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Industrial Engineering, Switzerland

VAT Group AG (SIX Stock Exchange: VACN)

Valuation as of November 30th, 2017

Industry: Industrials
Supersector: Industrial goods and Services
Subsector: Industrial Machinery

Founded in 1965 by Siegfried Schertler as a scientific research company, VAT Holding AG (VAT) went public in 2016 and is a pure-play, leading global vacuum valve developer, manufacturer, and supplier.

INVESTMENT SUMMARY

We issue a buy recommendation on VAT with a target price of CHF 163, presenting 21% upside potential on the closing price of 135 on November 30th. Our valuation is based on a 75%/25% blend of a Discounted Free Cash Flow to Firm model and a PEG multiple analysis. Our recommendation is founded on the following key pillars: (1) structural growth drivers in VAT's underlying markets, (2) strong competitive position, and (3) solid financial position.

1) VAT benefits from expanding world demand for vacuum valves. VAT will continue to enjoy **higher growth than expected, driven by its underlying markets' growing dependence on vacuum technology**. Growth dimensions are: (a) end-market growth due to new technological (e.g. IoT) and geographical (China) markets, (b) rising complexity and consolidation of OEM markets, (c) increasing vacuum valves market size as new customers move towards vacuum due to increasing complexity of production processes. End-markets are semiconductors, flat and OLED displays, solar panels, and highly specialized health care and electro-cars industries where the vacuum is essential in delivering sophisticated modern-day products. Global capital expenditure and R&D spending on vacuum valves by end-market customers is currently significantly increasing and allowed VAT to achieve 30% revenue growth in FY 2017, 50% higher than consensus estimates. The expected emergence of the Internet of Things (IoT), digitalization of the automotive sector, semiconductor expansion in China and other potentially technologically disruptive forces will pave the path towards high and continuous growth as exhibited in 2016 and 2017.

2) With strong competitive position VAT's capitalizes on the global transition to vacuum manufacturing. With 30 years of expertise in vacuum technologies, VAT is much better positioned to capture growth than its competitors. The company's current dominant and expanding market share of 46% in the vacuum valves market is mainly a result of its pure focus on vacuum valves, high R&D investments in innovation (~7% of net sales), its global reach and its skilled and specialized workforce. VAT's high-quality and "zero-failure" products allow it to build close and long-lasting relations with customers. As a result, over the first half of FY17 VAT's total market share in all segments of the vacuum valve market has increased by 5 percentage points, and we expect this positive trend to continue in the mid-term. Furthermore, high barriers to entry due to lengthy R&D processes of 3-5 years and investment costs into manufacturing facilities enable the company not only to expand but also to protect its current leading position in its niche market (USD 977m in 2016 according to VLSI Research, YoY growth of 22%) from new entrants.

3) Efficient cost control, shift to outsourcing and strong cash flow generation. VAT is currently prioritizing outsourcing (60% of manufacturing is outsourced), which is reflected in rising COGS (FY17E: 38% of net sales). While this puts tension on EBITDA margin, it positively affects EBIT and the overall profitability of the company. Nevertheless, VAT is targeting a mid-term adjusted EBITDA margin of 33% which we believe the company will achieve by 2020. This is possible due to the low dependency of income on raw materials (6% of COGS), and due to the increasing effect of outsourcing on COGS that is mitigated by the ongoing efficiency gains due to the VATmotion program. The latter aims at material planning, global sourcing, value engineering and cycle time reduction. In short, it allows improving cost-efficiency by providing capacity adjustment measures (ramp-up/down). **VAT's operating performance and high margins, double of its competitors, in conjunction with tight working capital control and low levels of leverage in its capital structure, enable it to efficiently generate cash flows**, reflected in its high cash flow conversion ratio (60-80%). As a result, VAT can have an attractive dividend policy of paying 100% Free Cash Flow to Equity, given the "Net Debt to EBITDA < 1x" covenant is not breached.

Key Financials	15	16	17E	18E	19E	20E	21E
EBITDA (%)	29%	29%	29%	30%	31%	31%	31%
Net Profit (%)	2%	13%	14%	19%	20%	20%	21%
EPS	0.3	2.4	4.2	5.1	5.9	6.8	7.8
DPS	-	-	4.0	4.0	4.4	5.0	5.6
Revenue Growth (%)	13%	24%	30%	22%	8%	15%	13%

Recommendation

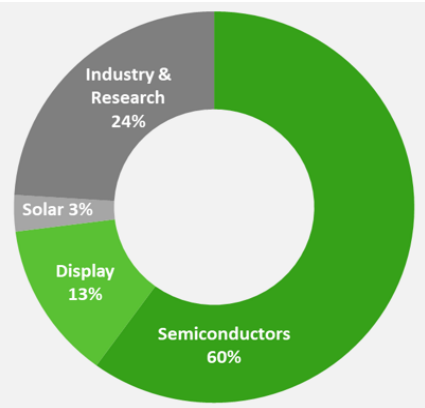
BUY

Share Price (CHF)	135
Target Price (CHF)	163
Upside	21%

Key Figures

Annual Dividend (CHF)	4
Dividend Yield	3%
52w Low (CHF)	82
52w High (CHF)	140
Avg. daily vol. (3 months)	124'000
Number of Shares (m)	30
Enterprise Value (bn CHF)	4.2
Free float (%)	86
TTM P/E	39x
Beta	1.4

Market Segments

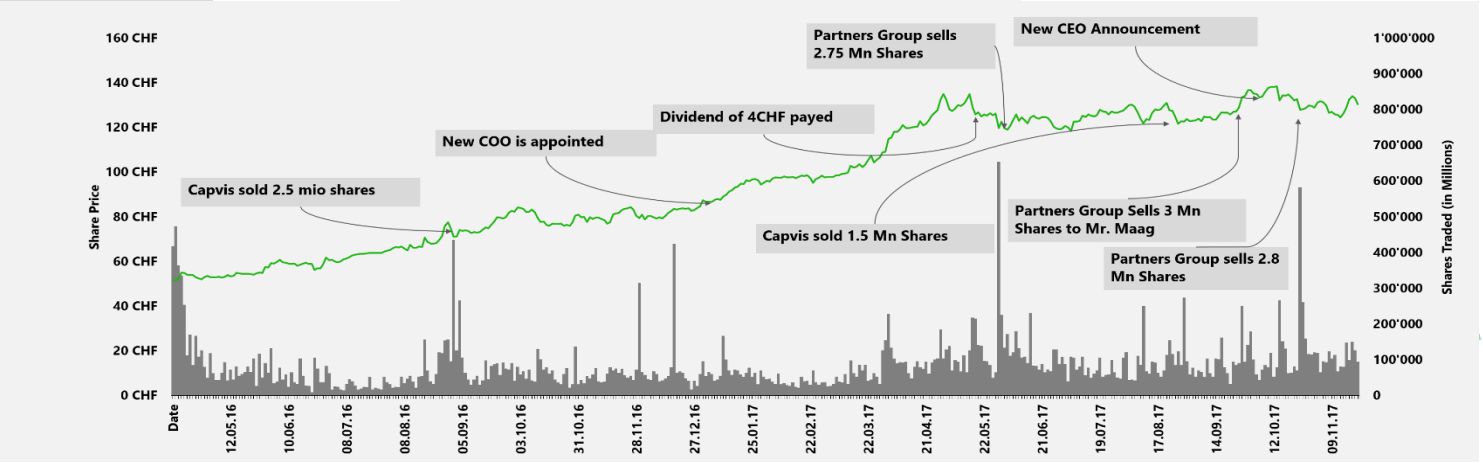


Major Shareholders (Appendix 1b)

Rudolf Maag	10.3%
Partners Group	4%
Capvis Equity Partners	3%

Valuation

FCFF Target Price (75%)	166
P/E/G Multiple Target Price (25%)	155
Target Price (12 months)	163
2018 Dividends (CHF)	4
Total 12m Return %	24%



CURRENT HIGHLIGHTS

Major new stakeholder shows investor confidence. Recently the Swiss investor Rudolf Maag has acquired a 10% stake in VAT which reflects the general market sentiment towards the vacuum valve supplier. The recent block sales of VAT by the private equity firms Partners Group and Capvis are in our opinion driven by them reaching their target multiple.

New CEO will assure growth. The retiring CEO, Heinz Kundert, managed VAT through the transformative period from a family-owned business towards a publicly traded company. His connections to the semiconductor industry have helped to establish the firm as a global pure player and strengthened relations with key customers. We believe that his successor, Michael Allison, can sustain the growth trend as he has a track record of achieving growth targets at other companies in the past.

Malaysia expansion progressing as planned. The company has been on track to reach its goals in terms of capacity ramp-up, mainly driven by the new production facility in Malaysia. The goal is to double the current production capacity of USD 600m in 2016 – USD 500m in Switzerland, USD 100m in Malaysia are aimed to reach USD 800m in Switzerland and USD 400m in Malaysia by 2020.

BUSINESS DESCRIPTION

VAT is a **global vacuum valve supplier** with its headquarters based in Haag, Switzerland. It develops, produces and sells vacuum valves and multi-valve modules to Original Equipment Manufacturers (OEMs) primarily in the semiconductor industry. Before its IPO on the SIX Swiss Exchange in April 2016, VAT was privately held since its foundation in 1965. The company has production facilities in Romania, Taiwan, Switzerland, and Malaysia. VAT has started an accelerated expansion of the plant in Malaysia and is planning to double its output capacity by 2020. As of Q1 2017, the company employs 1'750 employees worldwide with 500 new employees hired over the last year.

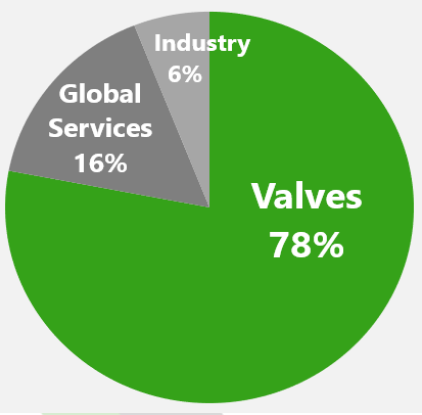
Geographic and business segments. The company serves 4 end-markets: Semiconductors (61%), Display (11%), Solar (3%) and Industry & Research (25%). The business structure of VAT Group is composed of three segments (Fig. 1): most of the sales are generated in the Valves segment (78%) comprising single valves and modules, followed by Global Services (16%), i.e. providing customer support, and Industry (6%) which mainly consists of bellows. Asia is the largest geographical market of VAT (49%), followed by Americas (34%) and EMEA (17%). In fact, the Asian segment is even greater as 2/3 of America's sales are destined to Asia (Fig. 2).

VAT products. The **large spectrum of valves supplied by the company presents an important success factor**. Valves produced by VAT are for example used in the manufacturing of industrial sensors, smartphones or flat panel displays. The company offers approx. 10'500 different valves with a wide range of distinct characteristics. It develops customized valves (more than 8'000) and standardized products (2'500), offering flexible solutions for its customers. The types of valves supplied by VAT include isolation, transfer and control valves (Appx. 3). Isolation valves are used for sealing high-vacuum chambers, control valves help to control gas flows, whereas the transfer valves are used as substance transferring processes in manufacturing process chambers. Valve sizes produced by VAT range from 10mm to 4m, which offer various other distinctions such as different vacuum levels. An important revenue channel for VAT valves is the semiconductor OEM market which provides the machines, for the production of transistors in semiconducting devices. Additionally, the company supplies over 10'000 modules and 60'000 general vacuum valves which offer complete set-ups rather than individual parts for industrial customers.

VAT network. VAT's buyers include various equipment and device manufacturers. The company has strong interdependency with its **3 major customers: Applied Materials, Lam Research, Tokyo Electron, which together represent approx. half of its total revenues.** Other VAT customers include chip manufacturing companies such as Samsung, Intel, LG, and Bosch. Advanced technology and production processes together with a highly-skilled workforce enable the company to produce premium quality valves. VAT's **principle of zero-failure products** enables the company to create strong, long-lasting relationships with its customers, whose production often depends critically on the valves delivered by VAT. The company has hundreds of suppliers with COGS presenting the highest expense for the company.

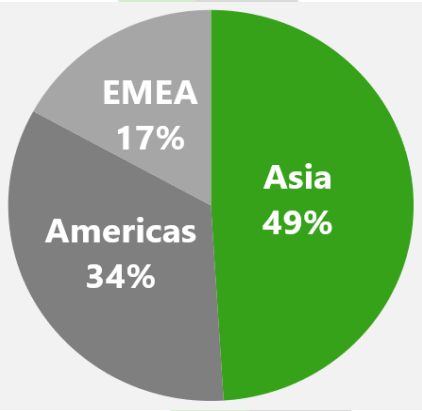
Market strategy. VAT outlines numerous priorities and goals for the fiscal year 2017 and beyond (Fig. 3)**.** The company **defines its focus on innovation and time to market** as its main priority. In the end of the fiscal year 2016, VAT has reported R&D spending of CHF 33.1m, accounting for approximately 7% of sales and presenting an increase of 16% over the previous year. According to the CEO, the total time to market (TTM) for vacuum valves varies from 5 to 7 years with R&D processes often taking up to 5 years. VAT is aiming to **reduce the TTM by increasing capacity** in its production units in Switzerland, Malaysia, and Romania. As stated by VAT, **development of people and talent is another focus** of the company, as the advanced production processes require highly skilled labor. It offers several apprenticeship programs, providing practical and theoretical training for a duration of 3-4 years. VAT states to **prioritize continued the trusted partnership with its customers and suppliers.** We believe that there is a strong interdependency between VAT and its customers. VAT heavily relies on its customers who ensure its revenues, while the customers rely on the high quality of its products and the zero-failure policy of the company, as "the smallest failure can result in costly defects and production delays" to its customers. VAT outlines its aim to **capture Asian growth opportunities** and **adapt global sourcing & supply chain to volumes in Asian expansion**. Indeed, the Asian segment is the most important source of sales for the company, representing about 60% of VAT's total sales. According to VLSI, 62% of the global demand for semiconductor technologies will be coming from China by 2019. However, Chinese supply will not be able to meet the rapidly increasing demand. We believe that VAT is aiming to take advantage of this opportunity and meet the increase in demand from China by increasing its production capacities and reducing TTM.

Figure 1: Sales by Segment



Source: VAT Group AG

Figure 2: Sales by geographical region



Source: VAT Group AG

Figure 3: Strategy

Investment in innovation and time to market	Continued trusted partnership with customers & suppliers
Development of people & talents	Capacity ramp-up (CH, RO, MY)
Capture Asian growth opportunities	Adapt global sourcing & supply chain to increase volumes and fuel Asian expansion

Source: VAT Group AG

Figure 4: Industry CAGR

Semiconductor 9.1%	Display 5.4%
Solar 5.6%	Industry & R. 2.3%

Source: VLSI Research, Team Assessment

INDUSTRY OVERVIEW AND COMPETITIVE POSITIONING

INDUSTRY OVERVIEW

The vacuum valves market has been growing at an unprecedented rate of 9.1% CAGR from 2011-16 with a growth of 21.5% in 2016 alone, resulting in a total market size of USD 977m (Source: VLSI). VAT states that the **underlying drivers are (1) end-market, (2) OEM and (3) vacuum valve growth** which suggest that structural growth is reducing the historical cyclicality of VAT's related markets (Fig. 4). While there are factors contributing to a short-term deceleration of VAT's main end-markets around 2019, we believe that VAT will only be marginally affected due to its idiosyncratic growth factors.

Semiconductor: structural growth factors in the end-market mitigate cyclicality. Providing 60% of revenues, **the semiconductor industry is the main end-market for VAT.** In 2016, the annual revenue of the industry cumulated to USD 338bn and is mainly driven by Moore's Law, which states that transistor counts on chips will double every two years. The semiconductor markets are usually synonymous with high cyclicality. As a result, firms must maintain R&D expenses even when demand is low as constant innovation is essential to survive in a highly competitive market environment. Even though the industry has been maturing in the last years, we believe **new emerging structural growth drivers will reduce cyclicality** and will impact demand for semiconductor components positively for the years to come. We divide structural growth drivers in the semiconductor industry into **a) technological components** (the Internet of Things (IoT) or digitalization of the automotive sector), **b) a geographical component** (transition of China to a major global player).

Technological divers (a): digitalization drives demand. According to McKinsey & Company, IoT will have an annual economic impact of USD 11.1 trillion by 2025, as opposed to USD 3.9 trillion today. For example, the number of devices connected to cloud services is increasing exponentially and new technologies (e.g. 5G wireless telecommunication) pave the road for new applications, such as autonomous driving. The **enormous demand for cloud computing is thus one major factor behind the growth of the semiconductor industry**. In addition, the digitalization of the automotive sector increases the demand for semiconductor components. From 2011 to 2016 sales revenues increased steadily by 5.9% CAGR and industry leaders expect that autonomous and electric cars will enter the mainstream market in the next years (Fig. 6). For example, VW alone is planning to spend USD 40bn for the development of electric cars over the next five years.

Geographical drivers (b): VAT will profit from Chinese R&D investments. China is becoming a key player in the semi industry. While it contributes to only 14% of worldwide semiconductor supply, it is expected to demand up to 62% of semiconductor components by 2019 (Fig. 5). In recent guidelines of "Made in China 2025" the country is targeting world leadership in microchip production to supply its own demand. This is the reason why **China has become a new global research center as it has increased R&D spending more than fourfold from 2007 to 2015**. As the country is depending on OEM companies to deliver high-quality manufacturing equipment for semiconductor component production, **VAT can expect an increase in the demand for vacuum valves components**. The reason for this is VAT's high interconnection with the leading OEM companies: Applied Materials, Lam Research and Tokyo Electron (Appx. 6).

Other end-markets: VAT will continue to profit from its 60% market share in highly specialized markets. We expect VAT's other revenue channels to **grow at high single-digit CAGR for the display & solar markets and low to moderate growth for the Industry & Research segment**. For the display market (13% of revenues) the short to mid-term shift from LCD to OLED on both the smartphone and the TV market is expected to drive revenues for VAT. Here economies of scale led to a reduction in production prices. While the solar market (3% of revenues) remains a volatile market for equipment suppliers the demand for Photovoltaic (PV) installations has been growing at double digits from 2006-2016. The main driver is significant cost reduction inherent in the production of PV installations. Another revenue source is the Industry & Research segment (25% of revenues), which corresponds mainly to the production and distribution of bellows and other mechanical components to the general processing industry, automotive, healthcare and research activities – resulting in a wide addressable market. This segment has less structural growth drivers and customers are operating in mature industries.

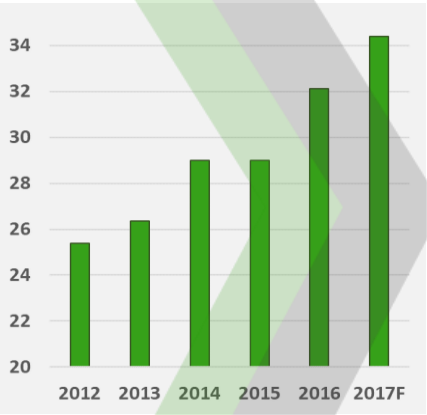
OEM market: consolidation due to increasing complexity. The OEM companies supplying vacuum processing equipment to semiconductor component producers have been **subject to similar consolidation as its end-market**. Due to increasing R&D expense rates and average sales price erosion, the market's concentration is increasing. In 2016, VAT's main customers Applied Materials, Lam Research and Tokyo Electron collectively accounted for 75% of the total market for vacuum processing equipment. In fact, annual OEM revenues are averaging to 1/3 of end-market revenues which indicates the significant amount of production costs resulting in the supply of vacuum processing equipment. **Increasing complexity of modern components** to support Moore's Law leads to vacuum processing becoming more essential. For example, the decrease in node sizes towards 10nm increases the number of process steps which will increase the probability malfunctioning components due to dust particles or any other form of external interference (Fig. 7). Producing in a vacuum environment will minimize the probability of such scenarios. **Vacuum valves, as an intersection between production steps in a vacuum environment, are thus becoming essential** for semiconductor component producers to ensure the quality of their products. This is just one example of how the industry is **moving towards more complex processes on a much smaller scale.** In fact, huge investments are being made into 3D NAND memory capacity, 10nm design structures, or DRAM (Fig. 8) (Appx. 1a).

Vacuum valve market: ultra-high-quality products becoming more essential. Vacuum valves are described to be **mission-critical c-parts**. This means that they account for only 2-3% of OEM manufacturing costs, but the ultra-high quality is essential to their customers as potential production losses from malfunctioning equipment could have devastating consequences. The **main idiosyncratic driver for the vacuum valve industry is new customers which, for the first time, move towards vacuum processing**. For example, lithography is an essential part of the chip manufacturing process. It describes the procedure of imprinting the developed design of a chip onto a silicon wafer.

Figure 5: China Supply vs Demand

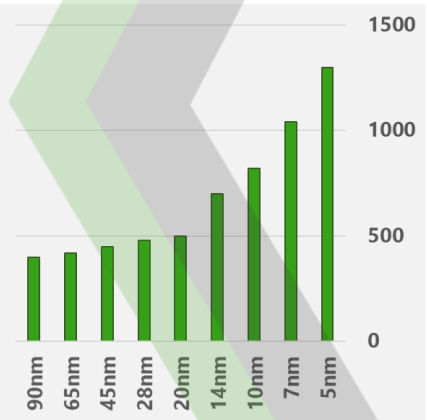
Source: PwC

Figure 6: Automotive semi sector



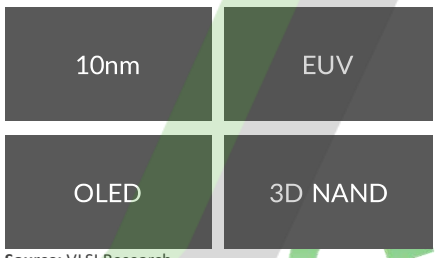
Source: McKinsey

Figure 7: Increasing prod. steps in node sizes



Source: SEMI

Figure 8: New Technologies



Source: VLSI Research

The wafer represents the building block in the semiconductor manufacturing chain, later formed into a final chip. Until recently, the standard procedure – immersion lithography – did not necessarily require a vacuum environment for production. However, the immersion process is being replaced by a new standard, Extreme Ultraviolet Lithography (EUV). This technique, using an extreme ultraviolet wavelength (13.5nm), will be able to imprint semiconductor circuits on a much smaller scale, hence increasing efficiency and capability of semiconductor components. The market leader, ASML, will thus increasingly require VAT's services.

COMPETITIVE POSITIONING

VAT is the **market leader with a global reach in the vacuum valves market**, which accounts for USD 977m annual sales in 2016 and a YoY growth of 22% according to VLSI Research. The niche market is characterized by a **low to moderate degree of fragmentation**. **Entry barriers are high** due to long-lasting R&D cycles, significant spending on leading-edge technology, high requirements for cleanliness in the manufacturing facilities and a **close relationship with key customers**. Competitive rivalry is moderate, with **VAT clearly ahead of the pack** in terms of market share and margins due to their pure play business model entailing higher operational efficiency.

Close & long-lasting relations with key customers and fragmented supplier base. Around **50% of VAT's sales come from 3 main OEM customers:** LAM Research, Applied Materials, and Tokyo Electron. VAT has been working with some of them since they entered the market for semiconductor valves around 1990. VAT's valves represent only 2-3% of material costs to their customers but are considered mission-critical. Sometimes, products are even co-engineered with customers to ensure an exact fit. **Geographic proximity to key customers** and after-purchase services such as repair, maintenance, and retrofits also positively contribute to customer relations. As a result, we believe **buyer power is moderate** (Appx. 9). Supplier power, on the other hand, is low, as **VAT has >100 different suppliers**, with none of them accounting for more than 10% of material costs.

VAT ahead of competitors: higher market share & margins. VAT has a **market share of 46%** (as of HY17) in the global vacuum valves market, which is **8x bigger than its closest competitor**. Main competitors are SMC, V-Tex and CKD from Japan and MKS, HVA, and Nor-Cal from the US. V-Tex, HVA, and Nor-Cal are private companies. MKS, SMC, and V-tex are the closest competitors in terms of market share (approx. 5% each). MKS and SMC have a global reach, but only have 4% and 1% of their business in vacuum valves respectively. With its USD 35m of sales, V-tex is a small company which focuses on vacuum valves but lacks reach outside of Japan. The **6 biggest competitors have a combined market share of approximately 25%** and together, all seven companies control about 70% of the market (Fig. 9). **We thus deem the market to be moderately concentrated** (Herfindahl-Hirschman Index value equals 1850). In the past, VAT has grown mostly organically (the acquisition of Inficon's vacuum valves product line in 2012 being the exception). **We expect the market share to further increase to 50% by 2020**, one of the key factors being the focus on the semiconductor industry which shows strong growth projections for the next years. Indeed, 60% of VAT's revenues are related to semiconductor components and the company managed to increase its semiconductor market share from 43% (as of HY 2016) to 52% (as of HY 2017). VAT's leading position is reflected in its **higher margins versus competitors** (Fig. 14). The adjusted EBITDA margin is expected to grow to 30% in 2017, with a mid-term target of 32.3% in 2020, while the non-adjusted EBITDA margin is expected to reach 29.4% in 2017 and 30.7% in 2020.

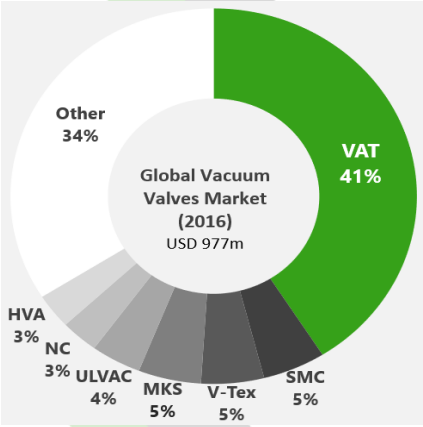
VAT is well positioned to deliver innovation. VAT has historically had an **R&D over net sales ratio of around 7%** and we expect this to continue in the future. VAT lies above competitors in terms of R&D (Fig. 10). If one considers the fact that **MKS and SMC only have a small percentage of their business in vacuum valves** (Appx. 15), one can assume that the R&D expense destined for vacuum valves is almost zero. Product development takes between 2 and 3 years on average (occasionally up to 5-7 years) and **20% of the workforce is engaged in R&D**, testing labs, market intelligence and knowledge management. This has resulted in a **strong patent portfolio** with around 170 granted patents and about the same number of pending ones (according to their IPO memorandum). Expiration dates range between 2018-2035. The remaining average patent maturity on granted patents is around 10 years and that of pending patents was around 15 years. The three patents the company considers most important (L-Motion, Control Valve, and Twin VAT) expire between 2029 and 2033. The next material patent expires in 2024. VAT has a procedure in place to **monitor potential patent infringement by competitors**. Consequently, we deem the risk related to patents to be low.

Competitive landscape expected to remain the same. We believe that **competitors** with cash to invest, such as MKS and SMC, may find the growth prospects of the vacuum valves market appealing, but will ultimately be **discouraged from higher investments** due to VAT's solidified market-leading position. This is also reflected in VAT's expected Capex/Net Sales (for PPE & Intangibles) for FY17 and FY18, which is in line with competitors'. **Capex spending is above customers and peers** (Fig. 11) (Appx. 14), mainly due to the current expansion in Malaysia. **The threat of new entrants is low** for the same reasons that we believe the competitors will have a hard time expanding. Moreover, larger companies may be discouraged from entering by the niche market size of approximately USD 1bn.

FINANCIAL ANALYSIS

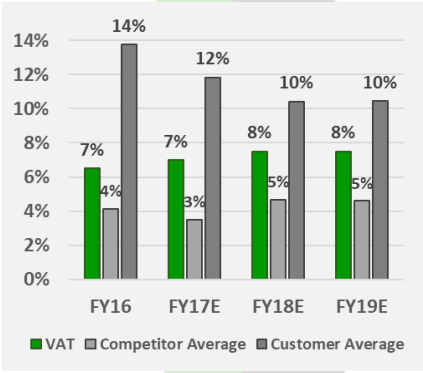
High historical revenue growth and positive outlook from core drivers. VAT has achieved a significant annual growth of 24% in its revenues for FY16 resulting in annual sales of CHF 508m. In fact, since 2013 the company has generated a strong CAGR of 15%. The company divides its sales according to the three business segments: Valves (78% of net sales in FY16), Global Services (16%) and Industry (6%). The highest increase in YoY sales of 28% came from the Valves segment, **mainly due to the rapidly increasing end-market demand for vacuum valves**. We have projected sales for the next 10 years based on our expectations of the markets and VAT's performance (Fig. 12). Projected sales growth has been estimated separately for each business segment considering VAT's expected market share evolution within the segments. For this, we used the VLSI sales projections as bases of our calculations. For 2017, we respect

Figure 9: Vacuum Valves Market (2016)



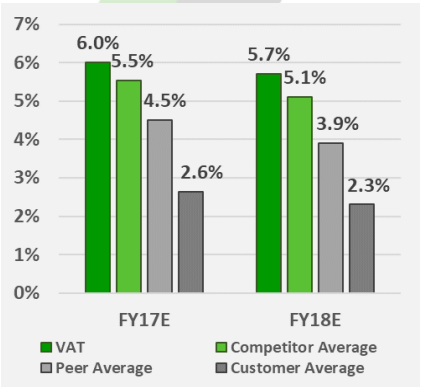
Source: VAT Group AG

Figure 10: R&D / Revenues



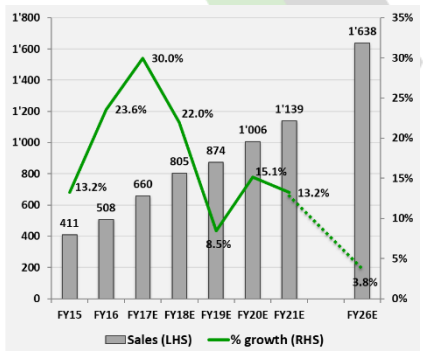
Source: Thomson Reuters, Team Assessment

Figure 11: CAPEX / Revenues



Source: Thomson Reuters, Team Assessment

Figure 12: Revenue Growth



Source: Team Assessment

VAT's guidance which leads to an expected sales growth of 30%. For 2018, we expect VAT to significantly outperform the semiconductor market – with YoY sales growth of 22% - which is expected to slow down to 4.3% (Source: WSTS). In 2019, we expect a more moderate growth of about 8.5% because cyclicality is still influencing VAT's underlying markets. This is, however, still above peers which average around 3% (Appx. 25). Due to the **increasing end-market demand of China**, **better cost control efficiency** and a potential **increase in VAT's purchasing power** by means of higher customization and complexity in the product, we expect a recovery in the growth rate to 15.1% in 2020**.**

Strict cost control allows for increased efficiency and higher EBITDA margin. In 2016, COGS represented 37% of sales, followed by personnel expenses (23% including non-recurring cost) and other net expenses (10% including non-recurring cost) (Fig. 19). The impact of raw materials on COGS amounts to 6% (Appx. 18). Thus, we expect fluctuations in prices of steel and aluminum to not exhibit large effects. We forecast increasing COGS of 200 bps on EBITDA margin by 2020 (Fig. 13). Our assumption is based on VAT's outsourcing which is around 60% and is expected to go up to 70%. **Outsourcing has a cost effect on VAT's gross profits** as the supplier's depreciation charge of machines is reflected in the price. Nevertheless, it positively affects EBIT and overall profitability of the company with economies of scale. When looking at EBITDA, the negative **COGS effect is expected to be mitigated by the company's ongoing margin improvement program: VATmotion**, which aims at material planning, global sourcing, value engineering and cycle time reduction. VATmotion allows improving cost efficiency by providing the capacity adjustment measures (ramp-up/down) that allow matching capacity with demand. The company's gross margin of around 62.6% in 2016 is almost twice as high as that of its peers (33.3% - Appx. 21). Regarding VAT's EBITDA margin, the firm's level is around 30% in 2016 (versus 17% for peers - Fig. 14). **As explained with the forecasted sales growth levels and the strict cost control, we expect the EBITDA for each segment to be positively impacted in the future.** The overall EBITDA forecast shows an increase of 130 bps by FY20.

Outsourcing compensates for specialist staff acquisition and R&D. Personnel expense represents 23% of sales in 2016. Currently, VAT employs around 1'700 employees. During 1H FY17, over 300 people have been hired which is more than in the full year 2016. The company mostly hires specialist staff and provides in-house training programs (apprenticeships of 3-4 years). Hence, most of VAT's workforce is skilled (or soon-to-be) and requires a higher wage. **However, in our forecast, we incorporated that the increasing outsourcing (more than 60%) offsets this relatively high hiring levels**. This accounts for a positive impact of 140 bps when forecasting our EBITDA margin 2020 (Fig. 13). As for the other operating expenses (10%), we expect the **VATmotion cost efficiency initiative to reduce traveling** (around 16% of other operating expenses) **and repair/maintenance costs** (24% - Appx. 19). This change is accounted as a saving with the positive effect of +1.89% for EBITDA 2020.

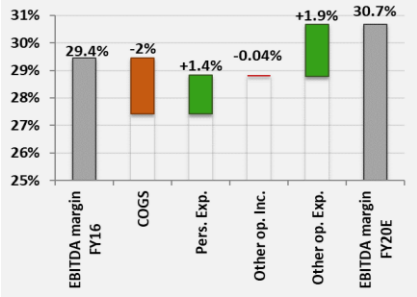
Stronger bottom lines via further deleveraging of the balance sheet. Per year-end 2015 VAT's gross debt was worth CHF 709m, involving a credit facility of CHF 304m and a shareholder loan of CHF 405m. The latter was then converted into equity during the IPO in April 2016. In September 2016, VAT signed a new five-year revolving credit facility (RCF) of USD 300m which was used to refinance the outstanding senior secured credit facility of USD 276m. Due to this shareholder conversion and the lower interest rate of the RCF, the financing cost in 2016 is reduced to CHF 37.7m against CHF 71.4m in 2015. In 2016, VAT's leverage presents approximately 22% of total assets and **we forecast a deleveraging of the capital structure which will end in 2021 as the debt would be fully repaid** (Fig. 15). Thus, net debt to EBITDA is 0.9 in 2016 (versus 1.94 in 2015) and is expected to go down to zero by 2020. We, therefore, expect debt reduction to be followed by a simultaneous rise in cash flows.

Due to the IPO's non-tax-deductible cost, the effective tax rate in 2016 was 23.5% and we estimate a tax rate of 20% going forward, in line with the target of the management guidance. The firm reported net income of CHF 67.2m in 2016 (13.2% of sales against 8.6% for peers - Appx. 26). **As mentioned, this result is driven by higher operating profits, lower finance costs and finally a lower tax rate**. We conclude that VAT can convert its high top-line into a high bottom line as it is also shown through higher ROIC (15% in 2016 – including goodwill for conservative purposes) when compared to peers (8%) (Fig. 16). We do not foresee significant changes that could lead to an inferior performance of the firm.

High-cost variability and backlog increasing downturn resilience. In 2016, the **equity ratio amounts to 57.8%**. Due to deleveraging of the firm, there will be lower borrowing costs given no further debt contraction. Thus, VAT's lean structure is becoming more resilient in case of a market downturn. The company has high-cost variability as only 1/3 of total costs are fixed. Indeed, 100% of material costs and 30% of its personnel and operating expenses are variable. This results in a low operating leverage (0.8X short term – 1.2X long term) and a high margin resilience in downturns. Additionally, we see the current **backlog as a safeguard**, which can offset negative revenue growth. Due to high vacuum valves demand and VAT's capacities constraint, the company's backlog of customer orders has been increasing. We expect this backlog to increase further in 2017 but VAT will be able to process it in 2018/19 due to increasing capacity in its Malaysian production site. This way **the vacuum valve manufacturer will be able to offset a potential downturn and profit from the structural growth factors thereafter.** We conclude that the firm's **cost structure is well-controlled** and shows a **strong level of resilience.**

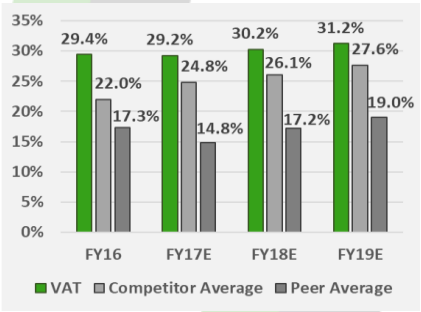
Higher operating efficiency coming up and liquidity under control. In 2016, VAT's level of net trade working capital is under tight control with an operating cycle (112 days) in line with the peers' average (Appx. 22). The firm's days receivables are 62 days in 2016 compared to 72 for peers. This underlines the rigorous collection discipline of VAT toward its customers. In terms of days payables, the firm's level is 60 days compared to 45 days for the peer's average. This is the result of procurement initiatives and contracts which have been renegotiated. VAT's inventory days (110 days) exceed that of its peers (85 days) due to 2 main reasons. Firstly, VAT is producing customized products implying longer R&D cycle time. Secondly, VAT is experiencing high growth revenue and high growth backlog levels, forcing it to face inventory stock out due to capacity constraints. **However, we forecast a decrease in the operating cycle** - expected to be around 90 days by the year 2020 (Fig. 18) **- as we see the potential for further**

Figure 13: EBITDA Bridge



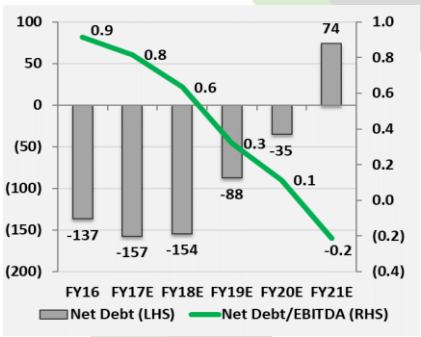
Source: Thomson Reuters, Team Assessment

Figure 14: EBITDA margin



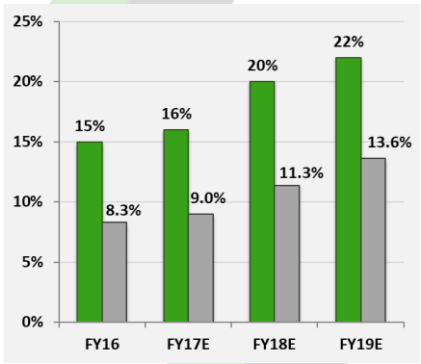
Source: Thomson Reuters, Team Assessment

Figure 15: Deleverage (m CHF)



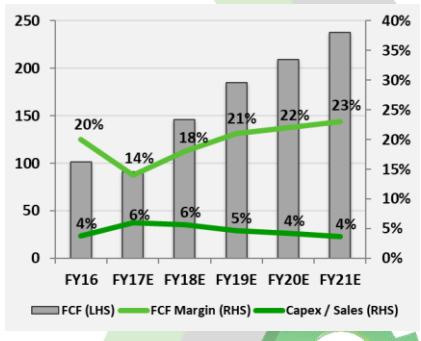
Source: Thomson Reuters, Team Assessment

Figure 16: ROIC (VAT vs Peers)



Source: Thomson Reuters, Team Assessment

Figure 17: Cash Flows



Source: Thomson Reuters, Team Assessment

efficiency at the inventory levels via the VATmotion initiatives. This higher efficiency would be the result of improvements in terms of material planning and global sourcing. Indeed, VAT has projects in the pipeline to lower its cycle times, up to 50% for its Swiss plant and 45% in Malaysia.

We forecast an NWC of sales that is 17% as per management target (in 2016 net trade working capital is 20.2% of sales). Brands, trademarks, and goodwill are not being amortized/impaired (the account is worth 60% of the total asset) and we do not expect any impairments going forward as we consider VAT capable to extract future cash out of them. Indeed, VAT's most relevant patents expire only in 2029-2033. Regarding the liquidity, we see a current ratio of 1.68 against 2.21 for the average peer's level (Appx. 20 & 22). **We state no liquidity concern, as the level is still above 1 and the firm is purposely keeping its cash on hand low to fulfill its dividend policy**.

Solid FCF generation and limited capital expenditure requirements going forward. The firm generates consistent Free Cash Flows (FCF) and exhibits high FCF conversion. In 2016, the FCF margin was 20% (Fig. 17) and the FCF conversion rate amounts to 85.6% of EBITDA. **This is due to high operating performances and a tight working capital management.** As mentioned before, the company has an NWC margin of 17% in 2017. However, the sales growth for 2017 is forecasted to be 30% before dropping afterward, which results in an FCF margin of 14% in 2017. Again, this is due to cash flow level being offset by a higher Capex and higher working capital to support the growth. Looking ahead, as the business expands, we expect the FCF margin to increase gradually back to the target of 25% with a conversion level of 70%. Regarding the Capex, VAT is not a capital-intensive company as the Capex margin is 3.8% in 2016 and 3.1% in 2015. However, the firm is expected to hit 6% Capex margin (5.3% for PP&E and 0.7% for intangibles) in 2017 in response to the demands of the growing market.

From 2018 onward, **we forecast the capex to slightly decrease to the management target of 4% as the company is increasing its global sourcing and outsourcing**. While a portion of net income is retained for the organic growth and the deleveraging of the balance sheet, VAT put in place a dividend payout policy in 2017 for the financial year 2016. The amount is CHF 120m out of reserves from capital contributions. In subsequent years, if the firm's net debt does not significantly exceed 1x EBITDA, VAT is expected to distribute up to 100% of FCF to equity. However, we forecast an FCFE of 60% for the long-term as we believe VAT would need to free its cash, to respond to market dynamics through potential inorganic growth opportunities.

VALUATION

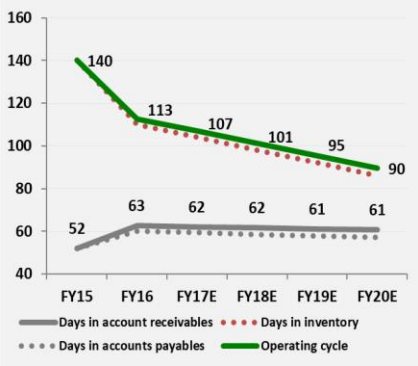
We issue a BUY recommendation on VAT Group AG (VACN) with a target price of CHF 163, representing a 21% upside from the closing price of CHF 135 per share of November 30th, 2017. Our target price calculation is based on a mix of the Discounted Cash Flow (DCF) to Firm model with a target price of CHF 166 (Appx. 35) and P/E/G multiple with a target price of CHF 155 (Appx. 40). We respectively attributed weights of 75% and 25% to each methodology. The choice of attributing less weight to multiples methodology is driven by the lack of comparable companies to VAT. In addition, the intrinsic FCFF method allowed us to include the cyclicality of market environment of vacuum products. We have also used a 3 stage Dividend Discount Model but decided it will be prudent to attribute a zero weight to this methodology. This is because VAT has just started paying out dividends in 2017 and does not yet have a long and stable dividend payout history. Never-the-less, we obtained a similar target price of CHF 162 (Appx. 38).

Sales higher than consensus expectations. In the preceding financial year, VAT has achieved a total revenue growth rate above 23%, outperforming the management target of 20%. **We believe the outperformance will be sustained in the short term.** We expect a total sales growth of 30% in FY17, but a decrease to 19% in 2018. In 2019, when a -3.8% growth is expected in the overall industry, VAT is expected to mitigate this drop by increasing its market share and as a result to achieve a positive, rather negative top line growth.

1) **8.2% CAGR in Semiconductors in 2017/22:** We expect investments in semiconductors to continue, but at a lower rate than 6.3% in 2017, mainly driven by fading investments in 10nm and oversupply of 3D NAND. Currently, important investments are being made in a new 3D NAND memory capacity technology that provides relatively low yields. **After several years of adopting the technology, yields will improve,** thus, creating a potential oversupply by 2019/20, resulting in a slight reduction in new investment. In 2019, investments in 10nm will also fall away as manufacturing process will be in the stage of improving, following a successful first round of investment that is happening now. **However, VAT's growing order intake and an average 7-year long valve creation process are strong signs that VAT is able to overcome the cyclical behavior of capital markets with positive growth.** 2) **OLED Displays to follow a path 3D NAND**: Significant investments will continue to be made in short-term, slightly pausing in 2019. 3) Expecting **Photovoltaic CAGR to slightly slowdown in the near future, but to pick up again** in 2020 and **general vacuum industry to see small, but stable growth** in the long term, we arrive at a photovoltaic CAGR of 3.5% in 2017/22 and 2.5% for general vacuum. Within our sales forecast, we incorporate the impact of the cyclicality across all segments of capital equipment markets what results in conservative growth assumptions and an expected downturn in the midterm. VAT's growing market share from 41% to 55% in semiconductors (CHF +284.61m), Flat Panel Displays (CHF +201.47m) and general vacuum (CHF +167m) industries, which are the strongest contributors to 2017/18's revenue forecast, allows us to achieve a topline of CHF 785m. However, our assumptions may not hold if unexpected strong industry decline will continue in 2020/21 or if VAT will consider an unexpected sales mix shifts, possibly due to technological innovation breakthroughs in semiconductors, display or solar industries.

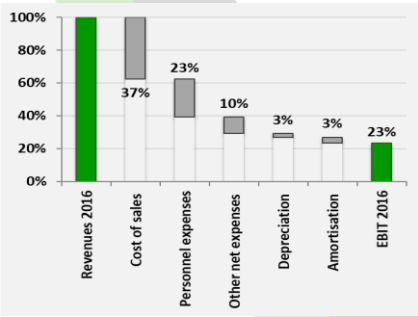
33% Adjusted EBITDA margin achievable in a 5-year timeframe. We expect the progressing shift of sales mix including a more prominent role of sophisticated valves built for new semiconductor and solar products as an addition to bigger increase of COGS due to ongoing economies of scale. **Growing marking share and positive volume growth are challenged by increased difficulty in finding and recruiting qualified staff, but close links to leading world universities and established training program allows to find and train new employees**. Nevertheless, the ongoing outsourcing results in an expanding EBIT margin. We believe that the management guidance of 33% adjusted

Figure 18: Cash to cash conversion



Source: Thomson Reuters, Team Assessment

Figure 19: Cost bridge



Source: Thomson Reuters, Team Assessment

Figure 20: WACC calculation

WACC Computation	
10y Swiss Government Bond	**-0.09%**
Market Risk Premium	**5.83%**
Beta	**1.4**
Cost of Equity	**8.0%**
Pre-Tax Cost of Debt	**2.0%**
After-Tax Cost of Debt	**1.6%**
Tax Rate	**20%**
Target Net Debt (Bn CHF)	**0.21**
Market Capitalization (Bn CHF)	**4.05**
Entreprise Value (Bn CHF)	**4.26**
WACC	**7.65%**

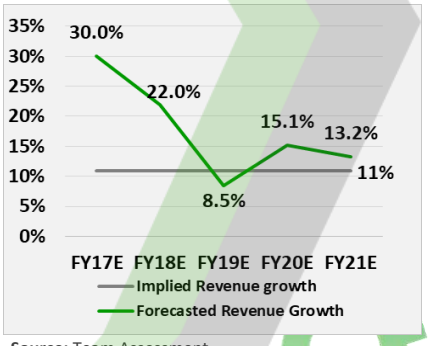
Source: Team Assessment

Figure 21: Terminal FCF Growth rate

Country	Weight	LT GDP Growth	Weighted GDP Growth
Japan	16.2%	1.5%	0.2%
China	18.7%	4.5%	0.8%
USA	33.3%	2.2%	0.7%
EU & CH	15.5%	1.6%	0.3%
Korea	14.6%	3.0%	0.4%
Weighted Average Terminal Growth Rate			**2.50%**

Source: IMF, Team Assessment

Figure 22: Implied DCF



Source: Team Assessment

EBITDA margin is realistically achievable, and **the premium is not priced in the share price**. Our forecast suggests that **the target will be achieved just as estimated by the management** - in the financial year 2020/21 (Appx. 30-32).

From EBITDA to FCF estimations. In the following 3 years, we forecast capital expenditure to deviate from the guidance of 4%, reaching levels of 5%-6%, mainly due to plant developments in foreign countries. The expansion in Asia, by developing the Malaysian plant, is reflected in our CAPEX forecast, which exceeds annual D&A by approx. 75%. In addition, we forecast net working capital to remain at a constant level of sales (18-20%) as a target defined by management. The tax rate applied to our analysis has been kept constant at 20%, in line with VAT expectations (reaffirmed in analyst call).

Estimating the risk-adjusted discount rate. We apply a **WACC of 7.65%** to discounting the FCFF (Fig. 20). The company has a targeted level of Net Debt to EBITDA of ~1.1x giving an optimum debt weight of 5.5% of enterprise value. The computation of cost of equity is based on the Capital Asset Pricing Model using the following inputs: a) risk-free rate equals 10-year Swiss Government bond rate b) Swiss market risk premium of 5.83% c) comparables raw beta re-levered using VAT's current capital structure resulting in a VAT-Beta of 1.4 (Appx. 33).

Optimistic views on terminal growth. To calculate the terminal growth rate, we weighted long-term GDP growth projections of VAT's main geographical markets by the current geographical revenue composition (Fig. 21). This approach results in a **positive terminal growth rate of 2.5%.** We believe that **this rate also reflects the rapid technological advances, increasing returns on R&D and a maturing market with moderate volume growth and technological innovations.** However, the terminal value represents more than a half of the firm value (~60%), so small changes to the perpetual growth rate will have an important impact on valuation, but considering that usually the terminal value represents much higher percentages, we acknowledge that a significant portion of firm value is derived from medium-term developments.

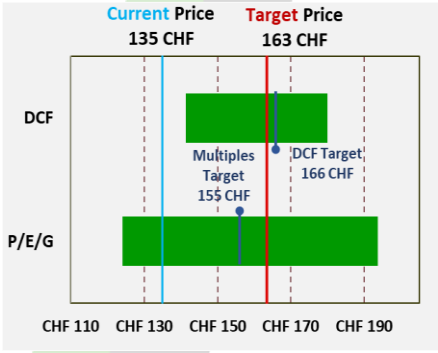
Intrinsic valuation: free cash flow to the firm. The FCFF model was selected because VAT has a stable Free Cash Flow to Firm, which is expected to increase over time in three phases. The first phase of strong organic growth is based on a specific year-to-year forecast up to 2022 including a market contraction in 2019 when we believe VAT will be able to process its existing backlog. The second phase of a linear growth decline ranges from 15% to 4% in 2022-2026 and the third phase consists of constant growth of 2.5%. Based on our FCFF analysis, the estimated price is CHF 166 (Appx. 34).

DCF analysis reveals an undervalued valued share price. To assess the robustness of our DCF valuation, we evaluated the sensitivity of our result for the most influential inputs, namely WACC and the terminal growth rate. The most conservative scenario marks a downside of -4%. A very optimistic combination of 7.15% discount rate and a terminal growth rate of 2.95% results in an upside of 36**%. These results reinforce our positive view of industry growth rates and the belief that VAT's strategic agenda is not fully reflected in the share price with a considerable premium** (Fig. 28). Implied DCF sets a required annual cash flow growth at 12% for the next 10 years in order to justify the current share price of CHF 135, compared to forecasted 13% (Appx. 37). **This expansion is achievable.** This method does not encompass the associated target margin improvements which are forecasted to be attained by 2020 (Fig. 22)**.**

Multiple analysis: an undervalued company in a rapidly-growing industry. Using commonly accepted ratios of EV/EBITDA and P/E, we see VAT trades at a premium (Appx. 40) to the market the past 2 years since the IPO, which in our opinion are both justified, taking into account higher earnings growth (Fig. 27). To perform a more comparable and sound multiple valuation **we chose Price to Earnings to Growth (PEG) as the most appropriate multiple to compare VAT to its peers**. We used the PEG approach mainly because VAT operates in a high tech – high growth industry and one weakness of the P/E or EV/EBITDA ratios are that its calculations do not consider the future expected growth of a company.

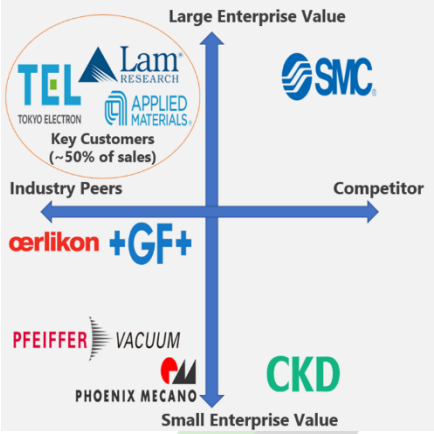
Even though earnings and earnings growth may fall victim to different accounting treatments under managerial discretion, we use it to better visualize the premium that investors are ready to pay. **For the composition of the peer group, we chose a basket of peers from industrial engineering sector, in which VAT and its customers operate** (Fig. 24/25). Within our metric, capital equipment manufacturers' stocks are not cheap. In terms of trailing EPS, they produce a median trailing P/E of 28.1x and a forward-looking ratio of 36.2x (based on Reuters and team assessment respectively). With such trailing and projected metrics, our 2016/17 bottom line figure shows a premium of 35% over the trailing P/E median and even more profound discount of 72% in the forward metric (Fig. 26). Finally, **taking the forward 2017 P/E/G peer medians as a proxy for VAT's share price results in an estimate of CHF 155 per share.**

Figure 23: Price Range



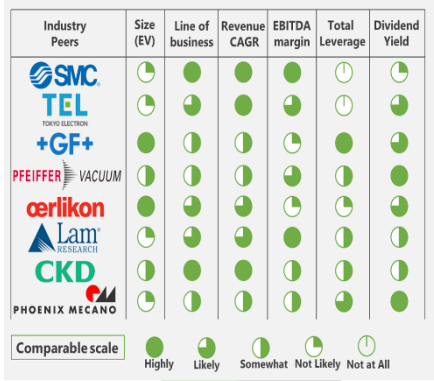
Source: Team Assessment

Figure 24: Assessment of peer similarities



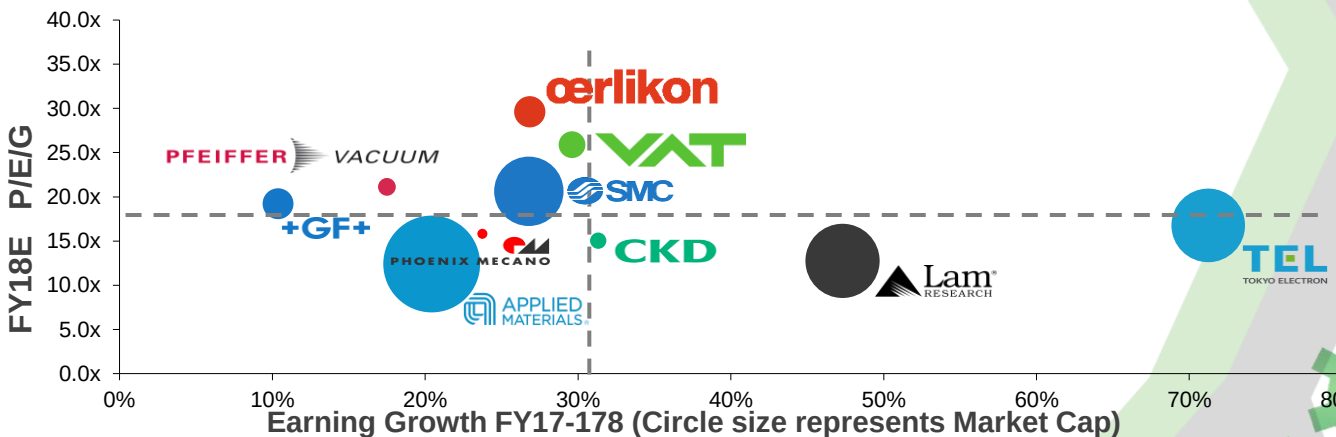
Source: Team Assessment

Figure 25: Peers analysis



Source: Team Assessment

Figure 26: Multiple Analysis



Source: Thomson Reuters, Team Assessment

A source of value for investors. In our assessment, the discount can be explained by higher future EPS and EPS growth than peers since the forward PEG valuation reveals an even higher markup on the peers' median, improving EBITDA margins and growing market share reflected in sales. In addition, since VAT is the sector leader with a very positive outlook, investors are currently ready to pay a certain premium. Our final price recommendation for VAT represents **a fair price of CHF 163**, which is a weighted average of applied and described valuation techniques above (Fig. 24).

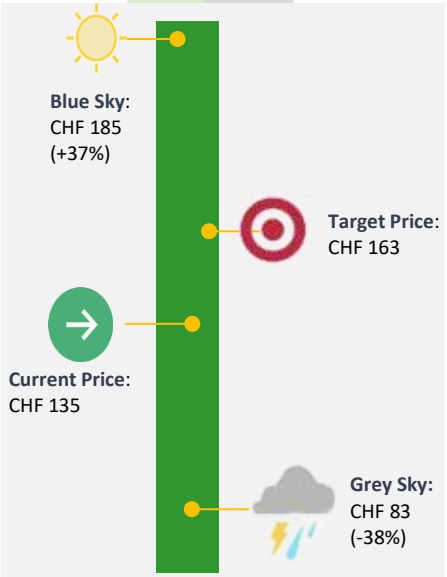
Risks to the target price.

Our growth assumptions may not hold if unexpected strong industry decline will continue in 2020/21 or if VAT will consider an unexpected sales mix shifts, possibly due to technological innovation breakthroughs in semiconductors, display or solar industries. Simple adjustments of valuation assumptions could significantly affect our target price and our BUY recommendation. **To evaluate the impact of each major assumption we performed a simulation, as well as, a sensitivity analysis to closely study the impact of the discount rate and terminal growth rates** (Fig. 28) **as well as blue-grey sky scenarios** (Fig. 27) **on the target price**.

Monte Carlo simulation. In the projected income statement, we varied sales growth projections, cost of goods sold and other operating expenses. For the operating expenses, we stressed prices of raw materials among others. After running the simulation, **we observed a 65% probability of finding a target price above 10% upside** or CHF 163 per share, and **only a 10% probability of a downgrade to a SELL** (Fig. 29). From the simulation's result, we concluded that **the most sensitive variables in our model are foreign exchange effects** (Fig. 36, Fig.37 and Appx. 39). Hence the importance of continuing foreign exchange risk hedging through derivatives is essential.

Sensitivity analysis (blue-grey sky scenarios). Based on our insights we believe in VAT's growing market share and end markets, so we consider it is essential that we perform a sensitivity analysis on these primary variables of the model. **VAT must lose one of its three key customers together with a subsequent market share or end markets will have to contract by more than 50% to change our recommendation to a SELL.** Similarly, a loss of 5% in market share (and one of its key customers) can deteriorate the company's revenue and change our recommendation. Given that VAT is well protected against the loss of market share and is less prone to be negatively affected by the Capex contraction in the end markets, **we see no foreseeable event that may deteriorate VAT's share price** (Appx. 27-29).

Figure 27: Blue/Grey sky scenarios



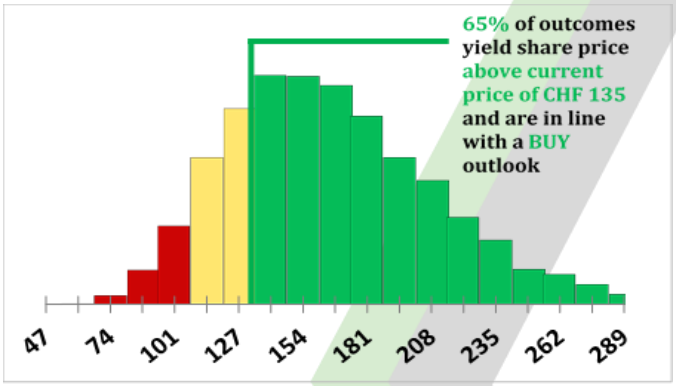
Source: Team Assessment

Figure 28: Sensitivity Analysis

Perpetual Growth Rate \ WACC	7.4%	7.5%	7.6%	7.7%	7.8%	7.9%	8.0%	8.1%	8.2%
3.0%	43%	39%	36%	33%	30%	27%	24%	22%	19%
2.9%	40%	37%	34%	31%	28%	25%	22%	20%	17%
2.8%	38%	35%	32%	29%	26%	23%	21%	18%	16%
2.7%	36%	33%	30%	27%	24%	21%	19%	17%	14%
2.6%	33%	30%	28%	25%	22%	20%	17%	15%	13%
2.5%	31%	28%	26%	**23%**	21%	18%	16%	14%	11%
2.4%	29%	27%	24%	21%	19%	17%	14%	12%	10%
2.3%	27%	25%	22%	20%	17%	15%	13%	11%	9%
2.2%	26%	23%	20%	18%	16%	14%	11%	9%	7%
2.1%	24%	21%	19%	17%	14%	12%	10%	8%	6%
2.0%	22%	20%	17%	15%	13%	11%	9%	7%	5%

Source: Team Assessment

Figure 29: Monte Carlo Simulation



Source: Team Assessment

CORPORATE GOVERNANCE

Group Structure. VAT, with its headquarters based in Haag, Switzerland is composed of the holding company (VAT Group AG), 3 domestic subsidiaries and 16 located abroad (as of FY16). VAT's subsidiaries include 5 production & distribution companies (in Switzerland, Romania, Malaysia and Taiwan), 8 pure distribution companies (in China, France, Germany, Japan, Korea, Singapore, UK, USA), 5 holdings and 1 financing subsidiary (Appx. 4).

Group Executive Committee & Board of Directors. VAT's current group executive committee (GEC) is composed of the CEO (Heinz Kundert), CFO (Andreas Leutenegger) and newly appointed (since June 2017) COO (Jürgen Krebs). The company has recently announced that starting Q1 2018, Heinz Kundert will be replaced as CEO by Michael Allison, the current president of the semiconductor division at Atlas Copco/ Edwards. We believe it will be a positive change for the company, given Allison's large expertise in the semiconductor business and his growth contributions during his time at Edwards. VAT's board of directors is currently composed of 6 non-executive members including the chairman Dr. Martin Komischke, 4 members reelected during the previous year and 1 new member (Fig. 30). Half of the members of the BoD (including the chairman) have education and proficiency in engineering, while the other half is composed of members with finance and management competencies. There are no women members on VAT's board. During the past 3 years, none of the members held executive positions at the company, however the presence of the past CEO of VAT Holding - Karl Schlegel as BoD member (CEO from 2004 to 2013) may raise slight **concerns about the independence of the current BOD members** (Appx. 2, Appx. 5 and Fig.31). Also, the current CEO Heinz Kundert will be offered a seat on the board during the next Annual General Meeting in 2018. Our second **concern falls upon the number of mandates held by the members of BoD** outside the VAT Group. Certain members of VAT's board hold up to 6 mandates outside of VAT which make us question whether the members devote sufficient time to the ultimate

Figure 30: VAT Board of Directors

Dr. Martin Komischke (Chairman BoD)	- Ph.D. in engineering - On the BoD and executive committee of Hoerbiger holding
Alfred Gantner (Vice-Chairman BoD)	- Co-founder of Partners Group - Finance and management expertise
Ulrick Eckhardt (Member BoD)	- Partner at Capvis Equity Partners AG - Management background
Karl Schlegel (Member BoD)	- Past CEO of VAT Holding - Engineering background
Urs Leinhäuser (Member BoD)	- Past CFO of Mövenpick - Finance and operational background
Dr. Hermann Gerlinger (Member BoD)	- Ph.D. in physics and astronomy - Executive member of Carl Zeiss AG

Source: VAT Group AG

the direction of the company and supervision of the management. In the current year, the company has made significant changes to its compensation rates, raising the maximum aggregate amounts distributed to the BoD and GEC members. BoD members who are compensated in cash and restricted cash using fixed basis will now be subject to a maximum of CHF 0.9m aggregate compensation amounts (increased from CHF 0.71m in 2016) justified by the company by the new number of committees and members of the BoD (increased by 1). The compensation rates for the GEC are subject to fixed and variable remunerations. The shareholders have voted upon an increase in the maximum aggregate amount of fixed compensation (from CHF 1.3m to CHF1.55m), as well as the adoption of long-term incentive compensations for the GEC and other executive members destined, as VAT claims, to promote sustainable value creation for the company and its shareholders by the executives. We believe that the general increases in the compensations are in line with the company's financial achievement made during last fiscal years, such as revenue growth of almost 24% and increase in market share by 5%.

Environmental sustainability and social responsibility. VAT appears to be concerned about environmental protection and occupational safety, providing regular training programs on the matters to its employees. The company ensures that products purchased from its suppliers meet legitimate environmental and safety principles. VAT is a holder of the certificate in quality management ISO 9001 and environmental management ISO 14001. The company is engaged in the global "Green Procurement" initiative, ensuring exclusion of the substances whose use is restricted or forbidden by global legislation in the production process. VAT provides to its customers on request information sheets regarding substances contained in its products (provided by the third parties), the accuracy and information of which the company does not guarantee.

Shareholder base. The company has 30 million shares outstanding. In September 2017 it has distributed its first cash dividend of CHF 4 per share. The company has a single class of shares: since Dec 31, 2016, it has not issued any preference shares or any shares with differed voting rights. Currently, the **biggest shareholder of VAT Group AG is a private Swiss investor and MedTech pioneer Rudolf Maag**, holding a stake of 10.3% which he acquired from Partners Group at the end of September. Partners Group and Capvis, the companies that conducted an LBO for VAT in 2014 and initiated the IPO in April 2016, have recently been divesting. Currently, the private equity companies own approximately 3.7% and 3.8% of the company's shares respectively. Over the last 2 months, Partners Group has decreased its share by approximately 20%, significantly increasing the free-float. We believe that the high current level of free-float of 86% has positively affected the liquidity of company's stock, making the stock price more resistant towards market transactions (Fig. 32).

INVESTMENT RISKS

Strategic Risks.

Dependency on a small number of blue-chip customers: Around 50% of VAT's revenues come from three key customers: LAM Research, Applied Materials, and Tokyo Electron. Losing one of these three customers would have a material impact on VAT's revenues.

Risk of increasing competition: VAT operates in a market with attractive prospects and has higher profit margins than competitors. Existing competitors could increase investment in their vacuum valves lines or could consolidate. VAT's market share and profitability could suffer as a result.

M&A: Management has stated that it is not actively considering M&A. However, it would be open to attractive deals adding capabilities, product range or geographical footprint. We believe VAT will stay true to its pure-play business model and will not seek to diversify its activities, destroying shareholder value. We don't see VAT as an acquisition target in the near future as anti-trust laws may be a potential issue.

Technology risks: New technologies competing with or requiring fewer vacuum processes could emerge, impacting VAT's long-term growth. This risk is low as there is a trend towards more vacuum.

Market Risks.

End-Market Risk/Cyclicality: The offsetting impact of structural growth drivers on cyclicality may be smaller than anticipated, as expectations in emerging technological and geographical markets are high and actual developments might be less pronounced. This would negatively influence VAT's revenue growth in the underlying markets.

Financial Risks.

Foreign Exchange Risks: VAT has a significant percentage of employee costs in Swiss francs. Ongoing strengthening of the Swiss franc (Fig. 33&34). has negatively impacted margins in the past decade. A continuing appreciation of the CHF vs USD & JPY could have a negative effect the competitiveness of the business through lower external demand, higher production costs, lower profit margins, lower Swiss franc-equivalent price, lower volumes and lower market share. Almost all its customers sell products in either USD or in Japanese yen. USD exposure is partially hedged through the Malaysian production site and global sourcing. Up to 100% of net cash flows in USD and JPY are hedged by forward contracts on an 18-month rolling basis (up to 100% of next-6-month exposure is hedged, 50% of 7-12-month exposure and 25% of 13-18-month exposure).

Potential impairment of goodwill: Intangible assets representing (85% of total assets) may be impaired. While this does not enter our earnings projections, an impairment would likely result in a loss of confidence from investors, as intangible assets include customers lists and products closely related to VAT's business.

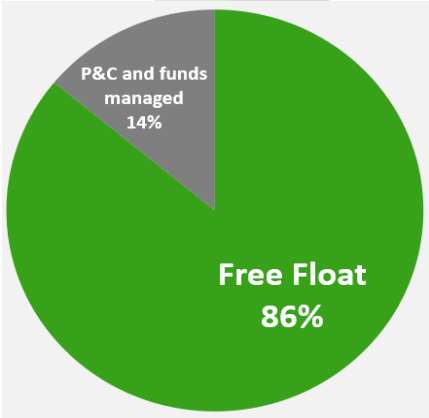
Dividend Payments: VAT seeks to pay out 100% of FCF as a dividend and targets a dividend yield of 3-5% (currently 3.7%). This makes it more attractive to investors seeking companies that pay dividends, increasing demand for the company's stock. VAT may lose investors should this dividend policy turn out unsustainable.

Figure 31: Corporate Governance Assessment

Governance quality %	
I. Shareholders and the General Meeting	46%
II. Management Board	84%
III. Supervisory Board	89%
IV. Transparency & Governance	81%
V. Reporting & Audit	100%
Total:	**84%**

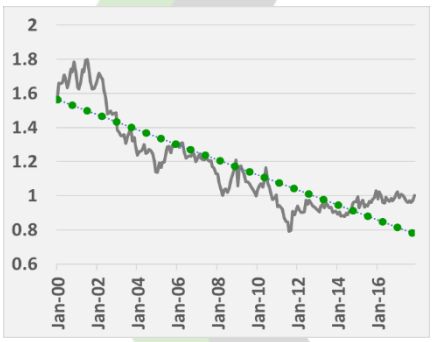
Source: Team Assessment

Figure 32: Shareholders



Source: VAT Group AG

Figure 33: Appreciation of CHF to US$



Source: Thomson Reuters, Team Assessment

Figure 34: Appreciation of CHF to Jap. Yen

Source: Thomson Reuters, Team Assessment

Accounting/Taxation: Changes in accounting guidance, applicable tax rulings, and taxation requirements could affect VAT's financial results. VAT's accounting and reporting systems and internal controls may not be as advanced as other public company systems and procedures.

Not Meeting their Guidance: Investors may not be very forgiving given that the company is valued rather highly. Small negative changes in the management guidance could, therefore, have a severe impact on the share price.

Operational Risks.

Key Staff: VAT employs highly skilled and experienced engineers. Losing key staff members or teams to competitors could negatively impact VAT's prospects. One of the key pillars of VAT's manufacturing is a flexible, cross-trained and skilled workforce. The ability to attract, retain and motivate key employees is critical to VAT's success. A deterioration of the relationship with employees could cause problems and lead to labor shortages, disruptions or stoppages. Furthermore, its future success also depends on the continued services of VAT's senior management team. Employees prefer not to have a labor union and prefer to talk directly to management.

Failure to attract new talent: VAT relies on constant innovation. If it fails to attract new talent, it may lose one of its key drivers. Current open positions include a lot of leadership positions and there could be a general shortage of people with over ten years of industry experience in this sector (Fig. 35).

Risks related to the quality of VAT's products: VAT's success depends on its ability to maintain a high quality, reliability, performance and timely delivery of products. It must continuously adapt its product line in response to rapid technological changes and trends. The company is subject to the risk of losing clients if the quality of its products deteriorates. Additionally, warranty claims, product recalls and product liability could have a material adverse effect on operations.

Regulatory and Legal Risks.

Tax Rate: Tax reforms may affect VAT in the future, but entry into force of the new legislation is expected no earlier than 2020.

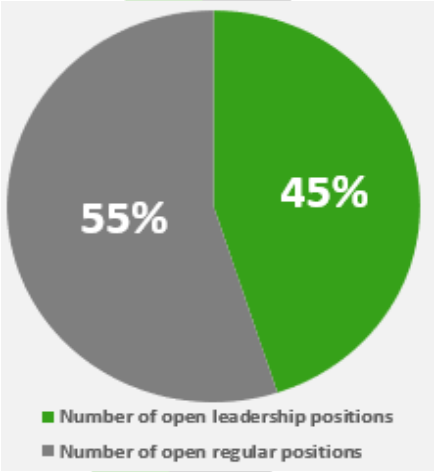
Legal/Regulatory: VAT needs to fulfill safety and quality requirements in order to be successful. Company activities are subject to environmental laws and health and safety liabilities. Its business is also subject to export, trade and sanction regimes. It is subject to governmental regulations in multiple jurisdictions. Failure to comply with these rules can result in fines, penalties or other costs that may impair its business.

Patent Expiry / Copyright infringement: VAT relies on constant innovation to distinguish itself from competitors. For now, we see the risk related to patent expiry and copyright infringement as low, as highlighted in the section about competitive positioning.

Natural risks.

CEO Kundert pointed out the most significant risk for VAT is a natural risk. We assumed the natural risks that may have the most impacts on the company are those affecting its four production units. We found two essential risks that could affect the company's production: seismic activities (regions of Haag, Switzerland and Xinwu, Taiwan) and flood risks (Penang, Malaysia, and Arad, Romania) (Fig. 38). Having studied the historical consequences of the two risks on the regions, we conclude that, there is a low-moderate probability that the occurrence of the abovementioned natural disasters can have a significant impact on VAT's production units.

Figure 35: Open Leadership positions

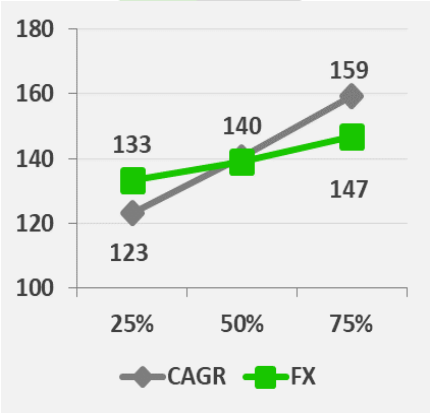


Source: VAT, Team Assessment. Open leadership positions are job offerings including the words 'manager', 'leader' or 'head of'.

Figure 36: Tornado Analysis

Source: Team Assessment

Figure 37: Spider Analysis



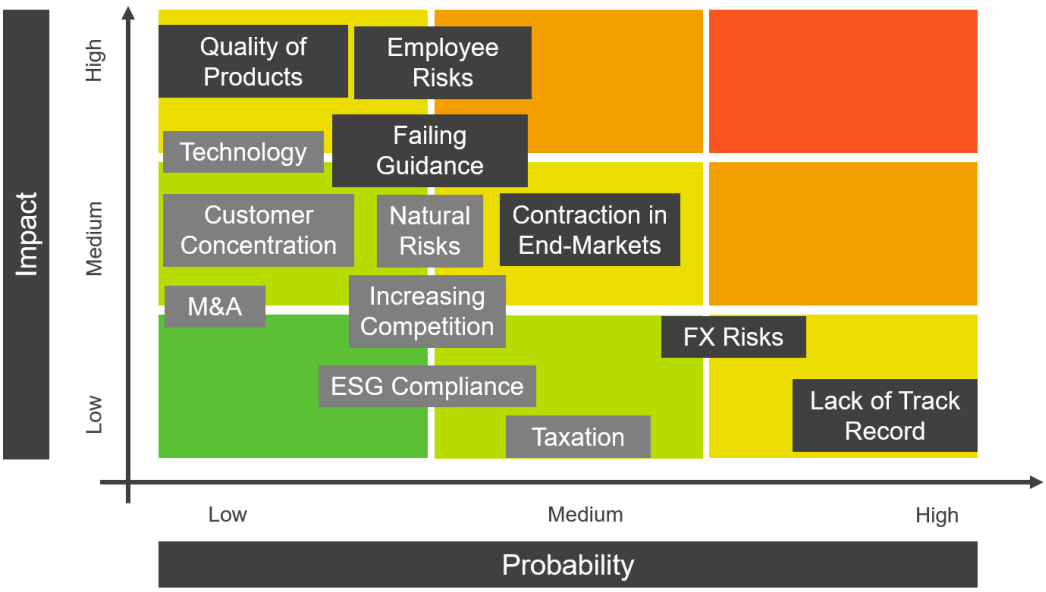
Source: Team Assessment

Figure 38: Natural risks

Location	Natural Risk	Probability	Impact
Haag, CH	Earthquake	Low	Medium - High
Penang, MY	Floods	High	Medium - High
Arad, RO	Floods	Low	Medium - High
Xinwu, TW	Earthquake	Low	High

Source: Team Assessment

Figure 39: Risk Matrix



Source: Team Assessment

APPENDIX 1a Major growth trends

Technology	Explanation	Forecast
EUV	Extreme Ultraviolet Lithography (EUV) describes the procedure of imprinting the circuit design onto a wafer. It uses an extreme ultraviolet wavelength and is an alternative to the existing immersion technology.	Market leader ASML is planning to move from existing Lithography techniques towards EUV which requires vacuum processing. EUV has still some issues to overcome but is described to be the next standard in Lithography.
10nm	Node sizes for semiconductor circuit design are decreasing in size to increase the amount of processing power on a given wafer surface.	First investments are being made in 10nm. Typically, after the first round of investment, which is happening now, there is a year where investment falls away while they perfect the manufacturing process which could occur around 2019.
3D NAND	3D NAND describes 3-dimensional layering of flash cells. Currently, chip designs are one-dimensional but new developments enable stacked designs to increase efficiency.	Current large investments are being made in 3D NAND memory capacity. It is a new technology and yields are relatively low. However, after a few years of learning, the yields will improve significantly resulting in potential oversupply and a slight reduction in new investment.
OLED	Advantages of OLED technology in comparison to existing standards are less energy consumption, easier design but just recently price decreases enabled producers to switch.	Large investments are being made in OLED production capacity in 2017 and 2018. It is expected that investment will follow a similar path as 3D NAND with a slight pause in investment in 2019.

APPENDIX 1b Principal Shareholders

Rudolf Maag

- Holds 10.3% of total shares and is now the biggest shareholder of VAT
- Private Swiss investor, pioneer in MedTech
- Executive officer in Varuma AG (private investment company)

Partners Group (Private Equity – IPO Involvement)

- Currently holds 4% total shares
- Thus far held 23%
- In early October sold 10% of VAT shares to Rudolf Maag
- End October sold additional 9% of shares

Capvis Equity Partners AG (Private Equity – IPO Involvement)

- Currently holds 3%
- End of August sold approximately 5% of shares

APPENDIX 2 Group Executive Committee and Board of Directors

POSITION	NAME	INFORMATION
CEO	Heinz Kundert (Appointed as CEO in 2015)	- Degrees in mechanical engineering & management - Previously held management positions in OC Oerlikon, Balzers (semiconductor technologies)
NEW CEO	Michel Allison (Appointment effective from 1Q 2018)	- Current President in the Semiconductor division at Atlas Copco/ Edwards - Joined Edwards as Vice President in 2014 - 30 years of experience in high growth technology companies and according to the VAT Media release: *"Mike Allison achieved substantial business success and helped transform Edwards into one of the leading companies in the Semiconductor Vacuum sector."*
CFO	Andreas Leutenegger (Appointed as CFO in 2015)	- Business administration degree, CPA - Previously worked in KPMG, Holcim Group and CFO in Ciam City Cement
COO	Jürgen Krebs (Appointed in 2017)	- Ph.D. in mechanical engineering - Previously held vice president, operation and executive member positions in Hauni Maschinenbau AG (technology supplies)
CHAIRMAN BOD	Dr. Martin Komischke (Member since 2017)	- 60 y.o.; Ph.D. in engineering - On the BOD and executive committee of Hoerbiger Holding
VICE-CHAIRMAN BOD	Alfred Gantner (Member since 2016)	- 49 y.o.; Cofounder of Partners Group - Finance and management expertise
MEMBER BOD	Ulrick Eckhardt (Member since 2016)	- 46 y.o.; Partner at Capvis Equity Partners AG; - Management background
MEMBER BOD	Karl Schlegel (Member since 2016)	- 64 y.o.; Past CEO of VAT Holding - Engineering background
MEMBER BOD	Urs Leinhäuser (Member since 2016)	- 58 y.o.; Past CFO of Mövenpick - Finance and operational background
MEMBER BOD	Dr. Hermann Gerlinger (Member since 2017)	- 64 y.o.; Ph.D. in physics and astronomy - Executive member of Carl Zeiss AG

APPENDIX 3 Product Types

APPENDIX 4 VAT Subsidiaries

Country	Company	Function	Currency	Capital in thousands	Share
China	VAT Vacuum Valves Shanghai Company Ltd., Shanghai	D	CNY	1,618	100%
France	VAT SARL, Verrières le Buisson	D	EUR	50	100%
Germany	VAT Deutschland GmbH, Dresden	D	EUR	26	100%
Japan	VAT Ltd., Yokohama	D	JPY	96,470	100%
Korea	VAT Korea Ltd., Pyeongtaek City	D	KRW	300,000	100%
Luxembourg	VAT Holding S.à r.l., Luxembourg	H	CHF	30	100%
	VAT Lux II S.à r.l., Luxembourg	H	CHF	30	100%
	VAT Lux III S.à r.l., Luxembourg	H	USD	30	100%
	VAT Management S.à r.l., Luxembourg	H	CHF	30	100%
Malaysia	VAT Manufacturing Malaysia Sdn. Bhd., Penang	P	MYR	1,000	100%
Romania	Sysmec S.R.L., Arad	D/P	RON	6,771	100%
Singapore	VAT Singapore Pte. Ltd., Singapore	D	SGD	500	100%
Switzerland	VAT Vakuumventile AG, Sennwald	D/P	CHF	100	100%
	Comvat AG, Sennwald	D/P	CHF	275	100%
	VAT Holding AG, Sennwald	H	CHF	300	100%
Taiwan	VAT Taiwan Co. Ltd., Hsin-Chu City	D/P	TWD	12,000	100%
United Kingdom	VAT Vacuum Products Ltd, Warwickshire	D	GBP	1	100%
USA	VAT Inc., Delaware	D	USD	1	100%
	Virtuoso US LLC, Delaware	F	USD	0	100%

D: Distribution, F: Financing, H: Holding, P: Production

APPENDIX 5 Corporate Governance Assessment

The methodology of corporate governance scorecard:	Sections:	Max. Points	E	P
The goal of the Scorecard: to provide an extensive and comprehensive picture of the governance quality of listed companies. The Scorecard has **two main features**: - **P-questions** that can be dealt with by publicly available external sources (i.e. the company's publications and its website) and - **E-questions** that need evaluation, individual appraisal and judgment that should also be a result of discussions with the company With this approach, a broad picture of the strengths and weaknesses of the individual company governance performance can be gained. The **total score** is the aggregate of the individual section scores.	I. Shareholders and the General Meeting	7.00	5.00	2.00
	II. Management Board	14.00	5.50	8.50
	III. Supervisory Board	28.00	14.00	14.00
	IV. Transparency & Governance	10.50	5.00	5.50
	V. Reporting & Audit	10.50	5.50	5.00
	Total:	**70.00**	**35.00**	**35.00**

Source: Team Assessment, scorecard was adapted and is based on a scorecard from www.dvfa.de

The total score for VAT:	Points	max. points	%
I. Shareholders and the General Meeting	3.25	7.00	46%
II. Management Board	11.75	14.00	84%
III. Supervisory Board	25.00	28.00	89%
IV. Transparency & Governance	8.50	10.50	81%
V. Reporting & Audit	10.50	10.50	100%
Total:	**59.00**	**70.00**	**84%**

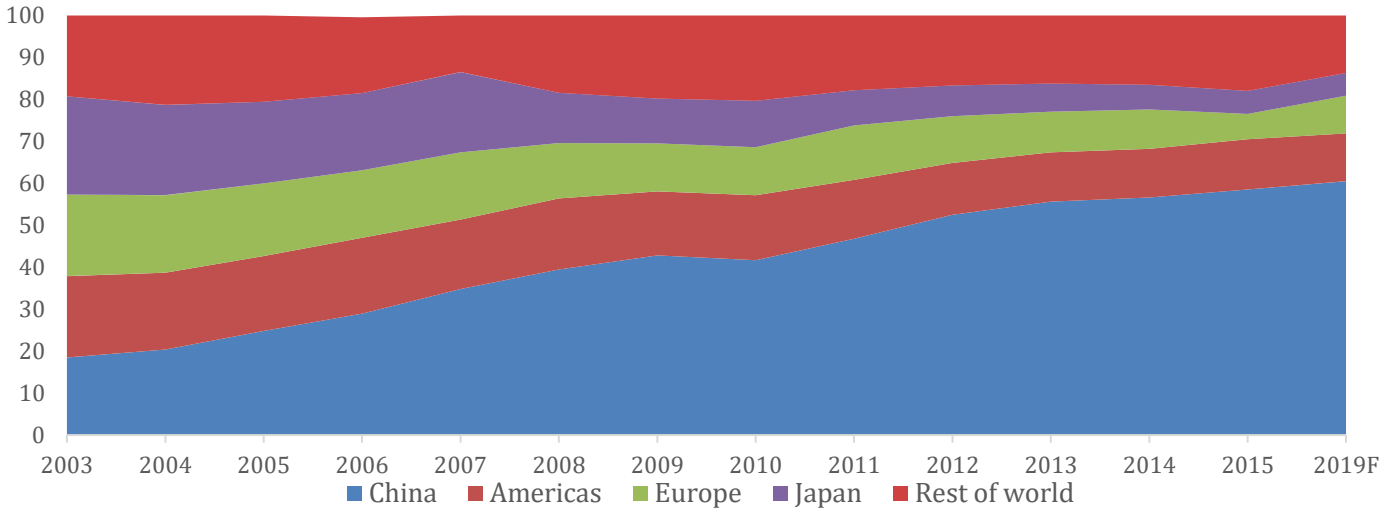
Rating levels:

100% - 90%	Excellent
90% - 80%	Very Good
80% - 70%	Good
70% - 60%	Satisfactory

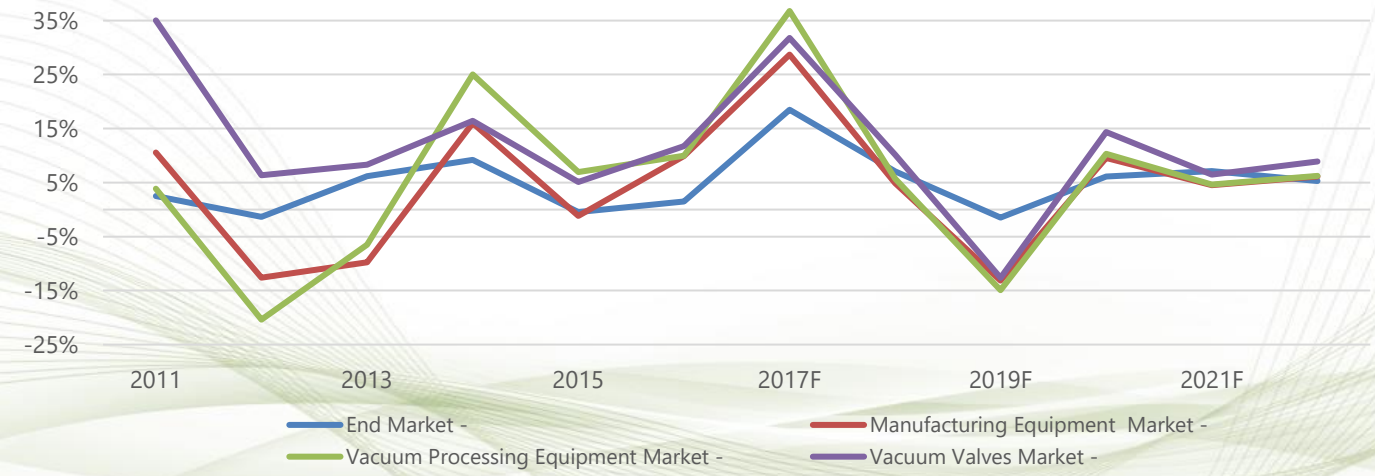
Main takeaways:

1. **Members of BOD:** All current members of the board are non-executive
2. **Number of mandates held by BOD:** Certain members of the board hold up to 6 mandates outside VAT
3. **Independence of the BOD members:** past CEO is a member and current CEO will be offered a seat
4. **Board composition:** The board is fully composed of male members
5. **Representation specificity:** BOD members are not allowed to appoint representatives

APPENDIX 6 Semiconductor Consumption Market Share Worldwide (%)



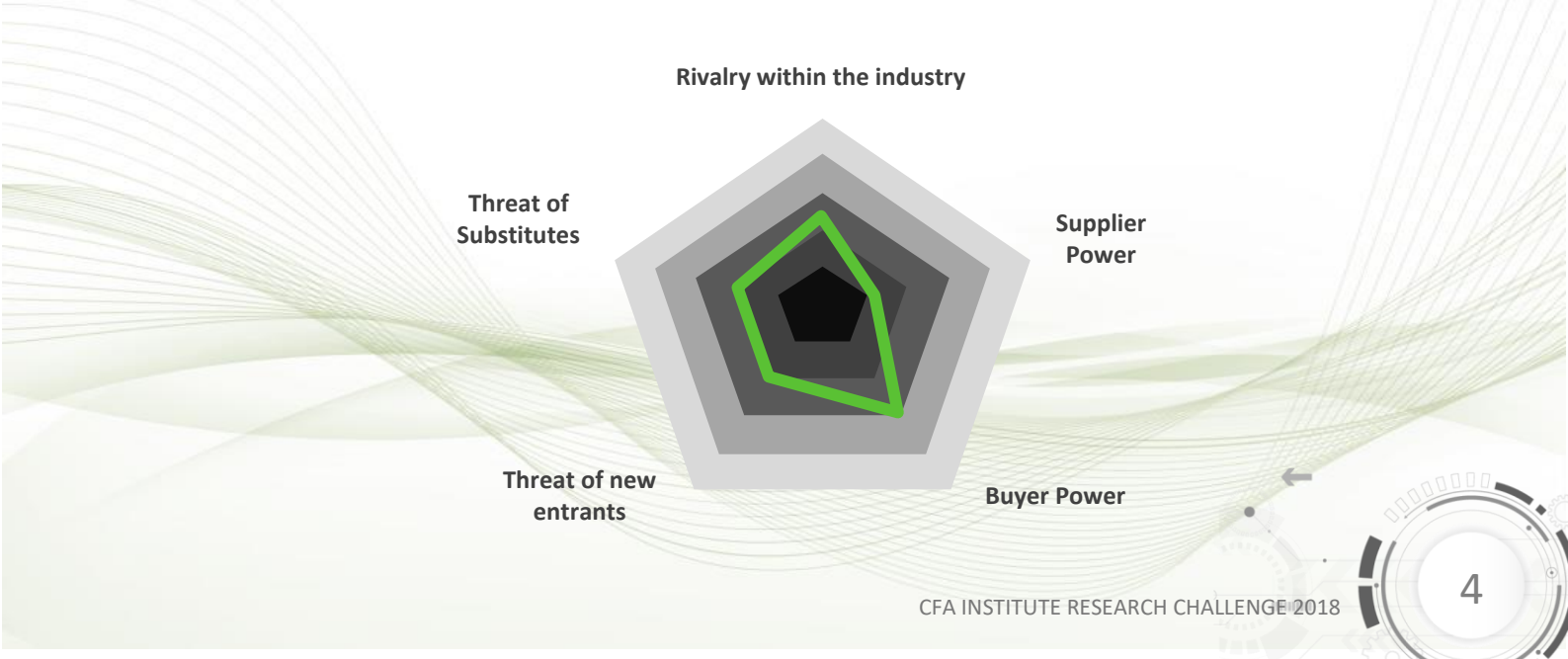
APPENDIX 7 Sub-markets Growth Rate Comparison (%)



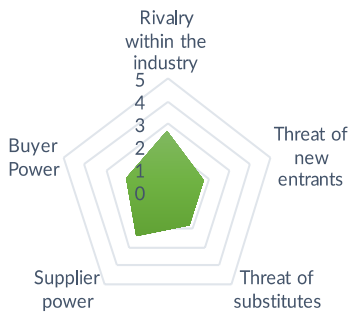
APPENDIX 8 Sales Sub-market Breakdown

Sales per Year ($Bn)													
End Market	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	296'733	304'118	300'097	318'698	348'089	346'559	351'848	416'880	446'307	439'703	466'519	499'688	526'242
Flat Panel Display	114'157	110'039	112'605	121'501	120'286	124'857	131'137	147'529	154'404	158'882	162'266	165'155	168'606
Photovoltaic	30'975	30'866	26'103	27'014	30'431	35'996	47'485	51'657	51'009	54'730	56'737	59'839	62'962
Manufacturing Equipment Market	2010	2011	2012	2013	2014	2015	2016	2017E	2018E	2019E	2020E	2021E	2022E
Semiconductor	49'225	54'433	47'565	42'922	49'787	49'191	54'054	69'566	72'968	63'372	69'425	72'558	76'994
Flat Panel Display	8'608	9'292	5'532	6'301	5'954	6'637	11'280	13'062	13'546	12'990	13'484	13'133	12'858
Photovoltaic	7'246	7'962	3'407	2'444	3'286	2'941	3'080	3'152	3'250	3'396	3'557	3'710	3'879
Vacuum Processing Equipment Market	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	15'674	16'278	12'961	12'119	15'151	16'205	17'821	24'374	25'770	21'929	24'200	25'325	26'899
Flat Panel Display	3'195	3'393	1'985	2'437	2'204	2'663	4'861	5'973	6'315	6'133	6'411	6'292	6'099
Photovoltaic	2'100	2'477	2'454	1'202	842	1'259	1'071	1'124	1'159	1'201	1'258	1'320	1'378
Vacuum Valves Market	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	176.4	238.2	253.3	274.3	319.4	335.7	375.2	494.4	544.7	475.9	544.2	579.6	631.2
Flat Panel Display	99.7	101.1	141.8	150.5	150.5	170.0	285.5	373.8	392.1	366.3	381.1	371.5	359.8
Photovoltaic	37.4	47.7	28.2	23.3	24.8	25.1	34.5	39.4	39.9	36.9	40.8	41.8	42.2
Growth Rates													
End Market	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	-	2.5%	-1.3%	6.2%	9.2%	-0.4%	1.5%	18.5%	7.1%	-1.5%	6.1%	7.1%	5.3%
Flat Panel Display	-	-3.6%	2.3%	7.9%	-1.0%	3.8%	5.0%	12.5%	4.7%	2.9%	2.1%	1.8%	2.1%
Photovoltaic	-	-0.4%	-15.4%	3.5%	12.7%	18.3%	31.9%	8.8%	-1.3%	7.3%	3.7%	5.5%	5.2%
Manufacturing Equipment Market	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	-	10.6%	-12.6%	-9.8%	16.0%	-1.2%	9.9%	28.7%	4.9%	-13.2%	9.6%	4.5%	6.1%
Flat Panel Display	-	7.9%	-40.5%	13.9%	-5.5%	11.5%	70.0%	15.8%	3.7%	-4.1%	3.8%	-2.6%	-2.1%
Photovoltaic	-	9.9%	-57.2%	-28.3%	34.5%	-10.5%	4.7%	2.3%	3.1%	4.5%	4.7%	4.3%	4.6%
Vacuum Processing Equipment Market	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	-	3.9%	-20.4%	-6.5%	25.0%	7.0%	10.0%	36.8%	5.7%	-14.9%	10.4%	4.6%	6.2%
Flat Panel Display	-	6.2%	-41.5%	22.8%	-9.6%	20.8%	82.6%	22.9%	5.7%	-2.9%	4.5%	-1.9%	-3.1%
Photovoltaic	-	18.0%	-1.0%	-51.0%	-30.0%	49.5%	-14.9%	5.0%	3.1%	3.6%	4.7%	4.9%	4.4%
Vacuum Valves Market	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	-	35.0%	6.3%	8.3%	16.4%	5.1%	11.8%	31.8%	10.2%	-12.6%	14.4%	6.5%	8.9%
Flat Panel Display	-	1.4%	40.3%	6.1%	0.0%	13.0%	67.9%	30.9%	4.9%	-6.6%	4.0%	-2.5%	-3.1%
Photovoltaic	-	27.5%	-40.9%	-17.4%	6.4%	1.2%	37.5%	14.2%	1.3%	-7.5%	10.6%	2.5%	1.0%
Percentage of Over-Market Sales													
End Market	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	-	-	-	-	-	-	-	-	-	-	-	-	-
Flat Panel Display	-	-	-	-	-	-	-	-	-	-	-	-	-
Photovoltaic	-	-	-	-	-	-	-	-	-	-	-	-	-
Manufacturing Equipment Market	2010	2011	2012	2013	2014	2015	2016	2017E	2018E	2019E	2020E	2021E	2022E
Semiconductor	16.59%	17.90%	15.85%	13.47%	14.30%	14.19%	15.36%	16.69%	16.35%	14.41%	14.88%	14.52%	14.63%
Flat Panel Display	7.54%	8.44%	4.91%	5.19%	4.95%	5.32%	8.60%	8.85%	8.77%	8.18%	8.31%	7.95%	7.63%
Photovoltaic	23.39%	25.80%	13.05%	9.05%	10.80%	8.17%	6.49%	6.10%	6.37%	6.21%	6.27%	6.20%	6.16%
Vacuum Processing Equipment Market	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	31.84%	29.90%	27.25%	28.23%	30.43%	32.94%	32.97%	35.04%	35.32%	34.60%	34.86%	34.90%	34.94%
Flat Panel Display	37.12%	36.51%	35.89%	38.68%	37.02%	40.12%	43.09%	45.73%	46.62%	47.21%	47.55%	47.91%	47.43%
Photovoltaic	28.98%	31.11%	72.01%	49.20%	25.63%	42.80%	34.77%	35.67%	35.66%	35.37%	35.37%	35.58%	35.53%
Vacuum Valves Market	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	1.13%	1.46%	1.95%	2.26%	2.11%	2.07%	2.11%	2.03%	2.11%	2.17%	2.25%	2.29%	2.35%
Flat Panel Display	3.12%	2.98%	7.14%	6.17%	6.83%	6.38%	5.87%	6.26%	6.21%	5.97%	5.94%	5.90%	5.90%
Photovoltaic	1.78%	1.93%	1.15%	1.94%	2.95%	1.99%	3.22%	3.50%	3.44%	3.07%	3.24%	3.17%	3.06%
End-Market to Vacuum	2010	2011	2012	2013	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F
Semiconductor	0.06%	0.08%	0.08%	0.09%	0.09%	0.10%	0.11%	0.12%	0.12%	0.11%	0.12%	0.12%	0.12%
Flat Panel Display	20.86%	15.43%	4.65%	4.32%	6.71%	3.94%	3.36%	2.49%	2.14%	2.29%	2.39%	2.56%	2.81%
Photovoltaic	14.97%	31.45%	17.38%	22.32%	20.16%	28.29%	24.06%	20.30%	20.05%	18.16%	18.63%	17.70%	17.54%

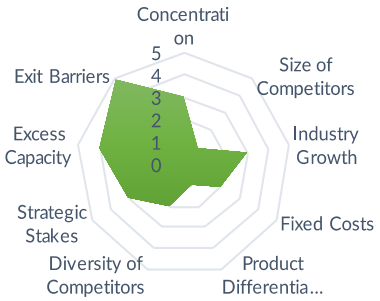
APPENDIX 9 Porter's Five Forces



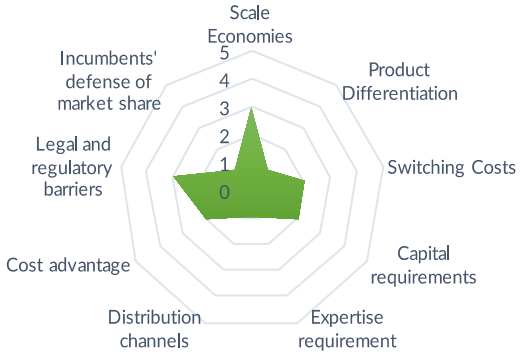
Total Assessment



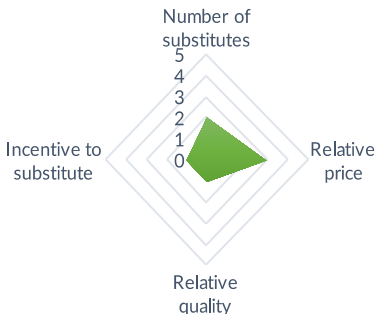
Rivalry within the industry



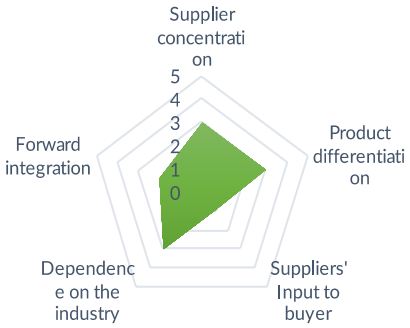
Threat of new entrants



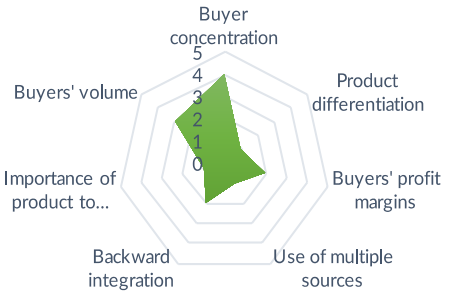
Threat of Substitutes



Supplier Power



Buyer Power



APPENDIX 9 Porter's Five Forces (cont.)

Main Categories	Subcategories	Assessment
Buyer power	**Buyer concentration**	Applied Materials, Tokyo Electrons, and LAM Research account for 50% of sales. Other customers in semiconductors include KLA Tencor, Brooks, ASM International, ASML.
	Product differentiation	VAT supplies mission critical c-parts on which the buyers depend. Nobody else can produce the same quality products.
	Buyers' profit margins	VAT delivers mission-critical c-parts (so the parts are only marginally contributing to the costs, but without proper functioning vacuum valves the mission/production process is significantly at risk)
	Use of multiple sources	Given VAT's large market share and expertise in this niche market, companies have a hard time finding a different source for these components
	Backward integration	Theoretically, it could make sense for one of the customers to acquire VAT in order to integrate a mission-critical component into the firm's own value chain. However, this seems not to be a priority as OEM's have a significant number of different suppliers and they are a pure play in a sense that they focus on the aggregation of high-quality parts rather than producing those parts themselves. Generally, there seems to be a trend towards outsourcing when it comes to parts with a high degree of specialty.
	Importance to buyers	Valves are only 3% of total costs but are mission-critical as mentioned before.
	Buyers' volume	Products are, to a large degree, mission-critical to buyers but only 3% of total equipment cost. Sometimes products are co-engineered with buyers.
Threat of substitutes	**Number of substitutes**	For standardized products (20%): High, in fact, VAT, is expected to be losing market share for the general vacuums market due to their focus (source: VLSI), for customized/specialized products (80%): Low-Medium
	Relative price	Pricing issues are minor in the vacuum valve industry as OEMs and end-users main concern is product quality (cost of vacuum valves is only 3% of total equipment costs for end-users)
	Relative quality	VAT's expertise and high-quality products are one of their key advantages. Customers are extremely picky
	Incentive to substitute	Customers seem to be satisfied with VAT's products, services, and reasonable pricing as indicated by their long-lasting relationship. Vertical integration of production is not impossible, but relatively unlikely.

Main Categories	Subcategories	Assessment
Rivalry within the industry	**Concentration**	VAT + 6 competitors control 65% of the market, closest competitor MKS Instruments only has 5% of its business in Vacuum Valves, V-Tex is the only competitor with a pure-play business model, HHI of 2250 --> moderately concentrated
	Size of Competitors	VAT's market share is 8 times larger than its closest competitors MKS Instruments, V-Tex and SMC (VAT market share of 41%, MKS, V-Tex and CMS market share of 5% each)
	Industry Growth	Industry is expected to have moderate growth of 2.6% CAGR from 17-22 (Source: VLSI)
	Fixed Costs	VATs strategy will outsource production up to 70%, 2/3 of the cost is variable, only 1/3 is fixed which allows VAT to ramp-down production by 30% within a 6 weeks period.
	Product Differentiation	About 20% of the product mix is standardized (-> low differentiation) while 80% is customized or even highly specialized and engineered in cooperation with the customers so facilitate integration into their systems. (-> High differentiation) VAT systems are known for high customizability and it works closely together with customers to deliver individually needed products.
	Diversity of Competitors	Competitors mainly come from the US and Japan, V-Tex is the only competitor with a pure-play business model, the other competitors have a broader product mix (with vacuum valves sometimes only representing a small fraction of their business)
	Strategic Stakes	As a pure player in the vacuum valve market, the company can profit from the high growth expectations in this segment. However, there is the risk of being highly related to the (still) cyclical semiconductor industry with no options to diversify in times of economic downturn.
	Excess Capacity	VAT has currently medium excess capacity as the expansion strategy lead to backlogs in product delivery. However, it is expected to increase capacity to 1.2b by 2020 when Malaysia production facility is fully operative.
	Exit Barriers	As a pure player, VAT exit barriers are higher compared to other market participants (see Diversity of competitors) which means it is solely dependent on how the vacuum valves market will develop and no other markets are being addressed at the moment (or in the foreseeable future)
Threat of new entrants	**Scale Economies**	As a niche market, the market potential is limited. Products differ in quality rather than in price and ramping up production will not create any beneficial outcome to vacuum valves producers (on the contrary). Economies of Scale are neutral in terms of they are not the main concern when analyzing the vacuum valves industry.
	Product Differentiation	No disruptive technologies, about 20% of the product mix is standardized (-> low differentiation) while 80% is customized or even highly specialized and engineered in cooperation with the customers to facilitate integration into their systems. (-> High differentiation)
	Switching Costs	Switching costs for customers are high in terms of quality and product integration. Main customers (OEMs) are satisfied with the quality of VAT and a new entrant would have difficulty convincing them otherwise.
	Capital requirements	Capital requirements for vacuum valves producers are significant both in terms of manufacturing equipment and R&D spending as a new entrant would first need to invest time and money into the production of vacuum valves whereas VAT can make use of more than 40 years of experience.
	Expertise requirement	High barrier to entry as VAT has over 40 years of experience and is a pure player in the vacuum valve industry.
	Distribution channels	VAT has a strong and long-lasting relationship with key customers, customers rely on VAT's expertise, sometimes even co-engineer the products with them
	Cost advantage	VAT has a cost advantage due to economies of scale, automated processes, outsourcing and proximity to their customers
	Legal and regulatory barriers	Regulatory constraints on employee safety and environment (cf website), but no regulation on products themselves
	Defense of market share	VAT has 46% of market share and intends to increase it
Supplier power	**Supplier concentration**	Supplier concentration seems to be low for some parts/components (sometimes even single sourcing) because of the expertise needed. On the other hand, they have a vast network of suppliers for other materials. VAT tries to find qualified suppliers close to their production sites (for Haag, most suppliers are within 100km). For Malaysia, they are trying to do the same.
	Product differentiation	Low for raw materials, medium/high for components
	Suppliers' Input to buyer	Local suppliers with direct contacts within a 100km radius
	Dependence on the industry	Low for raw materials, medium/high for components
	Forward integration	Many suppliers are pure players as well and have no desire (and most of all, not the power) to acquire VAT or other industry participants

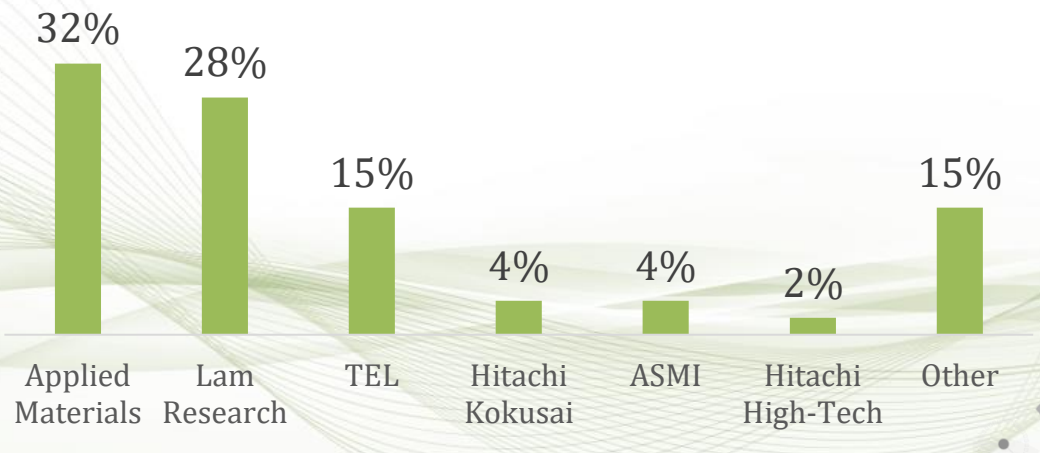
APPENDIX 10 Value Chain

Value Chain	Suppliers (split of direct material expenses, 2015)	Competitors	OEMs	End Market
Semiconductors	- Machined parts (32%) - Electronics (15%) - Actuator (11%) - Welded assemblies (8%) - Bellows (7%) - Raw materials (6%) - Vulcanized parts (6%) - Elastomers (4%) - Seals (3%) - Sheet metal (2%)	1. MKS Instruments 2. Norcal 3. V-Tex 4. CKD 5. SMC	1. Applied Materials 2.LAM Research 3. Tokyo Electron 4. Hitachi Kokusai 5. ASMI 6. Hitachi High-Tech 7. Other	1. Intel 2. Samsung 3. TSMC 4. Global Foundries
Display		1. V-Tex 2. Norcal 3. CKD	1. Tokyo Electron 2. Ulvac 3. Wonik IPS 4. Others	1. Samsung 2. LG Displays 3. Japan Displays
Solar		1. SMC 2. CDK 3. Norcal	1. Meyer Burger 2. Jusung 3. Shimadzu 4. Others	
Industry & Research		1. HVAC 2. Norcal 3. CKD 4. SMC		1. CERN 2. Diamond 3. Pfeiffer 4. Edwards 5. DESY 6. Areva 7. KEK 8. Oerlikon 9. Iter 10. Alcatel-Lucent 11. Thermo Scientific 12. Urenco 13. Agilent Technologies 14. Bosch 15. Zeiss

APPENDIX 11 SWOT Analysis

Strengths	Weaknesses
- Market leader in the vacuum valves market with a market share of 46%, 8x that of its closest competitor MKS Instruments.	- Earnings exposed to the cyclicality of the semiconductor and display markets.
- Operating in the semiconductor and display markets, with an end market growing at a 5-year CAGR of over 3%.	- Costs in Swiss francs while most of its business is in USD or JPY. The strength of the Swiss franc has negatively impacted margins over the long term.
- VAT is well positioned to benefit from industry trends such as <10 nm requiring vacuum and high degrees of cleanliness.	- Expertise in vacuum valves, industry segment (bellows and mechanical components) representing 11% of revenues may be less differentiated
- Long-lasting close relationships with the big players in their key markets. Applied Materials, LAM Research, and Tokyo Electron account for ~50% of VAT's revenues. ASML also contributes, but to a lesser degree.	
- High R&D to sales ratio of 7.3%	
Opportunities	**Threats**
- Applications in the Asian market for sophisticated industrial applications in end markets such as autos, energy.	- A general market crash or semiconductor turndown would reduce profitability.
- new technologies in the memory market, namely 3D NAND and 3D XPoint, will see considerable capacity build in the future. This may lead to opportunities for VAT.	- Pricing competition for the more standardized products from small Chinese competitors.
- ongoing trend towards smaller nodes in the semiconductor industry benefits VAT as these technologies require vacuum.	- China wants to ramp up its production in the semiconductor industry. This would likely happen as a combination of Chinese investment and foreign technology. It is unclear whether or not the Chinese competition will be able to build the technology to compete with VAT.
- Lithography will require more vacuum components when it transitions to EUV at the end of 2018.	- Further appreciation of the USD relative to the USD.
- OLED display technology will contribute positively to VAT's growth.	- Shortage of experts with over 10 years of industry experience may hinder VAT's potential to grow
- New opportunities and applications in industries such as medical applications, energy, food, pharma, and automobiles	

APPENDIX 12 Semiconductor Original Manufacturing Equipment Suppliers (Worldwide)



APPENDIX 13 Various Metrics Versus Competitors

	DUPONT ANALYSIS								
COMPANY NAME	Asset Turnover	Pretax Margin, (%)	Pretax ROA (%)	Tot Assets / Common Equity	Pretax ROE Total Equity %	ROE Common Equity %	ROE Total Equity %	Earnings Retention Rate	Reinvestment Rate, %
VAT GROUP AG	0.57	0.17	0.10	1.73	0.31	0.24	0.24	-0.78	-0.19
MKS INSTRUMENTS INC	0.74	0.10	0.07	1.78	0.11	0.09	0.09	0.65	0.06
SMC CORP	0.42	0.30	0.13	1.16	0.15	0.11	0.11	0.82	0.09
CKD CORP	0.93	0.11	0.10	1.50	0.14	0.10	0.10	0.73	0.07
COMPETITOR AVERAGE	0.70	0.17	0.10	1.48	0.13	0.10	0.10	0.74	0.08

	Leverage				
COMPANY NAME	TOTAL ASSETS / COMMON EQUITY	TOTAL DEBT TO TOTAL EQUITY, IN %	LONG TERM DEBT TO TOTAL CAPITAL, IN %	LONG TERM DEBT TO TOTAL EQUITY, IN %	FORWARD TOTAL DEBT TO EBITDA
VAT GROUP AG	1.73	0.38	0.23	0.31	1.13
MKS INSTRUMENTS INC	1.78	0.49	0.32	0.48	0.78
SMC CORP	1.16	0.02	0.01	0.01	0.08
CKD CORP	1.50	0.05	0.03	0.03	0.29
COMPETITOR AVERAGE	1.48	0.19	0.12	0.18	0.38

	Liquidity		
COMPANY NAME	QUICK RATIO	CURRENT RATIO	AVG NET TRADE CYCLE (DAYS)
VAT GROUP AG	1.2	1.7	113
MKS INSTRUMENTS INC	3.0	4.2	136
SMC CORP	5.1	6.5	281
CKD CORP	1.5	2.3	144
COMPETITOR AVERAGE	3.2	4.3	187

	Operating Metrics				
COMPANY NAME	A/R TURNOVER	INVENTORY TURNOVER	AVERAGE INVENTORY DAYS	FIXED ASSET TURNOVER	RETURN ON CAPITAL, TOTAL LT CAPITAL, IN %
VAT GROUP AG	5.8	3.3	110	4.4	8%
MKS INSTRUMENTS INC	7.1	3.4	107	10.6	7%
SMC CORP	3.8	1.4	271	3.3	11%
CKD CORP	3.6	2.9	125	3.4	9%
COMPETITOR AVERAGE	4.8	2.6	168	5.8	9%

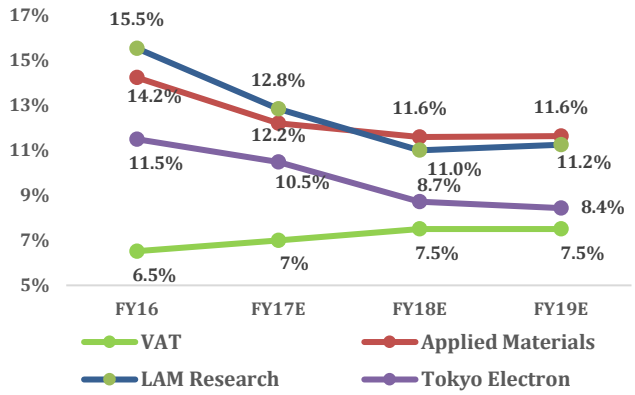
	Profitability					
COMPANY NAME	GROSS MARGIN, IN %	EBITDA MARGIN, IN %	OPERATING MARGIN, IN %	PRETAX MARGIN, IN %	INCOME TAX RATE, %	NET PROFIT MARGIN, (%)
VAT GROUP AG	63%	31%	23%	17%	23%	13%
MKS INSTRUMENTS INC	44%	20%	12%	10%	18%	8%
SMC CORP	50%	32%	28%	30%	22%	23%
CKD CORP	31%	14%	10%	11%	30%	7%
COMPETITOR AVERAGE	41%	22%	17%	17%	23%	13%

APPENDIX 14 Capex Comparison

CAPEX/REVENUES	FY2017E	FY2018E		FY2017E	FY2018E
VAT			**CUSTOMERS**		
THOMSON REUTERS PROJECTIONS	5.9%	4.9%	Tokyo Electron Ltd	3.6%	2.6%
OUR REVENUE FORECASTS, TR CAPEX FORECASTS	5.9%	4.6%	Lam Research Corp	2.0%	2.2%
OUR TOTAL CAPEX FORECASTS (PPE + INTAN.)	6.0%	5.7%	Applied Materials Inc	2.3%	2.2%
OUR PPE CAPEX FORECASTS	5.3%	5.0%	**Customer Average**	2.6%	2.3%
INDUSTRY PEERS			**COMPETITORS**		
INFICON HOLDING AG	2.0%	2.0%	MKS Instruments Inc	1.3%	1.4%
OC OERLIKON CORPORATION AG PFAEFFIKON	7.6%	6.9%	SMC Corp	6.0%	5.8%
KUDELSKI SA	3.8%	3.6%	CKD Corp	9.3%	8.2%
BUCHER INDUSTRIES AG	3.3%	3.4%			
GEORG FISCHER AG	5.8%	4.4%			
PHOENIX MECANO AG	4.5%	3.9%			
PFEIFFER VACUUM TECHNOLOGY AG	4.5%	3.2%			
PEER AVERAGE	4.5%	3.9%	**Competitor Average**	5.5%	5.1%

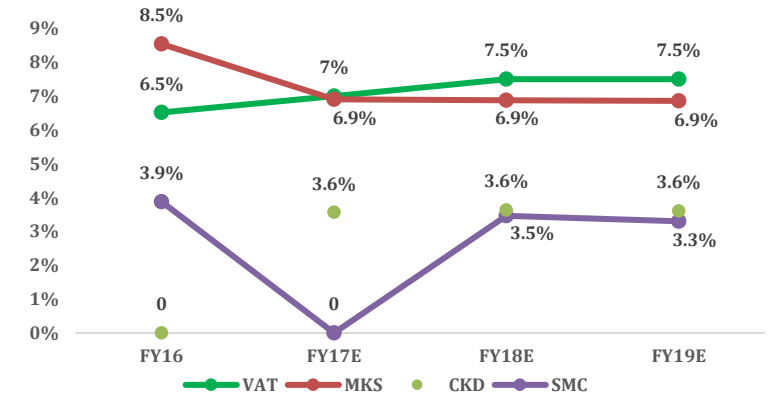
APPENDIX 15 R&D Comparison

R&D / Revenues vs customers



Source: Team Assessment for VAT, Thomson Reuters

R&D/Revenues vs competitors



Source: Company data & Team Assessment for VAT, Thomson Reuters for competitors

Percentage of business in Vacuum Valves				
	FY16	FY17E	FY18E	FY19E
VAT	100%	100%	100%	100%
MKS	4%	3%	3%	3%
CKD	6%	6%	6%	5%
SMC	1%	1%	1%	1%

R&D Expense in Vacuum Valves					
	FY16	FY17E	FY18E	FY19E	
VAT	33.10	46.21	60.39	65.52	Mio CHF
MKS	4.51	4.46	4.72	4.38	Mio USD
CKD	0.00	0.21	0.23	0.21	Bn JPY
SMC	0.18	0.00	0.21	0.18	Bn JPY

APPENDIX 16 M-Score

M-SCORE FOR VAT 2016		
INPUT VARIABLES	**2015**	**2016**
NET SALES	411.0	507.9
COGS	149.9	189.9
NET RECEIVABLES	72.7	94.4
CURRENT ASSETS (CA)	215.5	219.4
PPE (NET)	115.0	116.1
DEPRECIATION	14.0	15.0
TOTAL ASSETS	893.5	883.4
SGA EXPENSE	138.6	166.2
NET INCOME (BEFORE XITEMS)	7.1	67.2
CFO (CASH FLOW FROM OPERATIONS)	117.5	146.4
CURRENT LIABILITIES	62.4	130.6
LONG-TERM DEBT	707.8	160.0
DERIVED VARIABLES		
OTHER L/T ASSETS [TA-(CA+PPE)]	562.9	547.9
INPUTS USED TO CALCULATE M-SCORE		
DAY'S SALES RECEIVABLES INDEX -> DSRI	0.952	
GROSS MARGIN INDEX -> GMI	0.986	
ASSET QUALITY INDEX -> AQI	1.016	
SALES GROWTH INDEX -> SGI	0.809	
DEPRECIATION INDEX -> DEPI	1.056	
SGA EXPENSES INDEX -> SGAI	1.030	
TOTAL ACCRUALS/TA	-0.124	
LEVERAGE INDEX -> LVGI	2.621	

Created in 1999 by Dr. Messod Beneish, the Beneish's M- score analysis is used to compute VAT's earnings quality that the firm reported in the financial results to allow our team to detect earnings manipulation.

Note: if M > -2.22, firm is likely to be a manipulator

M = -6.065 + .823 DSRI + .906 GMI + .593 AQI + .717 SGI + .107 DEPI

M-SCORE (5-VARIABLE MODEL)	-3.09	*for 2016*

M = -4.84 + .920 DSRI + .528 GMI + .404 AQI + .892 SGI + .115 DEPI -.172 SGAI + 4.679 ACCRUAL TO TA - .327 LEVERAGE

M-SCORE (8-VARIABLE MODEL)	-3.80	*for 2016*

RESULT: LIKELIHOOD OF VAT MANIPULATING ITS EARNING RESULTS IS LOW, BASED ON THE M-SCORE MODEL

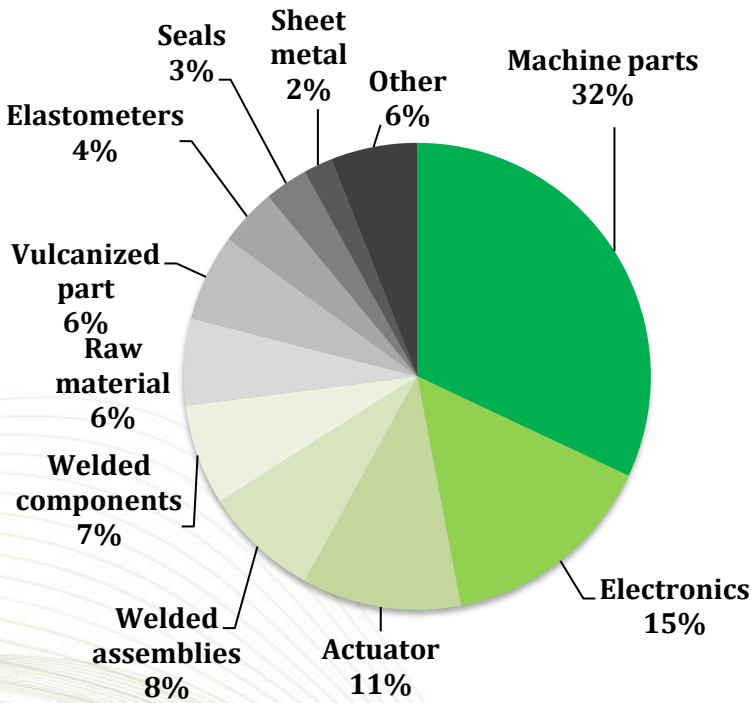
APPENDIX 17 Z-Score

ALTMAN Z-SCORE FOR VAT		
INCOME STATEMENT	**2015**	**2016**
NET SALES	411.0	507.9
OPERATING INCOME	89.4	118.3
BALANCE SHEET		
CURRENT ASSETS	215.5	219.4
TOTAL ASSETS	893.5	883.4
CURRENT LIABILITIES	62.4	130.6
TOTAL LIABILITIES	844.3	372.8
RETAINED EARNINGS	9.7	79.9
PUBLIC COMPANIES		
MARKET VALUE OF EQUITY	*n.a*	2550
CALCULATIONS	**2015**	**2016**
WORKING CAPITAL/TOTAL ASSETS (Z-1)	0.17	0.10
RETAINED EARNING /TOTAL ASSETS (Z-2)	0.01	0.09
EBIT/TOTAL ASSETS (Z-3)	0.10	0.13
MARKET VALUE OF EQUITY/TOTAL LIABILITIES (Z-4)	n.a	6.84
NET SALES/TOTAL ASSETS (Z-5)	0.46	0.57
Z-SCORE	**n.a**	**5.37**

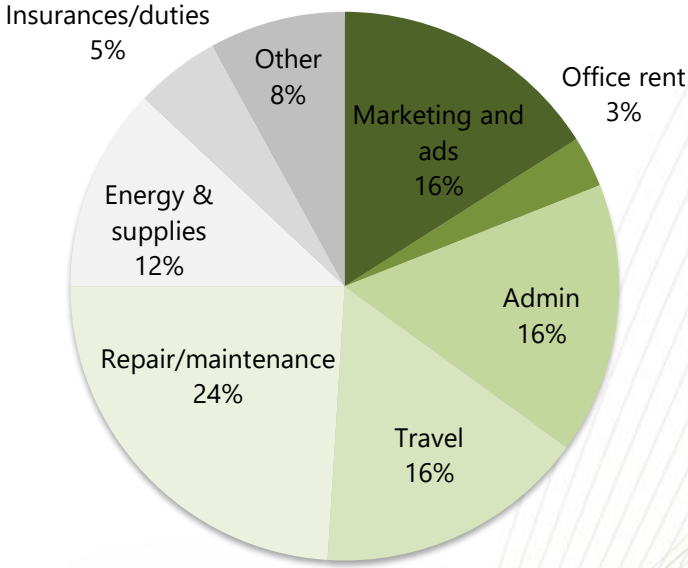
LIKELIHOOD OF BANKRUPTCY IS HIGH IF Z-SCORE IS BELOW 1.81. VAT DOES NOT FACE THIS SCENARIO, INSTEAD, THE FIRM IS FINANCIALLY SOUND AS ITS Z-SCORE IS GREATER THAN 2.99

*The Altman Z-Score Analysis is used to verify company's financial health and the probability of filing for bankruptcy. If the Z-score is below 1.81 - a firm has a high probability of bankruptcy, while a score of 2.99 indicates a financially sound firm that is far from filing for bankruptcy. The formula is (1.2*Z1) + (1.4*Z2) + (3.3*Z3) + (0.6*Z4) + (1.0*Z5).*

APPENDIX 18 Cost of Goods Sold



APPENDIX 19 Operating Expenses



VAT Solvency							
in CHF million	2015	2016	2017E	2018E	2019E	2020E	2021E
Debt	716.97	203.65	224.09	221.20	155.01	100.90	42.23
Debt ratio	*80%*	*23%*	*24%*	*23%*	*16%*	*10%*	*4%*
Debt/equity ratio	*1458%*	*40%*	*41%*	*39%*	*24%*	*14%*	*5%*
Net debt/EBITDA	1.93	0.94	0.8	0.6	0.3	0.1	(0.2)
Asset/Equity	18.16	1.73	1.76	1.68	1.51	1.40	1.23
Interest coverage	1.25	3.14	3.53	19.93	23.05	38.06	66.16

VAT Liquidity							
	2015	2016	2017E	2018E	2019E	2020E	2021E
Current ratio	3.46	1.68	2.57	1.95	2.53	2.19	3.05
Quick ratio	2.53	1.25	1.80	1.42	1.79	1.59	2.15
Cash ratio	1.29	0.49	0.58	0.43	0.52	0.41	0.60

VAT Operating cycle							
in CHF thousand	2015	2016	2017E	2018E	2019E	2020E	2021E
Net sales	411	508	660	805	874	1,006	1,139
Average receivables		87	112	136	146	167	188
Receivables turnover		5.83	5.88	5.93	5.97	6.02	6.07
Days in account receivables	52	62.6	62.1	61.6	61.1	60.6	60.1
Cost of goods sold	150	190	250	309	340	396	449
Average inventory		57	71	83	86	93	105
Inventory turnover		3.32	3.51	3.72	3.96	4.24	4.29
Days in inventory	140	110.1	104.1	98.1	92.1	86.1	85.1
Cost of goods sold	150	190	250	309	340	396	449
Average payables		31	41	50	54	62	70
Payable turnover		6.08	6.15	6.23	6.30	6.38	6.40
Days in accounts payables	52	60.0	59.3	58.6	57.9	57.2	57.0
Operating cycle ratio		**112.6**	**106.9**	**101.1**	**95.3**	**89.5**	**88.2**

VAT Profitability							
	2015	2016	2017E	2018E	2019E	2020E	2021E
Gross profit margin	*63.51%*	*62.61%*	*63.06%*	*61.60%*	*61.10%*	*60.60%*	*60.60%*
EBITDA margin	*29.11%*	*29.45%*	*29.17%*	*30.17%*	*31.17%*	*30.67%*	*30.67%*
EBIT margin	*21.76%*	*23.29%*	*23.57%*	*24.87%*	*26.17%*	*25.97%*	*25.97%*
Pretax profit margin	*5.00%*	*17.30%*	*16.99%*	*23.70%*	*25.11%*	*25.35%*	*25.63%*
Effective tax rate	*65.65%*	*23.50%*	*20.00%*	*20.00%*	*20.00%*	*20.00%*	*20.00%*
Net profit margin	*1.72%*	*13.24%*	*13.59%*	*18.96%*	*20.09%*	*20.28%*	*20.51%*

Source: Team assessment, annual report, and Thomson Reuters

Dupont decomposition							
in CHF thousand	2015	2016	2017E	2018E	2019E	2020E	2021E
Operating efficiency							
Net sales	411	508	660	805	874	1006	1139
Net income	7	67	90	153	175	204	234
Profit margin	*2%*	*13%*	*14%*	*19%*	*20%*	*20%*	*21%*
Asset use efficiency							
Net sales	411	508	660	805	874	1006	1139
Average assets		888	918	957	972	997	1028
Total asset turnover		0.57	0.72	0.84	0.90	1.01	1.11
Financial leverage							
Average asset		888	918	957	972	997	1028
Average equity		280	526	557	612	686	783
Avg.Asset/avg.Equity		3.17	1.75	1.72	1.59	1.45	1.31
ROE		*24%*	*17%*	*27%*	*29%*	*30%*	*30%*
EBT margin	5%	*17%*	*17%*	*24%*	*25%*	*25%*	*26%*
Pretax ROA		*10%*	*12%*	*20%*	*23%*	*26%*	*28%*
ROA		*8%*	*10%*	*16%*	*18%*	*20%*	*23%*
Pretax ROE		*31%*	*21%*	*34%*	*36%*	*37%*	*37%*
ROIC (no exclusion goodwill)		*15%*	*16%*	*20%*	*22%*	*25%*	*27%*

APPENDIX 21 Profitability Analysis

Benchmarking - Profitability					
Gross profit margin	2015	2016	**EBITDA margin**	2015	2016
VAT	*63.5%*	*62.6%*	VAT	*29.1%*	*29.4%*
Pfeiffer Vacuum AG	*38.9%*	*38.1%*	Pfeiffer Vacuum AG	*16.6%*	*18.5%*
Oerlikon	*28.8%*	*27.1%*	Oerlikon	*12.7%*	*14.5%*
Kudelski	*27.7%*	*27.2%*	Kudelski	*12.6%*	*14.2%*
AMS AG	*54.4%*	*52.4%*	AMS AG	*31.0%*	*28.0%*
Phoenix Mecano AG	*21.8%*	*21.9%*	Phoenix Mecano AG	*10.2%*	*11.4%*
EBIT margin	2015	2016	**Pretax profit margin**	2015	2016
VAT	*21.8%*	*23.3%*	VAT	*5.0%*	*17.3%*
Pfeiffer Vacuum AG	*13.5%*	*14.3%*	Pfeiffer Vacuum AG	*13.4%*	*14.3%*
Oerlikon	*-11.5%*	*6.8%*	Oerlikon	*-12.7%*	*5.8%*
Kudelski	*8.6%*	*9.3%*	Kudelski	*6.3%*	*8.9%*
AMS AG	*23.6%*	*17.0%*	AMS AG	*25.5%*	*17.7%*
Phoenix Mecano AG	*2.7%*	*6.0%*	Phoenix Mecano AG	*2.3%*	*5.6%*
Net margin	2015	2016	**Pretax ROA**	2015	2016
VAT	*1.7%*	*13.2%*	VAT		*9.90%*
Pfeiffer Vacuum AG	*9.3%*	*9.9%*	Pfeiffer Vacuum AG		*14.8%*
Oerlikon	*-15.1%*	*3.5%*	Oerlikon		*3.4%*
Kudelski	*5.2%*	*7.1%*	Kudelski		*8.2%*
AMS AG	*23.9%*	*18.7%*	AMS AG		*7.3%*
Phoenix Mecano AG	*1.2%*	*4.0%*	Phoenix Mecano AG		*7.3%*
ROA	2015	2016	**Pretax ROE**	2015	2016
VAT		*8.0%*	VAT		*17.0%*
Pfeiffer Vacuum AG		*10.3%*	Pfeiffer Vacuum AG		*21.8%*
Oerlikon		*2.1%*	Oerlikon		*8.0%*
Kudelski		*6.4%*	Kudelski		*21.4%*
AMS AG		*7.8%*	AMS AG		*14.4%*
Phoenix Mecano AG		*5.2%*	Phoenix Mecano AG		*12.1%*
ROE	2015	2016	**ROIC**	2015	2016
VAT		*13.8%*	VAT	*5.0%*	*15.0%*
Pfeiffer Vacuum AG		*15.3%*	Pfeiffer Vacuum AG	*11.7%*	*12.8%*
Oerlikon		*4.3%*	Oerlikon	*-12.1%*	*2.8%*
Kudelski		*16.6%*	Kudelski	*6.8%*	*9.2%*
AMS AG		*15.3%*	AMS AG	*17.1%*	*9.6%*
Phoenix Mecano AG		*8.6%*	Phoenix Mecano AG	*2.1%*	*7.1%*

APPENDIX 22 Peer Liquidity & Operating Benchmarking

Ratio / Company	Current		Quick		Cash		Days in receivables		Days in Inventory		Days in payables		*Operating cycle*	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
VAT	3.46	1.68	2.53	1.25	1.29	0.49	52	62.6	140	110.1	52	60.0	140	112.6
Pfeiffer Vacuum	2.98	3.05	2.12	2.15	1.28	1.21	45	60	94	99	27	33	112	127
Oerlikon	1.54	2.22	1.27	1.77	0.63	1.11	78	81	84	77	52	52	110	106
Kudelski	1.47	1.85	1.33	1.68	0.41	0.57	92	96	25	24	27	28	90	92
AMS AG	1.39	1.66	1.06	1.31	0.42	0.82	50	64	90	121	71	89	69	96
Phoenix Mecano	2.28	2.25	1.17	1.18	0.37	0.40	51	55	103	102	26	28	129	129

APPENDIX 23 Peer Solvency and Efficieny Benchmarking

Benchmarking - Solvency	2015	2016
Asset/Equity		
VAT	18.16	1.73
Pfeiffer Vacuum AG	1.46	1.49
Oerlikon	2.64	2.09
Kudelski	2.57	2.65
AMS AG	1.80	2.13
Phoenix Mecano AG	1.64	1.67
Debt/Equity		
VAT	14.58	*40%*
Pfeiffer Vacuum AG	*7%*	*7%*
Oerlikon	*49%*	*26%*
Kudelski	*79%*	*81%*
AMS AG	*42%*	*76%*
Phoenix Mecano AG	*29%*	*31%*
Net debt/EBITDA		
VAT	1.93	0.94
Pfeiffer Vacuum AG	-	-
Oerlikon	-	-
Kudelski	1.50	1.43
AMS AG	0.90	1.80
Phoenix Mecano AG	0.49	0.58

Benchmarking - Efficiency	2015	2016
VAT		
Asset turnover	0.46	0.57
Number of employees	1189	1439
Sales (mCHF)	411	508
Sales / Employee	0.35	0.35
Pfeiffer Vacuum AG		
Asset turnover	1.02	1.04
Number of employees	2324	2385
Sales (mCHF)	491	516
Sales / Employee	0.21	0.22
Oerlikon		
Asset turnover	0.62	0.59
Number of employees	13723	13840
Sales (mCHF)	2671	2331
Sales / Employee	0.19	0.17
Kudelski		
Asset turnover	0.91	0.91
Number of employees	3459	3801
Sales (mCHF)	951	1067
Sales / Employee	0.27	0.28
AMS AG		
Asset turnover	0.57	0.42
Number of employees	1921	2175
Sales (mCHF)	679	599
Sales / Employee	0.35	0.28
Phoenix Mecano AG		
Asset turnover	1.32	1.30
Number of employees	6204	6252
Sales (mCHF)	592	629
Sales / Employee	0.10	0.10

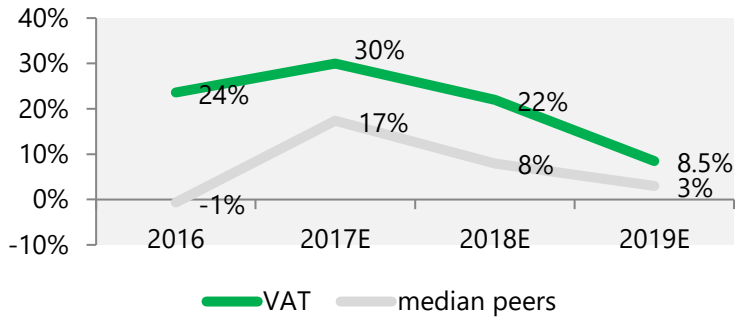
APPENDIX 24 Peer EPS Benchmarking

Benchmarking - EPS	2015	2016	2017E	2018E	2019E
VAT (CHF)	0.3	2.43	3.0	5.1	5.8
Pfeiffer Vacuum (Euro)	4.63	5.20	6.16	7.3	7.76
Oerlikon (CHF)	n.a	1.14	0.43	0.56	0.67
Kudelski (CHF)	0.82	1.16	0.58	0.93	1.1
AMS (Euro)	2.27	1.61	1.24	3.35	4.94
Phoenix (Euro)	7.58	25.93	26.6	32.7	36.07
EPS growth (yoy)					
VAT		*615%*	*23%*	*70%*	*15%*
Pfeiffer Vacuum		*12%*	*19%*	*19%*	*6%*
Oerlikon			*-62%*	*30%*	*20%*
Kudelski		*41%*	*-50%*	*60%*	*18%*
AMS		*-29%*	*-23%*	*170%*	*47%*
Phoenix		*242%*	*3%*	*23%*	*10%*
Peers Average		***67%***	***-23%***	***60%***	***20%***
Peers Median		***41%***	***-23%***	***45%***	***19%***

Source: Team assessment, annual report, and Thomson Reuters

APPENDIX 25 Top-line Growth

Benchmarking (Top-line growth)	2016	2017E	2018E	2019E
VAT	*23.59%*	*29.98%*	*21.98%*	*8.48%*
median peers	-1%	17%	8%	3%



APPENDIX 26 Peer Top to Bottom

Performance figures (VAT)		
in CHF m	2015	2016
Revenue	**411**	**508**
Growth		*23.6%*
Gross profit	**261**	**318**
Gross profit margin	*63.5%*	*62.6%*
Revenue/Employees	*0.35*	*0.35*
EBITDA	**120**	**150**
Growth		*25.0%*
EBITDA margin	*29.1%*	*29.4%*
EBIT	**89**	**118**
Growth		*32.3%*
EBIT margin	***21.8%***	***23.3%***
PBT	**21**	**88**
Growth		*327.7%*
PBT margin	*5.0%*	*17.3%*
Net income	**7**	**67**
Growth		*859.7%*
Net income margin	*1.7%*	*13.2%*
Research and Development	29	33
Growth		*16.1%*
as of % of revenue	*7%*	*7%*

Performance figures (Pfeiffer Vacuum)		
in Euro m	2015	2016
Revenue	**451**	**474**
Growth		*5.1%*
Gross profit	**175**	**181**
Gross profit margin	*38.9%*	*38.1%*
Revenue/Employees	*0.19*	*0.20*
EBITDA	**75**	**88**
Growth		*17.1%*
EBITDA margin	*16.6%*	*18.5%*
EBIT	**61**	**68**
Growth		*11.3%*
EBIT margin	*13.5%*	*14.3%*
PBT	**60**	**68**
Growth		*12.2%*
PBT margin	*13.4%*	*14.3%*
Net income	**42**	**47**
Growth		*11.9%*
Net income margin	9.3%	9.9%
Research and Development	26	26
Growth		*3%*
as of % of revenue	*6%*	*6%*

Performance figures (Oerlikon)		
in CHF m	2015	2016
Revenue	**2671**	**2331**
Growth		*-12.7%*
Gross profit	**769**	**632**
Gross profit margin	*28.8%*	*27.1%*
Revenue/Employees	*19.5%*	*16.8%*
EBITDA	**339**	**338**
Growth		*0%*
EBITDA margin	*12.7%*	*14.5%*
EBIT	**-307**	**159**
Growth		*151.6%*
EBIT margin	*-11.5%*	*6.8%*
PBT	**-339**	**135**
Growth		*139.9%*
PBT margin	*-12.70%*	*5.8%*
Net income	**-403**	**82**
Growth		*120.2%*
Net income margin	-15.1%	3.5%
Research and Development	103	94
Growth		*-8.7%*
as of % of revenue	*3.9%*	*4.0%*

Performance figures (Kudelski)		
in CHF m	2015	2016
Revenue	**951**	**1067**
Growth		*12%*
Gross profit	**263**	**290**
Gross profit margin	*28%*	*27%*
Revenue/Employees	*27%*	*28%*
EBITDA	**120**	**152**
Growth		*26%*
EBITDA margin	*13%*	*14%*
EBIT	**82**	**99**
Growth		*21%*
EBIT margin	*9%*	*9%*
PBT	**60**	**95**
Growth		*59%*
PBT margin	*6.3%*	*8.9%*
Net income	**49**	**76**
Growth		*53%*
Net income margin	5.2%	7.1%
Research and Development	193	197
Growth		*2%*
as of % of revenue	*20%*	*18%*

Performance figures (AMS)		
in Euro m	2015	2016
Revenue	**623**	**550**
Growth		*-12%*
Gross profit	**339**	**288**
Gross profit margin	*54.4%*	*52.4%*
Revenue/Employees	*32%*	*25%*
EBITDA	**193**	**154**
Growth		*-20%*
EBITDA margin	*31.0%*	*28.0%*
EBIT	**147**	**94**
Growth		*-36%*
EBIT margin	*23.6%*	*17.0%*
PBT	**159**	**97**
Growth		*-39%*
PBT margin	*25.5%*	*17.7%*
Net income	**149**	**103**
Growth		*-31%*
Net income margin	23.9%	18.7%
Research and Development	107.8	138.6
Growth		*29%*
as of % of revenue	*17%*	*25%*

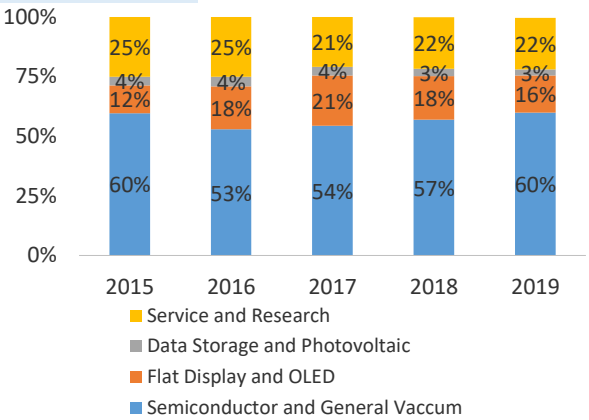
Performance figures (Phoenix Mecano)		
in Euro m	2015	2016
Revenue	**560**	**583**
Growth		*4%*
Gross profit	**122**	**128**
Gross profit margin	*21.8%*	*21.9%*
Revenue/Employees	*9%*	*9%*
EBITDA	**57**	**66**
Growth		*16%*
EBITDA margin	*10.2%*	*11.4%*
EBIT	**15**	**35**
Growth		*131%*
EBIT margin	*2.7%*	*6.0%*
PBT	**13**	**33**
Growth		*153%*
PBT margin	*2.3%*	*5.6%*
Net income	**7**	**23**
Growth		*247%*
Net income margin	1.2%	4.0%
Research and Development	10	12
Growth		*17%*
as of % of revenue	*2%*	*2%*

APPENDIX 27 Growth Forecast – Base Case

CHF thousands, Industry (Source VLSI and Team assessment)	2015	2016	2017	2018	2019	2020	2021	2022
Semiconductor	335.7	375.2	494.4	544.7	517.5	595.1	666.5	733.1
Annual Growth	*5.1%*	*11.8%*	*31.8%*	*10.2%*	*-5.0%*	*15.0%*	*12.0%*	*10.0%*
Flat Panel Display	163.3	275.9	364.5	383.7	357.9	393.7	413.4	434.0
Annual Growth	*16.3%*	*69.0%*	*32.1%*	*5.3%*	*-6.7%*	*10.0%*	*5.0%*	*5.0%*
OLED	6.7	9.6	9.3	8.4	8.4	9.1	9.7	10.3
Annual Growth	*-33.7%*	*43.3%*	*-3.1%*	*-9.7%*	*0.0%*	*8.3%*	*7.0%*	*6.0%*
Data Storage	7.1	8.3	8.0	8.0	6.7	7.6	8.4	8.9
Annual Growth	*42.0%*	*16.9%*	*-3.6%*	*0.0%*	*-16.3%*	*13.4%*	*10.0%*	*7.0%*
Photovoltaic	18.0	26.2	31.4	31.9	30.2	33.2	35.5	37.3
Annual Growth	*-9.1%*	*45.6%*	*19.8%*	*1.6%*	*-5.3%*	*9.9%*	*7.0%*	*5.0%*
General Vacuum	273.0	281.8	288.8	294.6	302.8	310.7	318.5	326.4
Annual Growth	*0.2%*	*3.2%*	*2.5%*	*2.0%*	*2.8%*	*2.6%*	*2.5%*	*2.5%*
Vacuum Subsystems	803.8	977.0	1,196.4	1,271.3	1,223.5	1,349.4	1,452.0	1,550.2
Annual Growth Total for End Markets	*4.8%*	*21.5%*	*22.5%*	*6.3%*	*-3.8%*	*10.3%*	*7.6%*	*6.8%*

VAT Market Share	2015	2016	2017	2018	2019	2020
Semiconductor and General Vacuum	40%	41%	46%	48%	49%	50%
Display (Flat + OLED)	40%	41%	46%	48%	49%	50%
Data Storage & Photovoltaic (Other highly tech markets)	60%	60%	60%	60%	60%	60%
Service (as % of total sales)	25%	25%	19%	20%	20%	20%
Absolute sales from end markets (CHF million)						
Semiconductor	134.28	153.83	227.42	261.46	253.56	297.54
Display (Flat + OLED)	68.00	117.06	171.95	188.21	179.49	201.40
Data Storage & Photovoltaic (Other high-tech markets)	15.06	20.70	23.64	23.94	22.14	24.48
General Vacuum	109.20	115.54	132.85	141.41	148.37	155.35
VAT Annual Sales Revenue	**408.18**	**508.9**	**661.4**	**806.8**	**875.3**	**1,007.5**
VAT Annual Growth Total		**25%**	**30%**	**22%**	**9%**	**15%**

Market Mix

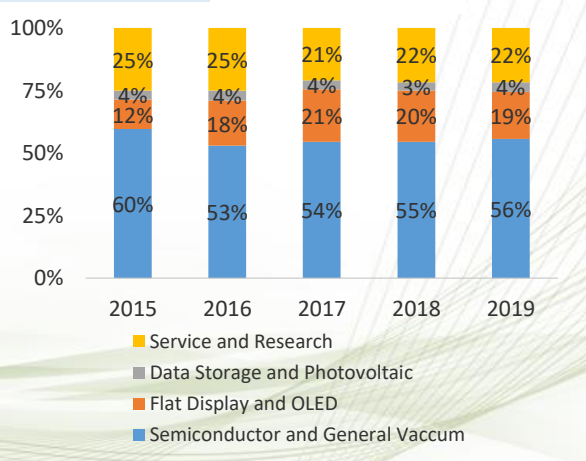


APPENDIX 28 Growth Forecast – Grey Sky

CHF thousands, Industry (Source VLSI and Team assessment)	2015	2016	2017	2018	2019	2020	2021	2022
Semiconductor	335.7	375.2	494.4	520.0	468.0	514.8	550.8	578.4
Annual Growth	*5.1%*	*11.8%*	*31.8%*	5.2%	-10.0%	10.0%	7.0%	5.0%
Flat Panel Display	163.3	275.9	364.5	365.5	322.6	338.8	338.8	338.8
Annual Growth	*16.3%*	*69.0%*	*32.1%*	0.3%	-11.7%	5.0%	0.0%	0.0%
OLED	6.7	9.6	9.3	7.9	8.4	9.1	9.3	9.4
Annual Growth	*-33.7%*	*43.3%*	*-3.1%*	-14.7%	-5.0%	3.3%	2.0%	1.0%
Data Storage	7.1	8.3	8.0	7.6	6.7	7.6	8.0	8.1
Annual Growth	*42.0%*	*16.9%*	*-3.6%*	-5.0%	-21.3%	8.4%	5.0%	2.0%
Photovoltaic	18.0	26.2	31.4	30.3	30.2	33.2	33.9	33.9
Annual Growth	*-9.1%*	*45.6%*	*19.8%*	-3.4%	-10.3%	4.9%	2.0%	0.0%
General Vacuum	273.0	281.8	288.8	280.2	302.8	310.7	302.9	295.4
Annual Growth	*0.2%*	*3.2%*	*2.5%*	-3.0%	-2.2%	-2.4%	-2.5%	-2.5%
Vacuum Subsystems	803.8	977.0	1,196	1,211.5	1,138	1,214.1	1,243.6	1,263.9
Annual Growth Total for End Markets	*4.8%*	*21.5%*	*22.5%*	1.3%	-6.0%	6.6%	2.4%	1.6%

VAT Market Share	2015	2016	2017	2018	2019	2020
Semiconductor and General Vacuum	40%	41%	46%	46%	41%	41%
Display (Flat + OLED)	40%	41%	46%	46%	41%	41%
Data Storage & Photovoltaic (Other highly tech markets)	60%	60%	60%	60%	60%	60%
Service (as % of total sales)	25%	25%	19%	20%	20%	20%
Absolute sales from end markets (CHF million)						
Semiconductor	134.28	153.83	227.42	239.19	191.87	211.06
Display (Flat + OLED)	68.00	117.06	171.95	171.77	135.72	142.62
Data Storage & Photovoltaic (Other high-tech markets)	15.06	20.70	23.64	22.76	22.14	24.48
General Vacuum	109.20	115.54	132.85	128.87	124.15	127.39
VAT Annual Sales Revenue	**408.18**	**508.9**	**661.4**	**675.1**	**568.6**	**606.66**
VAT Annual Growth Total		**25%**	**30%**	**2%**	**-16%**	**6.7%**

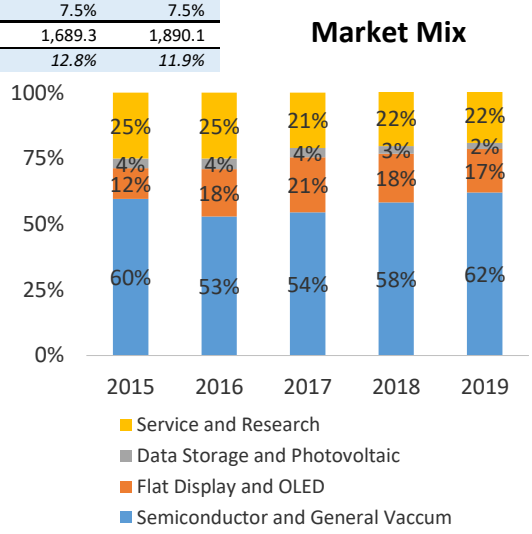
Market Mix



APPENDIX 29 Growth Forecast – Blue Sky

CHF thousands, Industry (Source VLSI and Team assessment)	2015	2016	2017	2018	2019	2020	2021	2022
Semiconductor	335.7	375.2	494.4	569.4	569.4	683.3	799.5	919.4
Annual Growth	*5.1%*	*11.8%*	*31.8%*	15.2%	0.0%	20.0%	17.0%	15.0%
Flat Panel Display	163.3	275.9	364.5	401.9	395.0	454.2	499.7	549.6
Annual Growth	*16.3%*	*69.0%*	*32.1%*	10.3%	-1.7%	15.0%	10.0%	10.0%
OLED	6.7	9.6	9.3	8.9	8.4	9.1	10.2	11.3
Annual Growth	*-33.7%*	*43.3%*	*-3.1%*	-4.7%	5.0%	13.3%	12.0%	11.0%
Data Storage	7.1	8.3	8.0	8.4	6.7	7.6	8.7	9.8
Annual Growth	*42.0%*	*16.9%*	*-3.6%*	5.0%	-11.3%	18.4%	15.0%	12.0%
Photovoltaic	18.0	26.2	31.4	33.5	30.2	33.2	37.2	40.9
Annual Growth	*-9.1%*	*45.6%*	*19.8%*	6.6%	-0.3%	14.9%	12.0%	10.0%
General Vacuum	273.0	281.8	288.8	309.0	302.8	310.7	334.0	359.1
Annual Growth	*0.2%*	*3.2%*	*2.5%*	7.0%	7.8%	7.6%	7.5%	7.5%
Vacuum Subsystems	803.8	977.0	1,196.4	1,331	1,312	1,498.1	1,689.3	1,890.1
Annual Growth Total for End Markets	*4.8%*	*21.5%*	*22.5%*	*11.3%*	*-1.4%*	*14.1%*	*12.8%*	*11.9%*

VAT Market Share	2015	2016	2017	2018	2019	2020
Semiconductor and General Vacuum	40%	41%	46%	49%	52%	52%
Display (Flat + OLED)	40%	41%	46%	49%	52%	52%
Data Storage & Photovoltaic (Other highly tech markets)	60%	60%	60%	60%	60%	60%
Service (as % of total sales)	25%	25%	19%	20%	20%	20%
Absolute sales from end markets (CHF million)						
Semiconductor	134.28	153.83	227.42	279.02	296.10	355.32
Display (Flat + OLED)	68.00	117.06	171.95	201.29	209.77	240.94
Data Storage & Photovoltaic (Other high-tech markets)	15.06	20.70	23.64	25.12	22.14	24.48
General Vacuum	109.20	115.54	132.85	151.43	157.46	161.56
VAT Annual Sales Revenue	**408.18**	**508.9**	**661.4**	**857.2**	**973.5**	**943.86**
VAT Annual Growth Total		**25%**	**30%**	**30%**	**14%**	**16%**



APPENDIX 30 P&L Statement

CHF thousand	FY15	FY16	FY17E	FY18E	FY19E	FY20E	FY21E	FY22E
Sales	**410,959.0**	**507,901.0**	**660,166.8**	**805,266.0**	**873,568.4**	**1,005,756.5**	**1,138,952.0**	**1,268,275.9**
Cost of sales	(149,944.0)	(189,896.0)	(250,203.2)	(309,222.1)	(339,818.1)	(396,268.1)	(448,747.1)	(499,700.7)
Gross Profit	**261,015.0**	**318,005.0**	**409,963.6**	**496,043.9**	**533,750.3**	**609,488.5**	**690,204.9**	**768,575.2**
Personnel expenses	(102,834.0)	(116,684.0)	(155,529.1)	(185,211.2)	(192,185.1)	(221,266.4)	(250,569.4)	(279,020.7)
Other operating income	2,192.0	3,087.0	3,766.9	4,594.8	4,984.5	5,738.8	6,498.8	7,236.7
Other operating expenses	(33,536.0)	(46,455.0)	(62,715.8)	(72,473.9)	(74,253.3)	(85,489.3)	(96,810.9)	(107,803.5)
EBITDA	**119,637.0**	**149,553.0**	**192,585.4**	**242,953.5**	**272,296.4**	**308,471.5**	**349,323.3**	**388,987.7**
Adjusted EBITDA	**126,837.0**	**157,953.0**	**206,727.6**	**256,666.6**	**287,172.7**	**325,598.8**	**368,718.9**	**410,585.6**
Depreciation	(13,990.0)	(15,015.0)	(17,164.3)	(20,131.6)	(20,965.6)	(23,132.4)	(26,195.9)	(29,170.3)
Amortization	(16,237.0)	(16,272.0)	(19,805.0)	(22,547.4)	(22,712.8)	(24,138.2)	(27,334.8)	(30,438.6)
Total D&A	**(30,227.0)**	**(31,287.0)**	**(36,969.3)**	**(42,679.1)**	**(43,678.4)**	**(47,270.6)**	**(53,530.7)**	**(59,609.0)**
EBIT	**89,410.0**	**118,266.0**	**155,616.1**	**200,274.4**	**228,618.0**	**261,200.9**	**295,792.6**	**329,378.8**
Financial/Interest Income	2,575.0	7,291.0	626.4	626.4	626.4	626.4	626.4	626.4
Financial/Interest Expense	(62,059.0)	(32,655.0)	(44,107.0)	(8,451.5)	(8,261.5)	(5,191.9)	(2,787.3)	0.0
FX (losses)/gains	(9,368.0)	(5,019.0)						
Net Financial (Expense)/Income	(68,852.0)	(30,383.0)	(43,480.6)	(7,825)	(7,635.1)	(4,565.4)	(2,160.9)	626.4
EBT	**20,558.0**	**87,883.0**	**112,135.5**	**192,449.3**	**220,983.0**	**256,635.5**	**293,631.7**	**330,005.2**
Income Taxes	(13,497.0)	(20,651.0)	(22,427.1)	(38,489.9)	(44,196.6)	(51,327.1)	(58,726.3)	(66,001.0)
Net Income	**7,061.0**	**67,232.0**	**89,708.4**	**153,959.4**	**176,786.4**	**205,308.4**	**234,905.4**	**264,004.1**
EPS - Basic	0.3	2.43	3.0	5.1	5.9	6.8	7.8	8.8

APPENDIX 31 Balance Sheet

CHF thousand	FY15	FY16	FY17E	FY18E	FY19E	FY20E	FY21E	FY22E
Net Working Capital	**87,386.0**	**71,027.0**	**118,830.0**	**144,947.9**	**157,242.3**	**181,036.2**	**205,011.4**	**228,289.7**
% sales	21.26%	13.98%	18.00%	18.00%	18.00%	18.00%	18.00%	18.00%
Property, Plant & Equipment	115,002.0	116,128.0	132,753.4	151,422.4	163,812.8	174,055.1	179,959.1	186,533.4
Goodwill	183,717.0	183,717.0	183,717.0	183,717.0	183,717.0	183,717.0	183,717.0	183,717.0
Other Intangible Assets	360,951.0	346,783.0	331,599.2	314,688.6	298,090.8	280,992.9	261,630.7	240,070.0
Other receivables and investment properties	5,773.0	5,635.0	5,635.0	5,635.0	5,635.0	5,635.0	5,635.0	5,635.0
Deferred Tax Assets	3,745.0	5,197.0	6,318.4	8,242.8	10,452.7	13,019.0	15,955.3	19,255.4
Other Liabilities & government grants	(1,885)	(1,586)	(1,586)	(1,586)	(1,586)	(1,586)	(1,586)	(1,586)
Deferred Tax Liabilities	(50,825)	(51,197)	(51,197)	(51,197)	(51,197)	(51,197)	(51,197)	(51,197)
Defined benefit obligations	(20,789)	(28,436)	(28,436)	(28,436)	(28,436)	(28,436)	(28,436)	(28,436)
LT Operating Assets & Liabilities	**595,689.0**	**576,241.0**	**578,803.9**	**582,486.9**	**580,489.3**	**576,200.1**	**565,678.1**	**553,991.8**
Net Operating Assets	**683,075.0**	**647,268.0**	**697,634.0**	**727,434.7**	**737,731.6**	**757,236.2**	**770,689.5**	**782,281.5**
Cash	80,601.0	62,642.0	62,642.0	62,642.0	62,642.0	62,642.0	62,642.0	62,642.0
Gross Financial Debt	(714,487.0)	(199,261.0)	(184,918.6)	(180,759.9)	(113,597.3)	(60,985.2)		
(Net Debt)	(228,765.0)	(136,619.0)	(122,276.6)	(118,117.9)	(50,955.3)	1,656.8	111,626.7	231,167.5
EBITDA x	1.8	0.9	0.6	0.5	0.2	(0.0)	(0.3)	(0.6)
Net Cash (Debt)	**(228,765.0)**	**(136,619.0)**	**(122,276.6)**	**(118,117.9)**	**(50,955.3)**	**1,656.8**	**111,626.7**	**231,167.5**

APPENDIX 32 Cash Flow Projections

CHF thousand	FY15	FY16	FY17E	FY18E	FY19E	FY20E	FY21E	FY22E
Net Income	7061	67232	89708	153959	176786	205308	234905	264004
Adjustment	39819	33118	70848	40755	41469	44704	50594	56309
Change in WC	11286	11257	-47803	-26118	-12294	-23794	-23975	-23278
Operating Cash Flow	58166	111607	112753	168596	205961	226219	261525	297035
Capex for PP&E	-9919	-15852	-34989	-40263	-34943	-35201	-34169	-38048
% sales	2.4%	3.1%	5.3%	5.0%	4.0%	3.5%	3.0%	3.0%
Capex for Intangibles	-3021	-3313	-4621	-5637	-6115	-7040	-7973	-8878
% sales	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Proceeds from sale of PPE and intangibles	954	666	1199	1463	1587	1827	2069	2304
% sales	0.2%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Investing Cash Flow	-11986	-18499	-38411	-44438	-39471	-40415	-40072	-44623
Issuance(Repayments) of borrowings	-82682	-122073	60000					
Dividends Paid			-120000	-120000	-99327	-133192	-111482	-132871
% FCFE			1.3	1	0.8	0.8	0.6	0.6
Shareholder Cash Flows	-82988	-122073	-60000	-120000	-99327	-133192	-111482	-132871
Net Cash Flow	-36808	-42510	14342	4159	67163	52612	109970	119541

APPENDIX 33 Forecast Assumptions

CHF thousand		FY15	FY16	FY17E	FY18E	FY19E	FY20E	FY21E	FY22E
Sales	% growth	13%	24%	30%	22%	8%	15%	13%	11%
COGS	% sales	36%	37%	38%	38%	39%	39%	39%	39%
Workforce	% sales	25%	23%	24%	23%	22%	22%	22%	22%
Other income	% sales	1%	1%	1%	1%	1%	1%	1%	1%
Other expense	% sales	8%	9%	10%	9%	9%	9%	9%	9%
EBITDA	% sales	29%	29%	29%	30%	31%	31%	31%	31%
Adj EBITDA	% sales	31%	31%	31%	32%	33%	32%	32%	32%
Depreciation	% sales	3%	3%	3%	3%	2%	2%	2%	2%
Amortization	% sales	4%	3%	3%	3%	3%	2%	2%	2%
EBIT	% sales	22%	23%	24%	25%	26%	26%	26%	26%
Cash rate			9%	1%	1%	1%	1%	1%	1%
Interest rate			5%	5%	5%	5%	5%	5%	5%
Tax rate		66%	23%	20%	20%	20%	20%	20%	20%
Income	% sales	2%	13%	14%	19%	20%	20%	21%	21%
Capex PPE	% sales	2%	3%	5%	5%	4%	4%	3%	3%
Capex Intan.	% sales	1%	1%	1%	1%	1%	1%	1%	1%
Sale of PPE	% sales	0.18%	0.18%	0.18%	0.18%	0.18%	0.18%	0.18%	0.18%

APPENDIX 34 Beta Calculation

Comparables	Levered Beta	Net Debt / Equity *(%)*	Statutory Tax Rate *(%)*	Unlevered (Asset) Beta*
Ams AG	1.52	3.8%	(5.8%)	1.46
Tokyo Electron Ltd	1.18	(9.2%)	22.7%	1.27
Lam Research Corp	1.60	(10.7%)	6.3%	1.78
Applied Materials Inc	1.80	(3.5%)	8.0%	1.86
MKS Instruments Inc	1.05	0.0%	18.1%	1.05
SMC Corp	0.99	(15.1%)	22.1%	1.12
Average	*1.36*	*(5.8%)*	*11.9%*	*1.42*
Median	*1.35*	*(6.4%)*	*13.0%*	*1.37*
Selected Unlevered Beta				***1.37***

Net Debt / Equity	Relevered Beta *
3.5%	1.40
5.5%	**1.43**
7.5%	1.45

APPENDIX 35 DCF Calculation

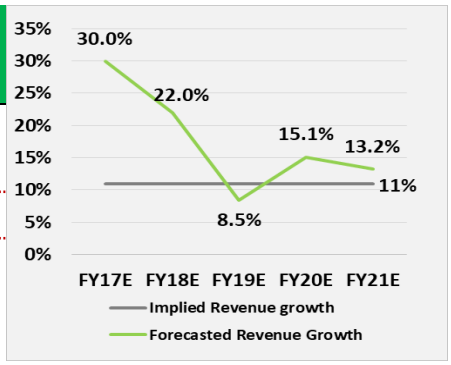
Key Financials (CHF '000)	2016	2017	2018	2019	2020	2021	2022	Term. Val.
Operating Cash Flow	**111,607**	**112,753**	**168,596**	**205,961**	**226,219**	**261,525**	**297,035**	**412,940**
Growth %		*1.0%*	*49.5%*	*22.2%*	*9.8%*	*15.6%*	*13.6%*	*2.5%*
Investing Cash Flow	**(18,499)**	**(38,411)**	**(44,438)**	**(39,471)**	**(40,415)**	**(40,072)**	**(44,623)**	**(59,089)**
Growth %		*107.6%*	*15.7%*	*-11.2%*	*2.4%*	*-0.8%*	*11.4%*	*2.5%*
Capex/ Adj. D&A		*204%*	*200%*	*167%*	*152%*	*130%*	*130%*	
Unlevered Free Cash Flow	**101,578**	**81,127**	**130,419**	**172,598**	**189,456**	**223,181**	**251,911**	**353,337**
Growth %		*-20.1%*	*60.8%*	*32.3%*	*9.8%*	*17.8%*	*12.9%*	*2.5%*
Margin %		*12.3%*	*16.2%*	*19.8%*	*18.8%*	*19.6%*	*19.9%*	*21.0%*

Terminal Value Calculation (CHF thousand)

	Growth	Terminal Norm. FCF		*2.50%*	**353,337**
Terminal Value at dd-juil-yy		6,996,780	**6,860,920**	6,730,236	
NPV discounted to dd-janv-yy		3,607,646	**3,507,801**	3,412,032	
Implied forward EBITDA multiple		*13.2 x*	***12.9 x***	*12.7 x*	

APPENDIX 36 Implied DCF Revenue Projections

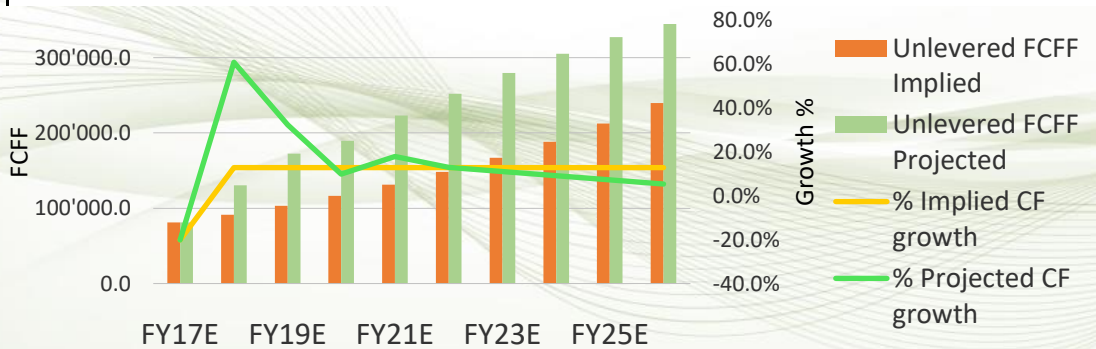
Implied Projections (CHF thousand)	FY16	FY17E	FY18E	FY19E	FY20E	FY21E
Sales	**507,901.0**	**563,458.3**	**625,092.7**	**693,469.1**	**769,324.9**	**853,478.2**
% growth	*23.59%*	*10.94%*	*10.9%*	*10.9%*	*10.9%*	*10.9%*
% organic	19%	*10.9%*	*10.9%*	*10.9%*	*10.9%*	*10.9%*
Unlevered Free Cash Flow (Firm)	**101,578.4**	**80,736.5**	**110,436.0**	**134,491.0**	**149,495.9**	**170,089.7**
% FCF margin	20%	14%	18%	19%	19%	20%
% FCF conversion	*67.92%*	*49.12%*	*58.56%*	*62.22%*	*63.36%*	*64.98%*
% FCF growth		-21%	37%	22%	11%	14%



APPENDIX 37 Implied DCF FCFF Projections

VAT - Financial Projections FY2017E - FY2022E

CHF thousand	FY17E	FY18E	FY19E	FY20E	FY21E	FY22E
Unlevered FCFF Implied	**81,126.9**	**91,506.2**	**103,213.5**	**116,418.5**	**131,313.0**	**148,113.1**
% Implied CF growth	*-20.1%*	*13%*	*13%*	*13%*	*13%*	*13%*
Unlevered FCFF Projected	**81,126.9**	**130,418.8**	**172,597.6**	**189,456.1**	**223,180.8**	**251,911.0**
% Projected CF growth	-20%	61%	32%	10%	18%	13%



APPENDIX 38 Other Valuation Model - DDM

Current Price	134.90
Current Dividend	4.000
Growth (Growth Phase)	14%
Growth (Mature Phase)	2.50%
Cost of Equity	8.00%
Time(Growth)	7
Time(to Maturity)	3
H	1.5
Dividend at the end of Growth phase	10
Value of 2nd & 3rd stage	218
Present Value of 2nd & 3rd stage	127 (Term. Val. = 78%)

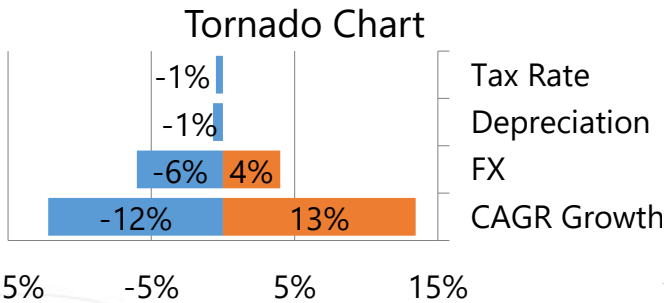
Time	1	2	3	4	5	6	7
Dividend	4.6	5.2	5.9	6.8	7.7	8.8	10.0
PV of Dividend	4.2	4.5	4.7	5.0	5.2	5.5	5.8

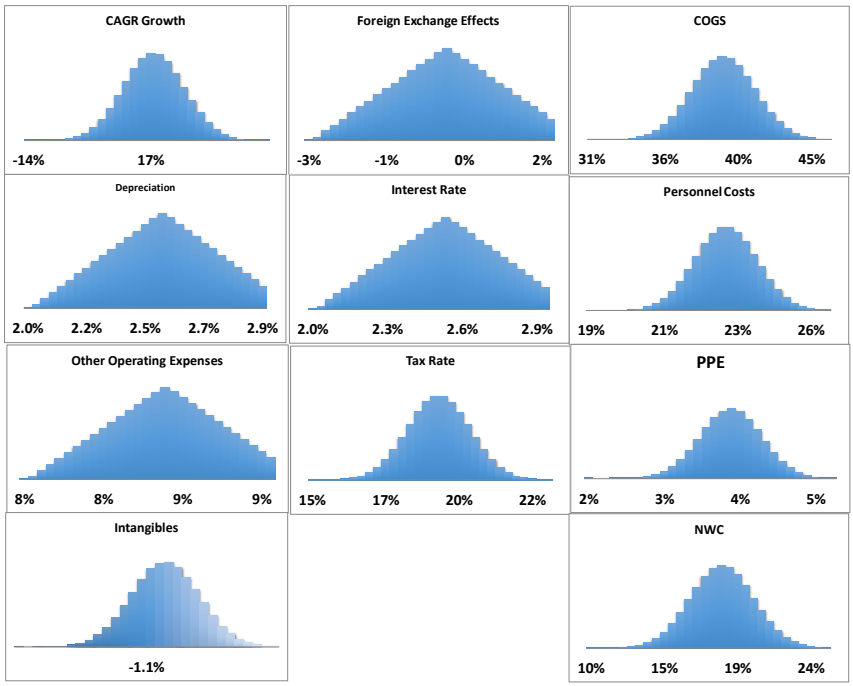
			Current Price + band	148
Model Value	**162**	=	Current Price	135
Fair Band	10%		Current Price - band	121

Assumption: Initial 7 years with 14% growth and 3 years until maturity with 2.5% growth thereafter.

APPENDIX 39 Monte Carlo

Simulation Statistics	
Base	163
Mean	161
Median	156
Variance	2144
Standard Deviation	46
Coefficient of Variation	0.29
Min	47
Max	289
Range	242
Standard Error	0.33
Trials	20000





APPENDIX 40 Multiples Valuation

	PE FY18E	Growth FY1	Market Cap (Bn)	PEG FY1	EV/EBITDA FY1	Dividend Yield
VAT Group AG	**25.90**	**29.61%**	**4.05**	**0.87**	**16.19**	**2.96%**
Tokyo Electron Ltd	16.77	71.24%	30.64	0.76	10.30	1.63%
Lam Research Corp	12.75	47.31%	31.15	0.72	8.05	0.79%
Applied Materials	12.40	20.43%	53.00	0.77	9.95	0.76%
CKD Corp	15.04	31.32%	1.50	0.74	8.27	1.23%
SMC Corp	20.63	26.78%	27.22	1.38	12.54	0.43%
Georg Fischer AG	19.22	10.37%	5.40	1.72	10.67	1.57%
Pfeiffer Vacuum Tech. AG	21.13	17.50%	1.78	1.26	11.91	2.37%
Phoenix Mecano AG	15.82	23.74%	0.57	0.54	7.54	2.78%
OC Oerlikon Corp	29.62	26.84%	5.53	1.49	11.57	1.85%
Peer Average	**18.15**	**30.61%**	**17.42**	**1.04**	**10.09**	**1.49%**
Peer Median (w/o VAT)				**1.01**		