aap Implantate AG

Germany - Health Care / Pharma

HAUCK & AUFHÄUSER
PRIVATBANKIERS SEIT 1796

Buy (initiation)

Price target: EUR 2.40

Price:	EUR 1.13	**Next result:**	FY'18: Feb. 2019 (prelim)
Bloomberg:	AA@GR	**Market cap:**	EUR 32.6 m
Reuters:	AAQG.DE	**Enterprise Value:**	EUR 28.3 m

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There's more than just one way to win – Initiate with BUY

In the past, owing to the lack of proper differentiation aap was a "me too" company offering products used for healing bone fractures in a market dominated by four large players that explain c. 70% of the market. **This is no longer the case**.

Following the decision to exit non-core activities, **aap fully concentrated on the faster growing segment of the trauma market** – extremities – and used divestment proceeds to fund a major R&D push.

The resulting innovations became the backbone of aap's business model. Amongst them, LOQTEQ is already a commercial solution featuring unique technology that makes aap's plates superior to alternatives: easier handling (i.e. fixation, removal) and hence better treatment outcomes.

Following years of onerous investments, **aap is yet to fully reap the benefits**. Thanks to the expanded indication coverage of LOQTEQ to >90%, aap is now listed at 8 major German hospital groups and is well equipped to make major inroads into the US market. This is evidenced by the ongoing discussions with global orthopedic firms.

This isn't likely to go unnoticed by the bigger players looking to further consolidate the market AND gain exposure to higher growth segments and promising innovations. In fact, the median 5x EV/Sales paid by a strategic buyer in the extremities market alone **would value aap's extremities business at € 80m**, implying € 2.8 per share.

But there is even more to it: aap's proprietary silver coating technology as a viable alternative to antibiotics is a game changer in the making, addressing a multi-billion dollar financial burden – surgical site infection – borne by healthcare systems. Yet, it receives little consideration from the capital market, likely due to its pre-market stage with an approval expected by the end of 2021 - beginning of 2022.

Nevertheless, given the sheer size of the issue at hand **silver coating undoubtedly carries a significant "option value"**. In our opinion, aap could easily receive € 10-20m consideration from a strategic buyer even ahead of the final approval comprised of € 6m of incurred development costs plus a premium.

That said, **aap is a gem with plenty of hidden value and a number of ways for it to be unlocked**. Our € 2.4 PT is the average of comparable transactions (€ 2.8) and SOTP (€ 2.0) comprised of DCF for LOQTEQ and strategic premium for silver coating.

Y/E 31.12 (EUR m)	2017	2018E	2019E	2020E	2021E	2022E	2023E
Sales	10.9	11.1	15.0	20.0	24.9	29.6	34.2
Sales growth	4 %	2 %	35 %	33 %	25 %	19 %	16 %
EBITDA	-6.2	-6.4	-3.2	-0.9	1.3	3.2	5.2
EBIT	-8.0	-8.2	-5.2	-2.9	-0.7	1.2	3.1
Net income	-8.9	-8.3	-5.3	-3.0	-0.8	0.9	2.2
Net debt	-12.1	-4.4	-2.7	0.4	1.4	1.3	0.3
Net gearing	-28.5 %	-12.8 %	-9.5 %	1.6 %	5.7 %	5.4 %	1.1 %
Net Debt/EBITDA	0.0	0.0	0.0	-0.4	1.1	0.4	0.1
EPS pro forma	-0.32	-0.29	-0.18	-0.10	-0.03	0.03	0.08
CPS	-0.25	-0.23	-0.08	-0.06	0.03	0.07	0.09
DPS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dividend yield	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Gross profit margin	81.9 %	79.0 %	79.6 %	80.2 %	80.8 %	81.4 %	82.0 %
EBITDA margin	-53.2 %	-49.4 %	-18.3 %	-4.0 %	4.7 %	10.1 %	15.0 %
EBIT margin	-68.5 %	-63.5 %	-29.9 %	-13.0 %	-2.7 %	3.9 %	9.0 %
ROCE	-15.5 %	-20.5 %	-15.9 %	-9.2 %	-2.6 %	4.5 %	11.2 %
EV/sales	1.9	2.5	2.0	1.7	1.4	1.1	1.0
EV/EBITDA	n/a	n/a	n/a	n/a	26.2	10.6	6.3
EV/EBIT	n/a	n/a	n/a	n/a	n/a	27.4	10.5
PER	-3.5	-4.0	-6.2	-11.1	-43.4	38.3	15.0
Adjusted FCF yield	-49.1 %	-28.5 %	-13.5 %	-4.9 %	1.8 %	6.1 %	10.4 %

Source: Company data, Hauck & Aufhäuser Close price as of: 03.12.2018

Source: Company data, Hauck & Aufhäuser

High/low 52 weeks:	2.14 / 1.09
Price/Book Ratio:	1.0
Relative performance (SDAX):	
3 months	-
6 months	-
12 months	-

Changes in estimates

	Sales	EBIT	EPS

Key share data:

Number of shares: (in m pcs)	28.7
Authorised capital: (in € m)	7.0
Book value per share: (in €)	1.2
Ø trading volume: (12 months)	7,448

Major shareholders:

Free Float	48.7 %
Ratio Capital Management BV	15.8 %
Noes Beeheer B.V.	11.7 %
Jürgen W. Krebs	11.6 %
Taaleri Wealth Management	6.8 %
Deepblue Holding AG	5.4 %

Company description:
Pure-play trauma company focusing on the extremities market

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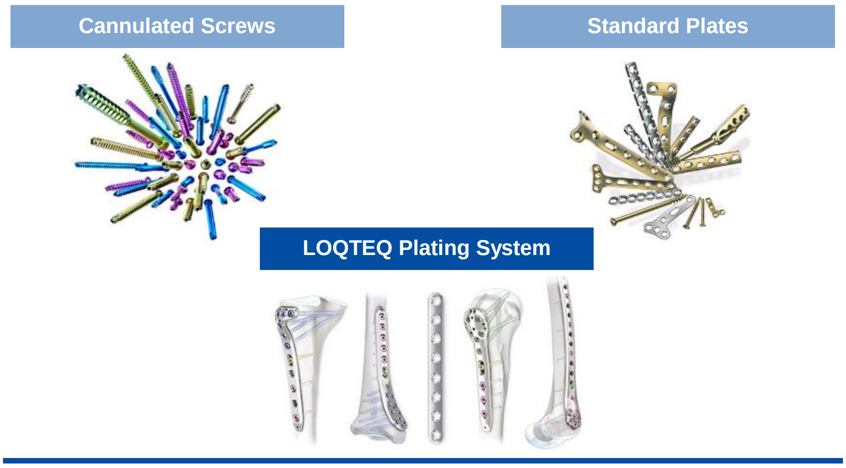
Introducing aap Implantate

aap Implantate (aap) is an international pure-play trauma company with a focus on the more dynamically growing segment of orthopedics addressing upper and lower extremities (i.e. bones close to joints).

Its focused approach facilitates innovations that make trauma treatment better and more cost effective.

aap supplies hospitals and hospital groups with fracture sets containing **a wide range of metal plates and screws** used to treat various types of bone fractures.

Trauma product offering



Source: Company data; Hauck & Aufhäuser

The distribution takes place via a number of channels depending on the region (based on FY’17 figures):

- **Germany (23% of sales) – direct sales to hospitals, hospital groups and buying syndicates**. In Germany aap follows a consignment revenue model. Essentially, aap places a case filled with metal plates and screws at hospitals and is required to maintain certain minimum product availability. This means that the inventory risk stays with aap until the product is used in a surgery. Likewise, revenue is only recognized upon the product consumption.

- **International markets (48% of sales) – independent distributors**. Here, aap follows a concession model and sells directly to independent dealers who in turn supply clinics and hospitals. In this case, revenue is recognized immediately following the transfer of products to distributors.

- **North America (29% of sales) – hybrid distribution**. In North America, aap uses a hybrid distribution model. Distribution takes place via agents (80% non-stocking; 20% stocking) and through partnerships with global orthopedic companies on a stocking basis. Revenue with non-stocking distributors is realized based on the consignment model, while stocking distributors and global partners follow the concession model.

In sum, as of FY’17, **42% of revenue was generated through consignment** (i.e. exposed to inventory risk) and **58% through concession revenue model** (i.e. not exposed to inventory risk).

Early days

The **origins of aap date back to 1990 when it was founded via an MBO out of Mecron**, a subsidiary of Johnson&Johnson. Nine years later, in 1999, it went public with the goal to diversify its exposure by expanding into adjacent businesses, such as biomaterials and contract manufacturing.

This strategy, however, failed to create value as sales and earnings fell short of expectations due to the lack of focus and proper differentiation in trauma and limited room for innovation in biomaterials (e.g. cement). This made it difficult to establish a meaningful presence in any of these segments.

Back to origins with reinforced focus on innovation

In response, the management team headed by Mr. Bruke Seyoum Alemu (CEO since 2014) pushed forward with **reverting aap's focus back towards the "core" trauma business**. By the end of 2016, all the peripheral business activities, such as biomaterials, contract manufacturing, etc. where divested.

The lion's share of >€ 35m of accumulated divestment proceeds was successfully invested in **three synergetic R&D projects** that are seen to strongly enhance the appeal of aap's trauma offering.

As such, the **primary focus of R&D was placed on unmet needs in trauma surgery**: 1) simplification of operation techniques, 2) reduction of surgical site infection (SSI) caused by implants, 3) avoidance of second operations.

This led to the emergence of the following innovations that form the key pillars of aap's investment case:

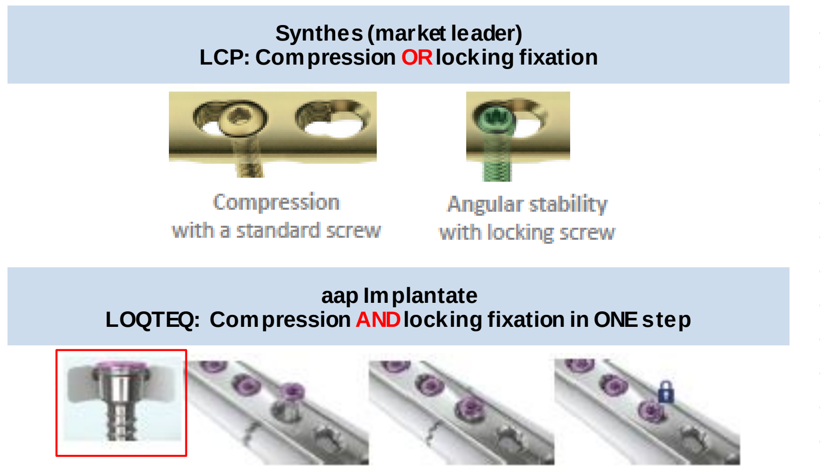
1 LOQTEQ – compressing and locking fixation in one step

LOQTEQ is a proprietary technology of aap featuring a unique incremental innovation to the industry standard of plating systems, offering greater benefits for surgeons and patients alike.

As such, **it enables the simultaneous compression of the fractured bone while providing angular stability in one surgical step**. This combined feature is not possible with the industry standard.

This is possible thanks to the **unique design and geometry of screws and screw-holes**, which form the core IP-protected feature of the technology.

aap's LOQTEQ vs. the market leader Synthes



Source: Company data; Hauck & Aufhäuser

This makes **LOQTEQ a superior solution and brings a number of benefits**:

- First and foremost, **it simplifies the surgeon's workflow as he can use the same screw and the same instruments in one surgical procedure**, which is especially valuable when operating under stress conditions (i.e. treating a car accident victim).

- Secondly, **greater stability and more rigid fixation** is achieved as each applied screw performs a double function (locking and compression). This in turn facilitates the surgery procedure.

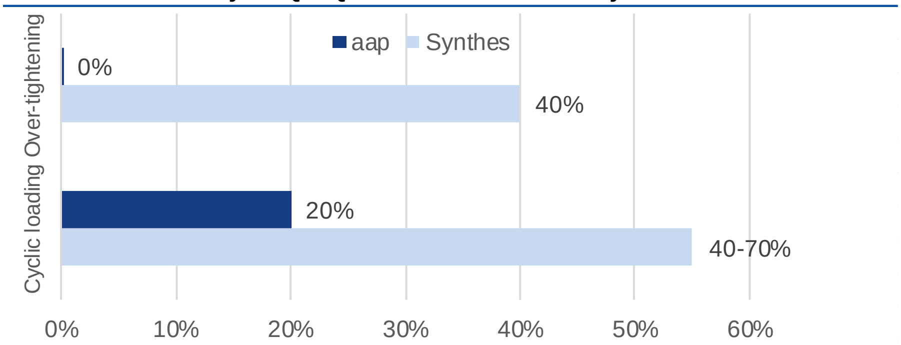
- Lastly, but **the most important benefit of LOQTEQ is the prevention of screw seizing in locking pate implants**. Screw seizing is an unwanted reaction which leads to a rigid fixation of planting systems in a patient's body. Oftentimes, surgeons have to use additional instruments or even drill out the entire screw creating metal shavings in the process. This not only complicates the removal process, but also significantly increases health risk for patients as well as treatment time and costs.

  Thanks to the design of the screws and plates, which is based on an internally developed intellectual property of aap, **the risk of screw seizing is strongly reduced**.

  The recent biomechanical study is case in point. In fact, the study confirmed **LOQTEQ's superior explantation properties compared to the market leader**.

  Specifically, the study assessed the removal torque before and after cyclic dynamic loading (simulates patient's activity during daily living) for screws inserted at the manufacturer's recommended torque or at an increased insertion torque. In both cases, **LOQTEQ screws have proven to require less removal torques than the ones from Synthes**.

Biomechanical study: LOQTEQ vs. the market leader Synthes



Over-tightening resulted in **40% increase in the required removal torque of Synthes'** screws, whereas **no increase in the required removal torque was registered for LOQTEQ**

40-70% higher removal torque of the locking strew s was registered for Synthes' screws after cyclic loading, w hereas **only 20% increase was registed for LOQTEQ**

Source: Company data; Hauck & Aufhäuser

Torque measures the amount of force applied on an object that causes it to rotate.

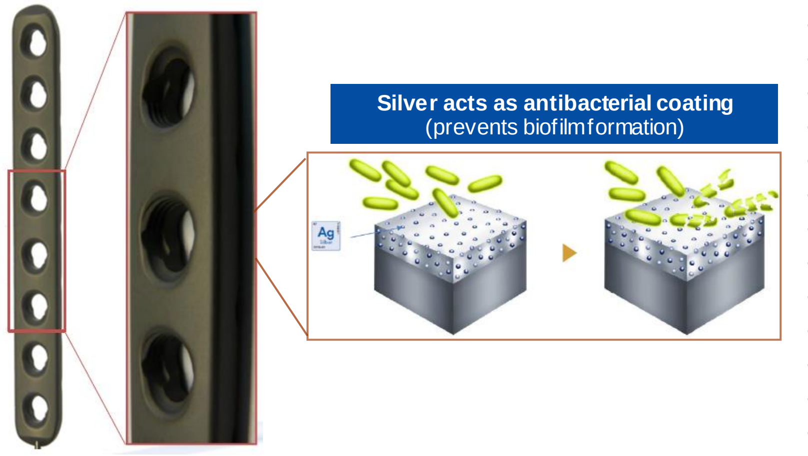
2 Silver coating technology

Silver coating is potentially a **revolutionary technology addressing a multi-billion dollar challenge** in orthopedic surgery: surgical site infection (SSI), faced by healthcare systems around the world.

SSI is a microbial contamination of the surgical wound, which causes increased morbidity, mortality, extended hospital in-patient stays, and high economic burden to the hospital resources. **The estimated economic costs of SSI run into billions of dollars annually** (see Theme).

Hence, with its innovative technology **aap may revolutionise the way SSI can be prevented** by replacing commonly used antibiotics. As bacteria mutate they naturally develop resistance to antibiotics and hence a viable alternative is bound to be embraced by the medical community. This not only would improve treatment outcomes, but could drastically reduce the health care costs associated with SSI.

Silver coating technology



Source: Company data; Hauck & Aufhäuser

How silver coating works: Silver coating applied onto plates and screws using a proprietary process prevents formation of biofilm, which is a perfect breeding ground for bacteria, and hence **significantly reduces the risk of infection**.

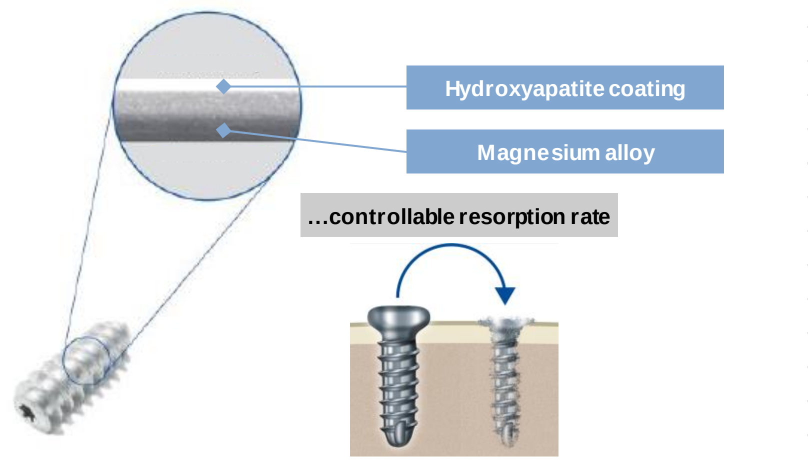
The silver coating technology has been successfully tested on animals and is now in preparation for the clinical human study with approval expected by the end of 2021 to the beginning of 2022.

Importantly, **silver coating is a platform technology and hence is not limited to the trauma market**, but potentially may be applied in a number of other industries (e.g. cardiology, dentistry, medical instruments, etc.).

3 Magnesium technology

Magnesium technology addresses another prominent challenge in traumatology – **avoiding the need for a second operation** – and is currently in the development stage.

Magnesium technology

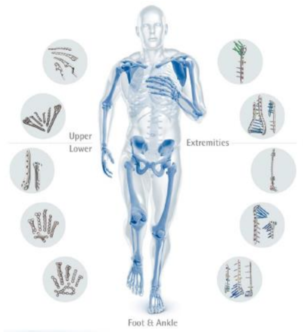
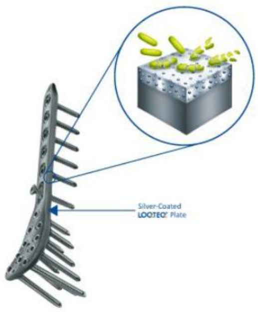
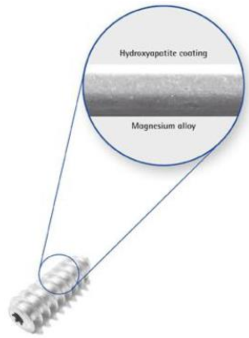
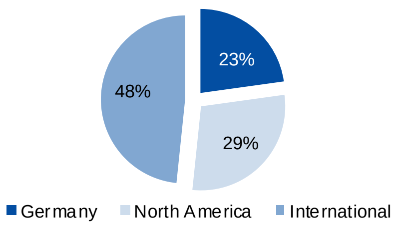
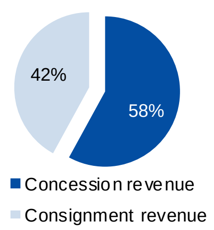


Source: Company data; Hauck & Aufhäuser

By producing bioabsorbable implants with the help of magnesium technology the need for a second surgery required to remove the implant is eliminated.

While this technology is already available on the market (with limited application in trauma) and is typically used in the smallest parts of the body (e.g. hand, foot), **aap brings something unique to the table**.

As such, aap's magnesium implants are additionally coated with so-called hydropxyapatite. This helped aap to reach a **more favorable resorption profile** (e.g. slower corrosion in the beginning), which generally bodes well for the healing process.

	LOQTEQ technology	Silver coating technology	Magnesium technology	Group
Products	Anatomical plates for the upper and lower extremities (treatment of fractures)	Stable coating with high antibacterial efficacy	Coated resorbable magnesium implants	
				
Sales '23E (€m)	34.2	*in approval process*	*under development*	**34.2**
Sales share	100%	n/a	n/a	**100%**
End markets	Trauma market	Trauma, cardiology, dentistry, medical instruments, etc.	Trauma, facial surgery, sports medicine, pediatrics, etc.	
Market positions				
Customers	Hospital, hospital groups, OEMs, global orthopedic companies, stocking distributors	Potential customers: Hospital, hospital groups, OEMs, global orthopedic companies, stocking distributors		
Competitors	DePuy Synthes, Stryker, Zimmer Biomet, Smith & Nephew, Königsee, Medartis, Axomed			
Sales distribution by region (17)				
Production sites		Germany		
EBIT '23E (€m)				**3.1**
EBIT-margin				**9.2%**
ROCE '23E				**11.1%**

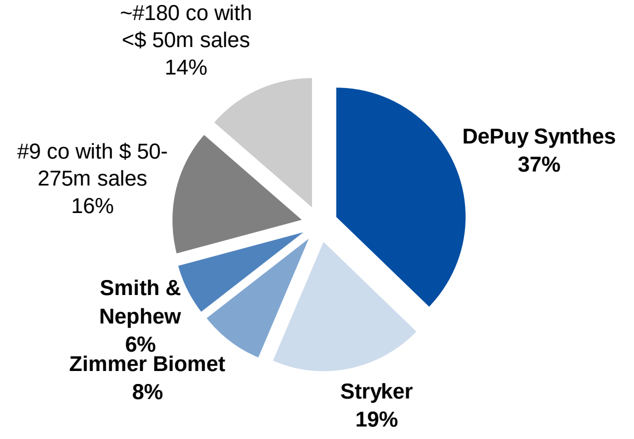
Source: Company data; Hauck & Aufhäuser

Competitive Quality

The trauma market is characterized by **high degree of concentration** and is dominated by four large players that account for c. 70% of total global sales (DePuy Synthes, Stryker, Zimmer Biomet, and Smith & Nephew).

The remaining 30% of the market are distributed across nine companies with annual sales of between $ 50m and 275m (16%) and a large number of smaller companies with less than $ 50m in annual sales (14%).

Trauma market: competitive landscape



Source: Orthoworld; Hauck & Aufhäuser

DePuy Synthes (Synthes) is the clear **market leader with 37% market share**. Evidently, its dominance stems from the financial backing of J&J and its close ties with AO Foundation (AO), which is a non-profit organisation comprising a network of >20,000 surgeons, operating room personnel, and scientists in over 100 countries that promotes excellence in patient care and outcomes in trauma treatment.

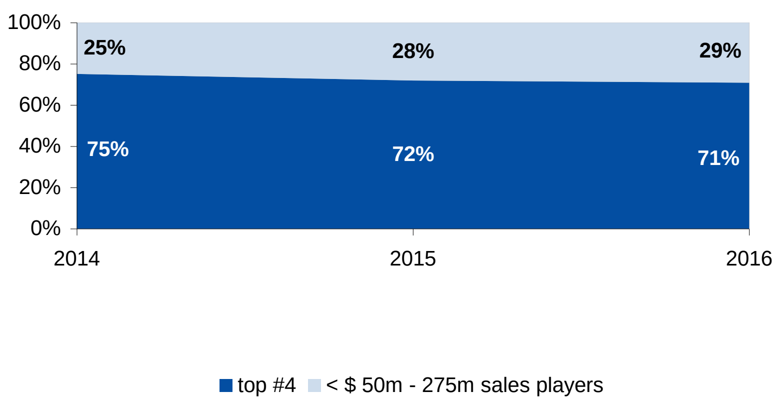
Hence, it is no surprise that Synthes' locking compression plates (LCP) developed in close collaboration with AO are acknowledged as industry standard for fracture treatment.

Entry barriers ensure healthy industry economics

The existence of entry barriers in the trauma market is evidenced by…

…the relatively stable market share of the top #4 players and…

Relatively stable market share of top #4 players

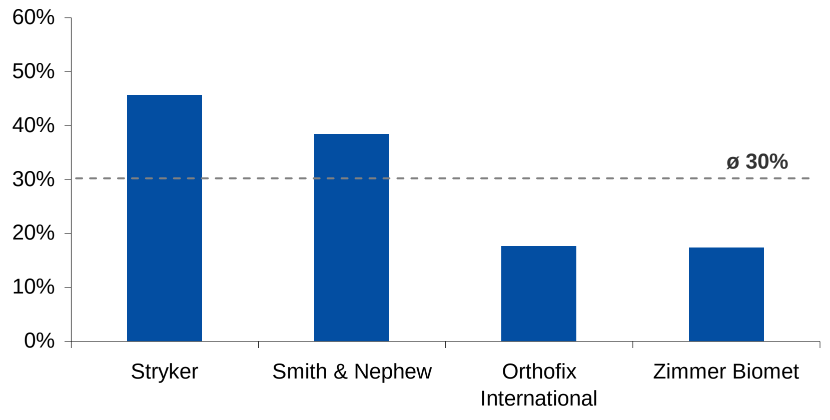


Source: Orthoworld; Hauck & Aufhäuser

…returns on capital employed well in excess of cost of capital

Based on publicly available information on listed major peers, **we estimate that the average ROCE amounts to c. 30%** suggesting that incumbents' returns are indeed protected by strong entry barriers.

ROCE overview



Source: Bloomberg; Hauck & Aufhäuser

Stryker's reporting structure enabled us to validate that the high returns are also applicable to the most relevant orthopedic division, underscoring the **highly attractive economics of the trauma market**. In fact, this division enjoys ROCE on par with the group average.

The barriers to entry are seen to be largely entrenched in a **captive customer base**. This is above all based on long-standing relationships between hospitals and existing trauma vendors where products oftentimes are being designed and developed in close consultation with surgeons.

Therefore, **hospitals are typically reluctant to replace already proven vendors** solely based on price consideration as it may compromise treatment outcomes and endanger patients' health.

The only way a potential entrant may establish an adequate market access is to **gain recognition from industry practitioners**, which is most likely to be achieved through value-add innovations and adequate market awareness.

For new entrants this in itself is a **tough hurdle as the innovation pace in the trauma market is relatively slow** with hardly any improvements to the industry standard LCP technology from Synthes over the past 15 years.

aap's LOQTEQ is a door opener

Fortunately, **aap is no stranger to the trauma market**. Founded in 1990, operating as a pure-play trauma company since 2016 aap has established a reasonably good market access and reputation.

The major breakthrough, however, was the launch of LOQTEQ in 2011. Thanks to focused R&D efforts, aap has considerably expanded its indication coverage based on the locking and compression principle from 0% in 2011 to above 90% today, which is key for being listed at major hospital groups.

This, coupled with a compelling pricing of 5-20% below the industry leader has proven to be a powerful incentive for hospitals to consider aap's trauma offering. Indeed, **aap's listing at a number of major German hospitals in the last two years is a case in point**.

aap is listed in a number of major German hospital groups

Source: Hauck & Aufhäuser

The adoption is made even simpler given the low switching costs as LOQTEQ is essentially an enhanced industry standard and therefore requires minimum customer education.

Hence, notwithstanding the customer captivity advantage of larger players in the trauma market, **aap looks well equipped to compete successfully** despite its currently low share of the trauma market.

Dominant players aren't likely to retaliate

Importantly, despite aap's lower pricing **strong retaliation from the dominant players seems unlikely**. Indeed, apart from occasional discount campaigns the overall pricing discipline remains cordial.

This does not come as a surprise considering that:

- First, **aap remains well "under the radar" of larger players**. Even if aap achieves 30% sales CAGR through 2022, it would represent just under 1% of the top #4 players' revenue.

- Second, the fact that aap is able to turn a profit already at a scale of € 25-30m thanks to relatively low upfront investments into fixed assets and partially outsourced distribution, **makes a potential squeeze out unlikely as it would compromise the overall sound industry economics**.

- And finally, the **dominant players would inevitably carry disproportionate costs of a price war**. In fact, a 10% price reduction would cost aap just € 1m revenue, but would lead to a € 250m and € 125m revenue loss for the #1 and #2 respectively based on their leading market shares.

Hence, **aap is favourably positioned to grow its revenue "under the radar" of large players while achieving healthy returns**.

Evidently, **as aap gains market share it should become an even more desirable asset for bigger players** not only due to its highly promising development pipeline, but also as a protective measure *(see Theme)*.

Silver coating technology – THE 'game changer' in the making

In the meantime, **aap is well underway to commercialize its innovative silver coating technology** with final approval expected by the end of 2021 or early 2022.

Silver coating expected timeline

2019	2020-2021	2021-2022
~1 year	~1 year	~0.5 years
Recruitment	Follow up	Submission & Approval

Source: Hauck & Aufhäuser

This technology is seen to deliver a significant boost to aap's product appeal. In addition, it also carries a substantial monetization potential in areas outside of the trauma market (e.g. cardiology, dentistry, medical instruments).

The **strong interest from the medical community to participate in the clinical study** confirms the revolutionary nature of the technology. At present, there are c. 20 clinics involved who prospectively want to be among the first users of the technology.

This is seen to have a **positive spillover effect on aap's trauma business already in the short-term**. As hospitals seek to implement silver coating in trauma treatment, it is likely that they will consider adopting LOQTEQ ahead of the final approval of the technology to get accustomed to aap's trauma offering, which should smoothen the transition down the road.

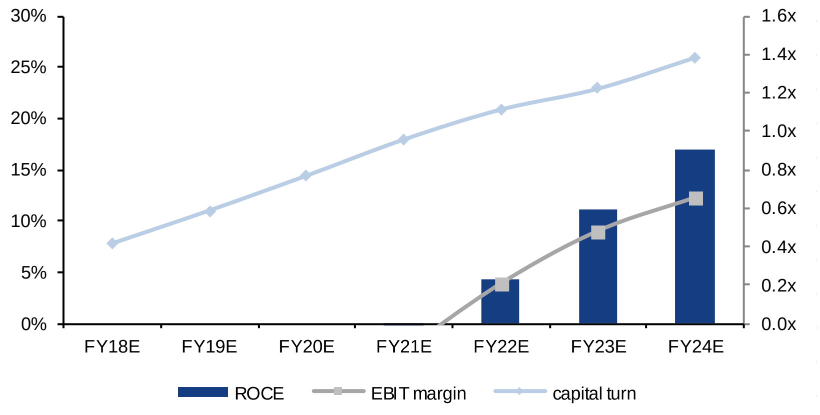
Business Quality

Evidently, **aap operates in an industry with sound underlying economics** as evidenced by the solid returns of larger peers well in excess of their cost of capital.

As discussed, it is also unlikely that dominant players would retaliate in attempt to drive aap out of business as it would inevitably cause more harm than good. In fact, **a more likely scenario would be that aap gets acquired by a mid- or large-size competitor**.

Hence, as aap continues to expand sales, **we expect ROCE to exceed 15% by 2024E**. This is based on an expected 12% EBIT margin and a capital turn of 1.4x.

Returns



Source: Hauck & Aufhäuser

- **The EBIT margin should strongly benefit from scale effects** on personnel, sales and marketing, rent, etc. and a regional shift towards established higher-margin markets (Germany, the US).

- At the same time, **aap's CAPEX needs for the foreseeable future are seen at the maintenance level of between € 0.5m and € 0.7m p.a.** In fact, the company does not require any additional growth investments until c. € 30m in sales. This should drive capital turn improvement to 1.4x by 2024E.

Growth

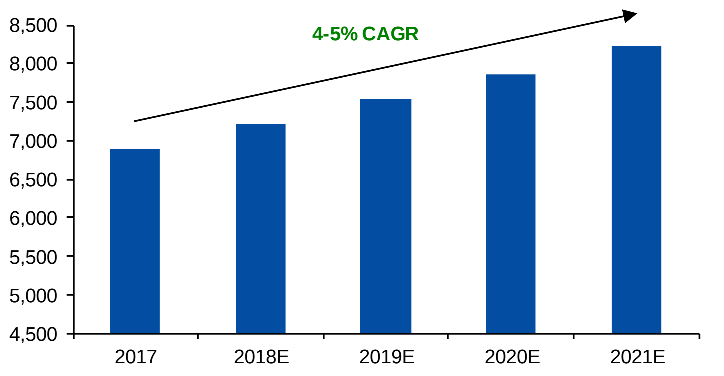
Structural growth of the trauma market – 4-5% p.a.

Growth in the trauma market boils down to the number of patients, which is constantly on the rise.

This is above all driven by structural trends, such as rising global population and a growing number of elderly people who are more susceptible to bone fractures. At the same time, **greater proliferation of active lifestyle and growing popularity of extreme sports** likewise leads to a greater number of accidents.

It is therefore safe to assume that the **trauma market is poised for a sustained growth in the long term**. Indeed, according to Orthoworld, the global trauma market is estimated at c. € 7bn and is projected to grow by 4-5% CAGR through 2021E.

Traum market sales projections ($ m)



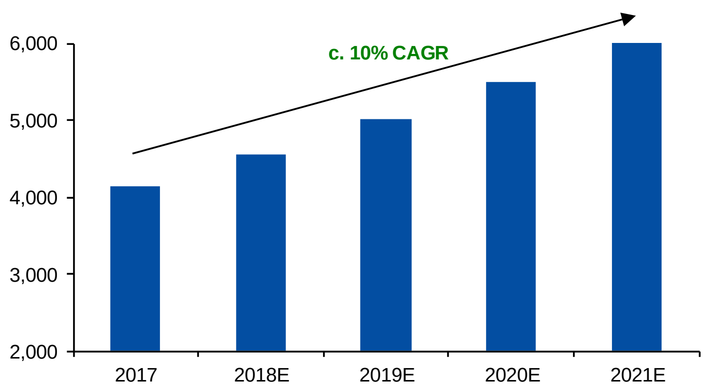
Source: Orthoworld; Hauck & Aufhäuser

Focusing on the fastest growing trauma segment – 10% p.a.

With its LOQTEQ offering **aap is focusing on the faster growing segment of the trauma market** – lower and upper extremities (c. 60% of trauma).

The **extremities market is projected to grow at least twice as fast as the overall trauma market**. This is partially because internal fixation devices such as plates, screw, etc. are far cheaper than for instance joint replacement and are hence a preferred treatment, if clinically feasible.

Internal fixation sub-segment of trauma market (in $ m)



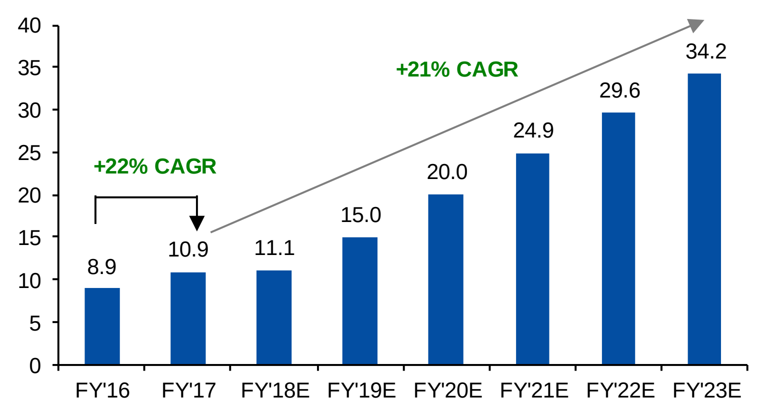
Source: Orthoworld; Hauck & Aufhäuser

Dynamic sales growth through 2023E expected

As aap's LOQTEQ technology increasingly gains recognition among hospitals it should be able to **strongly outpace the general market growth thanks to market share gains**.

We expect sales to grow at c. 21% CAGR through 2023E carried by the expansion of the business with existing accounts and new customer wins.

Revenue forecast (€ m)



Source: Company data; Hauck & Aufhäuser

Germany: Following its listing at major hospital groups, in Germany aap is focused on expanding its business within the existing contracts. This takes two forms: 1) increasing the average order volume per hospital and 2) gaining presence at not yet supplied hospitals.

North America: This region offers the largest growth prospects for aap. The expected dynamic growth is seen to be carried by the ongoing acquisition of new distributors as well as global partners.

- **Distributors**: Evidently, **the quality of distributors is of utmost importance**. High-quality distributors are able to turn more of aap's product faster reducing WC needs and hence boding well for FCF generation and returns. This is precisely why aap puts a strong focus on quality when evaluating potential distributors.

- **Global partners** represent a considerable opportunity on their own. These are internationally established orthopaedic companies who source certain product categories from third parties to cover up 'white spots' in their offerings.

  A good example is **aap's agreement with Integra LifeSciences**. Within the scope of the agreement, Integra acts as a distributor of aap's LOQTEQ wrist plating system in the US and hence was able to position itself as a one-stop solution provider in the hand and wrist arthroplasty market. For aap this not only helps to grow revenue, but also bodes well for LOQTEQ's recognition.

International markets: The growth of this division is predicated on aap's ability to win new distributors and the ongoing expansion of the business with the existing ones. Here, the most important markets account for >50% of sales and include Spain, Mexico, Brazil, China, South Africa, Italy

aap EBITDA forecast (€ m)

in € m	2017	2018E	2019E	2020E	2021E	2022E	2023E	CAGR 17-23E
Sales	**10.9**	**11.1**	**15.0**	**20.0**	**24.9**	**29.6**	**34.2**	**21.0%**
yoy		1.8%	35.1%	33.3%	24.5%	18.9%	15.5%	
Germany	*2.4*	*2.7*	*3.0*	*3.5*	*4.3*	*5.0*	*5.7*	**15.3%**
North America	*3.1*	*2.2*	*3.8*	*6.4*	*8.8*	*11.0*	*13.5*	**28.0%**
International	*5.1*	*6.2*	*8.2*	*10.1*	*11.8*	*13.6*	*15.0*	**19.5%**

Source: Hauck & Aufhäuser

Road to break-even: solid scalability amid high demand

We expect aap to break-even on EBITDA in 2020-21E at c. € 20m sales. This should be supported by solid scalability coupled with strong demand in the coming years.

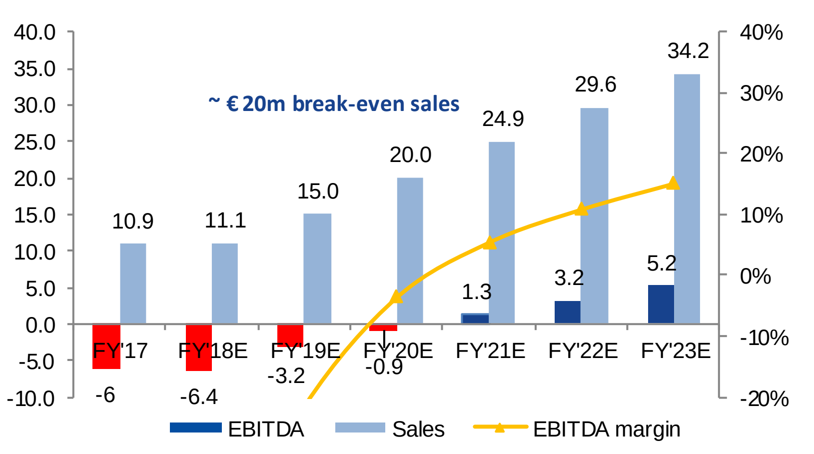
The sound scalability is explained by:

- **High gross margins***: aap generates blended gross margins of c. 80%. As the company is seen to grow disproportionately in the higher-margin regions such as Germany and North America, the gross margin is seen to gradually trend upwards (82% by 2023E).

** Gross profit = Sales + chg in inventories - material expenses*
Gross profit margin = gross profit / (sales + chg in inventories)

- **The high share of fixed costs**: We estimate that operating expenses (incl. personnel) are 90% fixed and 10% variable, which should naturally support strong scalability.

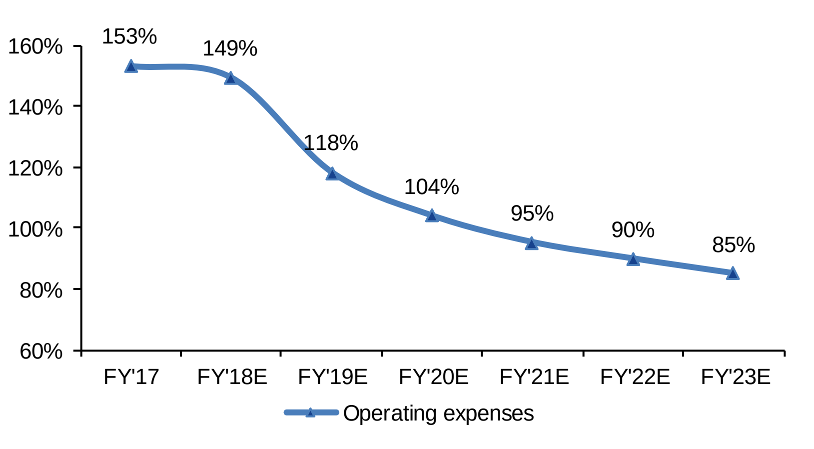
EBITDA: Road to break-even (€ m)



Source: Company data; Hauck & Aufhäuser

Consequently, **we expect cost ratios to improve significantly in the forecast period** thanks to economies of scale on personnel, sales and marketing, rents, etc. Following the break-even in 2021E, aap will likely need to expand its production footprint to support further sales growth which might temporarily reduce the operating leverage.

Operating expenses ratio (as % of total sales)



Source: Company data; Hauck & Aufhäuser

aap EBITDA forecast (€ m)							
in € m	2017	2018E	2019E	2020E	2021E	2022E	2023E
Sales	**10.9**	**11.1**	**15.0**	**20.0**	**24.9**	**29.6**	**34.2**
yoy		1.8%	35.1%	33.3%	24.5%	18.9%	15.5%
change in inventories	-0.5	-0.3	0.5	0.5	0.5	0.5	0.5
Total sales	**10.4**	**10.8**	**15.5**	**20.5**	**25.4**	**30.1**	**34.7**
other own work capitalised	1.3	2.2	2.0	2.0	2.0	1.5	0.0
Total output	**11.7**	**13.0**	**17.5**	**22.5**	**27.4**	**31.6**	**34.7**
Material expenses	1.9	2.3	3.2	4.1	4.9	5.6	6.2
in % of total sales	18.1%	21.0%	20.4%	19.8%	19.2%	18.6%	18.0%
Gross profit	**8.5**	**8.5**	**12.3**	**16.4**	**20.5**	**24.5**	**28.5**
margin %	81.9%	79.0%	79.6%	80.2%	80.8%	81.4%	82.0%
Personnel expenses	7.4	8.1	8.3	8.9	9.4	10.0	10.8
in % of total output	63.3%	62.5%	47.7%	39.6%	34.3%	31.6%	31.1%
Other operating expenses	9.4	9.5	9.7	10.9	12.3	13.3	13.0
in % of total output	80.4%	73.3%	55.4%	48.6%	45.0%	42.1%	37.3%
Other operating income	0.8	0.5	0.5	0.5	0.5	0.5	0.5
in % of total output	6.5%	3.9%	2.9%	2.2%	1.8%	1.6%	1.4%
EBITDA	**-6.2**	**-6.4**	**-3.2**	**-0.9**	**1.3**	**3.2**	**5.2**
margin %	-53.2%	-49.4%	-18.3%	-4.0%	4.7%	10.1%	15.0%

Valuation

I. DCF model – core trauma business (LOQTEQ)

In order to derive a fair value for aap's core business with LOQTEQ we use a DCF model as aap is yet to reach profitability. EBITDA break-even is expected in 2020-2021E at c. € 20m sales.

- We assume **30.9% sales CAGR in the forecast period** (2018-2021E) carried by a wider adoption of the LOQTEQ technology.
- The **mid-term growth rate is set at 12.6%** (2021-2026E) in light of above average growth of the extremities market and expected market share gains.
- The **long-term growth rate is seen at 2.5%** reflecting structural growth trends of growing/aging population and increasing popularity of extreme sports.
- The **terminal EBIT margin is conservatively set at 12%**. Realistically, up to 15% could be possible given the favourable industry economics, strong business scalability and focus on higher-margin established markets.
- The **discount factors (WACC) of 8%** is made up of a risk-free rate of 1.5%, a 5% equity risk premium and a beta of 1.3.

Our DCF-based FV for aap's core business is € 1.60.

DCF (EUR m) (except per share data and beta)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	Terminal value
NOPAT	-5.8	-3.7	-2.1	-0.5	0.9	2.2	3.4	5.0	3.8
Depreciation	18	2.0	2.0	2.0	2.0	2.1	2.1	2.1	10
Increase/decrease in working capital	0.6	17	-0.2	0.3	-0.1	-0.7	-10	-0.9	-0.2
Increase/decrease in long-term provisions and	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capex	-2.7	-2.5	-2.5	-2.6	-2.7	-2.5	-10	-10	-10
Acquisitions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital increase	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash flow	**-6.0**	**-2.4**	**-2.7**	**-0.7**	**0.1**	**1.0**	**3.5**	**5.2**	**3.6**
Present value	-6.0	-2.2	-2.3	-0.6	0.0	0.7	2.2	3.0	35.8
WACC	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%

DCF per share derived from	
Total present value	31
thereof terminal value	*117%*
Net debt (net cash) at start of year	-12.1
Financial assets	4
Provisions and off balance sheet debt	0
Equity value	47
No. of shares outstanding	28.8
Discounted cash flow per share	**1.6**
upside/(downside)	**43%**
Share price	**1.14**

DCF avg. growth and earnings assumptions	
Short term growth (2018-2021)	30.9%
Medium term growth (2021- 2026)	12.6%
Long term growth (2026 - infinity)	2.5%
Terminal year EBIT margin	12.0%

WACC derived from	
Cost of borrowings before taxes	3.5%
Tax rate	30.0%
Cost of borrowings after taxes	3.3%
Required return on invested capital	8.0%
Risk premium	5.0%
Risk-free rate	15%
Beta	13

Sensitivity analysis DCF

WACC	Long term growth: 15%	2.0%	2.5%	3.0%	3.5%
10.0%	10	11	11	12	13
9.0%	12	13	13	14	15
8.0%	14	15	16	18	19
7.0%	17	19	2.0	2.2	2.5
6.0%	2.1	2.4	2.7	3.1	3.6

Sensitivity analysis DCF

WACC	EBIT margin terminal year: 8%	10%	12%	14%	16%
10.0%	0.9	10	11	13	14
9.0%	10	12	13	15	17
8.0%	12	14	16	18	2.1
7.0%	14	17	2.0	2.3	2.6
6.0%	19	2.3	2.7	3.1	3.5

Evidently, **neither silver coating, nor magnesium technology receive adequate consideration from the market**. The estimated FV for the core business with LOQTEQ more than covers the entire market cap.

II. Development costs plus "strategic premium" - for silver coating

It is not unusual for development companies in the med-tech space to put up their innovations for sale ahead of commercialization. The purchase price typically covers development costs and includes a 'strategic premium' depending on "optionality" of a particular innovation and expected synergies for acquirer.

Given that the silver coating technology is yet to be approved by regulators, we conservatively use the above explained approach to derive an estimated FV, despite its potentially disruptive nature.

Thus far, aap spent c. € 6m on the development with an estimated € 4-5m needed for the clinical phase study. Given the high potential of the technology **aap could easily receive € 10-20m consideration from a strategic buyer** comparing the € 6m of development costs and strategic premium.

Still, **we conservatively assume € 10m value for silver coating** and entirely omit the magnesium technology from the valuation given its still relatively early stage of development.

SOTP analysis	
LOQTEQ FV	46.6
Silver coating technology FV	10.0
Magnesium FV	0.0
aap Implantate FV	**56.6**
NOSH	28.8
FV per share	**2.0**
upside/(downside)	*71%*

Source: Hauck & Aufhäuser

Our SOTP model yield a FV of € 2.00 for aap.

III. Transaction multiples indicate >100% upside

Notably, transaction multiples point to even higher valuation. Historically, acquisition multiples in the orthopaedics space ranged from **low single digit to high single digit EV/Sales with a median of c. 5x**.

Based on a number of relevant transactions in the extremities market, which is also the playing field for aap, the **median EV/Sales (FY+1) multiple amounts to 5.2x**.

Overview of comparable transactions in extremities market

Date	Acquirer	Target	Purchase price	Sales (FY)	Sales (FY+1)	EV/Sales (FY)	EV/Sales (FY+1)
2011	Integra LifeSciences	Ascension Orthopedics	66.5	19.0	20.0	3.5x	3.3x
2012	Tornier	OrthoHelix	152.2	22.2	29.0	6.9x	5.2x
2014	Wright Medical	Solana Surgical LLC	89.5	14.3	n/a	6.3x	n/a
2014	Wright Medical	OrthoPro	33.0	8.1	n/a	4.1x	n/a
2018E	Wright Medical	Cartiva, Inc.	435.0	35.0	47.0	12.4x	9.3x
Median						**6.9x**	**5.2x**
aap				**11.1**	**15.0**	**2.6x**	**1.7x**

Date	Acquirer	Target	Rationale
2011	Integra LifeSciences	Ascension Orthopedics	Strengthen **upper extremity portfolio**
2012	Tornier	OrthoHelix	Add **extremity fixation** product to portfolio
2014	Wright Medical	Solana Surgical LLC	**Expansion of extremity portfolio** (foot, ankle, hand)
2014	Wright Medical	OrthoPro	Add **extremity surgical products** to portfolio
2018E	Wright Medical	Cartiva, Inc.	Innovative technology for **high-volume extremity** procedure*

*Source: Hauck & Aufhäuser * PMA-approved Synthetic Cartilage Implant (SCI) technology*

Implied FV	EV/Sales 18E (x)	EV/Sales 19E (x)
Fair EV	76.2	78.7
Net debt	-4.4	-2.7
Market Cap	80.6	81.5
NOSH	28.8	28.8
Implied FV	**2.8**	**2.8**
Upside(+)/downside(-)	*144%*	*146%*

Source: Hauck & Aufhäuser

The transaction multiples imply a FV of c. € 2.80 (>100% upside).

In order to reflect, in our view, the relatively high likelihood of aap being acquired, **we derive our PT from the average of the SOTP and transaction multiples-based valuation**.

aap valuation	
SOTP FV	56.6
FV based on transaction multiples	81.0
Average FV	**68.8**
NOSH	28.8
FV per share	**2.4**
upside/(downside)	*111%*

Source: Hauck & Aufhäuser

Our approach yields a PT of € 2.40 for aap, indicating >100% upside.

Investment risks

- Potential write-down of capitalised development costs should silver coating and magnesium technologies not be successfully commercialised.
- Insufficient funds to finance growth in domestic as well as international markets.
- Still relatively high cluster risk with 19% of revenue in 2017 generated with the top three customers.

Theme

aap is an attractive takeover target

Over the past decade the orthopaedics market has seen a **large number of sizable M&A transactions**, which made the playing field much more concentrated. Indeed, the top 4 players control c. 70% of the trauma market.

The key objectives pursued by strategic acquirers are:

- **Sustain pricing environment**. As orthopaedics companies face downward pressure on reimbursement and pricing, they are looking for opportunities to increase scale and eliminate the number of competing players.

- **Pursuit of growth and innovations**. In pursuit of higher growth orthopaedic device companies seek to gain or improve their exposure to faster growing market segments (e.g. extremities) oftentimes supported by the innovations of smaller, more focused and nimble players like aap.

Following a number of large transaction (e.g. J&J acquiring Synthes, Zimmer acquiring Biomet), the focus seems to be shifting to innovative mid- to small-size players featuring unique technologies and thus operating in higher-growth areas, like extremities.

Hence, **aap is certainly an attractive takeover target**. This is above all based on its proven LOQTEQ technology that is poised for market share gains and itsss innovative focus with two additional high value-add technologies in the pipeline.

How valuable silver coating may be?

Given the high economic costs associated with SSI, a solution that helps to reduce this burden surely will prove to be highly valuable. Numerous studies suggest that the economic costs associated with SSI substantially exceed € 1bn p.a.

Estimated economic costs of SSI

Region	Financial burden	Comment
Europe	€ 1.47-19.1bn	> it is 3x costlier to treat an infected patient > SSI cases were associated with 406,730 extra hospital days
USA	~ $ 10bn	

Source: Hauck & Aufhäuser; Prevalence of Surgical Site Infection in Orthopedic Surgery

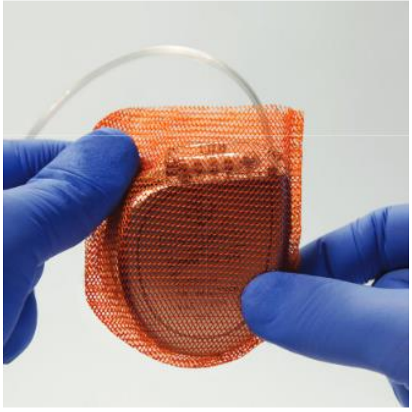
Evidently, a **successful approval of the silver coating technology opens up a significant opportunity for monetisation**. Still, there should be ample possibilities to monetise the technology even ahead of the final approval once the clinical trial is commenced.

The **TYRX, Inc. acquisition by Medtronic is case in point**. Medtronic acquired TYRX in 2014 for an **alleged amount of € 500m** (€ 160m cash plus earn-outs).

The key asset that Medtronic was pursuing in this acquisitions was **TYRX' antibiotic-based Antibacterial Envelop designed to reduce SSI** associated with Cardiac Implantable Electronic Devices (CIEDs).

It is worth noting that **aap's silver coating technology is a platform technology**, unlike TYRX' envelope and hence has a wide range of potential applications beyond orthopedics (i.e. cardiology, dentistry or medical instruments).

TYRX' Absorbable Antibacterial Envelop



> absorbs in the body in 9 weeks

> 70-100% fewer infections

> est. cost savings: $ 50k per 100 envelops used

Source: Medtronic; Hauck & Aufhäuser

A CIED device is inserted into the envelope before being surgically placed intos a patient's body. Once placed, antibiotics are eluted locally into the tissue pocket enabling minimal concentration levels of a certain chemical which should prevent growth of bacteria. Within c. 9 weeks the envelop gets fully absorbed by the body.

In our opinion, **silver coating may become a success story akin to the TYRX' antibacterial envelope**.

A theoretical calculation of the potential annual savings that healthcare systems could achieve thanks to the adoption of silver coating technology, underscores its significant optionality value.

High optionality value of silver coating based on potential annual savings to healthcare systems:

Potential value of the silver coating technology

		Assumed economic costs of SSI (€ m)				
		1500	2500	3500	4500	5500
Assumed penetration	5.0%	38	63	88	113	138
	10.0%	75	125	175	225	275
	15.0%	113	188	263	338	413
	20.0%	150	250	350	450	550
	25.0%	188	313	438	563	688

Source: Hauck & Aufhäuser

Management Board

Bruke Seyoum Alemu, CEO

Mr. Bruke Seyoum Alemu has been the Chairman of the Management Board and CEO of aap Implantate AG since 2014. He has served aap since 1995, as a COO and CFO and accompanied the successful IPO of the group in 1999. He studied nuclear engineering at Technische Universität Dresden and completed further management programs at TU Berlin and in St. Gallen, Switzerland.

Responsibilities: Corporate development, Production, Sales and Marketing, R&D, Quality Assurance and Control, Regulatory Affairs.

Marek Hahn, CFO

Mr. Hahn has been a member of the Management Board and CFO of aap since 2010. He worked several years for KPMG in various national and international positions in the fields of Accounting, Auditing and Executive Consulting. He studied Business Administration at Technische Universität Berlin.

Responsibilities: Finance/Controlling, Human Resource, IT, Legal Affairs, Investor, Public Relation and Administration.

Financials

Profit and loss (EUR m)	2017	2018E	2019E	2020E	2021E	2022E	2023E
Net sales	**10.9**	**11.1**	**15.0**	**20.0**	**24.9**	**29.6**	**34.2**
Sales growth	*4.0 %*	*1.8 %*	*35.1 %*	*33.3 %*	*24.5 %*	*18.9 %*	*15.5 %*
Increase/decrease in finished goods and work-in-process	0.8	1.9	2.5	2.5	2.5	2.0	0.5
Total sales	**11.7**	**13.0**	**17.5**	**22.5**	**27.4**	**31.6**	**34.7**
Other operating income	0.8	0.5	0.5	0.5	0.5	0.5	0.5
Material expenses	1.9	2.3	3.2	4.1	4.9	5.6	6.2
Personnel expenses	7.4	8.1	8.3	8.9	9.4	10.0	10.8
Other operating expenses	9.4	9.5	9.7	10.9	12.3	13.3	13.0
Total operating expenses	17.9	19.4	20.7	23.4	26.1	28.4	29.5
EBITDA	**-6.2**	**-6.4**	**-3.2**	**-0.9**	**1.3**	**3.2**	**5.2**
Depreciation	1.2	1.2	1.3	1.3	1.3	1.4	1.5
EBITA	**-7.4**	**-7.6**	**-4.5**	**-2.2**	**0.0**	**1.8**	**3.7**
Amortisation of goodwill	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Amortisation of intangible assets	0.6	0.6	0.7	0.7	0.7	0.6	0.6
Impairment charges	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EBIT (inc revaluation net)	**-8.0**	**-8.2**	**-5.2**	**-2.9**	**-0.7**	**1.2**	**3.1**
Interest income	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest expenses	1.3	0.0	0.0	0.0	0.0	0.0	0.0
Other financial result	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Financial result	-1.3	0.0	0.0	0.0	0.0	0.0	0.0
Recurring pretax income from continuing operations	**-9.3**	**-8.3**	**-5.3**	**-3.0**	**-0.8**	**1.2**	**3.1**
Extraordinary income/loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earnings before taxes	**-9.3**	**-8.3**	**-5.3**	**-3.0**	**-0.8**	**1.2**	**3.1**
Taxes	0.0	0.0	0.0	0.0	0.0	0.4	0.9
Net income from continuing operations	**-9.3**	**-8.3**	**-5.3**	**-3.0**	**-0.8**	**0.9**	**2.2**
Result from discontinued operations (net of tax)	-0.3	0.0	0.0	0.0	0.0	0.0	0.0
Net income	**-8.9**	**-8.3**	**-5.3**	**-3.0**	**-0.8**	**0.9**	**2.2**
Minority interest	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit (reported)	**-8.9**	**-8.3**	**-5.3**	**-3.0**	**-0.8**	**0.9**	**2.2**
Average number of shares	28.6	28.6	28.6	28.6	28.6	28.6	28.6
EPS reported	**-0.31**	**-0.29**	**-0.18**	**-0.10**	**-0.03**	**0.03**	**0.08**

Profit and loss (common size)	2017	2018E	2019E	2020E	2021E	2022E	2023E
Net sales	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**
Increase/decrease in finished goods and work-in-process	7.0 %	16.7 %	16.7 %	12.5 %	10.0 %	6.8 %	1.5 %
Total sales	**107.0 %**	**116.7 %**	**116.7 %**	**112.5 %**	**110.0 %**	**106.8 %**	**101.5 %**
Other operating income	6.9 %	4.5 %	3.3 %	2.5 %	2.0 %	1.7 %	1.5 %
Material expenses	17.2 %	20.4 %	21.1 %	20.3 %	19.6 %	18.9 %	18.3 %
Personnel expenses	67.7 %	73.0 %	55.6 %	44.5 %	37.8 %	33.8 %	31.6 %
Other operating expenses	86.0 %	85.5 %	64.7 %	54.7 %	49.5 %	44.9 %	37.9 %
Total operating expenses	164.0 %	174.3 %	138.0 %	117.0 %	104.8 %	95.9 %	86.3 %
EBITDA	**neg.**	**neg.**	**neg.**	**neg.**	**5.2 %**	**10.8 %**	**15.2 %**
Depreciation	10.6 %	10.8 %	8.7 %	6.5 %	5.2 %	4.7 %	4.4 %
EBITA	**neg.**	**neg.**	**neg.**	**neg.**	**0.0 %**	**6.1 %**	**10.8 %**
Amortisation of goodwill	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Amortisation of intangible assets	5.8 %	5.7 %	4.9 %	3.7 %	2.9 %	1.9 %	1.6 %
Impairment charges	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
EBIT (inc revaluation net)	**neg.**	**neg.**	**neg.**	**neg.**	**neg.**	**4.2 %**	**9.2 %**
Interest income	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Interest expenses	12.0 %	0.2 %	0.1 %	0.1 %	0.1 %	0.1 %	0.1 %
Other financial result	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Financial result	neg.	neg.	neg.	neg.	neg.	neg.	neg.
Recurring pretax income from continuing operations	**neg.**	**neg.**	**neg.**	**neg.**	**neg.**	**4.1 %**	**9.1 %**
Extraordinary income/loss	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Earnings before taxes	**neg.**	**neg.**	**neg.**	**neg.**	**neg.**	**4.1 %**	**9.1 %**
Tax rate	0.3 %	30.0 %	30.0 %	30.0 %	30.0 %	30.0 %	30.0 %
Net income from continuing operations	**neg.**	**neg.**	**neg.**	**neg.**	**neg.**	**2.9 %**	**6.4 %**
Income from discontinued operations (net of tax)	-3.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Net income	**neg.**	**neg.**	**neg.**	**neg.**	**neg.**	**2.9 %**	**6.4 %**
Minority interest	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Net profit (reported)	**neg.**	**neg.**	**neg.**	**neg.**	**neg.**	**2.9 %**	**6.4 %**

Source: Company data, Hauck & Aufhäuser

Balance sheet (EUR m)	2017	2018E	2019E	2020E	2021E	2022E	2023E
Intangible assets	**11.8**	**13.4**	**14.2**	**14.9**	**15.7**	**16.2**	**17.1**
Property, plant and equipment	7.2	6.5	5.7	4.9	4.1	3.9	3.4
Financial assets	4.3	3.4	1.0	0.5	0.5	0.5	0.5
FIXED ASSETS	**23.3**	**23.3**	**20.9**	**20.3**	**20.4**	**20.5**	**21.0**
Inventories	9.6	9.2	9.0	9.5	9.5	9.9	10.9
Accounts receivable	2.5	2.8	2.1	2.7	3.4	4.1	4.7
Other current assets	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Liquid assets	13.3	5.3	3.6	2.0	1.0	1.1	2.1
Deferred taxes	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Deferred charges and prepaid expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CURRENT ASSETS	27.2	19.0	16.4	16.0	15.7	16.8	19.4
TOTAL ASSETS	**50.5**	**42.2**	**37.3**	**36.3**	**36.0**	**37.3**	**40.4**
SHAREHOLDERS EQUITY	42.6	34.1	28.6	25.2	23.9	24.3	26.4
MINORITY INTEREST	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long-term debt	0.8	0.8	0.8	2.3	2.3	2.3	2.3
Provisions for pensions and similar obligations	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other provisions	0.8	0.8	0.5	0.5	0.5	0.5	0.5
Non-current liabilities	**1.5**	**1.5**	**1.3**	**2.8**	**2.8**	**2.8**	**2.8**
short-term liabilities to banks	0.3	0.1	0.1	0.1	0.1	0.1	0.1
Accounts payable	1.8	2.2	3.0	4.0	4.9	5.9	6.8
Advance payments received on orders	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other liabilities (incl. from lease and rental contracts)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Deferred taxes	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Deferred income	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current liabilities	**6.4**	**6.6**	**7.4**	**8.3**	**9.3**	**10.2**	**11.2**
TOTAL LIABILITIES AND SHAREHOLDERS EQUITY	**50.5**	**42.2**	**37.3**	**36.3**	**36.0**	**37.3**	**40.4**

Balance sheet (common size)	2017	2018E	2019E	2020E	2021E	2022E	2023E
Intangible assets	**23.5 %**	**31.7 %**	**38.0 %**	**41.2 %**	**43.6 %**	**43.3 %**	**42.3 %**
Property, plant and equipment	14.3 %	15.4 %	15.3 %	13.5 %	11.5 %	10.4 %	8.4 %
Financial assets	8.4 %	7.9 %	2.7 %	1.4 %	1.4 %	1.3 %	1.2 %
FIXED ASSETS	**46.2 %**	**55.0 %**	**56.0 %**	**56.0 %**	**56.5 %**	**55.1 %**	**51.9 %**
Inventories	19.1 %	21.8 %	24.2 %	26.2 %	26.4 %	26.5 %	27.0 %
Accounts receivable	5.0 %	6.6 %	5.5 %	7.5 %	9.5 %	10.9 %	11.6 %
Other current assets	0.6 %	0.8 %	0.9 %	0.9 %	0.9 %	0.9 %	0.8 %
Liquid assets	26.3 %	12.5 %	9.7 %	5.5 %	2.8 %	2.9 %	5.2 %
Deferred taxes	2.8 %	3.3 %	3.8 %	3.9 %	3.9 %	3.8 %	3.5 %
Deferred charges and prepaid expenses	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
CURRENT ASSETS	53.8 %	45.0 %	44.0 %	44.0 %	43.5 %	44.9 %	48.1 %
TOTAL ASSETS	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**
SHAREHOLDERS EQUITY	84.3 %	80.8 %	76.8 %	69.3 %	66.4 %	65.0 %	65.5 %
MINORITY INTEREST	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Long-term debt	1.6 %	1.9 %	2.1 %	6.3 %	6.4 %	6.2 %	5.7 %
Provisions for pensions and similar obligations	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Other provisions	1.5 %	1.8 %	1.3 %	1.4 %	1.4 %	1.3 %	1.2 %
Non-current liabilities	**3.1 %**	**3.7 %**	**3.5 %**	**7.7 %**	**7.8 %**	**7.5 %**	**6.9 %**
short-term liabilities to banks	0.7 %	0.2 %	0.3 %	0.3 %	0.3 %	0.3 %	0.2 %
Accounts payable	3.5 %	5.2 %	8.0 %	10.9 %	13.7 %	15.7 %	16.8 %
Advance payments received on orders	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Other liabilities (incl. from lease and rental contracts)	5.8 %	7.0 %	7.9 %	8.1 %	8.2 %	7.9 %	7.3 %
Deferred taxes	2.6 %	3.1 %	3.6 %	3.7 %	3.7 %	3.6 %	3.3 %
Deferred income	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Current liabilities	**12.6 %**	**15.6 %**	**19.7 %**	**23.0 %**	**25.8 %**	**27.5 %**	**27.6 %**
TOTAL LIABILITIES AND SHAREHOLDERS EQUITY	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**

Source: Company data, Hauck & Aufhäuser

Cash flow statement (EUR m)	2017	2018E	2019E	2020E	2021E	2022E	2023E
Net profit/loss	-8.9	-8.3	-5.3	-3.0	-0.8	0.9	2.2
Depreciation of fixed assets (incl. leases)	1.2	1.2	1.3	1.3	1.3	1.4	1.5
Amortisation of goodwill	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Amortisation of intangible assets	0.6	0.6	0.7	0.7	0.7	0.6	0.6
Others	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Cash flow from operations before changes in w/c	-6.5	-6.4	-3.2	-0.9	1.3	2.8	4.2
Increase/decrease in inventory	1.4	0.4	0.2	-0.5	0.0	-0.4	-1.0
Increase/decrease in accounts receivable	0.4	-0.3	0.7	-0.7	-0.7	-0.6	-0.6
Increase/decrease in accounts payable	-0.8	0.4	0.8	1.0	1.0	0.9	0.9
Increase/decrease in other working capital positions	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Increase/decrease in working capital	1.0	0.6	1.7	-0.2	0.3	-0.1	-0.7
Cash flow from operating activities	**-5.4**	**-5.8**	**-1.5**	**-1.1**	**1.6**	**2.7**	**3.5**
CAPEX	2.1	2.7	2.5	2.5	2.6	2.7	2.5
Payments for acquisitions	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Financial investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income from asset disposals	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Cash flow from investing activities	**-1.5**	**-2.7**	**-2.5**	**-2.5**	**-2.6**	**-2.7**	**-2.5**
Cash flow before financing	-6.9	-8.5	-4.0	-3.6	-1.0	0.1	1.0
Increase/decrease in debt position	-0.1	-0.2	0.0	1.5	0.0	0.0	0.0
Purchase of own shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital measures	-3.4	0.0	0.0	0.0	0.0	0.0	0.0
Dividends paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Others	0.0	-0.9	-2.4	-0.5	0.0	0.0	0.0
Effects of exchange rate changes on cash	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
Cash flow from financing activities	**-3.5**	**-1.1**	**-2.4**	**1.0**	**0.0**	**0.0**	**0.0**
Increase/decrease in liquid assets	-10.7	-9.6	-6.4	-2.6	-1.0	0.1	1.0
Liquid assets at end of period	**13.1**	**3.5**	**-2.9**	**-5.5**	**-6.5**	**-6.4**	**-5.4**

Source: Company data, Hauck & Aufhäuser

Regional split (EUR m)	2017	2018E	2019E	2020E	2021E	2022E	2023E
Domestic	2.4	2.7	3.0	3.5	4.3	5.0	5.7
yoy change	3.2 %	10.6 %	11.7 %	16.7 %	22.9 %	16.3 %	14.0 %
Rest of Europe	0.0	0.0	0.0	0.0	0.0	0.0	0.0
yoy change	n/a	n/a	n/a	n/a	n/a	n/a	n/a
NAFTA	3.1	2.2	3.8	6.4	8.8	11.0	13.5
yoy change	26.1 %	-27.8 %	71.3 %	68.4 %	37.5 %	25.0 %	22.7 %
Asia Pacific	0.0	0.0	0.0	0.0	0.0	0.0	0.0
yoy change	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rest of world	5.1	6.2	8.2	10.1	11.8	13.6	15.0
yoy change	25.9 %	20.4 %	32.3 %	23.2 %	16.8 %	15.3 %	10.3 %
TTL	**10.6**	**11.1**	**15.0**	**20.0**	**24.9**	**29.6**	**34.2**
yoy change	20.0 %	4.3 %	35.1 %	33.3 %	24.5 %	18.9 %	15.5 %

Source: Company data, Hauck & Aufhäuser

Key ratios (EUR m)	2017	2018E	2019E	2020E	2021E	2022E	2023E
P&L growth analysis							
Sales growth	4.0 %	1.8 %	35.1 %	33.3 %	24.5 %	18.9 %	15.5 %
EBITDA growth	-21.3 %	3.0 %	-50.0 %	-71.9 %	-244.4 %	146.2 %	62.5 %
EBIT growth	-21.5 %	3.0 %	-36.5 %	-44.0 %	-75.1 %	-269.9 %	153.2 %
EPS growth	3.2 %	-7.7 %	-36.4 %	-43.8 %	-74.5 %	-213.5 %	155.9 %
Efficiency							
Total operating costs / sales	164.0 %	174.3 %	138.0 %	117.0 %	104.8 %	95.9 %	86.3 %
Sales per employee	147.3	76.3	102.4	133.3	158.6	180.5	201.2
EBITDA per employee	-83.9	-44.0	-21.8	-6.0	8.3	19.5	30.6
Balance sheet analysis							
Avg. working capital / sales	100.2 %	91.0 %	59.6 %	45.2 %	32.2 %	27.6 %	24.5 %
Inventory turnover (sales/inventory)	1.1	1.2	1.7	2.1	2.6	3.0	3.1
Trade debtors in days of sales	85.1	92.0	50.0	50.0	50.0	50.0	50.0
A/P turnover [(A/P*365)/sales]	58.7	72.3	72.3	72.3	72.3	72.3	72.3
Cash conversion cycle (days)	1,618.6	1,221.6	745.8	547.9	391.8	313.1	291.0
Cash flow analysis							
Free cash flow	-7.5	-8.5	-4.0	-3.6	-1.0	0.1	1.0
Free cash flow/sales	-68.7 %	-76.5 %	-26.7 %	-18.1 %	-3.9 %	0.2 %	3.0 %
FCF / net profit	neg.	neg.	neg.	neg.	neg.	5.9 %	46.9 %
Capex / depn	115.4 %	146.6 %	123.2 %	123.2 %	125.6 %	135.2 %	121.4 %
Capex / maintenance capex	39.3 %	71.4 %	71.4 %	71.4 %	78.6 %	143.8 %	111.1 %
Capex / sales	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Security							
Net debt	-12.1	-4.4	-2.7	0.4	1.4	1.3	0.3
Net Debt/EBITDA	0.0	0.0	0.0	-0.4	1.1	0.4	0.1
Net debt / equity	neg.	neg.	neg.	0.0	0.1	0.1	0.0
Interest cover	0.0	0.0	0.0	0.0	0.0	57.5	145.5
Dividend payout ratio	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Asset utilisation							
Capital employed turnover	0.2	0.3	0.5	0.7	0.9	1.1	1.2
Operating assets turnover	0.6	0.7	1.1	1.5	2.1	2.5	2.8
Plant turnover	1.5	1.7	2.6	4.1	6.0	7.6	10.1
Inventory turnover (sales/inventory)	1.1	1.2	1.7	2.1	2.6	3.0	3.1
Returns							
ROCE	-15.5 %	-20.5 %	-15.9 %	-9.2 %	-2.6 %	4.5 %	11.2 %
ROE	-21.0 %	-24.2 %	-18.4 %	-11.7 %	-3.1 %	3.5 %	8.3 %
Other							
Interest paid / avg. debt	57.8 %	2.1 %	2.4 %	1.3 %	1.3 %	0.9 %	0.9 %
No. employees (average)	74	146	147	150	157	164	170
Number of shares	28.6	28.6	28.6	28.6	28.6	28.6	28.6
DPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EPS reported	-0.31	-0.29	-0.18	-0.10	-0.03	0.03	0.08
Valuation ratios							
P/BV	0.8	1.0	1.1	1.3	1.4	1.3	1.2
EV/sales	1.9	2.5	2.0	1.7	1.4	1.1	1.0
EV/EBITDA	n/a	n/a	n/a	n/a	26.2	10.6	6.3
EV/EBITA	n/a	n/a	n/a	n/a	n/a	18.9	8.9
EV/EBIT	n/a	n/a	n/a	n/a	n/a	27.4	10.5
EV/FCF	-2.7	-3.3	-7.5	-9.1	-35.0	674.6	32.2
Adjusted FCF yield	-49.1 %	-28.5 %	-13.5 %	-4.9 %	1.8 %	6.1 %	10.4 %
Dividend yield	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %

Source: Company data, Hauck & Aufhäuser

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Company	Disclosure
aap Implantate AG	2, 8

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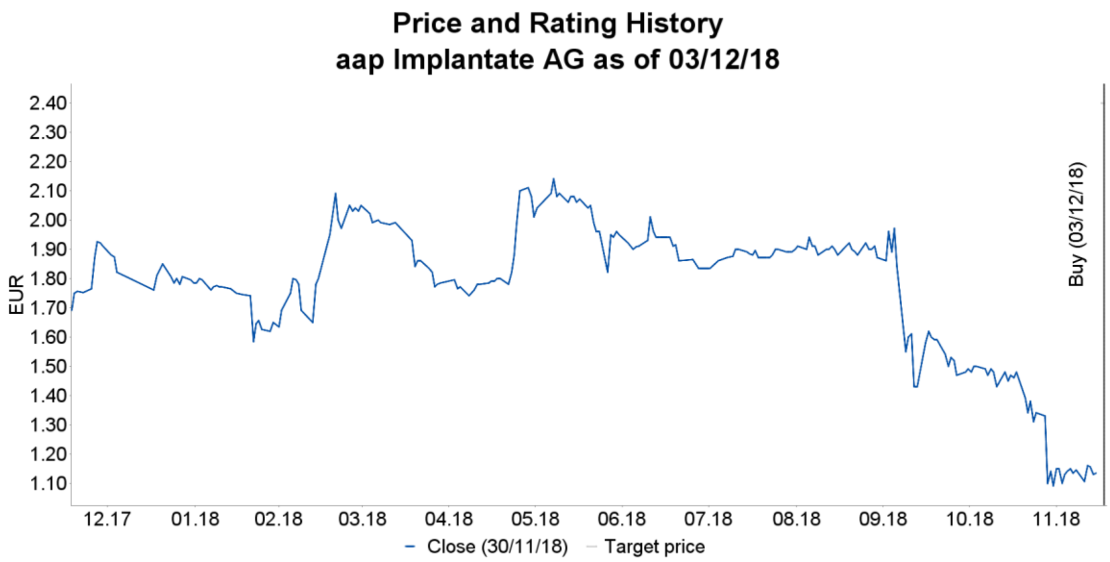

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