Model Base
Height of Guide	9mm	12~13.5mm	9mm
Drilling RPM	50 RPM No Irrigation	1,000~1,200 RPM Irrigation	1,000~1,200 RPM Irrigation
Deviation values before and after	0.1~1.9 degree Average of 0.4 degree	0.1~5 degree Average 2.5 degree	0.1~15.3 degree Average 4.9 degree

Source: Company materials, Mirae Asset Daewoo Research

Figure 22. Digital chairside solutions



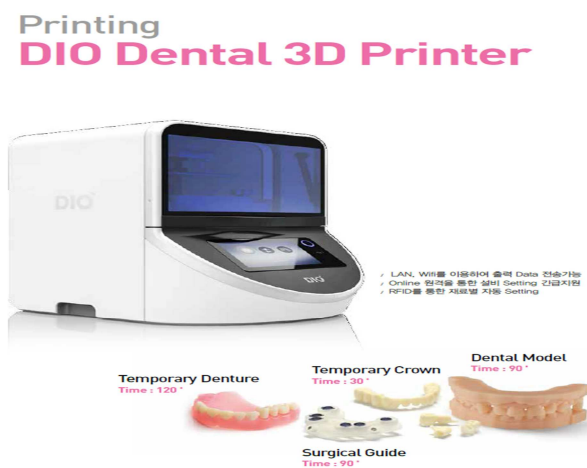
Source: Company materials, Mirae Asset Daewoo Research

Figure 23. Digital chairside solutions: 3D oral scanner



Source: Company materials, Mirae Asset Daewoo Research

Figure 24. Digital chairside solutions: 3D printer



Source: Company materials, Mirae Asset Daewoo Research

Figure 25. Digital chairside solutions: CAD/CAM



Source: Company materials, Mirae Asset Daewoo Research

## DIO Implant (039840 KQ/Buy/TP: W33,000)

## Comprehensive Income Statement (Summarized)

(Wbn)	12/17	12/18F	12/19F	12/20F
<b>Revenue</b>	<b>95</b>	<b>98</b>	<b>113</b>	<b>136</b>
<b>Cost of Sales</b>	<b>30</b>	<b>30</b>	<b>35</b>	<b>42</b>
<b>Gross Profit</b>	<b>65</b>	<b>68</b>	<b>78</b>	<b>94</b>
<b>SG&amp;A Expenses</b>	<b>41</b>	<b>47</b>	<b>54</b>	<b>63</b>
<b>Operating Profit (Adj)</b>	<b>24</b>	<b>20</b>	<b>24</b>	<b>31</b>
<b>Operating Profit</b>	<b>24</b>	<b>20</b>	<b>24</b>	<b>31</b>
<b>Non-Operating Profit</b>	<b>-9</b>	<b>-2</b>	<b>-3</b>	<b>-3</b>
Net Financial Income	-1	-3	-3	-3
Net Gain from Inv in Associates	0	0	0	0
Pretax Profit	15	18	21	28
Income Tax	4	2	4	5
Profit from Continuing Operations	11	16	17	23
Profit from Discontinued Operations	0	0	0	0
<b>Net Profit</b>	<b>11</b>	<b>16</b>	<b>17</b>	<b>23</b>
Controlling Interests	10	15	17	22
Non-Controlling Interests	1	1	0	0
<b>Total Comprehensive Profit</b>	<b>16</b>	<b>15</b>	<b>17</b>	<b>23</b>
Controlling Interests	16	16	19	25
Non-Controlling Interests	0	-1	-2	-3
EBITDA	28	26	30	35
FCF (Free Cash Flow)	-9	10	12	12
EBITDA Margin (%)	29.5	26.5	26.5	25.7
Operating Profit Margin (%)	25.3	20.4	21.2	22.8
Net Profit Margin (%)	10.5	15.3	15.0	16.2

## Cash Flows (Summarized)

(Wbn)	12/17	12/18F	12/19F	12/20F
Cash Flows from Op Activities	6	17	12	12
Net Profit	11	16	17	23
Non-Cash Income and Expense	18	11	12	13
Depreciation	4	5	5	5
Amortization	0	0	0	0
Others	14	6	7	8
Chg in Working Capital	-13	-6	-11	-15
Chg in AR & Other Receivables	-9	0	-11	-15
Chg in Inventories	-4	0	-3	-4
Chg in AP & Other Payables	-5	5	1	1
<b>Income Tax Paid</b>	<b>-9</b>	<b>-2</b>	<b>-4</b>	<b>-5</b>
Cash Flows from Inv Activities	-16	-8	0	0
Chg in PP&E	-15	-7	0	0
Chg in Intangible Assets	-1	-1	0	0
Chg in Financial Assets	2	0	0	0
<b>Others</b>	<b>-2</b>	<b>0</b>	<b>0</b>	<b>0</b>
Cash Flows from Fin Activities	11	8	0	0
Chg in Financial Liabilities	17	8	0	0
Chg in Equity	1	1	0	0
Dividends Paid	0	0	0	0
<b>Others</b>	<b>-7</b>	<b>-1</b>	<b>0</b>	<b>0</b>
Increase (Decrease) in Cash	1	18	11	12
Beginning Balance	7	8	26	37
<b>Ending Balance</b>	<b>8</b>	<b>26</b>	<b>37</b>	<b>49</b>

Source: Company data, Mirae Asset Daewoo Research estimates

## Statement of Financial Condition (Summarized)

(Wbn)	12/17	12/18F	12/19F	12/20F
<b>Current Assets</b>	<b>97</b>	<b>118</b>	<b>145</b>	<b>178</b>
Cash and Cash Equivalents	8	26	37	49
AR & Other Receivables	69	71	83	100
Inventories	16	17	20	24
Other Current Assets	4	4	5	5
<b>Non-Current Assets</b>	<b>79</b>	<b>82</b>	<b>77</b>	<b>72</b>
Investments in Associates	0	0	0	0
Property, Plant and Equipment	74	74	69	65
Intangible Assets	1	4	4	4
<b>Total Assets</b>	<b>176</b>	<b>200</b>	<b>222</b>	<b>251</b>
<b>Current Liabilities</b>	<b>39</b>	<b>39</b>	<b>43</b>	<b>49</b>
AP & Other Payables	8	9	10	12
Short-Term Financial Liabilities	16	16	16	16
Other Current Liabilities	15	14	17	21
<b>Non-Current Liabilities</b>	<b>16</b>	<b>24</b>	<b>25</b>	<b>26</b>
Long-Term Financial Liabilities	13	21	21	21
Other Non-Current Liabilities	3	3	4	5
<b>Total Liabilities</b>	<b>55</b>	<b>64</b>	<b>68</b>	<b>75</b>
<b>Controlling Interests</b>	<b>117</b>	<b>131</b>	<b>148</b>	<b>171</b>
Capital Stock	8	8	8	8
Capital Surplus	80	80	80	80
Retained Earnings	34	49	66	88
<b>Non-Controlling Interests</b>	<b>4</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>Stockholders' Equity</b>	<b>121</b>	<b>136</b>	<b>153</b>	<b>176</b>

## Forecasts/Valuations (Summarized)

	12/17	12/18F	12/19F	12/20F
P/E (x)	53.9	26.8	24.3	18.5
P/CF (x)	18.2	15.3	14.0	11.7
P/B (x)	4.0	2.8	2.5	2.2
EV/EBITDA (x)	20.2	16.5	14.1	11.5
EPS (W)	658	1,018	1,122	1,474
CFPS (W)	1,948	1,779	1,947	2,332
BPS (W)	8,924	9,894	11,016	12,490
DPS (W)	0	0	0	0
Payout ratio (%)	0.0	0.0	0.0	0.0
Dividend Yield (%)	0.0	0.0	0.0	0.0
Revenue Growth (%)	8.0	3.2	15.3	20.4
EBITDA Growth (%)	-3.4	-7.1	15.4	16.7
Operating Profit Growth (%)	-11.1	-16.7	20.0	29.2
EPS Growth (%)	-51.3	54.7	10.2	31.4
Accounts Receivable Turnover (x)	1.6	1.5	1.6	1.6
Inventory Turnover (x)	6.5	5.9	6.2	6.3
Accounts Payable Turnover (x)	6.6	5.9	6.3	6.4
ROA (%)	6.8	8.6	8.2	9.6
ROE (%)	8.9	12.5	12.2	14.0
ROIC (%)	12.9	11.2	12.5	15.0
Liability to Equity Ratio (%)	45.2	46.8	44.6	42.4
Current Ratio (%)	250.8	298.6	333.3	363.9
Net Debt to Equity Ratio (%)	16.8	8.0	-0.3	-7.1
Interest Coverage Ratio (x)	19.6	7.7	7.6	9.7

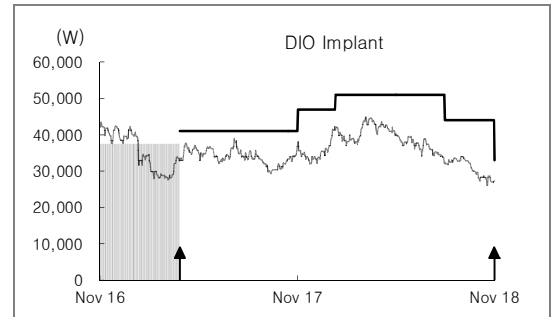


## APPENDIX 1

### Important Disclosures & Disclaimers

#### 2-Year Rating and Target Price History

Company (Code)	Date	Rating	Target Price
DIO Implant(039840)	11/14/2018	Buy	33,000
	08/14/2018	Buy	44,000
	01/24/2018	Buy	51,000
	11/15/2017	Buy	47,000
	04/11/2017	Buy	41,000



#### Stock Ratings

Buy	: Relative performance of 20% or greater
Trading Buy	: Relative performance of 10% or greater, but with volatility
Hold	: Relative performance of -10% and 10%
Sell	: Relative performance of -10%

#### Industry Ratings

Overweight	: Fundamentals are favorable or improving
Neutral	: Fundamentals are steady without any material changes
Underweight	: Fundamentals are unfavorable or worsening

Ratings and Target Price History (Share price (—), Target price (—), Not covered (—), Buy (▲), Trading Buy (■), Hold (●), Sell (◆))

\* Our investment rating is a guide to the relative return of the stock versus the market over the next 12 months.

\* Although it is not part of the official ratings at Mirae Asset Daewoo Co., Ltd., we may call a trading opportunity in case there is a technical or short-term material development.

\* The target price was determined by the research analyst through valuation methods discussed in this report, in part based on the analyst's estimate of future earnings.

\* The achievement of the target price may be impeded by risks related to the subject securities and companies, as well as general market and economic conditions.

#### Equity Ratings Distribution & Investment Banking Services

	Buy	Trading Buy	Hold	Sell
Equity Ratings Distribution	73.71%	13.92%	12.37%	0.00%
Investment Banking Services	82.61%	4.35%	13.04%	0.00%

\* Based on recommendations in the last 12-months (as of September 30, 2018)

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