

AK Medical 爱康医疗 (1789 HK)

Firing on all cylinders

AK Medical is a PRC medical device company, engaged in research and development, production and marketing of orthopaedic medical devices with focus in hip and knee replacement implants. They are number one in market share for orthopaedic joint implants in China and are the first and only company to receive CFDA approval for 3D-printed orthopaedic joint and spine replacement implants. Company continues to gain market share on the back of strong sales growth in core products and beneficiary tailwinds from import substitution and advantageous government policies. AK continues to expand, building a larger sales team to match competitors, acquiring JRI for technology and overseas coverage and opening new factory in Changzhou. We initiate coverage using DCF model with HK\$5.3 TP, implying 26% upside, 21.7x FY19E PE and 4.4x FY19E PB.

- Number one market share leader.** AK is the biggest market share player with 15% in China's joint implant market by volume. It has achieved this through successful targeting of joint implant's subsectors in hip and joint, where the quality of its products is competitive against imported brands at a fraction of their price. Even compared to its main domestic competitor, AK is gaining more market share thanks to its core products.
- The only 3D orthopedic maker in China.** 3D products being more advanced and difficult to make, provide more rigid structure and eliminate risk of coating shedding. It mimics actual human bone structure for better biological fusion of bone and prosthesis thanks to its high inter-connected porosity. Being the sole manufacturer of 3D-printed implants, AK has a massive first-mover advantage and the company intends to extend that lead with a complete 3D knee prosthesis expected to gain CFDA approval in 2H19.
- Core business feels strong tailwind.** Hip and joint implants are core products for AK, driving its top-line growth through constant development of new products to maintain a stable ASP. It also benefits heavily from favorable circumstances. Import substitution, insurance reimbursement and payment by sickness all favor domestic makers, allowing them to achieve above market growth through market share gain of imported players.
- Delay in pipeline approvals.** The company's success relies heavily on the productivity of its pipeline. Margin compression could worsen with each delay in key products. Some of its 3D customized products were originally expected to launch in 2H18, but has been delayed inevitably. We see this as a potential risk for future revenue drivers.
- Initiate with BUY.** Company has shown consistent top and bottom-line growth through product innovation with heavy R&D expense. It has allowed AK to maintain its market position while expanding its product offerings. We value the company using a 10-year DCF model with TP HK\$5.3, implying 26% upside, 21.7x FY19E PE and 4.4x FY19E PB.

Investment Summary

FY-end Dec	2016	2017	2018E	2019E	2020E
Turnover (RMB mn)	271	373	562	738	960
Chg (%)	31	38	51	31	30
Net Profit (RMB mn)	77	105	140	178	235
Chg (%)	19	36	33	27	32
EPS (RMB)	0.10	0.14	0.14	0.17	0.23
Chg (%)	19	35	(3)	27	32
P/E (x)	34.8	26.2	27.6	21.7	16.5
P/B (x)	10.7	4.8	5.4	4.4	3.6
P/OCF (x)	45.2	27.3	50.9	20.4	14.5
EV/EBITDA (x)	37.4	27.9	20.5	16.6	12.6
DPS (RMB)	-	-	-	-	-
Yield (%)	-	-	-	-	-

Source: Company data, Orient Securities (Hong Kong)

BUY
Share Price
HK\$4.20
Target Price
HK\$5.30

China / Healthcare / Equipment

18 March 2019

Matthew Law (SFC CE:BDJ462)

(852) 3519 1299

matthew.law@dfzq.com.hk

Latest Key Data

Total shares outstanding (mn)	1,037
Market capitalization (HK\$m)	4,355
Enterprise value (HK\$m)	3,820
12M daily average turnover (HK\$m)	25.6
12M volatility (%)	51.3
PEG FY18-20E (X)	0.9
RoE avg FY18-20E (%)	17.6
P/B FY18E (x)	4.8
Net debt/equity FY18E (%)	net cash

Performance (%)

	1M	YTD	12M
Absolute	(2)	(3)	0
Relative to HSI	(7)	(16)	8

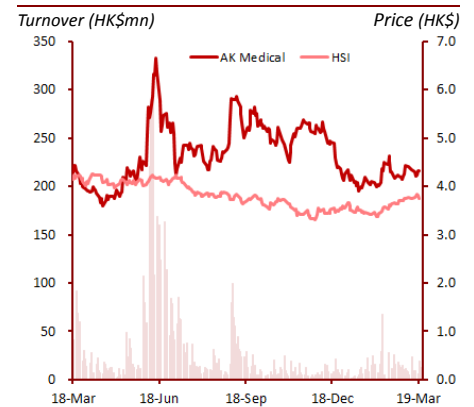
Major Shareholders (%)

Li Zhijiang	57.4
Orbimed	7.5

Auditor

KPMG

Price Chart



Source: Bloomberg, Orient Securities (Hong Kong)

Number one player in domestic market

Top player in China's orthopedic implant market

AK Medical was founded in Beijing in 2003 as a company engaged in sales and development of orthopedic implants. Within two years of establishment, the company has already launched two core product lines, one each in hip and knee joint implants. AK is also the first and only company to receive CFDA approval for 3D printed orthopedic joint and spine replacement implants. In 2017, AK was ranked 1st in market share by sales volume with 15% and 5th in revenue with 8%, making it one of the largest domestic orthopedic joint implant companies in China.

Figure 1: China orthopedic joint implant revenue

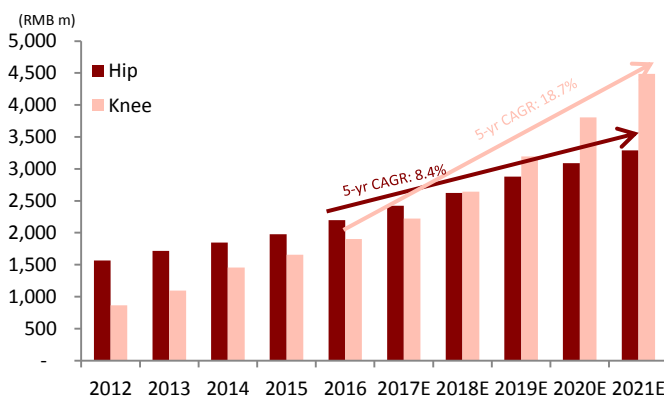
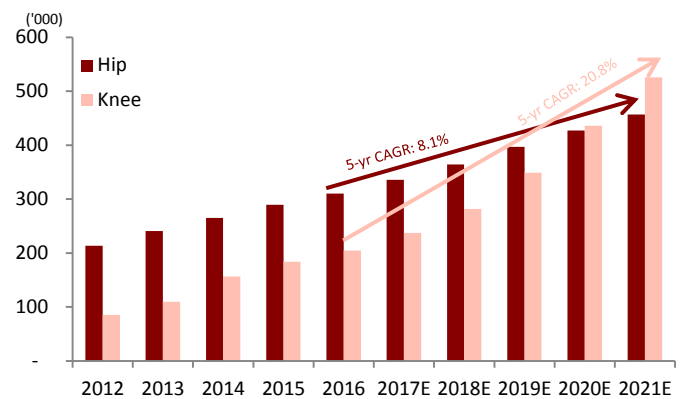


Figure 2: China orthopedic joint implant volume



Source: Frost & Sullivan, Orient Securities (Hong Kong)

Figure 3: China's top 8 joint implant volume market share

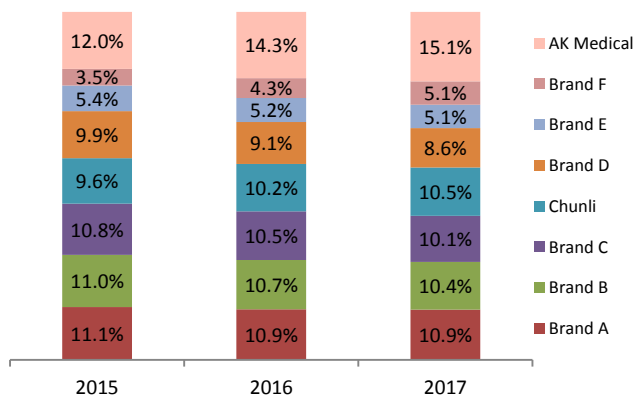
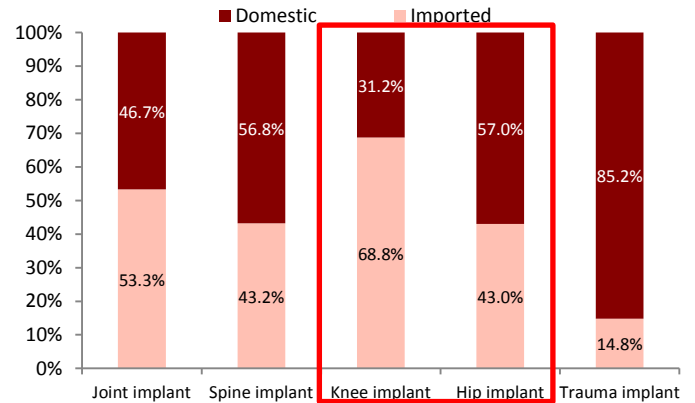


Figure 4: Orthopedic joint implant market share (domestic vs imported)



Source: Frost & Sullivan, Bloomberg, Orient Securities (Hong Kong)

Market share: #1 amongst domestic orthopedic implant makers

AK has been steadily gaining market share from its competitors. This is mainly attributed to beneficiary government policies allowing hospitals higher reimbursement for domestically made compared to imported medical equipments and lower ex-factory prices. With tighter medical insurance control fees, hospitals are more inclined to use domestically made medical equipments.

Imported companies have significantly larger market share in hip implants due to it having a higher technological barrier compared to knee implants. This is an area where we see an opportunity for AK to distance themselves from their domestic peers, either through its current R&D commitment or company acquisition with existing technology.

Staying ahead of its competition with better products

More Class III certificates and a stronger R&D team

Compared to its main competitor Chunli, AK is seeing stronger revenue growth in the future, thanks to its JRI acquisition in Apr 18 and higher R&D commitment (9.7% vs Chunli's 7.0% of revenue) that creates a more productive pipeline. Chunli has relied on a larger sales team and aggressive promotion of its products at conventions and exhibitions to drive sales growth, resulting in overall lower profit margins.

Figure 5: Key cost items % revenue (AK vs. Chunli)

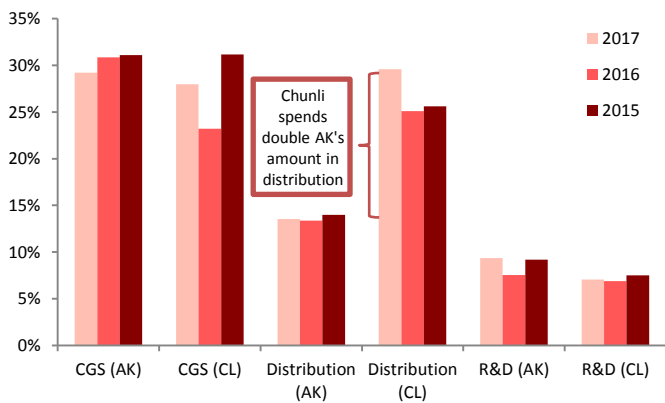
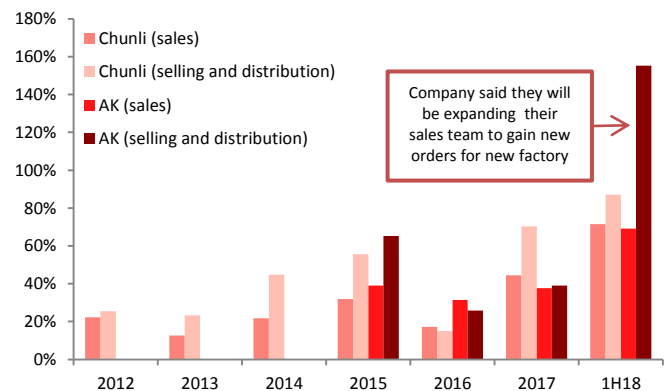


Figure 6: Selling and sales YoY growth (AK vs. Chunli)



Source: Bloomberg, Company data, Orient Securities (Hong Kong)

Product-first mentality drives profitability

Amongst orthopedic joint companies, AK holds the most Class III medical device certificates approved by CFDA with 26 compared to 10 held by Chunli who has a total of 16 certificates. This gap in acquired certificates stems from a product-first mentality, a continuous commitment in R&D to create a productive pipeline. AK achieves this by spending 9-10% of its revenue annually on R&D, a significant step up over its main competitor, who emphasizes more on sales and marketing.

Chunli's selling and distribution cost has grown at average of 39% from 2012-17, while its revenue has only grown 25%. Compared to AK, who's selling and distribution has grown at average of 43% from 2015-17 while having a much closer sales growth of 36% in same period. The effect can be seen in Chunli's precipitous decline in OPM from 43% in 2011 to 26% in 2017, while AK's OPM narrowing is an effect of company's expansion in anticipation of gaining new customers to fulfill its new factory opening this year.

Figure 7: AK % selling & distribution vs OPM/NPM

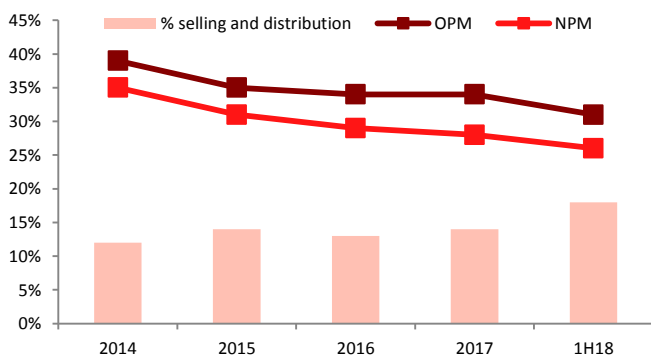
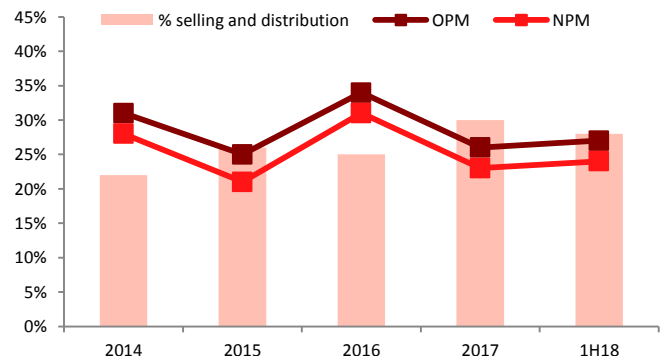


Figure 8: Chunli % selling & distribution vs OPM/NPM



Source: Company data, Orient Securities (Hong Kong)

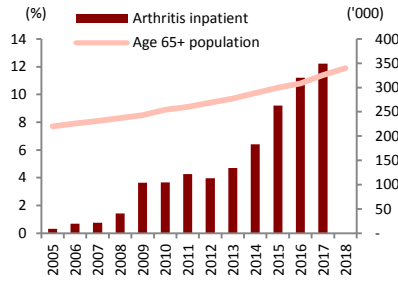
Ageing population leads to more cases of osteoarthritis

Osteoarthritis cases to increase with ageing population

When searching for common diseases for joint pain, osteoarthritis (OA) is at the top of the list. Osteoarthritis occurs when cartilage between bone joints deteriorate overtime, caused by mechanical stress that could be related to a person’s work nature, old age or even being overweight can increase risk of the disease. In contrast to rheumatoid arthritis, which is an inflammatory disease, OA is considered a wear-and-tear disease.

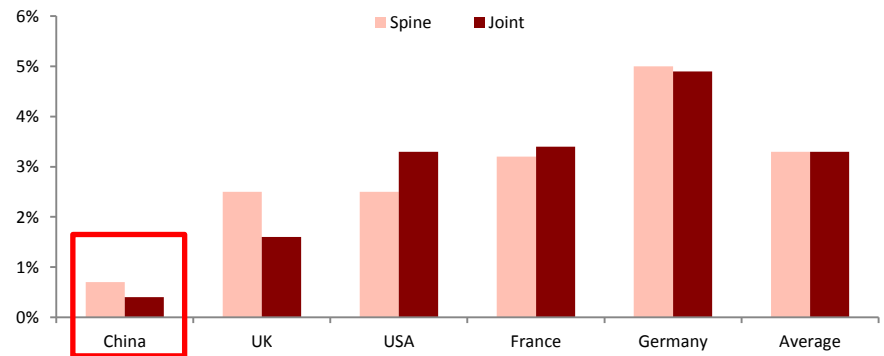
China’s elder population (ages over 65) is growing quickly, from accounting for 7.7% in 2005 to 11.9% in 2018, representing a 4% CAGR in 13 years in comparison to a 0.6% CAGR of the total population. The population over 65 has risen from 100m to 164m, and is expected to increase to as high as 25% of total population in 30 years. We are already seeing a growing number of inpatients related to arthritis diseases with a surge in 2009 and 2015, giving healthcare companies a big opportunity to service these patients.

Figure 9: Arthritis related inpatient visits vs 65+ population



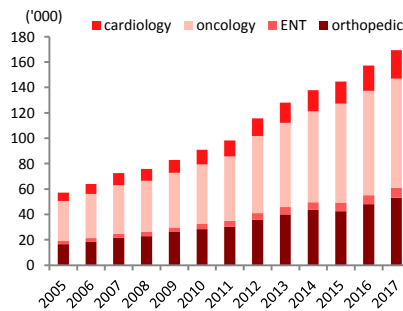
Source: Company Data, Orient Securities (Hong Kong)

Figure 10: Spine and joint implant penetration rate comparison



Source: Company data, Orient Securities (Hong Kong)

Figure 11: No. of doctors separated by specialty



Source: Company Data, Orient Securities (Hong Kong)

Shortage of orthopedic doctors

In addition to an ageing population, China’s penetration of orthopedic implants is very low compared to other first world countries such as USA and Germany. While technology and low disposable income is a factor, a major reason for China’s low implant penetration rate is a shortage of orthopedic doctors. The number of orthopedic doctors has grown at 10% CAGR in 2005-17, quicker than the already in high demand oncology.

China’s knee osteoarthritis prevalence rate is about 6-10% depending on age and respective area, which is in-line with global average. Rural cities in south-west region had highest prevalence rate of 13.7%, while north and east regions had lowest rate of 5.4%. Prevalence is lower amongst the more educated living in developed areas, as the inverse implies more labor intensive work and more difficulty having access to healthcare.

With greater access to affordable healthcare thanks to domestic implants priced 2-3x lower than imported implants, better supply of orthopedic surgeons and greater coverage in orthopedic specialty hospitals, China’s orthopedic orthopedic implant procedures is expected to increase by 12.4% annually from 2016-21, from 486,000 to 872,960 procedures.

Domestic knee implants has potential to overtake imported

Import brands still dominate knee market

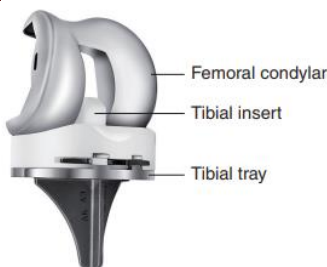
AK's two main products are hip and knee joint implants, accounting for 85% of 2017 revenue with hip sales (RMB215m) slightly more than double of knee (RMB102m). The China market for knee implants is still dominated by imported brands because of its relative higher technical difficulty compared to hip implants, hence domestic makers already account for more than 50% of the hip implant market.

Figure 12: Knee products

AK Knee	JPX	A3	A3 GT	ACCK
1 st gen knee implant	2 nd gen knee implant	3 rd gen knee implant	4 th gen knee implant	knee revision implant
Basic form of knee implant that is relatively more coarse on the components.	Based on last model with changes in femoral condyle being separated into left and right.	Reduced wear, allowed compatibility between different femoral condyle and tibial trays. Compatible with ACCK for revision surgery.	Improved version of A3 with tibial tray separted into left and right that increases tibial coverage and rotation alignment.	Can limit femoral condyle over rotating with heightened or thickened tibial insert thereby partially replacing function of lateral collateral ligament.
Posterior stabilized	Posterior stabilized	Posterior stabilized	Posterior stabilized or cruciate retaining	Posterior stabilized
(2004)	(2008)	(2012)	(2016)	(2012)

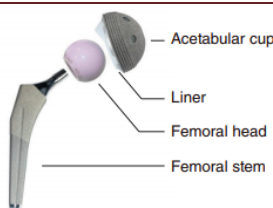
Source: Company data, Orient Securities (Hong Kong)

Figure 13: Primary knee implant surgery components



Source: Company Data, Orient Securities (Hong Kong)

Figure 14: Primary hip implant surgery components



Source: Company Data, Orient Securities (Hong Kong)

Each generation of knee implant brings new important features

AK has continuously improved and rolled out new models of knee implant to provide a more comprehensive product offering. In its current generation of A3/A3 GT knee implant models, the company offers 12 different femoral condyle and 13 tibial trays with all of them compatible with each other, catering to all different types of patients.

Through investing heavily into R&D, AK is able to maintain a relatively stable ASP from its new knee products (~RMB5,000) to offset price decline from tendering, with its revenue growth coming from volume side. This has helped the company generate a 36% 3-year CAGR from 2014-17, outpacing the sector's 15% growth with import substitution and advantageous government policy tailwind while steadily gaining more market share.

Domestic brands also enjoy higher reimbursements compared to imported brands, ranging from 5 to 25% depending on the city, while rural cities may only cover domestic brands of orthopedic joint implants.

Figure 15: Major city reimbursement %

	Beijing	Shanghai	Ningbo	Luoyang	Wuhan
Domestic	50-55%	70-75%	75-80%	65-70%	55-60%
Imported	25-30%	65-70%	60-65%	45-50%	40-45%




Source: Company data, Orient Securities (Hong Kong)

JRI acquisition to bolster hip sales growth

Rise in hospital admissions related to arthritis diseases

China's ageing population has led to increase in health issues associated with elderly people. Arthritis has seen a rapid rise with inpatient admission related to arthritis disease increase three-folds in last five years, with arthritis related disease admission account for 0.3% in 2005 of all inpatient admissions to 0.44% in 2017. With this rise in 65 and older population, osteoarthritis and rheumatoid arthritis patients will likewise increase, creating a surge in future demand for knee and hip replacements.

Figure 16: Hip products

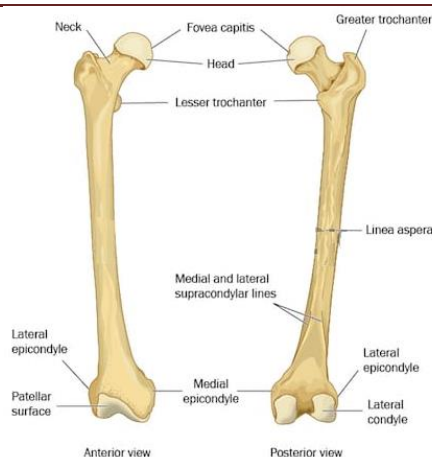
 ACP Stem	 MP Stem	 ML Stem
Cement femoral stem	Biological femoral stem	Biological femoral stem
2 models	8 models	24 models
High surface polishing allows wear between femoral stem and cement to be minimized. No high pain or osteolysis produced and no prosthesis loosening. Equipped with plug at distal end.	Titanium alloy stem with titanium plasma sprayed micro porous coating (pore diameter 100µm) to promote bone growth and increase bone integration to maintain long-term fixation of the prosthesis. Rough coated surface provides stability and closes medullary cavity, preventing wear particles falling in and reduce risk of thigh pain.	Titanium alloy stem with flat wedge design (pore diameter 200-300µm). Proximal fixation ensures anti-rotation stability. Shoulder design retains large amount of greater trochanter bone (Fig.17), allow easier implant of handle. 12 medullary cavity fittings prevents need to widen medullary cavity. Acetabular cup can be matched with both polyethylene and ceramic lining.
(2005)	(2007)	(2007)

Source: Frost & Sullivan, Orient Securities (Hong Kong)

Strong product portfolio to cater all hip implant needs

AK's latest M-series hip implants have been developed to include and provide multiple variations suited for different patients dependent on need and hip bone structure. Main difference to its predecessor A-series is the usage of biological femoral stem, allowing better bone integration and fixation, while its porous coating provides stronger stability and allows the prosthesis to have higher longevity.

Figure 17: Primary knee surgery components



Source: Company Data, Orient Securities (Hong Kong)

JRI acquisition to bolster hip product offering




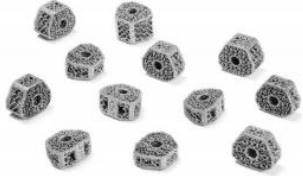
AK made an important transaction in Apr 18, acquiring UK's orthopedic company JRI. JRI's main product categories are hip, shoulders and orthobiologics. Its hip implants include Avanteon, a highly polished femoral stem combined with cobalt-chromium femoral head, and Furlong Hip System, a fully H-A.C (hydroxyapatite ceramic is a bone substitute) coated stem that enables osseointegration along full length of the stem for optimal biological fixation.

JRI reported nine months revenue of £10.6m (~RMB93.2m) with net profit of £0.5m (~RMB4.3m). The acquisition was made at 25.7x PE and 1.5x PB with total acquisition cost of £16.7m (~RMB147.7m).

3D products offer distinct edge over competitors

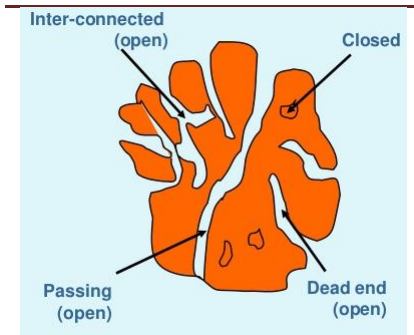
In 2015, AK became the first and only company in China to obtain CFDA registration certificate for 3D-printed orthopedic joint and spine replacement implants. Their 3D implants with trabecular structure are considered better for biological fusion of bone and prosthesis due to its high inter-connected porosity in mimicking human bone complexity.

Figure 18: 3D products

			
Acetabular cup	Filler block	Artificial vertebral body	Spinal interbody cages
Titanium alloy porous acetabular cup (pore diameter 600-800µm) with inter-connected open porosity (Fig.19). High porosity with average porosity of 80%.	Titanium alloy bone trabecular structure with various models and thickness to fill different bone defects.	Has similar elasticity as cancellous bones, providing biocompatibility and stability. Used for treatment of various spinal diseases such as spinal tumors, spinal tuberculosis, degenerative disease and trauma.	
(2015)	(2015)	(2016)	(2016)

Source: Company data, Orient Securities (Hong Kong)

Figure 19: Type of porosity



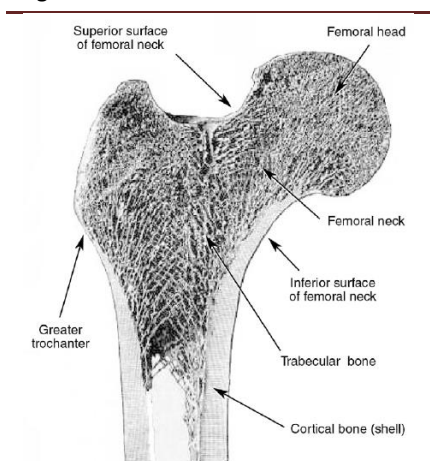
Source: F. Rouquerol, J. Rouquerol, K. S. W. Sing, Orient Securities (Hong Kong)

3D products more accurately mimics natural bone structure

Through advanced production process with electron beam melting process, 3D products are created from one piece of molding, giving it more rigid structure and eliminate risk of coating shedding. This is achieved through trabecular structure, which occurs in femur where supportive and connective tissues grow following the stress lines of the bone (Fig. 20). At areas of higher stress, near femoral head, maximum trabecula is developed.

Due to the technical difficulty and high product quality, 3D products command higher prices than conventional products. Company intends to launch 6 new 3D products in next two years, with most already in post-clinical trial stage. These new products will include a complete 3D knee prosthesis suited for primary and revision surgery, which will significantly improve the company’s 3D product offerings.

Figure 20: Trabecular structure

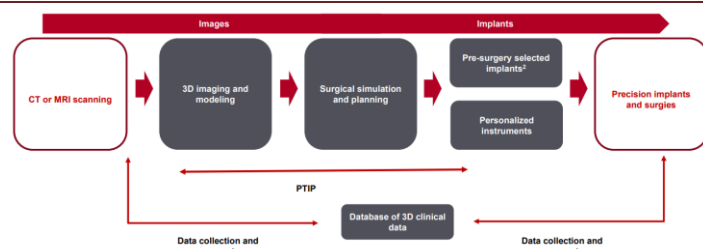


Source: M. Kleinberger, Orient Securities (Hong Kong)

3D ACT Solutions

To complement its 3D products, AK developed a proprietary program to assist surgeons in simulating and planning implant surgeries called 3D Accurate Construction Technology solutions (“3D ACT solutions”). Application is mostly used for revision and complicated surgeries, allowing surgeons to produce 3D images based on patients’ 2D affected bones images for selecting appropriate implant products and surgical instruments.

Figure 21: 3D ACT Solutions



Source: Company data, Orient Securities (Hong Kong)

Future pipeline remains robust

AK has a robust pipeline amongst its upcoming products with the highlight being the TMK knee prosthesis, a completely 3D-printed knee prosthesis suited for primary and revision surgeries. Based on its current 3D vs. non-3D products, the price difference is roughly 2-3x. Following the launch of TMK knee prosthesis, we expect 3D revenue contribution to increase substantially once the company receives CFDA approval, which should happen within 2H19.

Figure 22: Pipeline of upcoming products

	Product Name	Application	Features	Expected Launch Date
Post-Clinical Trial	Hip Prosthesis – Biological Acetabular System & Stem	Hip replacement of (1) noninflammatory degenerative joint diseases; (2) rheumatoid arthritis; (3) functional deformity correction; (4) nonunion of proximal femur; (5) femoral neck fracture; (6) femoral intertrochanteric fractures	(1) metal acetabula with coating of titanium beads; (2) combination of cup and liners providing various interfaces	Q3 2018
	3D Customized cervical fusion system	For bone filling and reconstruction for treatment of spine bone defects resulting from bone tumors or other causes	Customized 3D-printed	Q3 2018
	3D Customized pelvis	For bone filling and reconstruction of pelvis for bone defects resulting from removal of bone tumors	Customized 3D-printed	Q4 2018
	TMK Knee Prosthesis	Sophisticated primary surgeries and revision surgeries for treatment of severe knee joint bone defects	3D-printed	2019
	Metallic Bone Screws	For internal fixation of orthopedic surgeries	All kinds of metallic screws in joint surgeries	2019
In Clinical Trial or Pending Pre-clinical Trial Approval	Self-stabilizing Artificial Vertebral Body	Plate for bone ingrowth in (1) bone tumors; (2) fractures; (3) biomechanical integrity restoration after resection of vertebra; (4) loss of vertebral heights; (5) pseudoarthrosis; (6) previous fusion failures	(1) 3D-printed; (2) self-locking; (3) reduced bone, tissue and cartilage removal	2020

Source: Company data, Orient Securities (Hong Kong)

Figure 23: TMK knee prosthesis



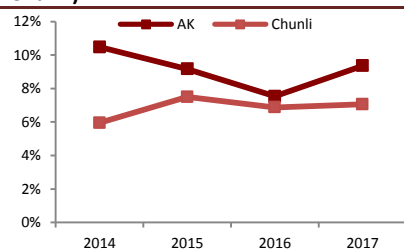
Source: Company Data, Orient Securities (Hong Kong)

With a strong focus in R&D and a dedicated team of 61 members, the company is able to grow its portfolio of patents and certificates. It currently holds 29 CFDA Class III medical device certificates compared to 10 held by Chunli, which can be attributed to the higher R&D investment AK spends relative to its revenue (9% vs 7%).

Future product plans for R&D

After securing CFDA certificates for the products listed above, the company intends to expand into other new 3D orthopedic areas including maxillofacial and customized products as they see a rise in demand for personalized 3D orthopedic solutions and want to capitalize on their first-mover advantage in 3D products. Leveraging on their extensive experience in hip and knee replacement implants, AK believes they are well-positioned to capture opportunities in other orthopedic product market sectors.

Figure 24: R&D % revenue (AK vs Chunli)



Source: Company Data, Orient Securities (Hong Kong)

Figure 25: Products in future R&D plan



3D-printed maxillofacial orthopedic product



3D-printed personalized products

Source: Company data, Orient Securities (Hong Kong)

New products ensure margins remain stable

Strong growth seen across all core products

Amongst the three core segments (hip, knee, 3D), hip will lead top-line growth from continued strong domestic demand for hip implants and contribution from recently acquired JRI, followed by knee implants that is still benefiting from A3 GT's release in 2016. 3D products will continue to see very strong growth in 2018, but is expected to slowdown from its initial high growth stage.

- We forecast hip sales to grow at 39% CAGR in 2018-2020E driven by continued strong sales of M-series femoral stems and JRI's overseas contribution.
- Knee sales growth expectations are at 32% for 2018-2020E with growth coming from A3 and A3 GT domestic sales and A3 GT US sales starting 2019.
- 3D sales are forecasted to achieve 50% CAGR in 2018-2020E, largely driven by TMK knee's anticipated sales in 2020 after receiving CFDA approval in 2H19.

Figure 26: Revenue growth rate and key cost assumptions

(%)	2014	2015	2016	2017	2018E	2019E	2020E
Revenue YoY growth	n.a.	39	31	38	51	31	30
CGS (% revenue)	(32)	(31)	(31)	(29)	(30)	(30)	(30)
Distribution (% revenue)	(12)	(14)	(13)	(14)	(18)	(18)	(18)
R&D (% revenue)	(10)	(9)	(8)	(9)	(10)	(10)	(10)

Source: Company data, Orient Securities (Hong Kong)

Operating and net margins will see some effect from pricing pressure

We anticipate a small decline in operating and net margins following JRI consolidation. Combined with higher distribution cost, we forecast EBIT margin to decline by 5bps to 29% and net margin to decline by 3bps to 25% in 2018, but to remain at stable level. In the current heavy pricing pressure environment, companies without new CFDA certificates will face heavy ASP decline. Due to AK's robust pipeline, we expect margins to be less susceptible to decline relative to its peers and will remain flat going forward.

Figure 27: Key margins

(%)	2014	2015	2016	2017	2018E	2019E	2020E
Gross margin	68	69	69	71	70	70	70
EBITDA margin	42	38	38	37	33	31	32
EBIT margin	39	35	34	34	29	28	29
Net margin	35	31	29	28	25	24	25

Source: Company data, Orient Securities (Hong Kong)

Distribution cost to rise with larger sales team

While distribution cost has historically been a steady 12-14% of revenue, we have already seen a significant rise in 1H18 to 18%. This is reflected in company's plan to fend off its competitors' aggressive sales and marketing strategy and intends to maintain this level of distribution cost going forward. While it may slightly compress margins, we believe the larger sales team will pose better long-term benefits as the company's product portfolio continues to increase in size and its new manufacturing plant is set to come online this year, which will require new orders to fully utilize its new capacity.

Further acquisitions possible with ample cash reserve

Major cash reserves could prompt second acquisition

Through its regular sales activities, AK generates roughly RMB120-150m in annual operating cash flow. As a debt free company, majority of this profit is kept as cash on balance sheet while small amounts is used to replenish equipments and maintenance capex. Even after acquiring JRI for £16.7m (~RMB147.7m), the company still holds RMB430m in cash. We believe it is possible for more acquisitions to take place.

- Company maintains a product focused strategy, allowing the R&D to develop a strong pipeline, creating products that will drive company's future sales growth.
- A small dividend payout would be insignificant and not the best utilization of its cash reserves, while company is also not ready to make massive payouts.
- Following completion of its Changzhou factory, there will be no other major outstanding capex projects. Therefore we believe a second major acquisition would be more likely, especially a horizontal acquisition.

Figure 28: Net cash and net gearing position

(RMB m)	2014	2015	2016	2017	2018E	2019E	2020E
Cash and cash equivalent	113	100	161	517	538	658	832
Borrowings	-	-	-	-	-	-	-
Net debt/(cash)	(111)	(98)	(157)	(513)	(538)	(658)	(832)
Net gearing (%)	NC	NC	NC	NC	NC	NC	NC

Source: Company data, Orient Securities (Hong Kong)

Alternative to full-on acquisitions

Outside of acquisitions, we believe the company could invest in other medical companies in order to utilize idle cash and to create collaboration opportunities with its business. Not only would the investment generate returns as profit of JV & associates, but could also possibly see dividends as part of the investment. This form of investment would not pose integration risk and provides a solid profit contribution.

- There are companies that provide upstream services to AK that are possible candidates for investment, such as metal alloy suppliers and coating suppliers.
- Besides investing in directly related businesses, the company could look to same industry makers in different subsectors such as trauma and spine to diversify their product offerings through collaboration.

Figure 29: Cash flow forecast

(RMB m)	2016	2017	2018E	2019E	2020E
Operating cash flow	70	117	86	214	300
Capex	(30)	(51)	(123)	(18)	(84)
Investing cash flow	(27)	(51)	(86)	(65)	(91)
Borrowings	-	-	-	-	-
Dividends paid	-	-	-	-	-
Financing cash flow	14	295	3	-	-
Free cash flow	24	49	(60)	168	178

Source: Company data, Orient Securities (Hong Kong)

Stiffer competition raises receivable days

Competition is driving increase in receivable days

The core of AK's assets after cash is comprised of PPE, inventory and trade receivables, each accounting for 12-15% of total assets with receivables being biggest risk in terms of external influence. Allowance for doubtful debts represents 3-5% of total outstanding receivables, which is at an acceptable level. Impairment for losses of receivables is about 1-2% of all outstanding trade receivables, no sign of repayment difficulty from debtors.

Figure 30: Key balance sheet items

(RMB m)	2014	2015	2016	2017	2018E	2019E	2020E
Trade and bill receivables	24	58	82	121	160	200	260
Cash and cash equivalent	113	100	161	517	538	658	832
Borrowings	-	-	-	-	-	-	-
Trade payables	49	98	96	174	200	251	345
Accruals and other payables	17	45	31	95	120	150	210

Source: Company data, Orient Securities (Hong Kong)

While company has no history of default on trade receivables, it is seeing an increase in its receivable days. Company's receivable days has increased from 38 days in 2014 to now almost reaching 100 days. The main reason for this longer period is due to effect of their distribution network expansion, allowing their distributor longer credit periods as they expect competition to intensify with their competitors.

Figure 31: Outstanding trade receivables and impairment losses

	2014	2015	2016	2017
Receivables over 12 months (RMB m)	0.7	0.5	4.5	3.8
Receivables over 12 months (% total receivables)	2.9%	0.9%	5.5%	3.2%
Impairment loss recognized (RMB m)	0.2	0.4	0.7	3.8
Impairment loss (% total receivables)	0.8%	0.7%	0.9%	3.1%

Source: Company data, Orient Securities (Hong Kong)

The RMB3.8m impairment loss recognized in 2017 is attributed to a single receivable of RMB2.6m, whose customers were deemed unable to repay their outstanding debt. This is a one-off encounter that we do not expect to recur frequently. We believe the impairment losses recorded each year will be less than 1% of total receivables.

Provision for sales return

AK does not accept returns from distributors without confining to their strict exchange policy, which allows returns if the returned product is resellable. Another situation where product exchange occurs is when AK is trying to promote new products or change product mix of distributors to satisfy local needs. AK's utilized provision for sales return has been very low at about RMB1-2m each year, or <1% of their total revenue.

Initiate with BUY at HK\$5.3 with 26% upside

DCF valuation

We base our valuation on a 10 year DCF model with a WACC of 11.3% (3.6% risk free, 14.1% risk premium, 0.73 beta) and using a terminal growth rate of 3%. Our target price of HK\$5.3 implies 21.7x FY19E PE and 4.4x FY19E PB.

Figure 32: DCF implied FY19E ratios

PE	21.7x
PB	4.4x
PE/G	0.9x

Source: Company data, Orient Securities (Hong Kong)

The WACC is broken down as follows: cost of equity of 11.3% (3.6% risk free, 14.1% risk premium, 0.73 beta), cost of debt of 4.0% (based on company's avg. interest rate). Our model assumes if there is financing, it is done through debt, as the company does not have any history of share placement or share issuance.

Figure 33: DCF forecast

(RMB m)	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
EBITDA	230	303	338	415	438	522	546	687	707	724
Change in working capital	(19)	(10)	(31)	(3)	(14)	29	(9)	(1)	(5)	(12)
Others	2	7	3	9	0	5	3	14	3	2
Operating cash flow	214	300	310	421	424	556	540	700	705	714
Capex	(18)	(84)	(30)	(36)	(274)	(392)	(102)	(107)	(101)	(112)
Taxes paid	(31)	(42)	(47)	(58)	(58)	(66)	(70)	(91)	(93)	(96)
Net finance expenses	2	2	3	3	4	5	5	6	7	8
Share of profits of associates	-	-	-	-	-	-	-	-	-	50
Other income and expenses	2	2	2	2	2	2	2	3	3	3
Free cash flow	168	178	237	332	98	105	376	511	519	517

Source: Company data, Orient Securities (Hong Kong)

Figure 34: WACC

Risk-free rate	3.6%
Market risk premium	14.1%
Beta	0.73
CoE	11.3%
CoD	4.0%
D/V	0%
E/V	100%
Tax rate	15%
WACC	11.3%

Source: Company Data, Orient Securities (Hong Kong)

Share price has pulled back 38% from its peak but has still outperformed its sector peers as they are not affected by drug price cuts. Valuation is undemanding with its core business expected to grow 35-40% in 2018-2020 while trading at below 30x PE. Initiate with BUY with 26% implied upside based on our DCF-based HK\$5.3 target price.

Figure 35: DCF sensitivity

(HK\$)	WACC	Terminal growth				
		2.0%	2.5%	3.0%	3.5%	4.0%
10.3%		5.6	5.8	6.1	6.3	6.6
10.8%		5.3	5.5	5.7	5.9	6.1
11.3%		5.0	5.2	5.3	5.5	5.7
11.8%		4.7	4.9	5.0	5.2	5.4
12.3%		4.5	4.6	4.7	4.9	5.0

Source: Company data, Orient Securities (Hong Kong)

Valuable table, PE PB bands

Figure 36: Valuation table

Company	Bloomberg Code	Price (Local Ccy)	Mkt Cap (US\$m)	PER (x)			PEG (x)	EV/EBITDA (x)		P/B (x)		Yield (%)	ROE (%)		Net Gearing (%)
				17A	18E	19E		17-19E	17A	18E	18E		17A	17A	
SHANDONG WEIGAO GP MEDICAL	1066 HK	7.2	4,141	15.1	19.7	16.7	6.0	16.2	1.8	1.5	13.7	net cash			
BEIJING CHUNLIZHENGDA	1858 HK	16.2	286	32.8	22.4	19.2	na	na	3.9	0.8	2.2	69.0			
GUANGDONG BIOLIGHT MEDITEC	300246 CH	14	298	35.3	na	na	na	na	3.7	0.4	9.7	14.6			
PW MEDTECH GROUP	1358 HK	1.2	230	14.9	7.0	6.1	16.6	3.5	0.4	na	46.1	12.4			
JIANG XI SANXIN MEDTEC CO-A	300453 CH	14.5	347	53.6	na	na	na	18.3	3.9	0.7	6.8	15.0			

Source: Orient Securities (Hong Kong), Bloomberg

Figure 37: PE chart


Source: Bloomberg, Orient Securities (Hong Kong)

Figure 38: PE standard deviation


Source: Bloomberg, Orient Securities (Hong Kong)

Figure 39: PB chart


Source: Bloomberg, Orient Securities (Hong Kong)

Figure 40: PB standard deviation


Source: Bloomberg, Orient Securities (Hong Kong)

Peers comparison table

Company	Ticker	Price (Local ccy)	Mkt Cap (HK\$ mn)	PER (x)			PEG (x)	EV/EBITDA (x)		P/B (x)	Yield (%)	ROE (%)	Net Gearing (%)
				17A	18E	19E	17-19E	17A	18E	18E	17A	17A	
SHANGHAI FOSUN PHARMACEUTI-H	2196 HK	27.85	84,523	18.0	19.8	16.8	1.6	22.1	3.3	1.5%	13.2	37%	
SINO BIOPHARMACEUTICAL	1177 HK	6.91	86,985	29.1	24.1	21.8	1.1	19.3	5.1	1.1%	25.4	net cash	
CSPC PHARMACEUTICAL GROUP LT	1093 HK	13.5	84,191	29.7	23.2	18.5	0.8	18.9	5.2	1.5%	21.8	net cash	
SINOPHARM GROUP CO-H	1099 HK	34.3	101,928	14.8	13.7	12.1	2.2	10.0	3.2	2.2%	15.8	11%	
SHANGHAI PHARMACEUTICALS-H	2607 HK	17.5	59,034	11.0	9.6	8.7	1.1	11.5	1.6	3.2%	10.7	15%	
CHINA RESOURCES PHARMACEUTIC	3320 HK	10.94	68,753	19.9	16.4	14.1	0.7	9.1	1.6	1.3%	8.8	26%	
GUANGZHOU BAIYUNSHAN PHARM	874 HK	32.95	69,750	21.4	12.1	14.1	na	24.8	3.0	1.7%	11.4	net cash	
LIVZON PHARMACEUTICAL GROU-H	1513 HK	28.65	27,255	14.6	15.2	13.3	na	30.0	2.3	1.8%	51.3	net cash	
CHINA MEDICAL SYSTEM HOLDING	867 HK	7.95	19,719	9.7	8.4	7.5	na	9.3	3.0	4.5%	24.8	14%	
SIHUAN PHARMACEUTICAL HLDGS	460 HK	1.64	15,533	8.8	8.3	7.5	na	5.1	1.6	3.0%	13.2	net cash	
CHINA TRADITIONAL CHINESE ME	570 HK	4.97	25,028	15.5	13.3	11.0	na	11.7	1.8	2.6%	9.7	2%	
LUYE PHARMA GROUP LTD	2186 HK	5.94	19,453	16.2	12.0	10.4	na	13.6	3.2	1.2%	14.9	net cash	
Average of HK listed pharmaceuticals				17.4	14.7	13.0	1.3	15.5	2.9	2.1%	18.4		
SHANDONG WEIGAO GP MEDICAL-H	1066 HK	7.17	32,425	15.1	19.7	16.7	6.0	16.2	1.8	1.5%	13.7	net cash	
SSY GROUP LTD	2005 HK	6.95	20,947	22.7	17.6	14.8	na	15.5	4.9	1.9%	23.6	14%	
MICROPORT SCIENTIFIC CORP	853 HK	7.51	12,034	73.3	48.4	23.6	4.3	20.4	3.1	0.5%	5.1	3%	
AK MEDICAL HOLDINGS LTD	1789 HK	4.2	4,372	24.7	27.6	21.7	na	27.9	5.4	0.0%	21.9	net cash	
Average of HK listed equipment companies				33.9	28.3	19.2	5.1	22.2	3.8	1.0%	16.1		
CHINA RESOURCES PHOENIX HEAL	1515 HK	5.5	7,132	15.2	15.0	14.8	na	8.6	1.2	2.1%	7.9	net cash	
C-MER EYE CARE HOLDINGS LTD	3309 HK	5.07	5,248	na	46.1	36.2	na	77.8	6.5	na	36.3	net cash	
NEW CENTURY HEALTHCARE HOLDI	1518 HK	5.78	2,832	29.7	30.6	27.9	na	22.4	2.9	na	11.5	net cash	
TOWN HEALTH INTERNATIONAL ME	3886 HK	0.69	5,193	na	na	na	na	-48.4	1.3	na	-2.6	net cash	
GUANGDONG KANGHUA HEALTHCA-H	3689 HK	6.36	2,127	11.2	10.7	8.6	na	4.4	2.0	3.1%	12.9	net cash	
UNION MEDICAL HEALTHCARE LTD	2138 HK	5.93	5,838	20.8	22.9	20.6	na	12.0	7.0	4.5%	34.9	net cash	
RICI HEALTHCARE HOLDINGS LTD	1526 HK	1.5	2,388	na	na	na	na	85.5	3.5	na	-6.7	0%	
Average of HK listed operators				19.2	25.1	21.6	na	23.2	3.5	3.2%	13.5		

Financial Statements & Forecast

Income Statement (consolidated)

FY-end Dec (RMB m)	2016	2017	2018E	2019E	2020E
Revenue	271	373	562	738	960
Knee replacement implants	83	102	142	185	231
Hip replacement implants	159	215	344	448	582
3D-printed products	12	33	50	75	113
3 rd party orthopedic products	11	15	18	22	26
Others	6	7	7	8	8
Cost of sales	(83)	(109)	(169)	(221)	(288)
Gross profit	187	264	393	517	672
Distribution expenses	(36)	(50)	(101)	(133)	(173)
Administrative expenses	(38)	(56)	(73)	(104)	(130)
R&D expenses	(20)	(35)	(56)	(74)	(96)
Other income	1	3	1	2	2
Operating profit	93	125	164	208	275
Finance cost	2	0	1	2	2
Share of profit of associates	-	-	-	-	-
Other expenses and losses	-	-	-	-	-
Profit before tax	95	125	165	210	277
Income tax expense	(18)	(20)	(25)	(31)	(42)
Net profit	77	105	140	178	235
Minority interest	-	-	-	-	-
Profit attributable to shareholder	77	105	140	178	235
EBITDA	102	137	187	230	303
EBIT	93	125	164	208	275
EPS (RMB)	0.10	0.14	0.14	0.17	0.23
DPS (RMB)	-	-	-	-	-

Cash Flow (consolidated)

FY-end Dec (RMB m)	2016	2017	2018E	2019E	2020E
Operating profit	93	125	164	208	275
Depreciation & amortization	9	12	23	22	28
Change in working capital	(40)	28	(113)	(19)	(10)
Others	7	(49)	12	2	7
Operating cash flow	70	117	86	214	300
Capex	(30)	(51)	(123)	(18)	(84)
Acquisitions/disposals	-	-	-	-	-
Investments	-	-	-	-	-
Others	3	0	37	(47)	(8)
Investing cash flow	(27)	(51)	(86)	(65)	(91)
Borrowings	-	-	-	-	-
Dividends paid	-	-	-	-	-
Others	14	295	3	-	-
Financing cash flow	14	295	3	-	-
Free cash flow	24	49	(60)	168	178
Net cash flow	57	361	3	149	209

Semi-Annual Breakdown

FY-end Dec (RMB m)	2H16	1H17	2H17	1H18	2H18E
Revenue	155	163	210	275	287
Gross profit	107	112	152	191	203
Operating profit	56	58	67	86	78
Pre-tax profit	56	58	67	88	77
Tax	(12)	(8)	(12)	(17)	(8)
Net profit	44	50	55	71	69
Gross margin (%)	69.1	68.7	72.4	69.4	70.6
Operating margin (%)	35.8	35.5	32.0	31.2	27.2
Effective tax rate (%)	21.7	14.0	17.7	18.8	10.6
Net margin (%)	28.4	30.8	26.3	26.0	24.0
EPS (RMB)	0.06	0.07	0.07	0.07	0.07
DPS (RMB)	-	-	-	-	-

Source: Company data, Orient Securities (Hong Kong)

Balance Sheet (consolidated)

FY-end Dec (RMB m)	2016	2017	2018E	2019E	2020E
Current assets	322	732	850	1,040	1,318
Inventories	68	87	133	160	200
Trade receivables	82	121	160	200	260
Other receivables	13	6	19	22	26
Cash & eqv.	161	517	538	658	832
Other current assets	-	-	-	-	-
Non-current assets	83	126	233	232	295
Property, plant & equipment	70	105	145	148	150
Intangible assets	7	10	41	34	68
Goodwill	-	-	29	29	49
Deferred tax assets	7	10	13	15	21
Other non-current assets	-	1	5	6	8
Total assets	406	858	1,084	1,272	1,613
Current liabilities	99	179	244	251	345
Trade payables	34	43	55	65	86
Accruals and other payables	31	95	120	150	210
Current taxation	9	13	25	36	49
Other current liabilities	25	28	44	-	-
Non-current liabilities	12	10	28	31	43
Deferred income liabilities	8	8	14	15	20
Deferred tax liabilities	4	2	13	15	22
Other non-current liabilities	-	-	1	1	1
Total liabilities	111	190	272	282	388
Share capital	0	8	8	8	8
Reserves	294	660	800	978	1214
Minority interest	0	0	3	3	3
Total equity	294	668	812	990	1,225
Total liabilities & equity	406	858	1,084	1,272	1,613

Key Ratios

FY-end Dec	2016	2017	2018E	2019E	2020E
Growth (%)					
Revenue	31	38	51	31	30
Gross profit	32	41	49	31	30
EBITDA	31	34	36	23	32
EBIT	28	34	31	27	32
Net profit	19	36	33	27	32
EPS	19	35	(3)	27	32
Margins (%)					
Gross profit	69	71	70	70	70
EBITDA	38	37	33	31	32
EBIT	34	34	29	28	29
Net profit	29	28	25	24	25
Others (%)					
Effective tax rate	19	16	15	15	15
Dividend payout ratio	0	0	0	0	0
ROE	31	21	17	18	19
ROA	21	16	13	13	14

Key Assumptions

FY-end Dec	2016	2017	2018E	2019E	2020E
Knee implants growth (%)	37.1	22.5	40.0	30.0	25.0
Hip implants growth (%)	19.7	35.5	60.0	30.0	30.0
3D-products growth (%)	1,044.4	175.7	50.0	50.0	50.0

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