

MedTech

Results Comment
November 15, 2018

(Maintain) **Buy**

Target Price (12M, W) **▲ 45,000**

Share Price (11/14/18, W) **35,900**

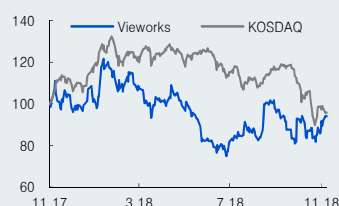
Expected Return **25%**

OP (18F, Wbn) 23
Consensus OP (18F, Wbn) 20

EPS Growth (18F, %) 6.3
Market EPS Growth (18F, %) 11.1
P/E (18F, x) 17.2
Market P/E (18F, x) 8.3
KOSDAQ 671.56

Market Cap (Wbn) 359
Shares Outstanding (mn) 10
Free Float (%) 70.1
Foreign Ownership (%) 33.3
Beta (12M) 0.50
52-Week Low 28,600
52-Week High 46,450

(%) **1M 6M 12M**
Absolute -0.1 -3.8 -15.3
Relative 8.8 23.1 -4.6



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[MedTech/Healthcare Solutions]

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Vieworks

(100120 KQ)

Resilient earnings

3Q18 review: Earnings surprise

For 3Q18, Vieworks reported revenue of W33.8bn (+21.6% YoY), in line with our projection. Revenue from flat-panel digital radiography (FP-DR) and other medical devices surged 25.4% and 926.5% YoY, respectively. In contrast, revenue from industrial vision systems grew only 2.8% YoY. Operating profit increased to W7bn (+3.2% YoY), well above the market consensus. OP margin improved to 20.6% (+6.2% QoQ), supported by operating leverage amid robust top-line growth.

Waning volatility in key businesses

1) Medical detectors (FP-DR): The global FP-DR market's game of chicken appears to be nearing an end. The OP margin of the market's no. 1 supplier (which drove ASP lower) has collapsed, going from 16.8% in 1Q16 to 3.1% in 3Q18, and many low-end Chinese suppliers are now being forced out of the market. Heightened trade disputes between the US and China have led to higher tariffs on US exports to China, adding to the pressures on many global companies.

2) Industrial vision systems: The impact of unfavorable comparisons caused by panel makers' OLED capex cycle (which began in 2H16) has been fading since end-1H18. Because the business is based on orders, revenue tends to be volatile. That said, it is encouraging that a major earnings overhang has been removed, and the introduction of foldable displays is raising expectations. We believe that time delay integration (TDI) line scan cameras, the company's next growth driver, are also slowly beginning to generate revenue growth.

3) RF detectors: Thin-film transistor (TFT)-based RF detectors are considered one of the company's new growth engines. While they can be used for a number of applications, we think the high-growth dental sector, especially in China, holds the most promise. We believe that Vieworks will focus on quality and price competitiveness in order to penetrate the dental segment (which is dominated by CMOS detectors).

Maintain Buy and raise TP to W45,000

We maintain our Buy rating on Vieworks and raise our target price to W45,000 (from W43,000), reflecting upward earnings revisions. The stock currently trades at a 12-month forward P/E of 14.5x, a discount to global peers (16.1x).

The unfavorable base effects that have long plagued the company began to recede in 3Q18. We believe future earnings growth hinges on the firm's new dental detector business, which is well on track. Vieworks has grown by consistently turning its new ventures into successes. Given that the company's margin structure has a low exposure to fixed costs, we think OP margin will recover sharply as top-line growth gains momentum.

| FY (Dec.) | 12/15 | 12/16 | 12/17 | 12/18F | 12/19F | 12/20F |
|--------------------|-------|-------|-------|--------|--------|--------|
| Revenue (Wbn) | 93 | 117 | 123 | 130 | 147 | 162 |
| OP (Wbn) | 18 | 30 | 29 | 23 | 31 | 35 |
| OP margin (%) | 19.4 | 25.6 | 23.6 | 17.7 | 21.1 | 21.6 |
| NP (Wbn) | 16 | 27 | 20 | 21 | 25 | 28 |
| EPS (W) | 1,589 | 2,697 | 1,963 | 2,087 | 2,526 | 2,841 |
| ROE (%) | 20.5 | 27.7 | 16.6 | 15.6 | 16.4 | 15.9 |
| P/E (x) | 28.0 | 22.2 | 20.8 | 17.2 | 14.2 | 12.6 |
| P/B (x) | 5.2 | 5.4 | 3.2 | 2.5 | 2.1 | 1.8 |
| Dividend yield (%) | 0.2 | 0.3 | 0.5 | 0.6 | 0.6 | 0.6 |

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 | 27.8 | 30.7 | 33.8 | 32.7 | 30.8 | 21.6 | 10.2 |
| Operating profit | 6.7 | 4.4 | 7.0 | 6.5 | 5.5 | 3.2 | 57.0 |
| OP margin (%) | 24.2 | 14.4 | 20.6 | 19.9 | 18.0 | -3.7 | 6.2 |
| Pretax profit | 7.1 | 7.1 | 6.6 | 6.4 | 6.4 | -7.6 | -7.1 |
| Net profit | 5.3 | 6.4 | 5.6 | 4.9 | 0.0 | 6.6 | -11.4 |

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

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

Table 2. Earnings forecast revisions

(Wbn, W, %)

| | Previous | | Revised | | % chg. | | Notes |
|------------------|----------|-------|---------|-------|--------|-----|------------------------|
| | 18F | 19F | 18F | 19F | 18F | 19F | |
| Revenue | 128.2 | 141.8 | 129.6 | 146.6 | 1.1 | 3.3 | Reflects 3Q18 earnings |
| Operating profit | 22.4 | 29.9 | 22.8 | 30.7 | 1.8 | 2.8 | |
| Pretax profit | 24.6 | 29.9 | 24.8 | 30.7 | 0.6 | 2.8 | |
| Net profit | 20.2 | 24.6 | 20.9 | 25.3 | 3.4 | 2.8 | |
| EPS (W) | 2,018 | 2,456 | 2,087 | 2,526 | 3.4 | 2.8 | |

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

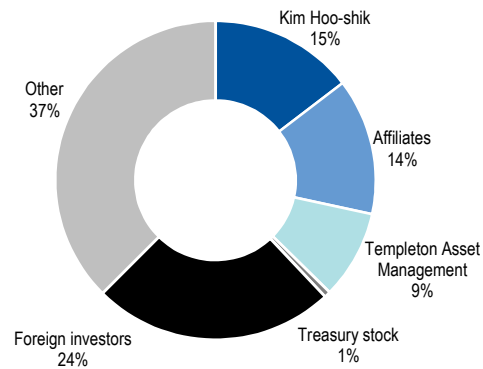
Source: Mirae Asset Daewoo Research estimates

Table 3. Quarterly and annual earnings

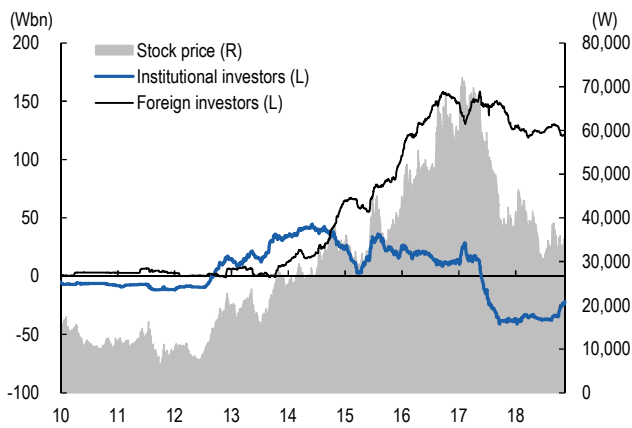
(Wbn, %)

| | 1Q17 | 2Q17 | 3Q17 | 4Q17 | 1Q18 | 2Q18 | 3Q18P | 4Q18F | 2017 | 2018F | 2019F |
|-------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|
| Revenue | 32.2 | 31.7 | 27.8 | 31.7 | 29.4 | 30.7 | 33.8 | 35.8 | 123.5 | 129.6 | 146.6 |
| FP-DR | 14.9 | 16.2 | 13.3 | 18.5 | 16.5 | 13.7 | 16.7 | 19.0 | 62.8 | 65.9 | 67.4 |
| Industrial cameras | 15.1 | 13.6 | 12.7 | 11.0 | 10.3 | 14.2 | 13.1 | 12.3 | 52.5 | 49.9 | 56.1 |
| Other | 2.2 | 1.9 | 1.7 | 2.2 | 2.6 | 2.7 | 4.0 | 4.5 | 8.2 | 13.8 | 23.0 |
| Operating profit | 7.6 | 7.5 | 6.7 | 6.8 | 4.1 | 4.4 | 7.0 | 7.3 | 28.6 | 22.8 | 30.7 |
| Pretax profit | 4.0 | 8.4 | 7.1 | 3.7 | 3.8 | 7.1 | 6.6 | 7.3 | 23.2 | 24.8 | 30.7 |
| Net profit | 3.1 | 7.2 | 5.3 | 4.0 | 3.2 | 6.4 | 5.6 | 5.6 | 19.6 | 20.9 | 25.3 |
| OP margin (%) | 23.7 | 23.5 | 24.2 | 21.4 | 13.9 | 14.4 | 20.6 | 20.4 | 23.2 | 17.6 | 21.0 |
| Pretax margin (%) | 12.3 | 26.6 | 25.7 | 11.7 | 12.9 | 23.1 | 19.5 | 20.4 | 18.8 | 19.1 | 21.0 |
| Net margin (%) | 9.6 | 22.7 | 19.1 | 12.6 | 10.9 | 20.8 | 16.7 | 15.7 | 15.9 | 16.1 | 17.2 |

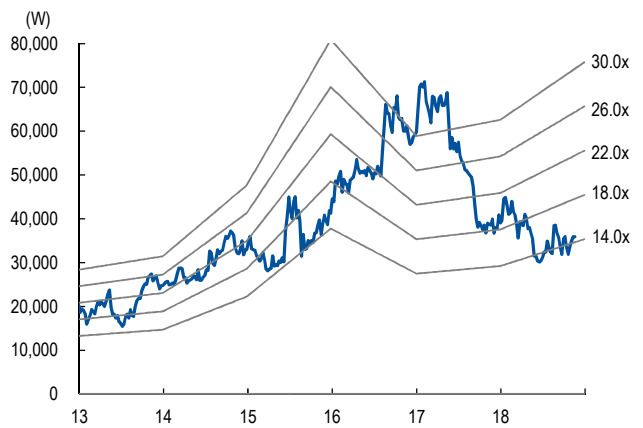
Source: Company data, Mirae Asset Daewoo Research estimates

Figure 1. Ownership breakdown

Source: Mirae Asset Daewoo Research

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

Source: Mirae Asset Daewoo Research

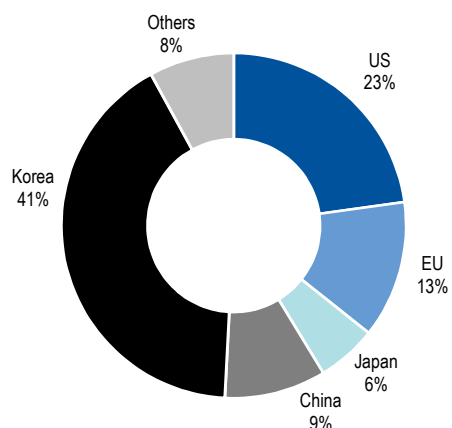
Figure 3. P/E band chart

Source: Mirae Asset Daewoo Research

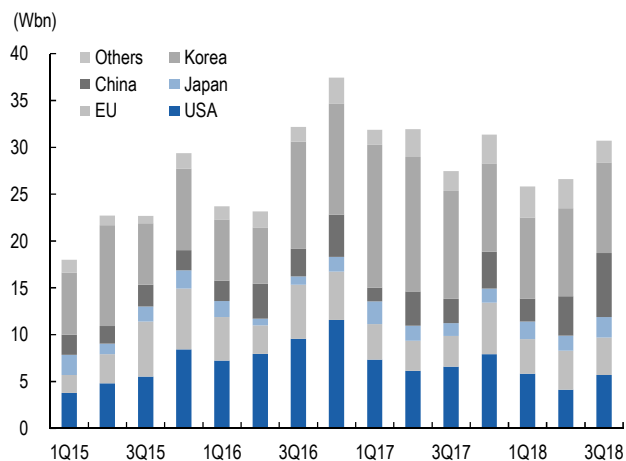
Table 4. Global peer valuations

| 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 |
| Canon | 43,425 | 8.1 | 8.7 | 8.8 | 15.0 | 13.8 | 13.9 | 1.2 | 1.2 | 1.2 | 8.4 | 8.7 | 8.5 | 7.1 | 7.6 | 7.7 |
| Varex Imaging | 1,127 | 11.3 | 12.5 | 12.1 | 26.0 | 17.8 | 16.9 | 2.3 | 2.0 | 1.9 | 10.8 | 11.5 | 11.9 | 17.0 | 10.9 | 10.8 |
| Teledyne Technologies | 9,060 | 12.9 | 14.3 | 15.0 | 27.7 | 25.3 | 24.4 | 3.6 | - | - | 15.2 | - | - | 18.7 | 16.4 | 15.4 |
| Vieworks | 359 | 23.2 | 17.7 | 21.1 | 18.3 | 17.2 | 14.2 | 3.2 | 2.5 | 2.1 | 16.6 | 15.6 | 16.4 | 11.2 | 12.0 | 8.7 |
| Rayence | 237 | 15.9 | 19.3 | 19.6 | 21.0 | 12.0 | 10.5 | 1.7 | 1.2 | 1.1 | 8.5 | 10.9 | 11.4 | 9.5 | 5.1 | 3.9 |
| Average | | 14.3 | 14.5 | 15.3 | 21.6 | 17.2 | 16.0 | 2.4 | 1.7 | 1.6 | 11.9 | 11.7 | 12.0 | 12.7 | 10.4 | 9.3 |

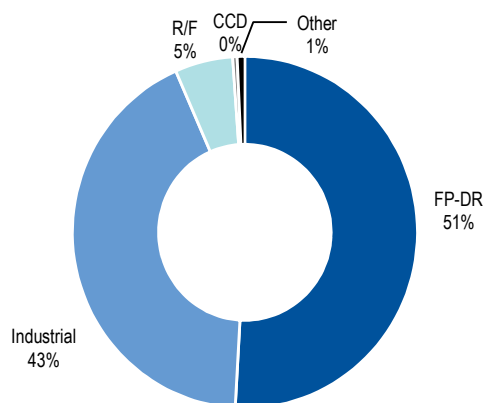
Source: Bloomberg, Mirae Asset Daewoo Research

Figure 4. Revenue breakdown: Exports vs. domestic

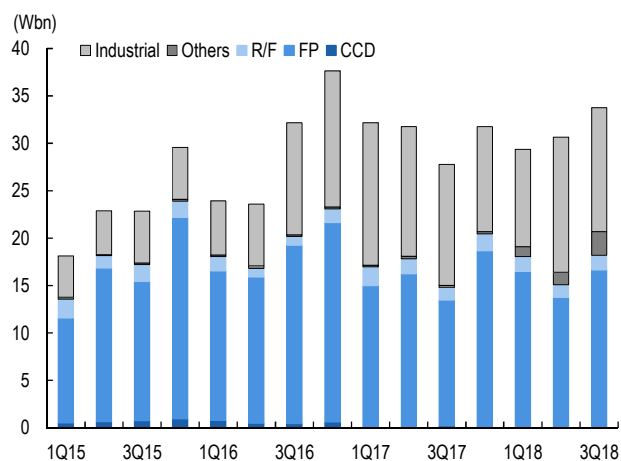
Source: Company data, Mirae Asset Daewoo Research

Figure 5. Revenue: Exports vs. domestic

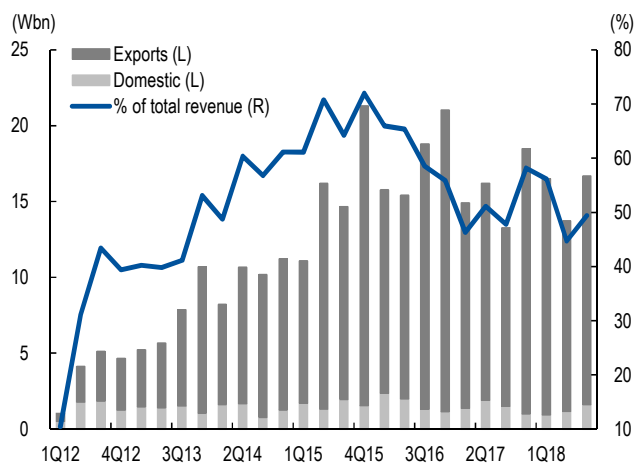
Source: Company data, Mirae Asset Daewoo Research

Figure 6. Revenue breakdown by product

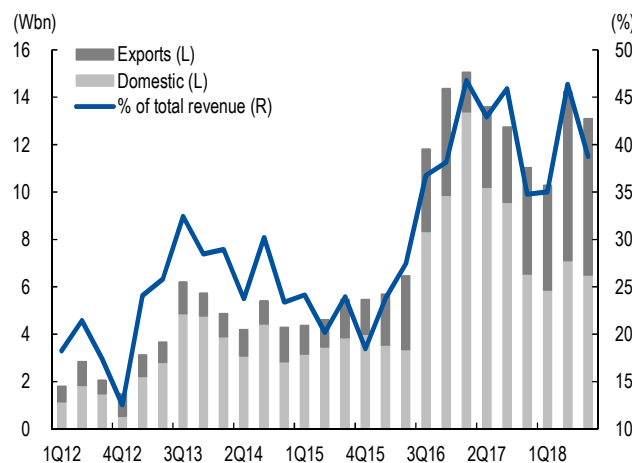
Source: Company data, Mirae Asset Daewoo Research

Figure 7. Revenue by product

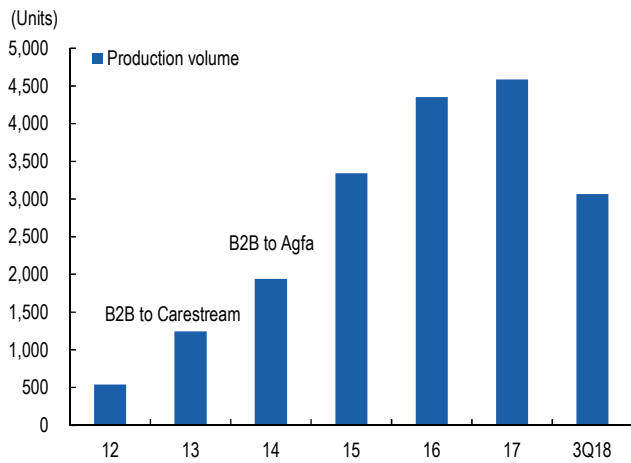
Source: Company data, Mirae Asset Daewoo Research

Figure 8. Medical detector revenue

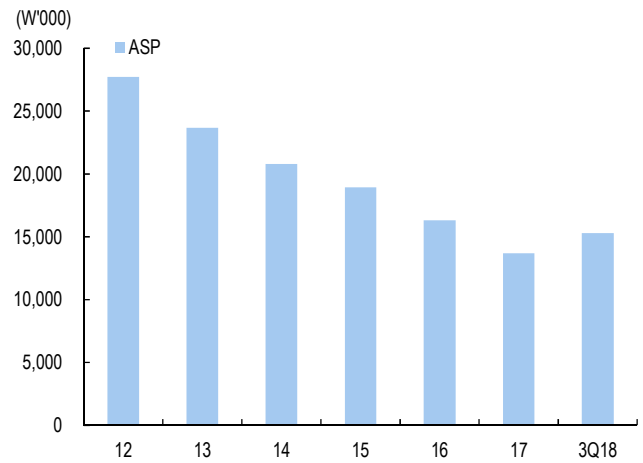
Source: Company data, Mirae Asset Daewoo Research

Figure 9. Industrial camera revenue

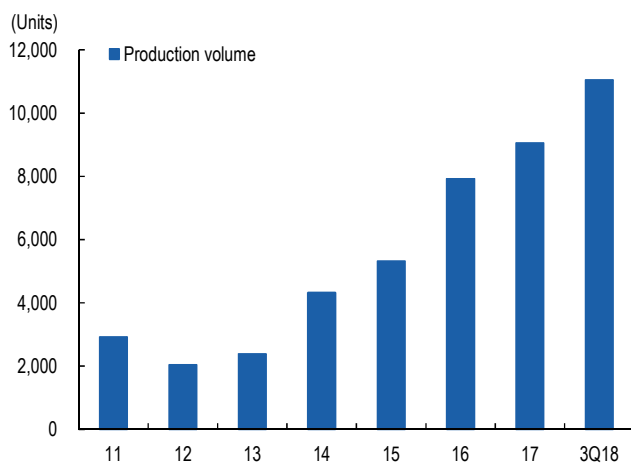
Source: Company data, Mirae Asset Daewoo Research

Figure 10. FP-DR sales volume

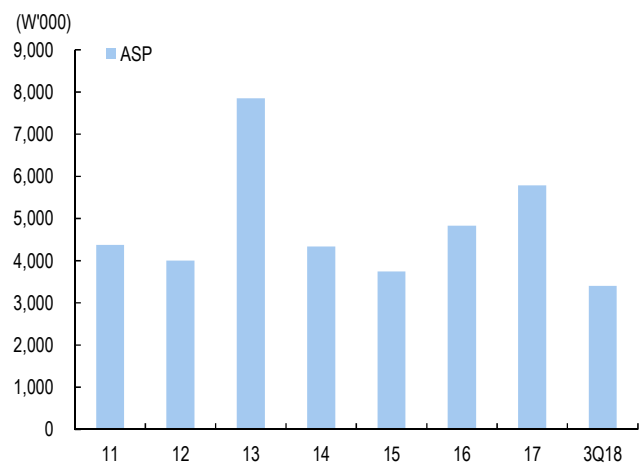
Source: Company data, Mirae Asset Daewoo Research

Figure 11. FP-DR ASP

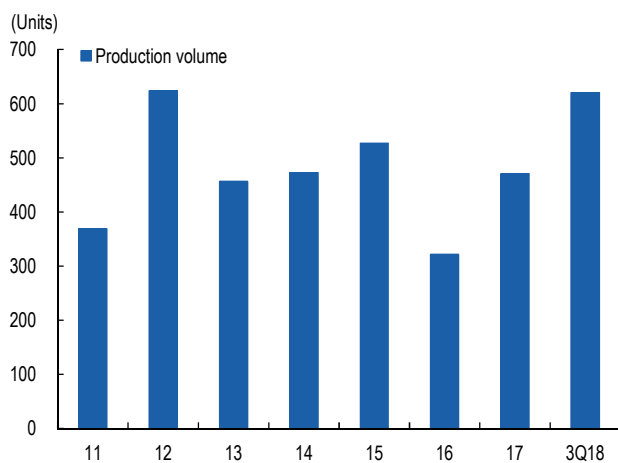
Source: Company data, Mirae Asset Daewoo Research

Figure 12. Industrial camera production volume

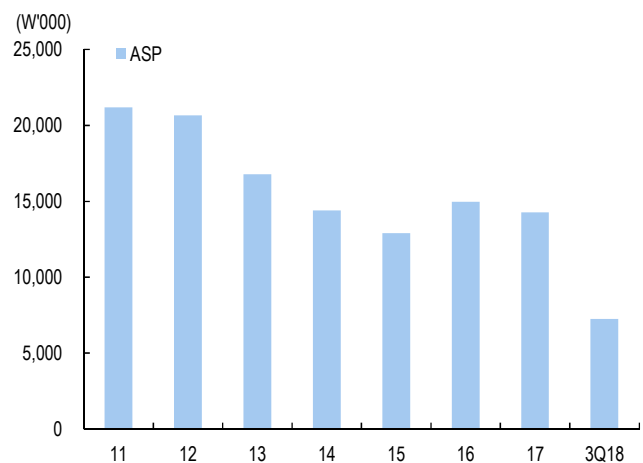
Source: Company data, Mirae Asset Daewoo Research

Figure 13. Industrial camera ASP

Source: Company data, Mirae Asset Daewoo Research

Figure 14. R/F detector production volume

Source: Company data, Mirae Asset Daewoo Research

Figure 15. R/F detector ASP

Source: Company data, Mirae Asset Daewoo Research

Table 5. Global X-ray system market

| Market | Type | ASP | Producers | Customers |
|-------------|----------|------------|---|---------------------------------------|
| New | FP-DR | W200-300mn | GE, Siemens, Philips, Toshiba, etc. | Large hospitals |
| Replacement | Retrofit | W30-60mn | Agfa, Carestream, Fuji, Konica, Canon, etc. | Small/mid-sized clinics and hospitals |

Source: Mirae Asset Daewoo Research

Table 6. Policy tailwinds for digital X-ray systems: Consolidated Appropriations Act (%)

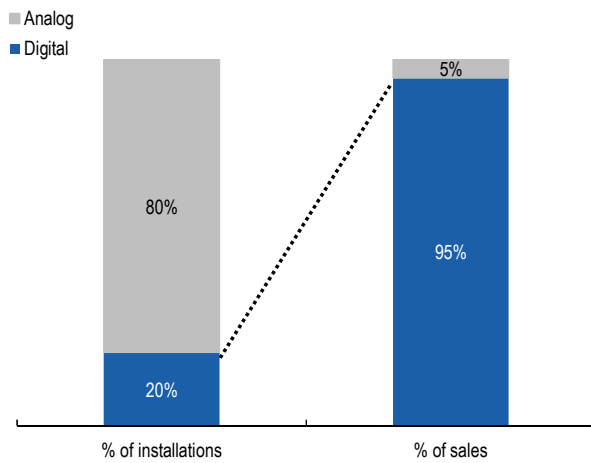
| Type | Year | Medicare price cut |
|-------------|------|--------------------|
| Analog/film | 2017 | 20 |
| | 2018 | 7 |
| CR | 2023 | 10 |

Source: Mirae Asset Daewoo Research

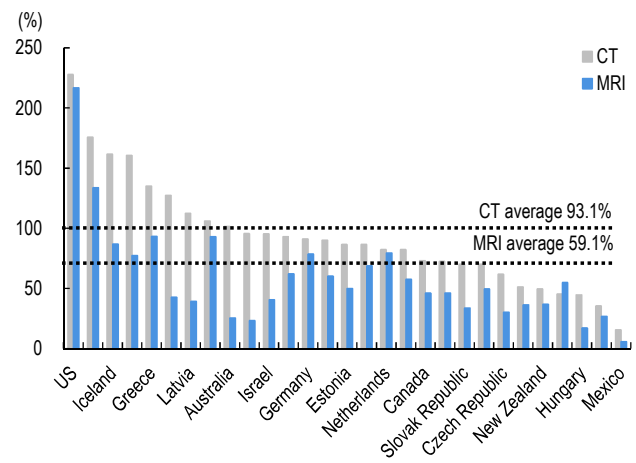
Table 7. Types of X-ray systems and players

| Type | | | | Characteristics | Domestic competitors | Overseas competitors | ASP |
|---------|----|---------------------|---|--|-------------------------------------|----------------------------------|-------------------|
| Digital | DR | Indirect conversion | TFT(A-Si) | Large-sized sensors can be used - Highly durable due to the use of nonconductive substrates - Used for general medical, veterinary, and industrial purposes | - Rayence - Vieworks - DRTECH | - Varian - Trixell | US\$10,000-30,000 |
| | | | CMOS | - High-speed video images can be acquired - High-resolution sensors can be used - Large-sized design potential is limited due to cost/ingot size issues - Used for dental, breast cancer diagnosis, and industrial purposes | - Rayence | - Varian - DALSA | US\$10,000-10,500 |
| | | | CCD | Cheaper than other options - Low picture quality; high radiation - Used for medical, veterinary, and industrial purposes | - Vieworks | | US\$2,000-10,000 |
| | | Direct conversion | TFT(A-Se) | - X-ray energy is converted into electrical signals - Low noise levels; high productivity - Low radiation | - DRTECH | - Hologic | |
| | CR | | | - Imaging plate (IP) on which fluorescent materials are applied is used - IP can be used repeatedly after removing X-ray residue | | - Carestream - Agfa - Fuji | |
| Analog | | | - X-rays that penetrate the human body are detected via a film - Film development and storage areas are needed - Image transmission is impossible | | | | |

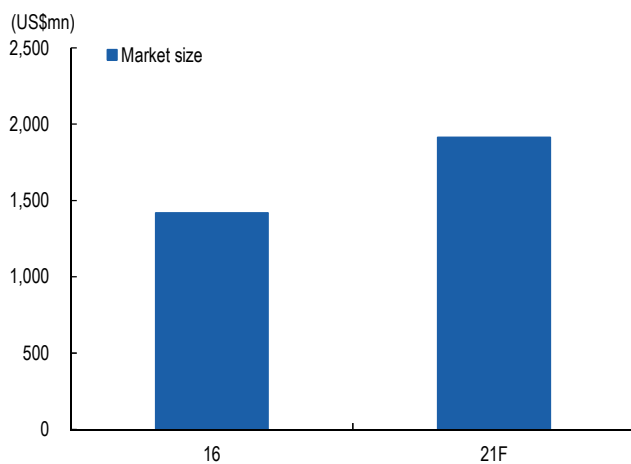
Source: Mirae Asset Daewoo Research

Figure 166. Global installations/sales breakdown of X-ray systems

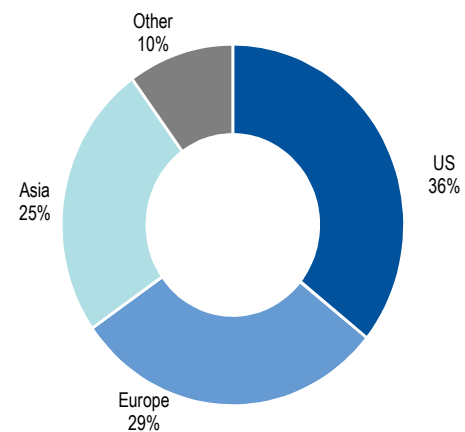
Source: Industry data, Mirae Asset Daewoo Research

Figure 177. CT and MRI machine penetration rates in OECD countries

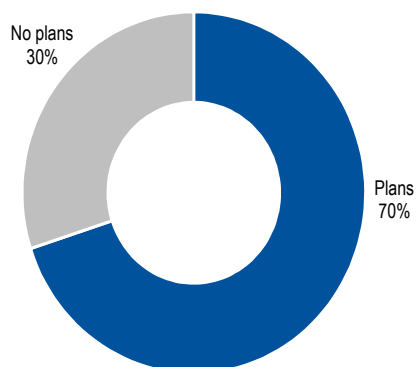
Source: OECD, Mirae Asset Daewoo Research

Figure 188. Market outlook for FP-DR detectors

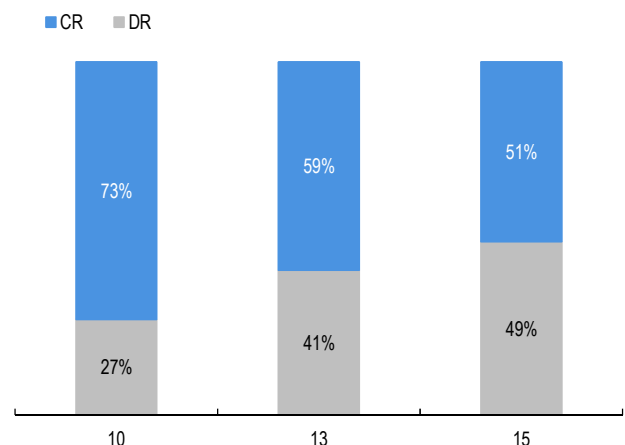
Source: MarketsandMarkets, Mirae Asset Daewoo Research

Figure 19. FP-DR detector M/S by region

Source: MarketsandMarkets, Mirae Asset Daewoo Research

Figure 190. Proportion of US hospitals with plans to convert to digital X-ray systems

Source: IMV, Mirae Asset Daewoo Research

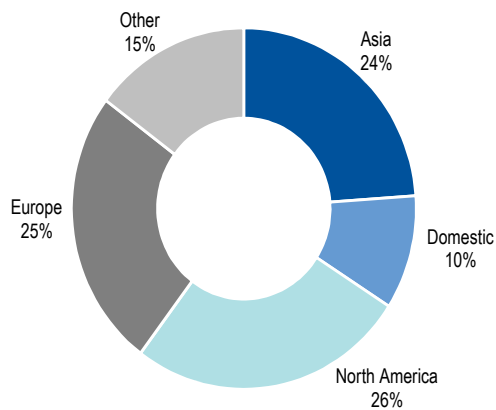
Figure 201. US X-ray M/S: Computed radiography (CR) vs. digital radiography (DR)

Source: IMV, Mirae Asset Daewoo Research

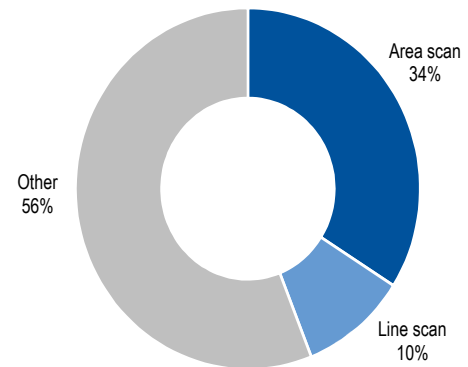
Table 8. TDI cameras

| | Vieworks | Teledyne DALSA |
|------------------------|------------------------|----------------|
| Maximum speed (Gbps) | 250 | 142 |
| Interface (K) | Camera link, CoaxPress | Camera Link |
| Maximum resolution (K) | 18 | 16 |
| Sensors | CMOS+CCD | CCD or CMOS |

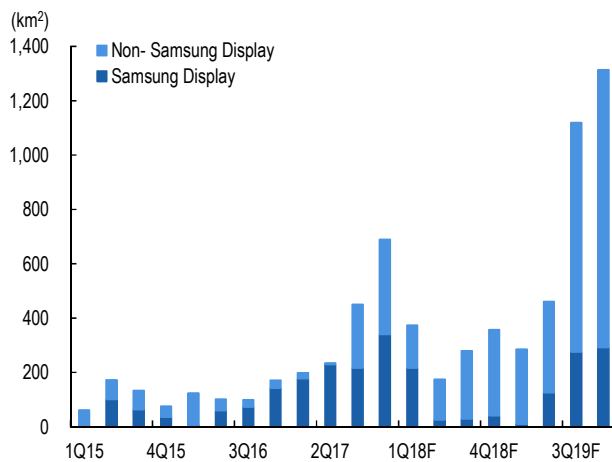
Source: Mirae Asset Daewoo Research

Figure 212. Industrial camera M/S by region

Source: Industry data, Mirae Asset Daewoo Research

Figure 223. Industrial camera M/S breakdown by category

Source: Industry data, Mirae Asset Daewoo Research

Figure 234. Quarterly production capacity increase of OLED

Vieworks (100120 KQ/Buy/TP: W45,000)

Comprehensive Income Statement (Summarized)

| (Wbn) | 12/17 | 12/18F | 12/19F | 12/20F |
|-------------------------------------|------------|------------|------------|------------|
| Revenue | 123 | 130 | 147 | 162 |
| Cost of Sales | 61 | 65 | 72 | 79 |
| Gross Profit | 62 | 65 | 75 | 83 |
| SG&A Expenses | 33 | 42 | 44 | 48 |
| Operating Profit (Adj) | 29 | 23 | 31 | 35 |
| Operating Profit | 29 | 23 | 31 | 35 |
| Non-Operating Profit | -6 | 2 | 0 | 0 |
| Net Financial Income | 0 | 0 | 0 | 0 |
| Net Gain from Inv in Associates | 0 | 0 | 0 | 0 |
| Pretax Profit | 23 | 25 | 31 | 35 |
| Income Tax | 4 | 4 | 6 | 6 |
| Profit from Continuing Operations | 20 | 21 | 25 | 28 |
| Profit from Discontinued Operations | 0 | 0 | 0 | 0 |
| Net Profit | 20 | 21 | 25 | 28 |
| Controlling Interests | 20 | 21 | 25 | 28 |
| Non-Controlling Interests | 0 | 0 | 0 | 0 |
| Total Comprehensive Profit | 20 | 21 | 25 | 28 |
| Controlling Interests | 20 | 21 | 25 | 28 |
| Non-Controlling Interests | 0 | 0 | 0 | 0 |
| EBITDA | 32 | 26 | 33 | 37 |
| FCF (Free Cash Flow) | 16 | 11 | 22 | 25 |
| EBITDA Margin (%) | 26.0 | 20.0 | 22.4 | 22.8 |
| Operating Profit Margin (%) | 23.6 | 17.7 | 21.1 | 21.6 |
| Net Profit Margin (%) | 16.3 | 16.2 | 17.0 | 17.3 |

Statement of Financial Condition (Summarized)

| (Wbn) | 12/17 | 12/18F | 12/19F | 12/20F |
|----------------------------------|------------|------------|------------|------------|
| Current Assets | 99 | 110 | 137 | 167 |
| Cash and Cash Equivalents | 37 | 41 | 59 | 80 |
| AR & Other Receivables | 22 | 25 | 28 | 32 |
| Inventories | 22 | 24 | 27 | 31 |
| Other Current Assets | 18 | 20 | 23 | 24 |
| Non-Current Assets | 39 | 45 | 43 | 41 |
| Investments in Associates | 0 | 0 | 0 | 0 |
| Property, Plant and Equipment | 32 | 36 | 34 | 32 |
| Intangible Assets | 3 | 6 | 6 | 5 |
| Total Assets | 138 | 155 | 180 | 208 |
| Current Liabilities | 11 | 13 | 14 | 16 |
| AP & Other Payables | 4 | 4 | 5 | 5 |
| Short-Term Financial Liabilities | 0 | 1 | 1 | 1 |
| Other Current Liabilities | 7 | 8 | 8 | 10 |
| Non-Current Liabilities | 1 | 1 | 1 | 1 |
| Long-Term Financial Liabilities | 0 | 0 | 0 | 0 |
| Other Non-Current Liabilities | 1 | 1 | 1 | 1 |
| Total Liabilities | 12 | 14 | 15 | 17 |
| Controlling Interests | 126 | 142 | 165 | 191 |
| Capital Stock | 5 | 5 | 5 | 5 |
| Capital Surplus | 10 | 10 | 10 | 10 |
| Retained Earnings | 114 | 130 | 153 | 180 |
| Non-Controlling Interests | 0 | 0 | 0 | 0 |
| Stockholders' Equity | 126 | 142 | 165 | 191 |

Cash Flows (Summarized)

| (Wbn) | 12/17 | 12/18F | 12/19F | 12/20F |
|--------------------------------|-----------|-----------|-----------|-----------|
| Cash Flows from Op Activities | 19 | 17 | 22 | 25 |
| Net Profit | 20 | 21 | 25 | 28 |
| Non-Cash Income and Expense | 13 | 6 | 8 | 8 |
| Depreciation | 2 | 2 | 2 | 2 |
| Amortization | 2 | 1 | 0 | 0 |
| Others | 9 | 3 | 6 | 6 |
| Chg in Working Capital | -6 | -5 | -6 | -6 |
| Chg in AR & Other Receivables | 2 | 1 | -3 | -3 |
| Chg in Inventories | 1 | -2 | -3 | -3 |
| Chg in AP & Other Payables | -2 | -4 | 0 | 0 |
| Income Tax Paid | -7 | -5 | -6 | -6 |
| Cash Flows from Inv Activities | -8 | -11 | -2 | -2 |
| Chg in PP&E | -3 | -6 | 0 | 0 |
| Chg in Intangible Assets | -2 | 0 | 0 | 0 |
| Chg in Financial Assets | -4 | -2 | -2 | -2 |
| Others | 1 | -3 | 0 | 0 |
| Cash Flows from Fin Activities | -5 | -4 | -2 | -2 |
| Chg in Financial Liabilities | -1 | 1 | 0 | 0 |
| Chg in Equity | 0 | 0 | 0 | 0 |
| Dividends Paid | -2 | -4 | -2 | -2 |
| Others | -2 | -1 | 0 | 0 |
| Increase (Decrease) in Cash | 3 | 3 | 18 | 21 |
| Beginning Balance | 35 | 37 | 41 | 59 |
| Ending Balance | 37 | 41 | 59 | 80 |

Source: Company data, Mirae Asset Daewoo Research estimates

Forecasts/Valuations (Summarized)

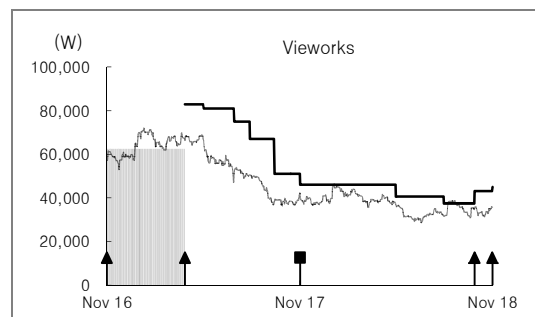
| | 12/17 | 12/18F | 12/19F | 12/20F |
|----------------------------------|---------|--------|--------|---------|
| P/E (x) | 20.8 | 17.2 | 14.2 | 12.6 |
| P/CF (x) | 12.6 | 13.5 | 10.9 | 9.8 |
| P/B (x) | 3.2 | 2.5 | 2.1 | 1.8 |
| EV/EBITDA (x) | 11.2 | 12.0 | 8.7 | 7.3 |
| EPS (W) | 1,963 | 2,087 | 2,526 | 2,841 |
| CFPS (W) | 3,234 | 2,654 | 3,305 | 3,663 |
| BPS (W) | 12,924 | 14,532 | 16,861 | 19,505 |
| DPS (W) | 200 | 200 | 200 | 200 |
| Payout ratio (%) | 10.1 | 9.5 | 7.8 | 7.0 |
| Dividend Yield (%) | 0.5 | 0.6 | 0.6 | 0.6 |
| Revenue Growth (%) | 5.1 | 5.7 | 13.1 | 10.2 |
| EBITDA Growth (%) | -5.9 | -18.8 | 26.9 | 12.1 |
| Operating Profit Growth (%) | -3.3 | -20.7 | 34.8 | 12.9 |
| EPS Growth (%) | -27.2 | 6.3 | 21.0 | 12.5 |
| Accounts Receivable Turnover (x) | 5.3 | 5.5 | 5.5 | 5.5 |
| Inventory Turnover (x) | 5.6 | 5.6 | 5.7 | 5.6 |
| Accounts Payable Turnover (x) | 18.0 | 23.9 | 23.4 | 23.1 |
| ROA (%) | 14.7 | 14.2 | 15.0 | 14.6 |
| ROE (%) | 16.6 | 15.6 | 16.4 | 15.9 |
| ROIC (%) | 32.7 | 23.5 | 27.7 | 29.9 |
| Liability to Equity Ratio (%) | 9.2 | 9.6 | 9.2 | 8.7 |
| Current Ratio (%) | 918.0 | 870.8 | 969.7 | 1,068.5 |
| Net Debt to Equity Ratio (%) | -37.2 | -36.0 | -42.8 | -48.6 |
| Interest Coverage Ratio (x) | 2,866.9 | 486.6 | 663.4 | 745.8 |

APPENDIX 1

Important Disclosures & Disclaimers

2-Year Rating and Target Price History

| Company (Code) | Date | Rating | Target Price |
|-------------------|------------|-------------|--------------|
| Vieworks (100120) | 11/14/2018 | Buy | 45,000 |
| | 10/11/2018 | Buy | 43,000 |
| | 08/14/2018 | Trading Buy | 37,500 |
| | 05/15/2018 | Trading Buy | 40,600 |
| | 11/15/2017 | Trading Buy | 46,000 |
| | 09/27/2017 | Buy | 51,000 |
| | 08/12/2017 | Buy | 67,000 |
| | 07/13/2017 | Buy | 75,000 |
| | 05/16/2017 | Buy | 81,000 |
| | 04/11/2017 | Buy | 83,000 |
| | 03/31/2016 | No Coverage | |



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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