

F-Secure

Initiation of coverage

3/2018

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New strategy in acceleration phase

The shift in the focus of the information security market from blocking threats to detecting them has required considerable regeneration from F-Secure. The company launched a strategy intended for the growing corporate security markets in 2015 to respond to the change, and that strategy has now reached a stage where growth can be accelerated thanks to an expanded product and service portfolio. However, the company still has to unify its solution portfolio and develop a sales channel for the larger enterprise segment before the alluring growth potential of the market is fully realized.

Information security company turning into a cyber security solution provider

Through its history, F-Secure has developed a strong expertise, reputation and brand in preventing malware and cyber security threats. The company's business model focusing on endpoint protection products is very stable, as well as recurring and scalable by nature, which provides the company with a good base to invest in the growth areas of the cyber security market. The shift in the market from blocking threats to detecting and reacting to them also creates challenges and change pressure for an established supplier like F-Secure that has historically focused on the consumer business. Customer demand is shifting from point technology solutions towards acquiring cyber security as a comprehensive process. In order to respond to the change, F-Secure must continue developing and unifying its product and service portfolio, shift its focus towards medium sized and large enterprises and develop its organization.

Value is created through growth in corporate security

In the current market situation, F-Secure sees the best value creation potential in strong net sales growth on the corporate security markets. F-Secure's current corporate security products and services (43% of net sales) are, in our view, very competitive, and the recently expanded portfolio creates cross-selling possibilities but the company must continue investing in strengthening the product portfolio and in the sales channel. In consumer security (57% of net sales), the company aims at stable growth and strong profitability. In line with its strategy, F-Secure invests considerably on the corporate side aiming for an annual growth of over 15%, while maintaining group level profitability positive with the help of the consumer business.

Excellent growth outlook for the industry but also signs of overheating

Cyber security companies are solving one of the biggest problems of digitizing society, which is why the demand fundamentals of the market are excellent in a big picture. The size of the global cyber security market is around USD 89 billion and is growing by some eight per cent annually. F-Secure's business is focused on more established product segments that grow more slowly than the overall market, and the company's investments in growth areas are still in their early stage. The cyber security sector is turning challenging as an investment object despite the growth outlook. We see a risk that the current, partially extremely high valuation levels of the sector are not sustainable when competitive pressure increases after the investment wave seen in the industry in recent years.

F-Secure optimizes shareholder value between growth and profitability

The growing corporate cyber security markets are now being allocated and shareholder value is created through the right balance between growth and profitability. We initiate our coverage of F-Secure with a cautiously positive view as the valuation of the share already reflects moderate growth expectations (EV/net sales 2018e 2.6x). We require the company to showcase strengthening growth in corporate security generated by new products before we can take a bolder stand on the share.

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Rating and target price

Accumulate

Previous: -

EUR 3.90

Previous: -



Share price: EUR 3.65

Potential: 6.8%

Key indicators

	2016	2017	2018e	2019e
Net sales	158.3	169.7	182.0	196.6
Growth %	7.2%	7.2%	7.2%	8.0%
EBIT	19.2	11.1	10.0	15.2
EBIT %	12.1%	6.5 %	5.5 %	7.7 %
Profit before taxes	20.8	11.9	10.7	15.9
EPS (EUR)	0.10	0.07	0.05	0.08
Dividend (EUR)	0.12	0.04	0.04	0.05
P/E (adjusted)	34.6	57.0	71.5	48.1
P/B	7.2	8.8	8.0	7.4
EV/S	2.8	3.1	2.6	2.4
EV/EBITDA	18.4	29.9	28.9	21.5
EV/EBIT	23.5	46.8	47.5	30.8
Dividend yield %	3.4%	1.0%	1.1%	1.4%

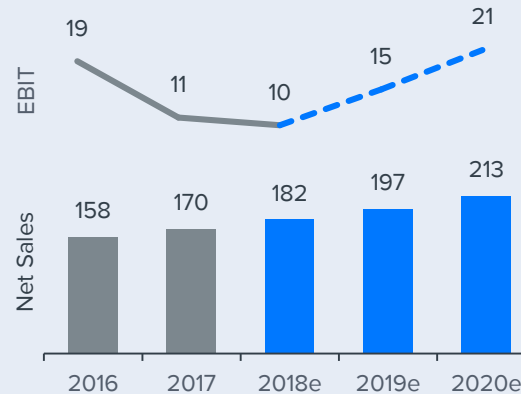
Source: Inderes

Share price development

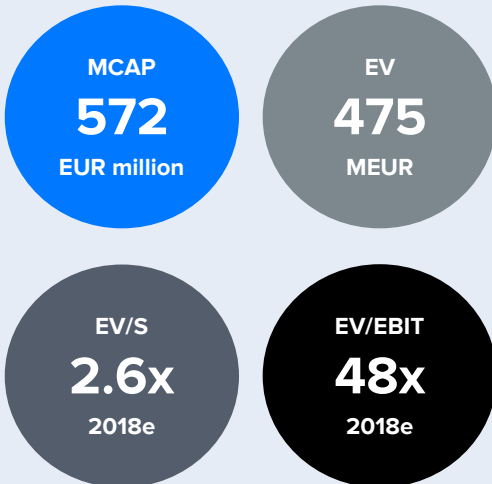
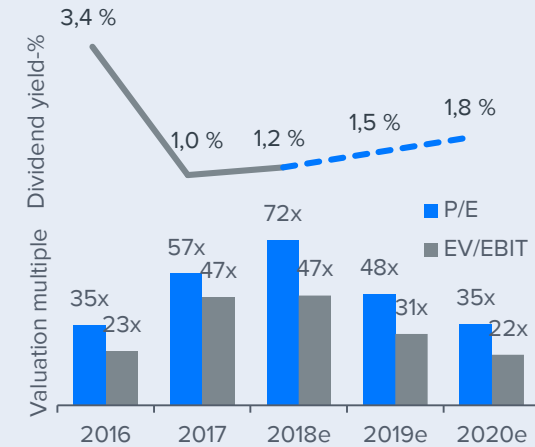


Source: Reuters

Net sales and operating profit



Valuation and dividend yield



Source: Inderes



Value drivers

- Strong growth in corporate security
- Demand outlook for the corporate security market strong
- F-Secure has good preconditions to invest in growth
- Consumer security creates stable cash flow
- Scalable and sustained business model by nature



Risk factors

- Transformation process from consumer security to a cyber security company not finished
- Tight competition and rapid market change in consumer security
- Success of investments in corporate security
- Cyber security market potentially over-invested at the moment



Valuation

- Valuation levels in sector high, not much room for valuation multiple expansion
- F-Secure's conscious growth investments burden the profit
- Growth speed most important value driver for the share
- We see a slight upward potential if the strategy progresses as planned

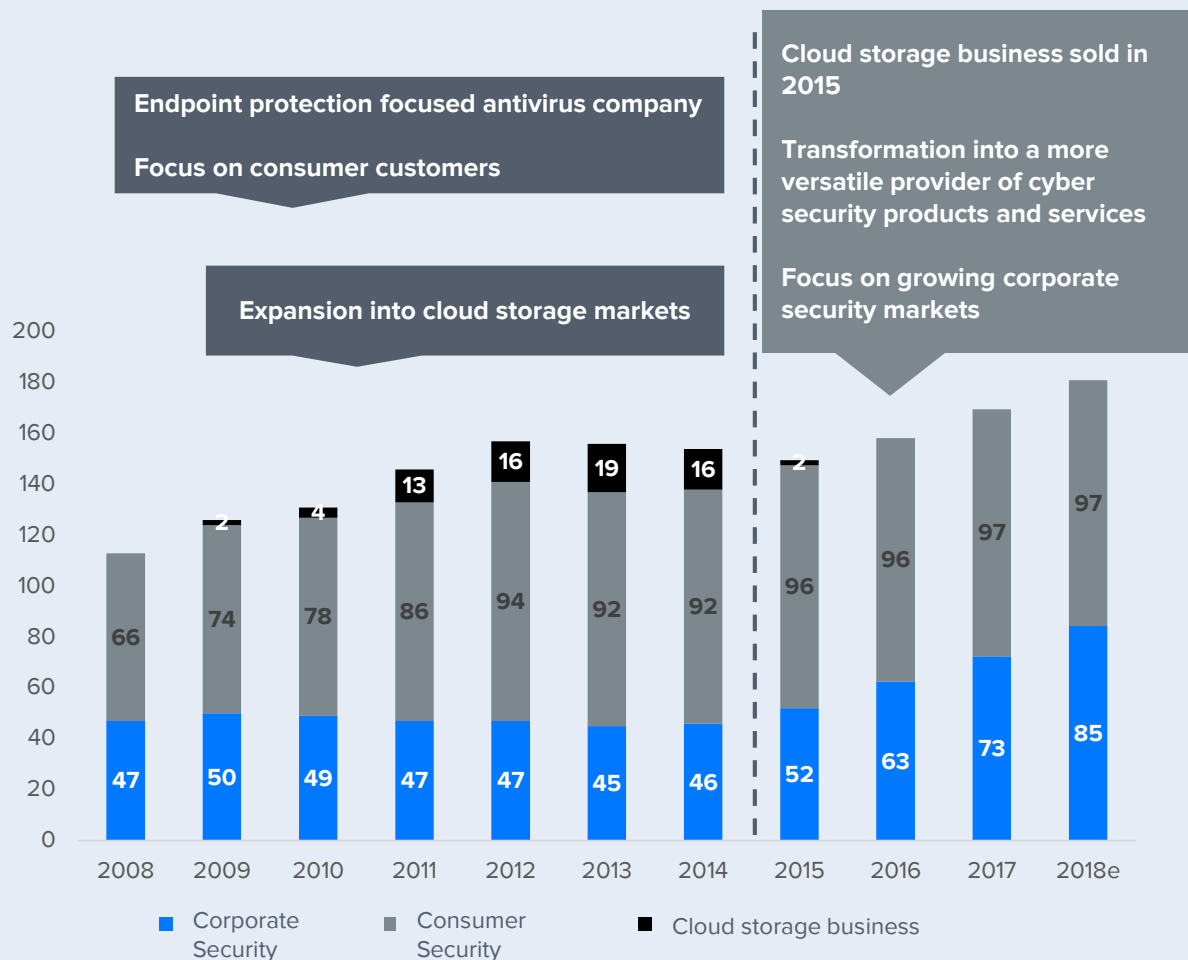
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F-Secure in brief

F-Secure is a company that offers cyber security products and services, whose solutions help thousands of companies and millions of consumers to protect themselves from security threats.

<p>1988 Year of establishment</p>	<p>1999 IPO</p>
<p>EUR 169.7 million (+7.2% vs. 2016) NET SALES 2017</p>	
<p>+16.4% 2015 to 2017 Average growth of net sales from corporate security</p>	
<p>EUR 11.1 million (6.5% of net sales) OPERATING PROFIT 2017</p>	
<p>1,104 Personnel at the end of 2017</p>	<p>57% / 43% Share of consumer/corporate security in net sales 2017</p>



Source: F-Secure / Inderes

Company description and business model 1/6

Company description

Software company focusing on cyber security

F-Secure is a cyber security software company established in 1988. The company's roots are deep in antivirus software, where the company has operated since it was founded and, in practice, for as long as computer viruses have existed. Through its history, the company has developed a strong reputation and brand in preventing malware and information security threats and in how malware develop and how their industrial logic works. F-Secure's antivirus software for endpoints have won numerous awards in international information security tests and the company's endpoint protection products have been sold to millions of consumer and hundreds of thousands of companies worldwide.

Historically, F-Secure's business has focused on strong antivirus know-how, where the basis is the prevention of attacks and threats. However, a paradigm shift is ongoing on the information security markets, where the assumption that all attacks could be prevented has become impossible. With the development of technology, malware and hacking have also become clearly smarter and constantly evolving, which is why it is practically impossible to prevent all modern attacks in advance with security software. Thus the market is shifting from attack prevention increasingly towards detection and a mindset where cyber security is seen more as processes than products. This has been an important change for the market and F-Secure.

Especially on the corporate security markets focus has shifted from preventive blocking of threats to quick detection of threats that have

passed security and reacting to them. The corporate security market is, therefore, growing strongly. In consumer security, the market is extremely mature and growth is slow.

F-Secure has reacted to the market change. In 2015, the company started transforming from an antivirus company towards a company that offers more versatile cyber security services and products and focused its growth investments on the growing corporate security markets. This transition has required a change in the company's organization, mindset, product offering and strategy.

The change process required by the market disruption is still ongoing at F-Secure. Thanks to its history, the company's clear strength is its stable and profitable consumer business, as well as established position and well-known brand on the security markets. In corporate security, many competitors are clearly unprofitable and dependent on external financing when investing aggressively in growth, while F-Secure can make similar investments in this area with cash flow.

In light of current market trends, the shift in F-Secure's strategic focus to the growing corporate business could have started earlier as the company was still in the early 2010s investing heavily in the consumer business, for example, in cloud storage. Expansion into the cloud storage business and selling of this business in 2015 did, however, create clear shareholder value and provided the company with capital to invest in growth in corporate security.



Market change

Previously

- ✓ Mass viruses
- ✓ Prevention
- ✓ Data security is technology
- ✓ Point solutions

Now

- ✓ Intelligent, targeted attacks
- ✓ Attack detection
- ✓ Cyber security is a process
- ✓ Complex wholes



F-Secure's transition

- Focus from consumer security to enterprises
- New product areas (detection)
- Uniform products and services
- Services next to products

Company description and business model 2/6

Business model

Two business areas

F-Secure's business currently comprises developing, offering and selling of corporate security products and services, as well as consumer security products. The company's basis is the stable and healthy antivirus products business on top of which it is building its current growth strategy.

In 2017, the company's net sales were EUR 170 million and operating profit was EUR 11 million. The share of corporate security in the company's net sales was 43% and that of consumer security was 57%. On the corporate side, company growth has been strong and on the consumer side stable. Net sales is by nature very continuous and is based on annual licenses of various durations and, increasingly, on monthly SaaS fees. Geographically the company focuses on Europe. The share of the Nordic countries in the company's net sales was 37% and that of the rest of Europe was 41% in 2017. The remainder of net sales came from North America (10%) and elsewhere in the world (12%). At the end of 2017, the company had 1,104 employees of whom 636 worked in sales and marketing, 360 in product development, and 108 in administrative tasks.

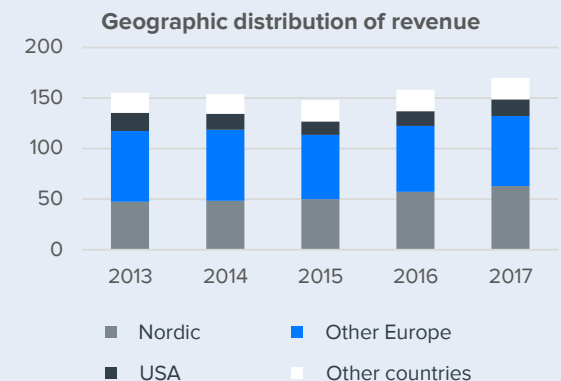
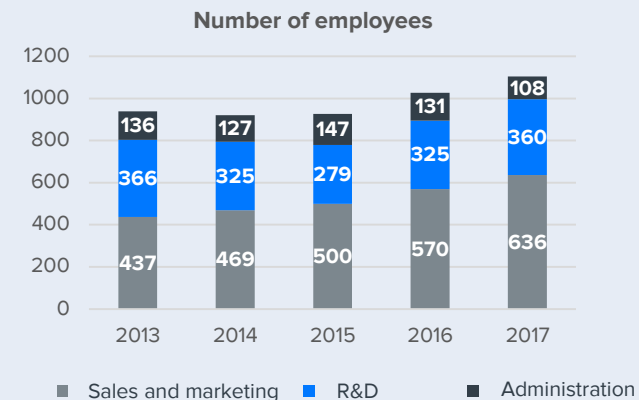
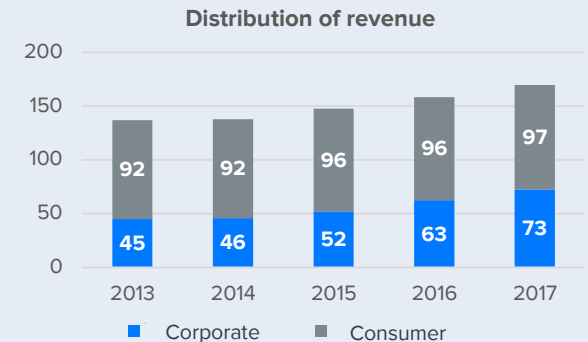
The company's strategic focus in terms of growth lies in corporate security, where the market is growing rapidly. Consumer security is, however, an important pillar for F-Secure, where the company is aiming for moderate growth in line with the market and good profitability and cash flow, which in part can be used to finance the growth investments in corporate security. The synergy between the consumer and corporate business derive primarily from shared technologies.

Sales, marketing and distribution channels

F-Secure is currently investing heavily in increasing the net sales from corporate security and the company has clearly increased its resources in terms of sales and marketing in recent years. At the end 2017, altogether 636 persons worked in sales and marketing (including consultants), which corresponds with 58% of the company's employees. Sales and marketing expenses amounted to EUR 105 million in 2017 or some 62% of net sales.

F-Secure sells its corporate security products through an extensive retailer network, which globally consists of over 6,000 IT service partners. The task of the company's own sales organization is to support and provide services for the retailers, as well as develop and grow this network in order to accelerate the growth in corporate security products. Critical in terms of success is that selling of F-Secure's products and related services is good business for the retailers. The current clientele of F-Secure's data security products consists mainly of small companies but the company is shifting its focus towards medium sized and large companies with its new security products, which requires development of the existing retailer channel. The company primarily offers cyber security consultation as direct sales through its own sales organization.

In consumer security, a majority of net sales is created globally through a network that covers over 200 operators, which is one of the company's key strengths and competitive advantages. F-Secure started building a sales channel through operators already at the beginning of the 2000s and its operator network is clearly the largest compared to other cyber security companies. Consumer products are also sold through many partners operating online and



Partners



IT service partners



Telecom operators



Retailers

Operations

R&D



Sales and Marketing



F-Secure Labs research center



Resources

Long-term cyber security expertise



Cyber security technology and software



Extensive retailer network



Strong brand, especially in Europe



Business idea

F-Secure offers a comprehensive selection of cyber security solutions and services to both enterprises and consumers.

Solid expertise in virus prevention

New products for detection and response



Ability to deliver comprehensive product and service packages

High value added services complement the products

Customer segments



Large companies and governments



Small and medium sized companies



Consumers

Go-to-market

Corporate security



Retailers
+6,000 IT service partners

Consumer security



Retailers
+200 operators
Retailers



Own online store

Products



Protection Service for Business, Business Suite

Endpoint protection products



Rapid detection service

Detection of and responding to cyber-attacks as a managed service



Endpoint detection & response (2018)

Automated alarm system for endpoints



F-Secure Radar

Vulnerability management



Cyber security consultation

Focus on more challenging cyber security customers



F-Secure Cloud Protection for Salesforce

Securing cloud platforms



F-Secure Safe, Key, Freedom and Sense

Cyber security solutions for consumers

Cost structure

1,104 employees (2017)

MEUR -160.6 (2017)



Materials and services
(3.9%)*



Sales and Marketing
(61.9%)*



Research and development
(20.4%)*



Administration
(8.4%)*

*% of net sales

Income flow

43% (2017)



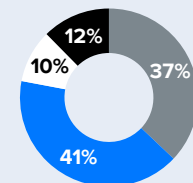
Corporate security

57% (2017)



Consumer security

**Net sales 170 MEUR
EBIT 11.1 MEUR (2017)**



- Nordic
- Other Europe
- North-America
- Other countries

Company description and business model 3/6

retailer partners, and also increasingly in the company's own online store.

Product development

In 2017, in all, 360 F-Secure employees worked with product development and product development costs (EUR 35 million) corresponded with some 20% of net sales. In its product development, the company focuses in particular on developing the features of existing corporate security products and launching new products on the markets. The main focus lies on developing products that detect and respond to security threats. Another key development target is better harmonization of the product portfolio in order to be able to offer more comprehensive cyber security solutions to customers. In consumer security, there is low pressure to increase product development investments in protection products for endpoints but the company also invests in certain product areas on the consumer side (like the Sense security router).

F-Secure's core technologies, especially in detecting malware, are basically very similar both in consumer and corporate security products, which creates a lot of synergy in product development. F-Secure's consulting business also enriches product development as F-Secure's consultants can investigate security breaches that have never been seen before at large companies and transfer the knowledge they gained to product development.

F-Secure's business model includes considerable economies of scale and network effects on product development. The company's products daily collect vast amounts of data from customers' online traffic that are processed with the help of AI and machine learning in order to detect malware and security threats. With the help of processed information from this constant data stream, F-Secure can refine its existing

products and develop new products. The more data the products that are in use produce, the more efficiently it can find vulnerabilities and the better existing products become. This is an important distinguishing factor in the business model when comparing F-Secure with software companies that sell their software products with the conventional linear business model. This is particularly true for endpoint protection products where the economies of scale are considerable. In detection products, the company's products are tailored to the customer's network environment over time with the help of machine learning, which also creates strong ties to the customer. These factors generate an important competitive edge in the company's business model.

Corporate security

F-Secure's corporate security business consists of product business, managed services, where the product and service are combined, and pure service business. The product business is excellently scalable due to replicability. Managed services are also easily scalable and F-Secure's products have in this category been designed so that the company's retailer or integration partner (IT service provider) is primarily responsible for delivering the service components and F-Secure only offers certain service components that require specialized expertise. In its consulting business, the company focuses mainly on delivering services requiring the highest level of expertise, where the price levels for the consultants can be really high compared to conventional IT service operations. The transition from "cyber security as a technology" towards "cyber security as a process" will in future also blur the line between products and services in F-Secure.

Products

F-Secure offers its corporate security products through an extensive retailer network, which globally consists of over 6,000 IT service partners. F-Secure's corporate security product selection includes:

- Cloud-based and locally managed endpoint protection products (Protection Service for Business and Business Suite)
- Managed detection and response solutions (Rapid Detection Service, RDS)
- Automated tool for detecting and responding to malicious hacking to be released this year (Endpoint Detection and Response, EDR).
- Vulnerability management solution (F-Secure Radar)
- Solution for securing cloud platforms (F-Secure Cloud Protection for Salesforce)

Protection Service for Business and Business Suite

A majority of F-Secure's corporate security net sales currently comes from selling of protection products for endpoints, the demand of which is stable and the market is growing moderately. These products represent F-Secure's core competence, virus prevention, and are an integral part of the company's product portfolio. Products are sold with annual licenses of various lengths and as continuous subscriptions valid until further notice (SaaS). Traditionally, a majority of the total volume is fixed-term licenses whose renewal rates are a key indicator for the company. Our view is that the renewal rates have constantly been on a good level. The market is, however, strongly shifting towards deliveries based on continuous monthly licenses.

Company description and business model 4/6

The customer target segment for these products are small and medium sized companies and F-Secure's endpoint protection products are used by over 100,000 companies globally. The size category of annual contracts vary from hundreds of euros to some tens of thousands of euros.

Competition is tight in endpoint protection products and the field is quite established. F-Secure's competitors are numerous companies that offer antivirus software, like Symantec, Kaspersky, McAfee, Sophos and Trend Micro. F-Secure's customer base in this product group focuses heavily on small companies, where the role of the retailer is emphasized in the customer's purchase decision. Customers' know-how in cyber security issues is typically low and the purchase decision is often made based on the price or the retailer partner's recommendation, which means that management and development of the retailer channel is an important factor in the competition. Comparisons made by research institutes that test security software also affect customers' purchase decision in this product group. F-Secure's endpoint protection products have performed very well in security tests within the industry (AV-Test, AV-LAB PL, V3) over the years and their ability to detect malware are of world class compared with the competition.

Rapid detection service (RDS)

RDS is F-Secure's first product launched in 2016 to respond to the paradigm shift on the security markets, where mere prevention of malware and malicious hacking is evolving into quick detection of threats that have passed the security and responding to them. RDS is a managed service

by nature, where technology plays a big role. Sensors are installed in the customer's IT networks and endpoints, which collect and stream data to F-Secure's data center, where AI and machine learning are used to find anomalies in the company's data communications that could indicate security threats that have passed into the system. In addition, honey pots can be installed in the customer's network, which help detect if some external party tries to hack into the customer's systems. F-Secure's data center monitors customers' data environments 24/7 and when it detects a possible threat it notifies its service partners whose job it is to react to the customer's security alert. RDS' sensors collect a huge amount of data daily and the overall picture of the customer's data communications becomes clearer over time. Through machine learning, the product increasingly becomes better tailored to the customer's environment and thus the customer's threshold to switch to another product grows over time.

RDS is suitable for companies whose security requirements are high and the target group are companies with more than 1,000 employees. The size category of the contracts is around EUR one hundred thousand and for the largest customers clearly higher. RDS still has a small weight in the company's business as it is a relatively new product but thanks to the large size of the contracts its importance in the growth of corporate security was already considerable in 2017. F-Secure's expectations concerning the product are high, and the company invests heavily in its continuous development and sales. F-Secure has already managed to attract customers to RDS, e.g. from banking, media,

energy and IT. The biggest challenge in our view is that the target group for RDS is in the size category of large companies where F-Secure does not yet have a strong partner and distribution network.

F-Secure's competitors in this product category come mainly from USA and the main competitors include Darktrace, CrowdStrike, Carbon Black and FireEye. According to F-Secure, it distinguishes itself from its competitors with its strong technological expertise in antivirus, which means that RDS' detection ability of cyber-attacks is very good. In addition, in Europe the company has competitive advantage against its competitors in that geopolitical factors may affect the decision making of some customers.

Endpoint Detection and Response (EDR)

This year, F-Secure will launch an automated tool for detecting and responding to malicious hacking (Endpoint Detection and Response, EDR). The product is largely based on the same technology as RDS but it does not include the service component and is scalable to smaller companies as well through automation. EDR acts as an additional ability on top of endpoint protection products and on the markets this product area is integrating with endpoint protection products. F-Secure has designed its EDR product so that it is also compatible with the endpoint protection products of its competitors. This distinguishes F-Secure in the competition and makes it easier to sell the product to parties that are not using F-Secure's endpoint protection software.

Company description and business model 5/6

The operating principle of EDR is highly similar to RDS but when the product detects an anomaly in the company network the information is automatically delivered to the company's IT head, while in RDS F-Secure's own experts help with detection. The product also gives the IT head instructions on how to respond to the security threat. The product is suitable for companies of all sizes but the main target group will be small and medium sized companies whose cyber security budget is too small for acquiring RDS.

Next to RDS, F-Secure's EDR holds center stage in the company's growth strategy for corporate security. If successful, the product has considerable growth potential as the product market is still in an early development stage and, for example, the market research company Gartner has estimated that the number of endpoints with detection ability will grow manifold in coming years and that the EDR markets will grow at an annual rate of 45% in the next few years. F-Secure is now investing heavily in completing the product in order to get a piece of this rapidly growing market segment. Also in this product category, F-Secure faces competition on a wide front, as nearly all competitors that offer endpoint protection products have EDR capability, in addition to which, the developing and rapidly growing market constantly attracts new players. The weakness we see is that the company is only entering the EDR competition this year with a slight handicap to its competitors.

F-Secure Radar

The vulnerability management solution Radar enables analyses of weak spots in companies'

information security. The product scans the company's network and endpoint data against a vulnerability database and notifies when it finds vulnerabilities (e.g. software versions that have not been updated and that have vulnerabilities). Radar was transferred to F-Secure in 2015 in connection with the nSense acquisition and the sales of the product has grown well. In a big picture, F-Secure faces large competitors in vulnerability management that focus only on this segment (Rapid7, Tenable), and the company's main focus is not to start competing directly with these large players. F-Secure sees integration of Radar's functionalities into the company's endpoint protection products, as well as RDS and EDR as the potential of Radar. This could generate a considerable competitive edge against other antivirus-based competitors that do not have capabilities in vulnerability management. This product integration requires more product development investments from the company and, thus far, Radar's importance for the company's business is still relatively low.

F-Secure Cloud Protection for Salesforce

F-Secure has developed cyber security capabilities into the Salesforce platform for checking links and appendices for malware. The development is still at relatively early stages and the importance of the product as a whole is rather small at this stage. F-Secure also has other ongoing research projects to secure cloud platforms but the main focus in product development lies in developing detection capabilities and products related to them.

Consulting services

F-Secure offers large companies and others

who own critical IT systems cyber security consulting. In consulting, F-Secure focuses primarily on the most demanding customers and security issues and the company tries to hire the most respected cyber security consultants in the world, whose expertise companies are ready to pay high fees for. The focus of F-Secure's consulting lies in the most demanding security problems and the strategic goal is not to expand its service business to compete with regular IT service companies, even if the company's service offering is sometimes overlapping with these. More extensive cyber security service packages are offered by consultancy companies (like KPMG), IT generalists (like CGI) and specialized players (like Nixu).

The demand for consulting services is strong and growth is constantly restricted by the availability of experts. F-Secure already has hundreds of large corporate customers in its consulting services. The company has not revealed the size class of the business but the net sales of nSense that was acquired in 2015 was around EUR 7 million and the number of employees was some 70 (in 2014). The business has been growing heavily since the acquisition and it has been complemented with two small acquisitions (Inverse Path, 2017 and Digital Assurance, 2017), so we can assume it currently employs over 100 persons and its net sales is clearly above EUR 10 million.

The services offered by the company include cyber security audits, cyber security stress tests (Red Teaming), strategic risk and cyber security management, cyber security in software development and responding to hacking and data leaks.

Company description and business model 6/6

F-Secure's cyber security consulting also offers synergies with the product business. F-Secure's consultants get to help companies in preventing the most challenging and completely new cyber security attacks and threats and this know-how can be utilized in product development when developing new cyber security products. F-Secure's ability to offer consulting services offers the company a competitive advantage against players who only offer cyber security products. In addition, consulting offers cross-selling possibilities with the products. Consulting also polishes F-Secure's brand towards a more comprehensive cyber security company.

F-Secure's cyber security consulting is still primarily a project driven business but the company is constantly trying to make continuous consulting agreements with its customers.

Total solutions for corporate security

F-Secure's product portfolio is currently more extensive than ever. As the company moves from smaller companies to larger ones, new demands are also created for the product portfolio as IT decision makers are more willing to buy easily understandable and clear comprehensive solutions than separate individual products. F-Secure still has things to do in order to integrate its product and service portfolio into a more uniform whole in order for the company to better sell comprehensive solutions (e.g. RDS+Radar+consulting). The current renewed product portfolio already offers considerable additional sales possibilities to existing customers.

Consumer security

Products

F-Secure offers cyber security products for consumers through a network of more than 200

operators. Consumer products are also sold through many partners operating online and retailer partners, and also in the company's own online store. The company's products are used by millions of consumer customers across the world. The main products in the company's current product portfolio are:

- Endpoint protection product, F-Secure Safe
- Privacy protection product (VPN), F-Secure Freedom
- Password management product, F-Secure Key
- Data security router that protects all smart equipment in the home, F-Secure Sense

A majority of net sales in consumer security comes from selling endpoint protection products (Safe). The sales of Freedom and Key was growing last year but we estimate that their effect on the net sales of consumer security is still low compared to Safe. An increasing number of customer are, however, switching to the combination solution Total that includes both Safe and Freedom when renewing their order. This product bundling is a key growth driver for consumer security sales.

Sense, that was introduced to the market in 2017, did not affect the net sales of the company's consumer security last year but the company sees growing interest in the product as smart equipment increases in households. Expectations concerning the product are still cautious because the market for the product is in its infancy. One potential route for more extensive commercial distribution of Sense would be to offer Sense as a software that can be installed on the routers of third parties.

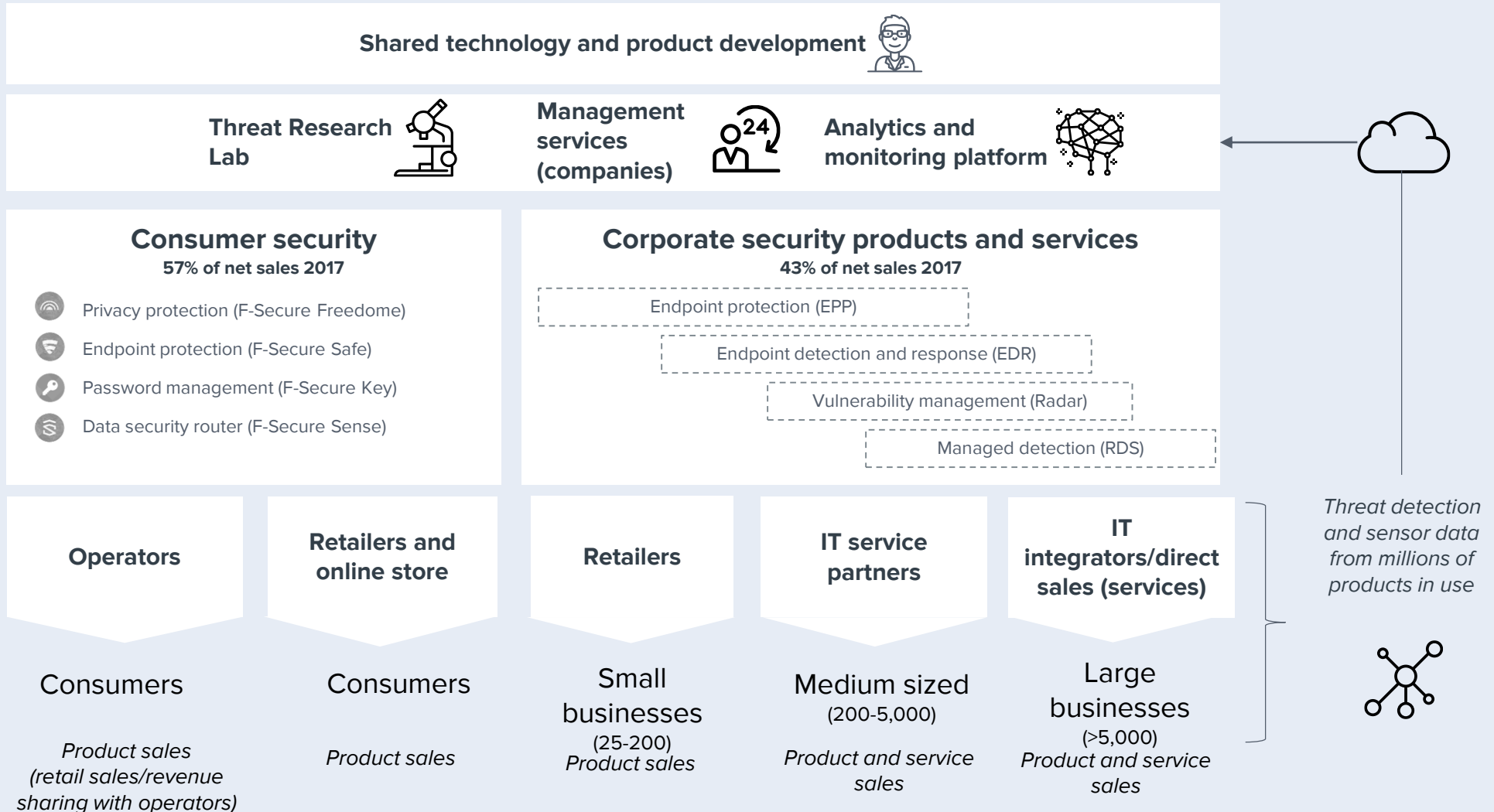
Operator channel

F-Secure started building a sales channel through operators already at the beginning of the 2000s and its operator network is clearly the largest compared to other security companies. In consumer security, operators sell F-Secure's products as part of their own continuous cyber security packages. Through the operator channel, F-Secure receives extensive distribution and volume for its products, and, thus, the replicability and scalability of the products enable good profitability even though the operators take a rather large share of the gross sales of the products as they are responsible for the lion's share of product marketing. For operators, co-operation with F-Secure is also fruitful as by offering cyber security packages in connection with broadband subscriptions operators have, in addition to profitable additional sales, been able to improve the customer loyalty and satisfaction of their subscriptions. In our opinion, the success of F-Secure's product among operators is based on the fact that it solves two of the core problems of the operator business (average price and customer churn).

Direct sales channel

Consumer products are also sold through many retailers operating physically and online. In addition, the company is increasingly selling its products through its own online store, which means there are no middlemen between F-Secure and the end customer. The competition on the market is extremely tough and customer acquisition requires considerable marketing investments, and various free products and freemium models make the consumer market challenging to reach through direct sales.

F-Secure's business model



Investment profile 1/2

Challenging development stage to perceive

F-Secure is difficult to perceive for investors in the current development stage, as the share combines a stable cash flow business (consumers) with a business that is in a heavy investment stage with negative cash flow (corporate) and the company does not report the profitability of the businesses by segment. The former of these is basically priced with earnings-based valuation ratios and operating margin on the stock markets. The latter is priced with EV/Sales ratio and the growth percentage. So the company is not a pure growth company but not a “matured” tech company either.

F-Secure’s own objective is to continuously balance between growth investments and profitability, which ever is optimal for shareholder value at the time. We consider this approach to be sensible but difficult for shareholders to interpret. The share cannot simply be priced with one method or multiple, value creation must be viewed as part of a bigger whole. In our opinion, the main drivers for the company’s value creation are the growth rate (of corporate security) and the operating profit margin of the whole company, so a strong growth rate compensates the weakness in profitability and vice versa. Currently, the stock market values growth rate very highly and it is seen as a key value driver as the cyber security market is seen to be on the threshold of strong growth and it is important for players to stake out the market now.

We point out that the valuation multiples of F-Secure’s industry are already stretched high. A rise in the valuation levels in the sector should no longer be seen as a value driver, they actually

create more of a risk factor for the share.

Strengths

- **Strong expertise and products in virus prevention technologies.** F-Secure has award winning cyber security products, a strong brand in certain market areas, and long experience in detecting malware.
- **A stable and established position in endpoint security** gives the company good resources to expand F-Secure’s core competence and technology to new segments and sell new solutions to the existing customer base.
- **The business model based on scalability and strong customer loyalty** enables excellent profitability after the current investment stage is successful.
- **Hot and growing market.** The rapidly growing corporate security market and certain product areas within it offer strong growth potential.
- **Strong balance sheet and good cash flow** offer leeway in growth investments and enable acquisitions when the opportunity presents itself, while many smaller players in the sector depend on external financing. F-Secure’s cash in hand and financial assets available for sale amounted to EUR 90 million at the end of 2017 and the company has no interest-bearing debt.

Weaknesses

- Paradigm shift in the industry from prevention of cyber security threats to rapid detection of threats that have passed security and

responding to them has forced F-Secure to start a transition from a company focusing on antivirus products to a more comprehensive cyber security company.

- **Transformation into a cyber security company still ongoing.** The change requires further development and integration of the company’s product portfolio, as well as sales investments, which depress profitability in the short-term. Also, as a brand, F-Secure is not yet seen as a provider of corporate security solutions.
- **The change process could have started sooner.** In light of the current market situation, one could argue that the company should have started focusing the strategy heavily on the corporate side already earlier in the 2010s in order for it to have a clearer lead in the competition. F-Secure is now entering certain product areas (like EDR) later than its competitors. On the other hand, the sales of the cloud storage business in 2015 gave the company resources to start investing in the corporate side.
- **The sales channel in corporate security** for medium sized and large companies is still being built.

Opportunities

- **Successful growth in corporate security** creates shareholder value as the market for detection and response products is only emerging and market shares are handed out now. RDS and the coming EDR product are the growth drivers in coming years. Radar offers a potentially considerable competitive edge if integrated into the portfolio.

Investment profile 2/2

- **Success in renewing and integrating the product portfolio** would also enable the company moving in the value chain more towards larger customers and would accelerate the growth of corporate security. A more integrated product portfolio would also bring a competitive edge.
 - **New product areas**, like the Sense security router on the consumer side, can offer the company considerable scalable growth potential.
 - **Inorganic growth through acquisitions** could generate shareholder value if successful. F-Secure has a track record of successful corporate reorganization transactions that have generated value in the past and the company constantly scans for potential acquisition targets. The valuation levels of the industry are high at the moment and it is not easy to find suitable acquisition targets at the right price.
- for F-Secure's share. We caution that the valuation multiples in the industry are in some cases stretched very high.
- **Competitive threat in consumer security and weak net sales growth:** Free antivirus software are one reason for slow growth on the market for consumer security. Microsoft is constantly developing the features of the free Windows Defender and this can in the medium term affect consumers' purchase decisions in consumer security. Despite this and threat scenarios that have been discussed for years, consumer security seems to remain a very vital business.

Risks

- **The industry is potentially over invested**, which can lead to a clear increase in competition in the next few years. In recent years, capital investors have invested several billions in hundreds of new cyber security companies and corporate transaction activity is high in the sector. The gold rush of new players can lead to tightened competition and, despite the growing market, there is not enough to go around.
- **Dissolving of high valuation traps in the sector** would probably have a negative effect also on the valuation accepted on the market

Investment profile



Potential

- In corporate security, strong growth now generates shareholder value
- Strengthening growth and competitive edge through renewal and integration of product portfolio
- Strong demand outlook on the market
- Strong and stable business in consumer security

Risks

- The industry is potentially over invested, which can lead to a clear increase in competition in the next few years
- Dissolving of the high valuation levels in the sector could have a negative effect on the share
- Competitive threat in consumer security and weak growth

Risk profile

Risk profile of the business model



Assessment of F-Secure's overall business risk

Industry 1/4

Market

Market definition, size and growth

Cyber security companies are solving one of the biggest problems of the digitizing society. Big problems always also means big business opportunities, which makes the market extremely interesting, dynamic and rapidly growing.

Cyber security refers to processes, technologies, solutions and services that protect companies' and other organizations' or individual users' data against criminality that occurs in electronic networks. Cyber threats can be divided into three categories: 1) criminality that aims at financial profit, 2) hacking that aims at disrupting companies' or governments' activities, and 3) spying that aims at gaining a competitive business advantage or discovering government security secrets. The number of cyber threats and their intelligence is constantly growing and the market is, in practice, driven by an endless race between criminals and cyber security technologies and processes.

The cyber security market develops quickly and the estimates on the total market size and growth vary dramatically. The market research company Gartner estimates that the global size of the cyber security market was USD 89.1 billion in 2017 and it is expected to grow at an average annual rate of 7.9% in 2016 to 2021. The share of consumer security is USD 4.6 billion and it is expected to grow at an annual rate of 1.6%. The majority of the market is formed by corporate cyber security services and products. The share of services is good one-half of the total market and they are expected to grow by 8.3% annually. The rest consists of corporate security products, the market of which grows by 7.4% annually.

Market segments

The target groups of the cyber security market can be roughly divided into three parts in a pyramid model based on the intelligence of attacks and technologies. The intelligence of attacks and technologies also broadly correlates with the size of the customer organizations as the biggest organizations and state administration are typically the main targets of cyber criminals. For organizations at the top of the hierarchy, solutions that have been created for the masses at the bottom of the hierarchy do not offer sufficient protection levels. Correspondingly, the solutions focusing on the top levels of the hierarchy are too expensive for organizations whose activities do not require a high protection level. The development of new technology focuses on the more demanding top level segments after which the technology is duplicated to the lower levels for broader segments.

The top of the cyber security market is represented by state espionage and the defense industry. This is a niche market from the viewpoint of cyber security companies but it represents the highest technology and level of expertise and is thus important. The largest volume of the market is found in the center part of the pyramid that covers targeted attacks. In this case, the primary target group is in practice all large organizations and public administration, and in particular the actors whose activities include critical activities in terms of security of supply (like energy, banks and operators). Crucial in this target group is that its size is constantly growing as data security threats expand, which also expands the market for demanding cyber security solutions.

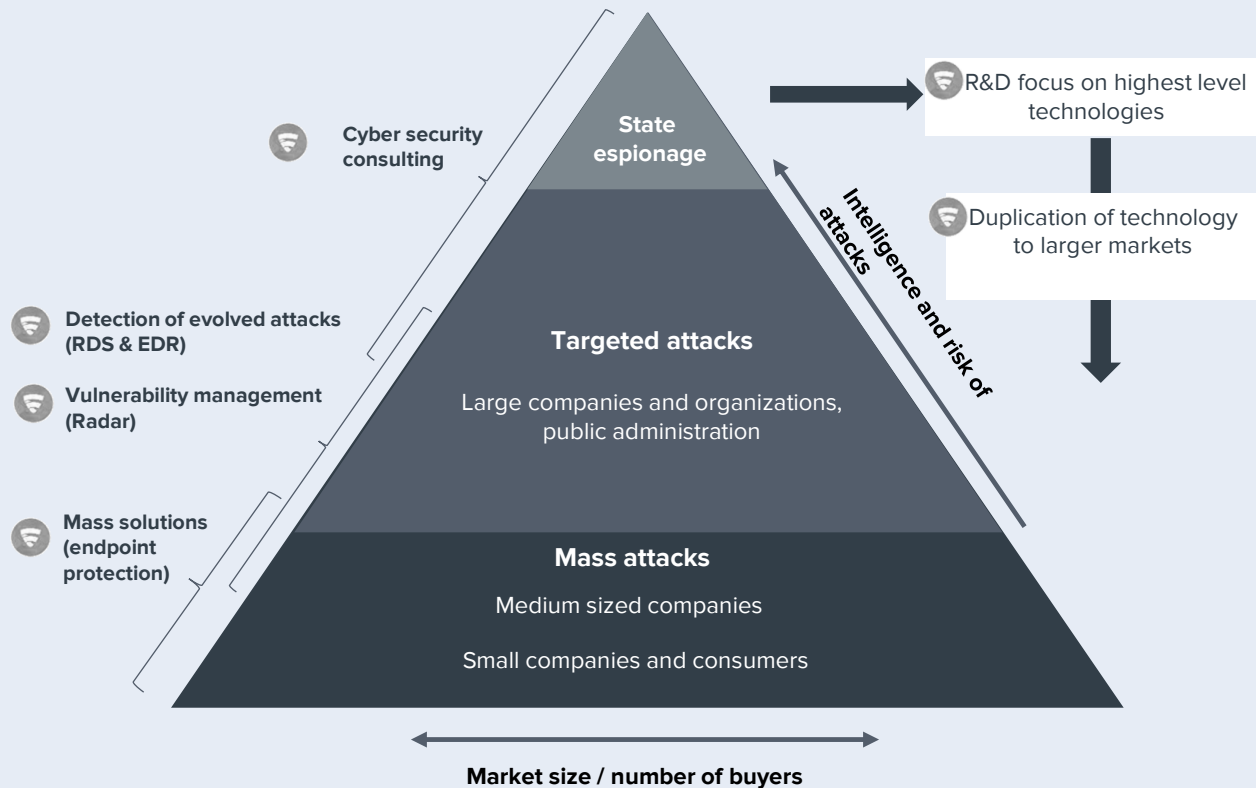
In the big picture, market growth is the result of 1) data security issues playing an important role for an increasing number of industries when planning new digital businesses and 2) the rising trends on the IT markets (industrial Internet of things, social media, digital commerce) force organizations to pay more attention to data security. In the segment of targeted attacks (large and medium sized organizations), cyber security cannot be solved only with mass solutions. The information security budgets of companies in this segment are annually roughly around EUR 1 to 5 million, which makes this segment attractive to companies that offer cyber security products and services. F-Secure has expanded into this segment in recent years through acquisitions (consulting service) and a wider product portfolio (e.g. RDS).

The most important segment for F-Secure at the moment is the lowest level of the triangle that includes small and medium sized companies and consumers. For small companies and consumers, the main thing is to be protected against mass attacks, which can be done with regular "off the shelf" cyber security products like endpoint protection products and firewalls. A majority of F-Secure's net sales still comes from endpoint protection products.

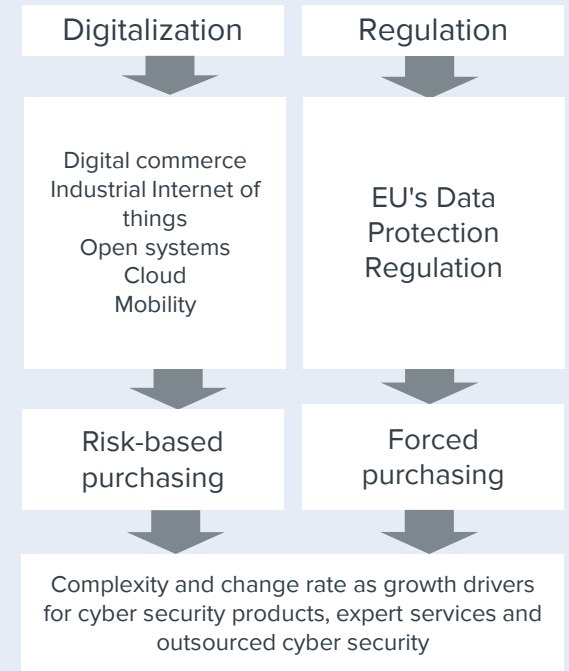
Among medium sized companies the need for higher cyber security than mere endpoint protection is growing, but the data security budgets (EUR 0.1 to 1.0 million) are clearly lower than in the large company segment, which means that buying of the best technologies or managed/outsourced cyber security services is not necessarily possible.

Sector

Distribution and operating logic of the cyber security market



Market drivers



Industry 2/4

Especially the rapid detection of threats that have passed endpoint protection is now emphasized in the segment of medium sized companies. For this need, F-Secure is developing an automated alert system for endpoints (EDR) that will be launched this year, which offers additional/cross-selling opportunities for the company in this partially under-serviced segment. In medium sized companies, IT managers demand more comprehensive cyber security solutions instead of point product solutions, which creates challenges for F-Secure to integrate its product portfolio to meet the needs of this customer segment.

Market sub-segments for F-Secure

F-Secure's potential market can be examined more closely through the company's product and service selection. According to Gartner, the market for consumer security products was USD 4.6 billion in 2017 and it is expected to grow at an average annual rate of 1.6 % in 2016 to 2021. The slow growth on the consumer security market is explained by the popularity of constantly evolving free antivirus solutions (e.g. Windows Defender) but growing product areas can be found, for example, in privacy protection (VPN solutions) and in solutions designed to protect smart equipment in the home.

In corporate security, a majority of F-Secure's net sales still comes from endpoint protection products, the market size of which was USD 3.6 billion in 2017 and Gartner estimates it will grow at an annual rate of 2.6% in 2015 to 2021.

The most rapidly growing markets for F-Secure in corporate security can be found in cyber security services, detection and response solutions for malicious hacking and vulnerability

management solutions. The size of the market for outsourced corporate cyber security services (including managed security services) was, according to Gartner's estimate, USD 16.7 billion in 2017 and the market is expected to grow on average by 11.4% per year in 2015 to 2020. IDC has estimated that the market size for vulnerability management solutions is around USD 1.0 billion and the market is expected to grow at an annual rate of around 13% in 2015 to 2020. F-Secure expanded to these markets through the nSense acquisition in 2015 and the launch of the RDS product and it has been able to grow faster than the market in these segments.

In terms of F-Secure's growth in coming years, an interesting market is the segment for automated detection and response products for cyber-attacks. (Endpoint detection and response, EDR), where F-Secure is launching its own product in 2018. The market is at the beginning of its life cycle and Gartner estimates that its size was USD 0.4 billion in 2016 but the market is expected to grow by an average of over 45% per year in 2015 to 2020. The definition of the EDR segment is blurred by the fact that it can be seen as a market area that overlaps with the market for endpoint protection products. Growth is driven by the fact that malicious hacking against companies is often not detected for months, and this has shifted the focus from merely preventing hacking towards faster detection and response. Large companies can buy detection capabilities as managed services (like F-Secure's RDS) but especially for smaller companies a pure product solution is the only sensible solution in terms of costs.

Weights, size and annual growth rate of F-Secure's market segments

Consumer security → Significant product area	USD 4.6 bn 1.6%
Endpoint protection products for companies → Significant product area	USD 3.6 bn 2.6 %
Endpoint detection and response (EDR) → New product area	USD 0.4 bn 45%
Vulnerability management → Small product area	USD 1.0 bn 13%
Cyber security services → Important, growing area	USD 16.0 bn 10%

Industry 3/4

Gartner estimates that the share of endpoints equipped with automated detection and response products of all endpoints will grow from 10% on 2017 to 35% by 2020.

Market drivers

In our opinion, the cyber security market is still emerging and will develop strongly over the next few years, which is why current market estimates are even at best only indicative. Market growth will probably be steady and strong and accelerate pushed by digitalization investments. In addition, constant news of serious hacking (risk-based purchasing) and pressure created by regulations (forced purchasing) will boost market growth. At the top level, growth is, in practice, driven by two forces: regulation and threat scenarios.

The commonly recognized mega trends in the IT world like mobility, cloud, industrial Internet of things, social media and digital commerce are strongly linked with cyber security. In many of these areas, the barrier for creating new applications, products and digital services is information security challenges. These challenges are related, for example, to privacy protection, e-commerce or security. One mega trend worth mentioning is also open systems (like Android) becoming more common. This makes the market more attractive from a criminal's viewpoint than when companies still operated mainly in their own individual closed environments.

Building of new digital services requires that companies and governments solve the challenges related to data security in advance. This means that the demand for cyber security related products and services is also supported

by the fact that cyber security is increasingly becoming a critical and integral part of any new IT system, digital service or product. This means that problems related to cyber security cannot be solved simply by acquiring cyber security software and equipment off the shelf but solving of cyber security also requires the use of high-level expertise services. Due to these market drivers, F-Secure's business has also been in turmoil in recent years where the company is transforming from a endpoint focused antivirus company to a more versatile provider of cyber security products and services in the corporate segment.

Consumer security changing

In consumer security, the changing endpoint portfolio has been visible as a slight drop in antivirus software for PCs but, as a whole, the number of devices connected to the web is growing rapidly in consumers' homes. This provides growth opportunities for new cyber security products that protect smart devices in the home even though PC driven antivirus software sales is a challenging market. In consumer security, the nature of the market is changing rather than the market faltering with PC antivirus. For example, Windows' own data security is cannibalizing conventional cyber security but this does not solve the consumer's problem of how to protect several different endpoints. Thus, there is a natural need for F-Secure's packages for comprehensive consumer solutions as the array of endpoints and operating systems is vast and constantly changing. Gartner estimates that the number of consumer devices connected to the web will grow from 5.2 billion in 2017 to 12.8 billion by 2020.

EU's Data Protection Regulation

EU's Data Protection Regulation (GDPR), that was passed in spring 2016 and that will enter into force in May 2018, has clearly increased the demand for cyber security services, which also supports F-Secure's business. The regulation imposes new obligations on organizations that handle personal data. Through EU's Data Protection Regulation organizations are, for example, obliged to report any breach of security. The authority that supervises the regulation can impose sanctions if the regulation is breached. The sanctions can be massive, as for more serious breaches the fine is EUR 20 million or 4% of the company's annual net sales, which is intended to make companies take the new regulation seriously. At the same time, the monetary definition of the sanctions provide cyber criminals with a price tag, which they can use to blackmail companies after a successful hacking operation. GDPR also supports F-Secure's product business as the regulation means that companies have to build better capabilities to detect realized security breaches.

Industry 4/4

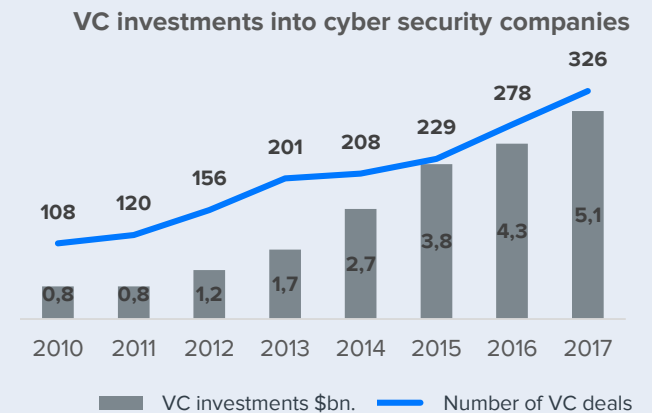
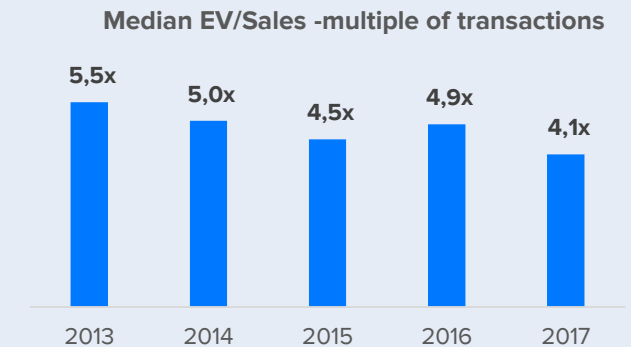
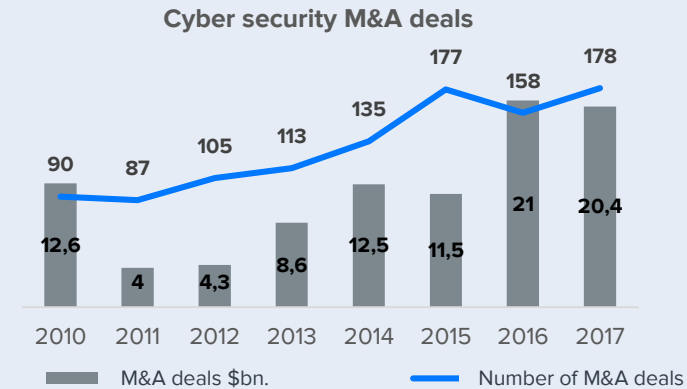
Industry consolidation continues

The growth outlook of the cyber security market has attracted a lot of investments in the sector in recent years, which is visible as dramatic growth in capital investments in new cyber security companies and as high M&A transaction activity both in North America and Europe. The industry is highly fragmented and consolidation is bound to continue as, despite the growth, there is not room for all current players on the market if it starts maturing in the future. The risk we see is that the industry is currently over invested, which may, in future, become visible as further tightening competition and in the sector's profitability as new players enter the competition with new solutions that try to solve cyber security problems more efficiently and/or cheaply than the competition. Many players in the sector are generating heavy losses and their lifeline of external financing will end if they cannot generate growth or profitability.

The investment pressure in the sector has resulted in the valuation of corporate acquisitions remaining high, which in part makes it difficult for F-Secure to complete acquisitions that generate shareholder value. The EV/Sales ratios of acquisitions have at best risen to 5x for service companies and to 10x for product companies, which can be seen as extremely high levels. For service companies, acquisitions are the only way for many players to get a piece of the market due to the lack of available expertise or they can act as an alternative to recruitment. In this case, the target is often small specialized players. In acquisitions of product companies, the buyers can seek technologies that complement their product portfolio and in larger M&A deals the aim is to generate synergy,

for example, in terms of product development, sales and distribution. Consolidation pressure also increases because, instead of point solutions, cyber security is increasingly becoming deliveries of turnkey solutions and process deliveries, which forces actors to integrate their offerings. We believe that F-Secure will continue to be part of the industry consolidation as a buyer but currently the high valuation levels in the sector hinder acquisition plans to some degree.

The crucial question for investors is whether it is worth investing in the sector after the investment boom and whether it is already too late. We feel there is no more room to stretch the valuation multiples of the market and value must now be created from the growth and profitability of the companies in the sector.

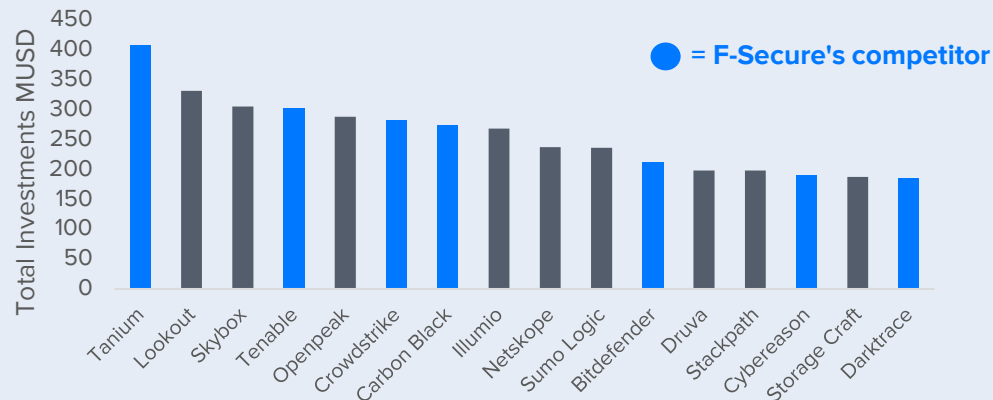


Acquisitions and investments in the industry

Acquisitions in the sector

Date	Buyer	Target	EV (USD million)	EV/Sales	EV/EBITDA	EV/EBIT	
12/2017	Thales	Gemalto	5,541	1.8x	11.9x	18.6x	
11/2017	Warburg Pingus	Cyren	119	3.8x			
11/2017	Thoma Bravo Fund	Barracuda Networks	1,405	3.8x	43.1x	87.2x	
7/2017	Open Text Corporation	Guidance Software	245	2.1x	20.6x	27.4x	
3/2017	Crossrider	CyberGhost	10	4.5x			
2/2017	Sophos Group	Invincea	120	4.8x			
2/2017	Palo Alto Networks	LightCyber	105	10.5x			
1/2017	Keysight Technologies	Ixia	1,603	3.3x	21.0x	84.1x	
11/2016	Symantec	Lifelock	2,362	3.6x	24.0x	26.1x	
9/2016	TPG	McAfee	4,200	2.5x			
7/2016	Avast	AVG	1,463	3.4x	11.7x	19.0x	
6/2016	Symantec	Blue Coat	4,722	7.9x			
1/2016	FireEye	iSight Security	269	6.7x			
11/2015	NCC Group	Fox-IT Group	141	4.9x			
6/2015	F-Secure	nSense	20	2.6x			
4/2015	Singtel	Trustwave Holdings	786	3.6x			
4/2015	Marlin Equity Partners	Fidelis Cybersecurity	200	3.3x			
3/2015	NCC Group	Accumuli	83	2.4x			
12/2014	Belden	Tripwire	710	6.0x			
7/2013	Cisco Systems	SourceFire	2,194	7.5x	37.6x	43.9x	
Source: Capital IQ, Momentum Partners			Median	489	3.7x	21.0x	27.4x

Cyber security companies that have raised most VC money



Development of cyber security ETF HACK



Competition 1/2

Growing market attracts a lot of competition

Fast growth on the cyber security market and the sector's high investment rates have shaped the competitive field heavily in recent years. The competitive field is very fragmented and the market is still seeking its form. A growing share of the market growth is grabbed by new cyber security industry start-ups that often are specialized in a particular niche segment of cyber security with their services or products.

Traditional actors, and those who have been on the market longer, try to make their portfolio more comprehensive to be able to respond to the competition and this has accelerated consolidation in the industry as bigger players buy smaller product and service companies to strengthen their portfolio.

In the big picture, global IT sector giants like IBM, Microsoft and Cisco, whose cyber security net sales are in the billion range also operate on the market.

F-Secure's main competitors

F-Secure faces competition on a wide front both from conventional antivirus companies and new specialized players.

In corporate endpoint protection products, the company competes with all conventional antivirus companies, where the biggest competitor in Europe is the British Sophos, whose net sales is more than double that of F-Secure. Other competitors are e.g. the American McAfee and Symantec, the Japanese Trend Micro, Kaspersky, Bitdefender and Eset from Eastern Europe, as well as the Spanish Panda Security.

Actors, who offer competitive alternatives to F-Secure's detection solution for cyber-attacks

offered as a managed service (RDS) are e.g. Darktrace, CrowdStrike, Carbon Black and FireEye. Microsoft and Palo Alto Networks also offer a similar solution.

The pure product version of RDS, EDR that F-Secure launches this year faces competition partly from the same companies (Darktrace, FireEye), but many conventional antivirus companies have also launched their own EDR product next to their endpoint protection product.

F-Secure's vulnerability management solution, Radar competes with competitors that are highly specialized in this area and whose net sales is in the same size category as F-Secure's. Companies that are specialized in vulnerability management include Rapid7, Qualys and Tenable.

In cyber security consulting, the company's competitors are all cyber security service and product companies who have expertise to solve the most challenging cyber security problems and no single competitor stands out. More extensive cyber security service packages are offered by consultancy companies (like KPMG), IT generalists (like CGI) and specialized players (like Nixu). As F-Secure's consulting business expands, it competes increasingly with these players.

In consumer endpoint protection products, F-Secure's competitors consist largely of the same companies as on the corporate side, as the product technologies are very similar both on the corporate and consumer side. On the consumer side, competition in endpoint protection products is tightened by the fact that there are several free antivirus software for consumers (e.g. Avast, Avira, Windows Defender) next to the chargeable products.















































Competition factors on the cyber security market

In cyber security products, the quality of the product and its ability to prevent or detect malware is naturally emphasized as a competition factor. Detection and response capabilities will be an integral part of endpoint protection and, without them, a conventional antivirus software quickly drops out of the competition. In endpoint protection products, the barrier of entry has, however, lowered as AI and cloud environments offer the required algorithms and capacity for antivirus software. Customers' confidence in the product, success in various tests and the brand become increasingly emphasized as a competition factor on the markets.

The role of distributions channels is also important in the competition as it is difficult for a product business that operates without distribution channels to generate volume and thus scalability. Especially in corporate security, products are sold mainly through service partners and the product solutions must be built so that they also enable the possibility for the service partner to build value-added services on top of the product.

In the customer segment of medium sized and large enterprises, the uniformity of the product portfolio is an emphasized competition factor as the customers rather purchase all of their cyber security needs at once as a comprehensive solution instead of several point product solutions. The customers understand that they cannot protect themselves from threats by buying individual technologies and management of wholes is emphasized.

Competitive field

F-Secure's competence areas	Weight on F-Secure's business operations and strategy	Main competitors	Other competitors
Endpoint protection (EPP)	✓✓✓	<p>SOPHOS  TREND MICRO  McAfee</p> <p> Symantec.  KASPERSKY  panda</p> <p> Bitdefender</p>	<p> FireEye  SentinelOne  cybereason  TANIUM</p> <p> CYLANCE  ESET  CROWDSTRIKE</p> <p>Carbon Black.  GUIDANCE SOFTWARE  Microsoft</p>
Endpoint detection and response (EDR)	✓✓ (2018)	<p> DARKTRACE  FireEye</p> <p> CROWDSTRIKE Carbon Black.</p> <p> TREND MICRO  Symantec.</p>	<p> TANIUM  KASPERSKY  cybereason</p> <p> CYLANCE  McAfee  GUIDANCE SOFTWARE</p> <p> panda  SentinelOne</p>
Managed detection and response	✓✓	<p> DARKTRACE Carbon Black.</p> <p> CROWDSTRIKE</p>	<p> FireEye  SentinelOne RAPID7</p> <p> cybereason  paloalto NETWORKS  Microsoft</p>
Cyber security services	✓✓	No individual main competitors	<p> FireEye RAPID7  NIXU cybersecurity.</p> <p> CROWDSTRIKE  KASPERSKY  nccgroup</p> <p> Symantec.  McAfee  SecureLink  CGI</p>
Vulnerability management	✓	<p>RAPID7  Qualys.</p> <p> tenable</p>	

Competition 2/2

F-Secure's competitive advantages

F-Secure's strong brand, especially in Northern Europe, is based on the company's long-term and solid expertise in endpoint protection technologies. A testament of this are the numerous awards the company's endpoint protection software have won in malware detection tests. F-Secure's brand is particularly strong in endpoint protection products among small and medium sized companies. The company still has work to do with its brand on the corporate side in order for the company to be perceived more as a comprehensive cyber security house whose solutions also cover the cyber security needs of larger companies. F-Secure's consulting services help polish the company's brand on the corporate side when the world class data security experts solve the trickiest cyber security problems. The consulting business also provides the company with a competitive edge against companies who only offer cyber security products and helps the company position itself more strongly as a comprehensive cyber security company.

The company's extensive retailer channel in corporate security and the operator channel in consumer security help offer the company a competitive advantage especially among small companies and consumer customers. When moving to larger customers in corporate security, the company still must develop its partner network in order to open an efficient sales channel in this segment.

In Europe, the company has competitive advantage against its competitors in that geopolitical factors may affect the decision making of some customers.

In addition to virus prevention, we feel that F-Secure also has technological competitive advantage in new corporate solutions like RDS. It is, however, too early to assess the strength of this competitive advantage, and it will become visible in coming years in the steepness of the slope of corporate product growth.

Growth and profitability of the competitive field

The next page examines the historical (2011 to 2016) and expected (2017 to 2020) net sales growth and profitability of listed cyber security companies. When examining historic growth and profitability, three types of companies can be detected in the field.

The first group consists of companies that have grown rapidly regardless of profitability. The market does, however, expect that the fast growth will even out a bit and become visible in coming years in the profitability of the companies as the business is scaled. For some companies, profitability is not expected to improve until after 2020. These companies include several American competitors like FireEye and Palo Alto.

The second group includes companies that have been able to grow rapidly and generate good profitability at the same time. For this group, growth is also expected to stabilize in coming years and profitability to reach excellent levels.

The third group is companies with slow historic growth, whose profitability has been at a good level. Conventional antivirus companies like Symantec, Trend Micro and F-Secure belong to

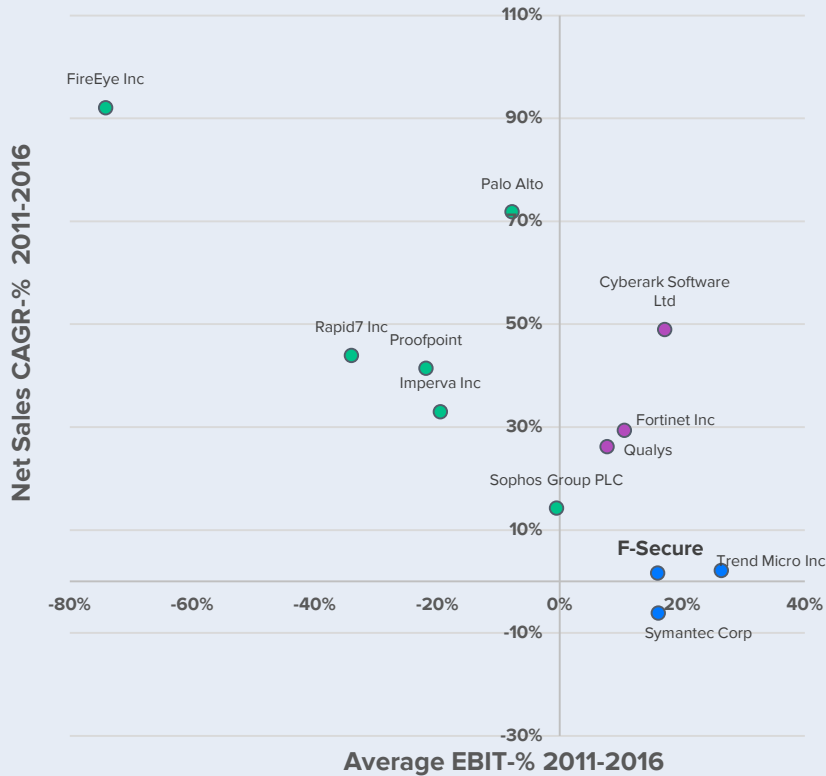
this group. The growth for this group is expected to remain below 10% per year also in coming years. The profitability of Symantec and Trend Micro is expected to remain at a very good level but F-Secure's profitability will, in the next few years, be burdened by the company's investment in corporate security growth. The clear star in the sector is Check Point Software, whose operating profit % is over 50% (which is why it does not fit in the axis). This shows what kind of profitability can be reached at best in the sector.

Even though F-Secure's corporate security is expected to grow by over 15% per year, thanks to the expected slow growth in consumer security (2017 57 % of net sales) the company's overall growth will remain modest compared to the cyber security companies that are growing quickly. For the most part slower growth than among competitors and expected weaker profitability in coming years are, in our opinion, the reason why F-Secure is currently priced clearly below the peer group level measured by EV/Sales -multiple.

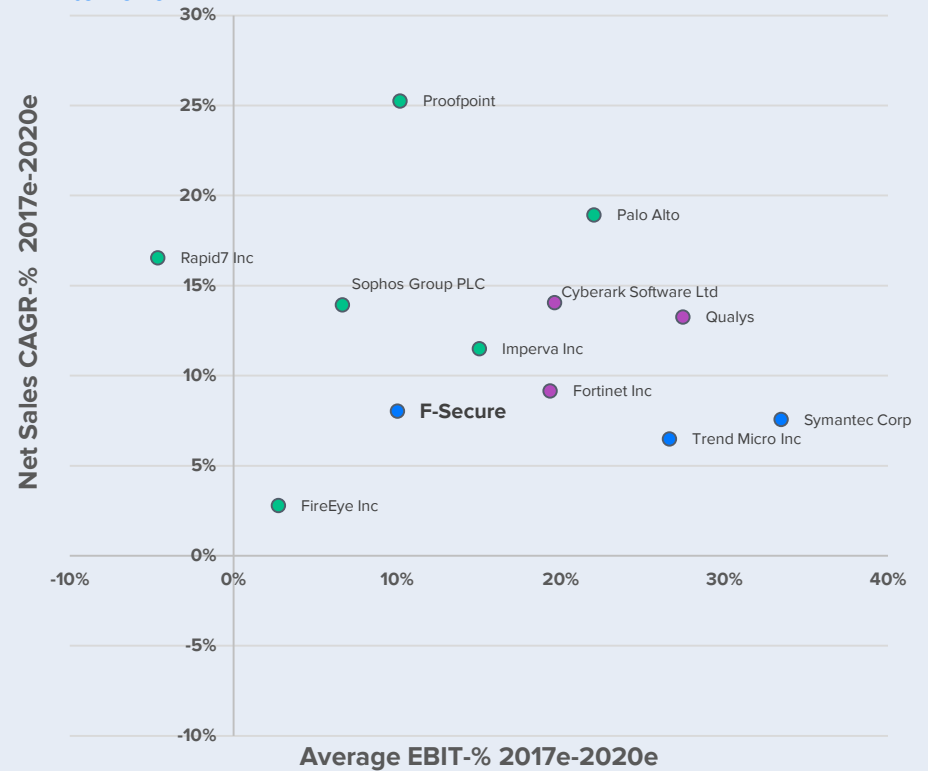
F-Secure's corporate security is as a separate unit profiled into the first of the above mentioned three groups as it is expected to grow quickly and profitability is not expected to improve until after 2020 through scaling generated by growth. Consumer security is, in turn, fully profiled in the third group due to its slow growth but (probably) good profitability.

Development of the competitive field

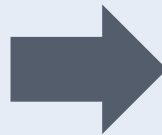
Growth and profitability of listed cyber security companies in 2011 to 2016



Expected growth and profitability of listed cyber security companies in 2017 to 2020



- Rapid growth, weaker profitability
- Slow growth, good profitability
- Rapid growth, good profitability



- Growth continues but the speed will stabilize. The scalability generated by growth is expected to become visible in the companies' profitability.
- The profitability of slow growers is expected to be at an excellent level.
- F-Secure's overall growth will remain below 10% due to slow growth in consumer security. Growth investments in corporate security burden F-Secure's profitability in 2017 to 2020.
- Growth is expected to continue but stabilize. Profitability is expected to improve further.

Strategy 1/3

Strategy process

Transformation into a cyber security company

In 2015, F-Secure started, in line with its strategy, evolving from an antivirus company focusing on consumer business towards a more comprehensive cyber security company, whose business focus lies on the rapidly growing corporate security markets. The change was launched by selling the consumer focused cloud storage business and acquiring nSense that focused on corporate security, which expanded the corporate security portfolio and know-how considerably.

In the era of the new CEO, Samu Konttinen, that took over in 2016, the change has accelerated and the company's focus areas have been pinpointed to developing detection and response solutions for malicious hacking, where the company sees considerable growth potential. Cyber security consulting has also been strengthened with two smaller acquisitions in 2017. In addition, F-Secure wants to rise in the value chain from smaller customers towards larger organizations to whom a wider share of the company's product portfolio can be sold.

The company's transformation has progressed well so far but the company still has work to do in the next few years in integrating its product and service portfolio and in developing a retailer channels for corporate products. In order to accelerate this change, the company announced a reorganization in February 2018, where corporate cyber security products and cyber security consulting merge from two separate business units into one functional organization, which aims at better integration of products and services into comprehensive solutions and decreases the layers of the organization.

Financial objectives

F-Secure's objective in the strategy period 2018 to 2021 is to increase the net sales of corporate security by over 15% per year. The company has not specified whether the objective is for organic growth or includes acquisitions. Growth investments burden the company's profitability in the short-term but if the growth strategy is successful, the company's profitability is estimated to rise clearly from the current level thanks to a scalable business model. We feel the company should be able to reach at least an operating profit margin of 15 to 20% in the long-term thanks to the scalable product business. The company has announced that it is constantly seeking the right balance between growth investments and profitability in order to optimize shareholder value generation in the long-term.

If it wanted to, we believe that F-Secure could now generate excellent profitability by shifting the business focus to a "cash cow stage". The eternal paradox for technology companies is, however, that this would destroy the long-term competitiveness of the business. Taking into account the investment wave currently aimed at the industry, established cyber security companies probably have to further increase their stakes to even maintain their current positions. The market is now growing quickly in the corporate segment and market shares are handed out in new product areas, so we feel that aiming for growth at this stage is smart for F-Secure and, if successful, will generate shareholder value. We feel that the company has realistic possibilities to reach the targeted growth rate in corporate security as the product portfolio expands, which is also supported by the growth track record of late (2016: +20%, 2017: +16%)

In consumer security, F-Secure's risk taking is

more modest and the main focus lies on profitability instead of growth, as the growth outlook for the consumer markets is far weaker than in corporate security. Consumer security, however, plays an important role in implementing F-Secure's strategy as it generates good cash flow, which enables investments on the corporate side.

F-Secure's dividend policy has been to distribute around one-half of the company's annual operating profit to shareholders. The company paid extra dividends on the 2014 to 2016 result. We estimate that the dividends in the next few years will reflect the company's dividend policy, which means that the dividend yield will be low as growth investments burden the result.

Corporate security

Product strategy

F-Secure's strategy is to develop products that technically meet the needs of even the most demanding large companies. However, the sales strategy of the products focuses on the segment of medium sized companies, which, according to the company's rather broad definition, covers organizations with 200 to 5,000 employees. The largest global organizations are not the target group for the products. The aim is also to scale the technologies and expertise on the corporate side to consumer products in order to improve their competitiveness. According to our view, the technologies of all of the company's main products are very competitive. The challenge of the product strategy in coming years is product integration in order for the company to be able to offer more comprehensive product solutions in the segment of medium sized customers, where products work seamlessly together and include suitable service packages.

Strategy 2/3

The company's current renewed product portfolio offers considerable up/cross-selling possibilities to existing customers.

The strategy focuses on the company's detection solution for cyber-attacks offered as a managed service, RDS currently on the market and the lighter pure product version of detection and response, EDR to be launched this year. The company's endpoint protection products still generate a majority of current corporate security net sales and offering EDR to these users as a solution that complements endpoint protection will offer considerable additional sales opportunities. Additional/cross-selling is one of the main growth drivers in the company's strategy. F-Secure is also researching the possibility to integrate the functionalities of the vulnerability management solution, Radar with the above-mentioned products, which would promote product portfolio integration and make the products more competitive. According to our view, F-Secure is not reaching for completely new product areas but tries to invest in technologies that would complement the current solution areas through own product development and acquisitions.

Sales and channel strategy

A majority of F-Secure's corporate security net sales still comes from selling endpoint protection products to small customer organizations. The company's current service partner network of over 6,000 partners is a considerable advantage here. When moving to medium sized and large companies, the quality of the partners, rather than their number, is emphasized in the retailer channel. In this case, the partners are by nature more like IT service companies and integrators that offer services next to product deliveries. F-

Secure's challenge is to build the sales channel to larger integration partners and segment the partners that can sell the company's product portfolio also to larger companies from the current partner network. Building of a partner network takes years and in the early stages, F-Secure must also strengthen its own sales organization with know-how in this segment.

The core of F-Secure's sales channel strategy is to develop products on top of which the company's retailer partners can build services that produce value added for their customers. As an example, the service provider can offer the customer cyber security monitoring service, where F-Secure's RDS product (in future also EDR) detects the cyber threats but the service partner deals with the response. The better F-Secure can offer its partners business opportunities through its products the more successful its growth strategy will be. As outsourcing of cyber security becomes more common in companies, the retailers must be able to offer value added services in connection with product sales in order to remain competitive. F-Secure does not want to step on the toes of its partners with its own service business so it mainly focuses on the more demanding service areas.

The challenge for F-Secure's corporate strategy is, in addition to the sales channel, that the company' brand image lies strongly in antivirus and consumer products. Even though the company has moved forward, the change process is long.

Market areas

F-Secure's geographical focus lies strongly on Europe, where the company still sees a lot of growth potential. In Europe, the company gets some geopolitical competitive advantage as some

European companies do not trust American cyber security companies in possible exceptional situations. The company's image is also especially strong in Northern Europe. On the corporate side, net sales is also generated from Japan, and the company also sees growth opportunities on the Asian markets but the biggest growth investments are made in Europe. The US market would also offer expansion possibilities but competition is bloodier than in Europe and American companies partly favor local cyber security companies, which means that the market is not as favorable for F-Secure.

Role of the service business

The focus of F-Secure's consulting lies in the most demanding security problems and the strategic goal is not to expand its service business to compete with regular IT service companies. The strategic goal of the service business is to support the competitiveness of the product business against pure product companies and enrich the product business in terms of product development.

In the big picture, cyber security is evolving from mere products to a process that intertwine products and expertise. This blurs the line between the product and service business. Therefore, F-Secure's aim is also to be able to integrate its products and services more into entities even though, in terms of large volumes, the company leaves the service components to its retailers. In its service business, the company wants primarily to be the actor who is called in situations where the know-how of the company's service partners is not enough to solve the customer's cyber security problems.

Strategy 3/3

Acquisitions

Acquisitions are part of F-Secure's strategic tools and the company has boosted its transformation into a cyber security company with acquisitions in recent years. The company's balance sheet is debt-free and the cash at hand and financial assets available for sale amount to EUR 90 million, which offers good capacity for acquisitions.

F-Secure's aims for acquisitions can be divided into three parts. In the consulting business, acquisitions are made to increase geographical coverage or to acquire experts, in which case the acquisition also acts as an alternative to recruitment. Examples of these are the small (EUR 3.5 million in total) acquisitions (Inverse Path in Italy and Digital Assurance Consulting in Britain) in 2017. Secondly, F-Secure looks for small acquisitions on the product side that would complement the current product portfolio. In 2015, F-Secure acquired the Finnish-Danish service company nSense for EUR 18 million which, in addition to cyber security consultants, gave the company a product for vulnerability management (current F-Secure Radar). In our view, this acquisition was successful and it accelerated the company's transformation and strengthened several targeted competence areas.

The third option is a larger acquisition with which the company would aim for benefits of scale or would get a sales channel for its products to medium sized and large companies. F-Secure's current net financial assets (EUR 90 million) are not sufficient for large acquisitions but, if necessary, the company is prepared to acquire internal and external financing if a suitable acquisition target was found. Larger acquisitions are currently, in our opinion, slowed down by the

high valuation levels in the cyber security sector.

Consumer security

Product strategy

In consumer security, the majority of net sales comes from the sales of the endpoint protection product Safe, and the company constantly tries to introduce new functionalities into the product to maintain its competitiveness. This is partially alleviated by the uniform technologies of corporate and consumer security products, which means that technologies developed for the corporate side can also be introduced into consumer products. Average prices are also supported by packaging products into entities, which also decreases the PC dependency of sales. The role of the VPN product Freedom has also increased in the sales growth of consumer security as an increasing number of consumers select a package solution that includes Safe and Freedom. In future, the role of the company's security router Sense in the product portfolio can increase considerably if Sense can be built into a scalable software-based product. Expectations concerning Sense should remain modest for the time being as the market is in an extremely early stage.

Sales and channel strategy

The market dynamics of consumer security is very different compared to the corporate side. There are many free antivirus software of the market, whose basic features are sufficient for most consumers and these are also developing. This, in turn, slows down the growth of the consumer market and makes the market harder to predict than on the consumer side.

In consumer security, the operator channel that F-Secure has built for a long time is a strategic

asset for the company through which the company has an extensive global distribution channel for its products. The company continues investing in maintaining and developing the operator channel but, according to our view, increasing the size of the channel considerably is becoming challenging. In our view, potential losses of large operator customers is more of a risk in future. An example of this is that in Q4'17 F-Secure lost an operator customer in South America, which was immediately visible as a 3% drop in consumer security net sales.

Direct sales of consumer security has been growing in recent years and its importance will increase. Products are also sold in the company's own and other retailers' online stores, as well as through the traditional retailer channel. A crucial success factor is also the renewal rate of orders, which the company has mentioned to be at an excellent level.

Growth and profitability

F-Secure's consumer business currently generates strong cash flow for the company but the growth outlook for the business is clearly weaker than on the corporate side measured by expected market growth (+1.6% per year). F-Secure's strategy is to invest in consumer security so that the company maintains its strong market position but the company is not aiming for considerable risk taking in investment on the consumer side. Strong growth and cash flow also enable in part the company's growth investments in corporate security so the consumer business plays an important role in the company's strategy. A downturn in consumer security net sales or weaker profitability would make it clearly harder for the company to implement its strategy so the company has great interest in keeping the consumer business vital.

Strategy

Antivirus company focusing on endpoint protection

- Focus on consumer customers
- Operator channel in center of strategy

Transformation into comprehensive cyber security company starts

- Focus on growing corporate security markets
- Successful exit from cloud storage business
- Acquisition of three cyber security service companies
- Product development focuses on products that detect and respond to security threats
- Developing and growing retailer channel

Growth acceleration

- Shift to the customer segment of medium sized companies
- Better integration of product portfolio
- >15% growth in corporate security in 2018 to 2021
- Possible acquisitions that accelerate growth
- In consumer security, the aim is stable growth and good profitability

- 2015

2015-2017

2018-

Must Win Battles in the strategy

Implementation

- Strengthening of corporate security with successful acquisitions in service business
- Strengthening the product portfolio of corporate security (RDS, EDR, Radar)
- Corporate security on a clear growth path
- Competitiveness of consumer business remains strong

Near future, 1 to 2 years

- Successful ramp-up of the EDR product
- Strengthening of the own sales organization in order to develop the retailer channel to the needs of larger companies
- Integrating individual products and services to meet the needs of larger customers even better
- Adapting the organization and culture to correspond with the growth strategy
- Strengthening the brand image from a antivirus company to a cyber security company

The next 5 years

- Creating a strong distribution channel and partner network for medium sized and large companies
- Maintaining the consumer business vital and competitive
- Ability to continuously strengthen the product and service portfolio in line with market trends and technology shifts organically or through acquisitions

Historical development 1/2

Growth and earnings development in 2008 to 2014

F-Secure is a quality company and the company's strong track record for a very long period helps support an acceptable valuation level for the share and generates confidence in the future success of the company.

In 2008 to 2012, the company's net sales grew from EUR 113 million to EUR 157 million with an average annual growth rate of 8.6%. Net sales growth was driven by consumer security growing from EUR 66 million to EUR 94 million thanks to new product launches, as well as the company entering the cloud storage business through the Steek acquisition in 2009. Net sales of cloud storage grew from EUR 2 million in 2009 to EUR 16 million in 2012. In 2013 to 2014, F-Secure's net sales decreased by around one per cent per year as the growth of consumer security and the cloud storage business stopped. Net sales of corporate security remained stable throughout the review period 2008 to 2014 fluctuating between EUR 45 and 50 million.

F-Secure's business model that is based in products has enable scalability and thus good profitability. The company's adjusted operating profit-% varied between 15.0 and 21.6 % in 2008 to 2014.

Growth and earnings development in 2015 to 2017

In 2015, F-Secure shifted the focus of its business more heavily into cyber security solutions as a result of its new strategy, and sold the cloud storage business to Synchronoss Technologies for EUR 52 million (F-Secure paid EUR 30 million for the business in 2009).

F-Secure started to invest heavily in the rapidly growing corporate security markets by recruiting cyber security consultants and sales personnel and acquiring the Danish cyber security service and product company nSense. In addition, the company made two smaller acquisitions in 2017. The growth investments have generated results and the net sales of corporate security has grown from EUR 46 million in 2014 to EUR 72.5 million by 2017 with an average annual growth percent of 16.4 %. In consumer security, the company grew modestly in line with the market during this period by some 1.8 % per year and the net sales of consumer security was EUR 97.1 million in 2017.

The company accelerated its growth investments in accordance with its strategy in 2017, which is visible in the company's profitability. The EBIT margin decreased to 6.5 % in 2017 having been 12.2 to 13.6 % in 2015 to 2016. Investments in growth continue also in 2018, which will continue to depress profitability. F-Secure capitalizes product development costs very conservatively in its balance sheet, which means that growth investments are primarily made directly from the result.

Cost structure

F-Secure's gross margin has varied between 95.1 and 96.4% in 2012 to 2017. The materials and services item currently consists mainly of royalty payments from sales and certain cloud service hosting costs. F-Secure will change its reporting in connection with the Q1'18 report so that certain items currently recorded as fixed costs will in future be recorded as variable costs that lower the gross margin. The reporting change does not affect operating profit as the costs only move from one cost item to another to better reflect the nature of the costs.

The company reports its fixed cost structure in three items: 1) Sales and marketing, 2) Product development and 3) Administration. The biggest item is sales and marketing that corresponded with 61.9 % of net sales in 2017. We estimate that around one-half of this cost item comprises staff remuneration and the rest of marketing costs, sales commissions paid to the retailer network and other operating costs. Between 2012 to 2017, the share of sales and marketing costs in net sales has fluctuated between 45.1 to 61.9 % and, on absolute level, between EUR 71 to 105 million, which shows the magnitude of the company's current growth investments. The sales and marketing cost item is easiest to flex downwards if F-Secure decides to optimize profitability instead of growth.

Product development is F-Secure's second largest cost item and amounted to EUR 34.6 million or 20.4% of net sales in 2017. The share of product development costs in net sales has varied between 17.9 and 31.4% and, on absolute level, between EUR 27 to 49 million in 2012 to 2017. A majority of product development costs are personnel costs. F-Secure capitalizes product development costs quite modestly as capitalized costs amounted to EUR 3.9 million in 2017 (2016: EUR 3.2 million). In total, there are some EUR 10 million in capitalized costs in the balance sheet of which depreciation amounts to good EUR 3 million per year.

Administrative costs stood at EUR 14.3 million or 8.4% of net sales in 2017. A majority of administrative costs are also personnel costs. The relative share of administrative costs in net sales will, according to our estimate, decrease slightly in future as net sales grows, even though the cost item will grow in absolute terms.

Historical development 2/2

The company's net financial costs have historically been slightly in black as the company has no interest-bearing debt and the company's financial assets are invested in short-term interest rates. F-Secure's tax rate has fluctuated through the years mainly because the company has business activities in countries that collect tax at source. In our view, the normalized tax rate of the company is currently around 25%.

Cash flow

F-Secure's business generates good cash flow and the operational cash flow has been between EUR 22 to 29 million per year in 2013 to 2017. Cash flow is supported by advance payments from customers, as, in many cases, the payments for multiannual agreements are received in advance at the start of the agreement period. Advances received have grown in recent years with corporate security growth by over 10% per year. Thanks to advances received, F-Secure's working capital is clearly negative and business growth does not tie capital in the company's balance sheet. The growth rate of advances received will probably slow down somewhat in future as customers favor contracts based on monthly billing over multiannual fixed-term license agreements.

Balance sheet and financial position

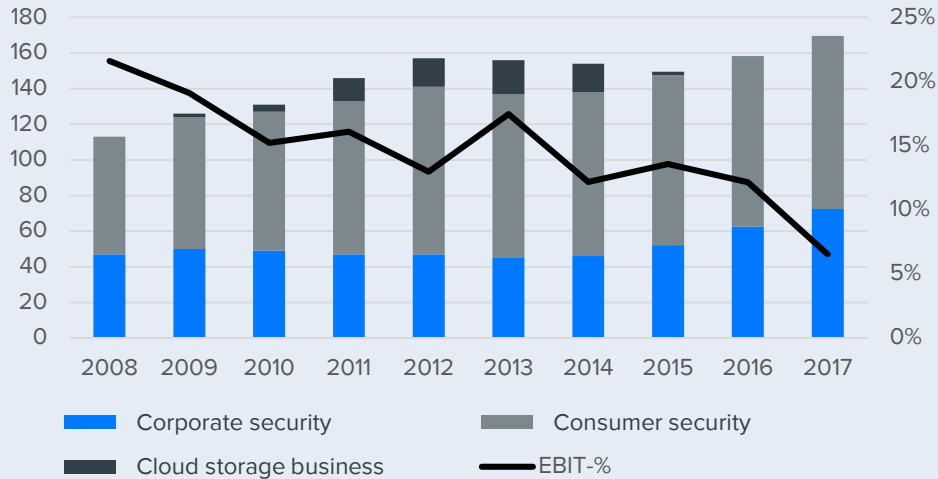
F-Secure's balance sheet position is strong as net gearing stood at around -130 % and the equity ratio at 61 % at the end of 2017. The balance sheet total stood at EUR 174.5 million at the end of 2017. The assets in the balance sheet consist mainly of cash in hand and financial assets available for sale (total EUR 90 million)

and receivables (EUR 50 million). There is EUR 10 million in goodwill on acquisitions in the balance sheet and EUR 15 million in other intangible assets (capitalized development costs + other intangible assets).

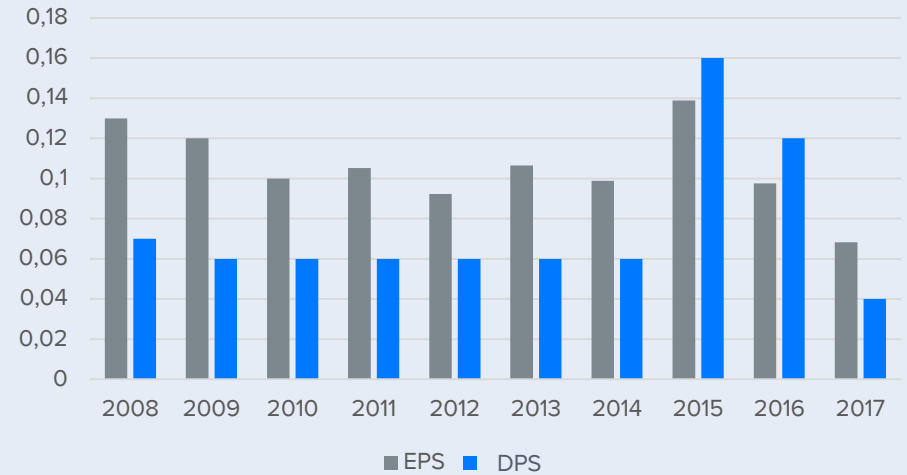
Balance sheet liabilities consist mainly of equity (EUR 65 million) and long-term (EUR 17.5 million) and short-term (EUR 84 million) interest-free debt. Of interest-free debt, EUR 61 million were advances received. As a whole, F-Secure's strong balance sheet gives the company leeway in implementing its growth strategy.

Historical development

Net Sales and profitability



EPS and DPS



Corporate security net sales and growth-%

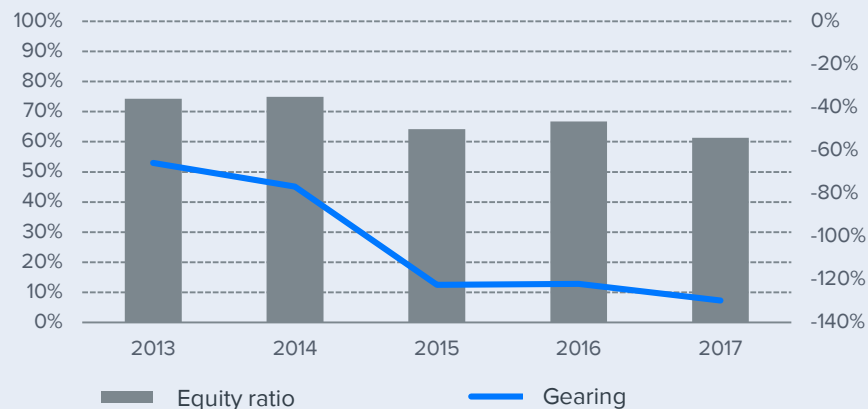


Consumer security net sales and growth-%

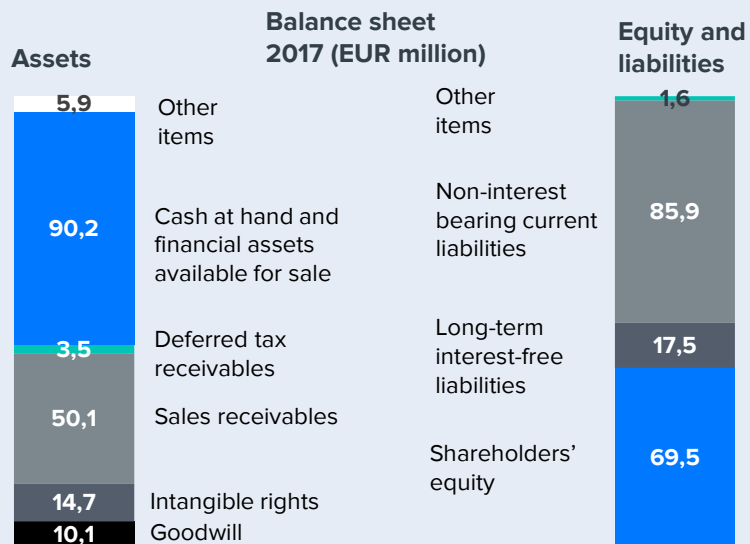
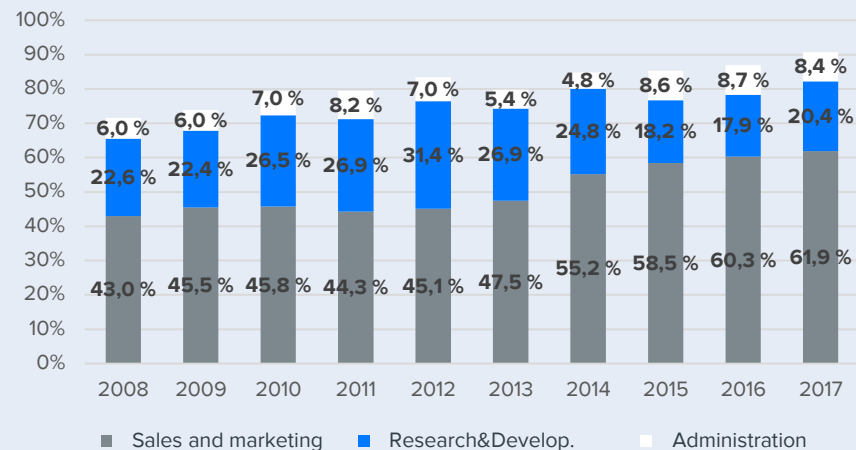


Financial position

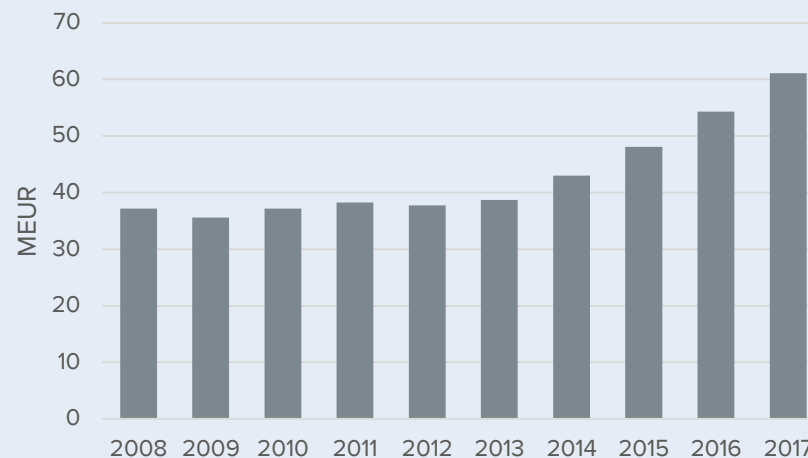
Development of balance sheet key figures



Cost structure -% of net sales



Advances received



Estimates and valuation 1/3

Estimates

Basis for the estimates

The financial objectives of F-Secure's strategy period 2018 to 2021 act as the basis for our estimates as we feel that the company reaching its own targets is a realistic scenario. In corporate security, an annual growth target of over 15% requires continued strong demand for the company's cyber security services, success of the RDS product and a successful ramp-up of the EDR product. The EDR product offers an attractive additional sales opportunity in F-Secure's endpoint protection customer segment. Integration of the product portfolio and development of the retailer channel are also key in order for the company to become better involved in the market segment of medium sized companies to offer more comprehensive product/service solutions.

In consumer security, we expect the company's growth rate during the strategy period to be slightly below market growth (1.6 %) as the company focuses more on good profitability with which to support growth on the corporate side. The company's data security router Sense, if successful, offers an interesting growth option in consumer security in the long-term but at this stage it cannot be given much weight as the maturity of the market for such a product is still hard to evaluate.

Short-term estimates

F-Secure's guidance for 2018 is that the net sales of corporate security will grow by over 15% and the net sales of consumer security will

remain stable compared to 2017. The company expects operating profit of EUR 8 to 12 million. Our estimates for 2018 are in line with the company guidance and we expect the net sales of corporate security to grow by 17 % to EUR 85 million and the net sales of consumer security to remain stable at EUR 97 million. We estimate that the operating profit will be in the middle of the guidance range at EUR 10 million (EBIT-% 5.5 %). Earnings per share will drop to EUR 0.05 (2017: EUR 0.07) and we expect the dividend to remain at EUR 0.04.

In 2019, we expect the net sales of corporate security to continue growing by 16 % to EUR 99 million. We estimate the net sales of consumer security to grow by 1 % to EUR 98 million. We predict that growth investments will continue as strong but as net sales growth profitability will improve slightly and operating profit will rise to EUR 15 million (EBIT-% 7.7%).

Estimates for the latter part of the strategy period

After 2019, we expect F-Secure to reach 16 % net sales growth in corporate security until the end of the strategy period by 2021 when net sales has risen to EUR 133 million. We estimate that the net sales of consumer security will remain at a stable 1 % growth while net sales reaches EUR 100 million in 2021. We anticipate that F-Secure's scalable business model will become visible in the company's profitability towards the end of the strategy period in 2020 to 2021. In our estimate, the operating profit % rises to 9.8 % in 2020 and to 15.9 % in 2021, especially as the sales and marketing costs scale with the growth. Earnings per share rises

to EUR 0.18 in 2021 in our estimates.

Long-term estimates

After 2021, the growth rate of corporate security starts to gradually stabilize in our estimate from 10 % to 3 % during 2022 to 2026. We expect that consumer security will continue growing by 1 % during this period. We anticipate that the perpetual growth of F-Secure's net sales, which is needed in the DCF cash flow calculation, will be 2 % from 2027 onwards.

We expect F-Secure's EBIT margin to settle at around 16 to 18 % from 2022 onwards, reflecting the good profitability after the company's growth strategy is successful. Prior to the current strategy period, F-Secure generated an adjusted operating profit of 15.0 to 17.5 % in 2010 to 2015, reflecting on which the profitability estimate seems realistic. In 2008 to 2009 the company reached an EBIT margin of 19% but at this stage we want the company to first prove that the strategy has been successfully implemented which may indicate a higher profitability potential than our current estimate.

Estimates

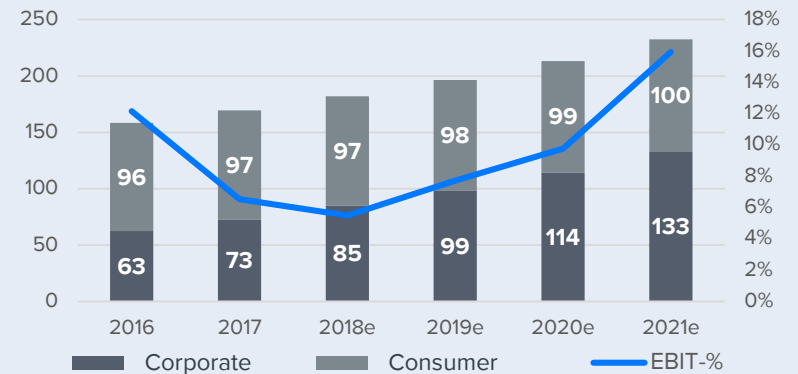
Condensed profit and loss account	2016	2017	2018e	2019e	2020e	2021e
Net sales	158.3	169.7	182.0	196.6	213.3	232.6
EBITDA	24.5	17.4	16.5	21.7	27.7	44.3
Adjusted EBIT	19.2	11.1	10.0	15.2	20.8	37.1
Adjusted EBIT %	12.1 %	6.5 %	5.5 %	7.7 %	9.8 %	15.9 %
EBIT	19.2	11.1	10.0	15.2	20.8	37.1
Profit before taxes	20.8	11.9	10.7	15.9	21.6	37.9
Net profit	15.7	10.7	8.0	11.9	16.2	28.5
Earnings per share	0.10	0.07	0.05	0.08	0.10	0.18
Free cash flow	16.8	19.0	12.2	14.3	18.6	29.7

Key indicators	2016	2017	2018e	2019e	2020e	2021e
Net sales growth %	7.2 %	7.2 %	7.2 %	8.0 %	8.5 %	9.0 %
Operating margin %	15.5 %	10.3 %	9.0 %	11.0 %	13.0 %	19.0 %
Operating profit %	12.1 %	6.5 %	5.5 %	7.7 %	9.8 %	15.9 %
ROE %	20.5 %	14.7 %	11.4 %	16.1 %	20.0 %	30.0 %
ROI %	25.9 %	16.0 %	15.2 %	21.4 %	26.7 %	40.0 %
Equity ratio	66.7 %	61.3 %	61.4 %	62.5 %	64.0 %	66.8 %
Gearing	-122.1 %	-129.8 %	-135.6 %	-136.8 %	-136.7 %	-131.8 %

EPS and DPS



Net sales and profitability



Estimates and valuation 2/3

Valuation

Investment view

We initiate our coverage of F-Secure with a cautiously positive view of the share. F-Secure is a high quality company in the market of which has attractive long-term growth outlooks and fundamentals. We feel the company has a believable and good strategy which clearly focuses on the generation of shareholder value and progresses with controlled risks. The company also has preliminary proof of the strategy working. An interesting spice to the share comes from the possibility of M&A as the company is clearly now actively looking for acquisition targets and the target may even be a bigger company.

The flip side of an attractive and hot market is that at the current valuation level, F-Secure's share is already including a lot of growth expectations in the price and the current valuation level does not offer much upside potential or leave room for disappointments in the growth rate. We require the company to showcase strengthening growth and success of new products in corporate security before we can take a bolder stand on the share.

Multiples

With our current estimates, F-Secure's earnings-based multiples remain on a high level throughout the current strategy period as the growth investments burden the company's financial performance. The valuation gives a very different picture depending on whether we view the company from the point of view of revenue or earnings-based multiples. The valuation cannot

be based on either option alone because the company will constantly balance between growth and profitability depending on which generates more shareholder value in its opinion.

F-Secure's 2018 and 2019 P/E ratios are 72x and 48x and the corresponding EV/EBIT ratios are 48x and 31x. In 2021, when the scalability of the company's business model will, according to our estimates, raise the company's profitability close to the company's historical levels (EBIT-% 15.9 %), the P/E ratio will be 20x and EV/EBIT 12x based on our estimates. These multiples can still not be seen as cheap and, in order to materialize, they require moderate success of the company's strategy, which naturally involves risks. When examining earnings-based multiples there is no clear upside potential in F-Secure's share as if the company's strategy is successful and the earnings growth materializes the possible increase in share price is buried under the normalizing multiples.

With the EV/Sales ratio, F-Secure's valuation is more modest compared to earnings multiples. With our estimates, the company's EV/Sales multiples are 2.6x and 2.4x for 2018 and 2019. F-Secure's EV/Sales multiple has varied between 1.6x and 3.1x in 2013 to 2017 with a median of 2.0x. These multiples can be seen as very cheap in the current context of the stock market where several IT sector service companies are priced at 2x EV/Sales multiples.

Sum of the parts

We use the sum of the parts method to illustrate F-Secure's value creation. The method requires certain assumptions but it acts as a viewpoint for value determination due to the different development stages of the company's consumer

and corporate businesses. We believe that consumer security should be priced based on the earnings due to its slow growth but good profitability. Corporate security is growing quickly but growth investments push its profitability into red. However, in the long-term, the growth generates shareholder value and, thus, corporate security should at this point be priced based on net sales. The pricing logic of the stock market that we describe is clearly visible in the shares of the peer group.

F-Secure does not break down the profitabilities of its businesses so we have to make assumptions concerning this. We assume that the EBIT-% of consumer security is between 18 and 22 %, which reflects reasonable profitability for a business in the mature stage. We place the acceptable EV/EBIT ratio for consumer security at a range of 10-12x, which reflects the multiples of companies with the same profile in the peer group (Symantec, Trend Micro). In a neutral scenario with the expected 20 % profitability and an EV/EBIT ratio of 11x, the value of consumer security is EUR 213 million with a range of EUR 175 to 256 million.

We price corporate security thorough EV/Sales multiple calculated based on the net sales estimate for 2018. We place the acceptable EV/Sales ratio at a range of 3.2-4.0x. This represents a discount of some 10-30% compared to the median EV/Sales ratio of F-Secure's peer group (4.5x), which we justify with the smaller size compared to its peers and the fact that F-Secure's corporate business also includes service business. The value of corporate security in a neutral scenario with a 3.6x EV/Sales ratio (20% discount) is EUR 306 million with a range of EUR 272 to 350 million.

Estimates and valuation 3/3

By adding F-Secure's net cash (EUR 90 million) of 2017 to the values of the businesses, the value of F-Secure in a neutral scenario is EUR 610 million or EUR 3.89 per share. The range for a pessimistic and optimistic scenario are EUR 537 to 686 million or EUR 3.43 to 4.38 per share. The method illustrates how, in the current strategy, the company's value and value creation are based in particular on corporate security and its growth speed. In coming years, F-Secure's share value will be driven by growth in corporate security and if the company is successful in reaching its growth targets, the acceptable valuation level of the company could rise closer to our optimistic scenario. The risk of the sum of parts calculation is currently the high valuation levels of cyber security companies and a drop in the company's acceptable multiples would be negatively reflected, especially in the valuation of F-Secure's corporate security.

Peer group

We have collected listed cyber security companies into F-Secure's peer group, most of which are F-Secure's direct competitors or compete, at least to some extent, with F-Secure in a particular product area. The companies in the peer group are, for the most part, clearly larger than F-Secure and this should be reflected in F-Secure's pricing compared to the peer group. The companies are also at various stages in terms of business development, which is visible in the growth and profitability profiles of the companies and, to some extent, makes it difficult to compare the companies' valuation level and reflect them on the valuation level of F-Secure.

This year, F-Secure's EV/EBIT and P/E ratios are 75-93% and next year they are 50% above the peer group's median, which is already at a high level. Measured by EV/Sales multiple, F-Secure is valued at a discount of around 40% compared to its peers. The net sales based valuation of the peers is high (2018 to 2019 4.5x-4.0x) and we see a risk that the market does not necessarily accept this high ratios for the companies in future but the multiples will have to normalize as net sales grow.

F-Secure's earnings-based overvaluation and net sales based undervaluation illustrate well the company's current development stage where the growth investments in corporate security burden the result but due to the slow growth of consumer security, the company's overall growth lags behind several quickly growing peers, which means that the lower net sales ratio is partly justified. In order to decrease the net sales based undervaluation, F-Secure must be successful in the growth strategy for corporate security and be able to prove that with the growth, the company's scalable business model improves the company's profitability level considerably from the current level. The focus of F-Secure's business still lies heavily in the consumer business and in the more slowly growing endpoint protection product area, which is why the company cannot be profiled in the same category as the hotter companies (like Palo Alto).

DCF model

The Enterprise value (EV) of our DCF model for F-Secure is EUR 488 million and the equity value is EUR 578 million or EUR 3.69 per share. Our

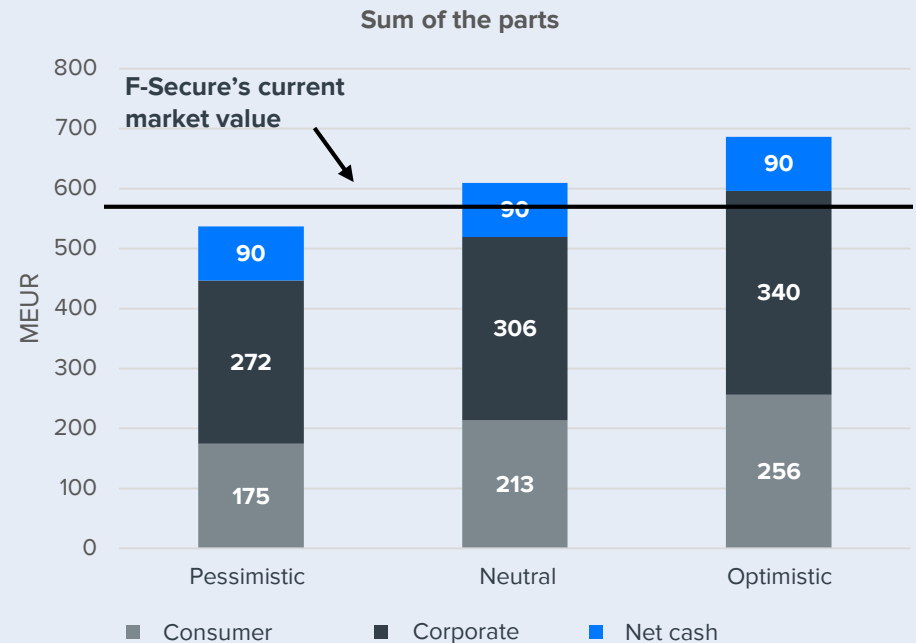
perpetual assumption is that the operating profit % is 16.1% and growth 2%. The cost of capital (WACC) in the DCF model is 8.2%. The weight of the perpetual assumption (terminal) is 62% of the enterprise value, which in part indicates that a majority of F-Secure's value will be generated from future cash flow long in the future, which increases uncertainty.

Sum of the parts calculation

Consumer security	Pessimistic	Neutral	Optimistic
Assumed EBIT-%	18 %	20 %	22 %
EBIT 2018e	17	19	21
x pricing multiple (EV/EBIT)	10.0x	11.0x	12.0x
EV	175	213	256

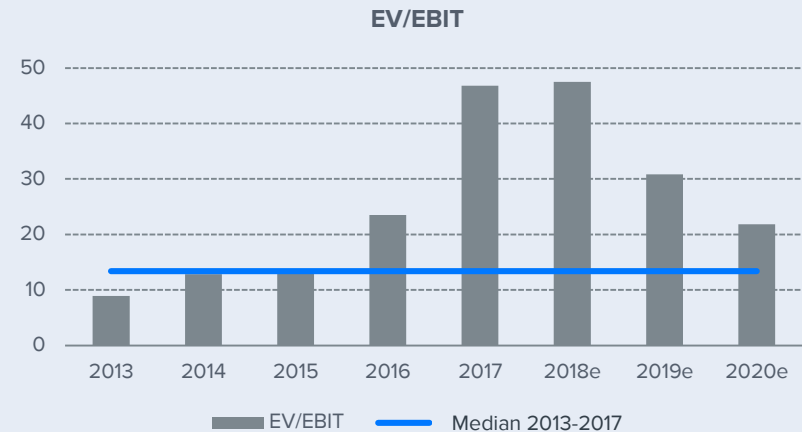
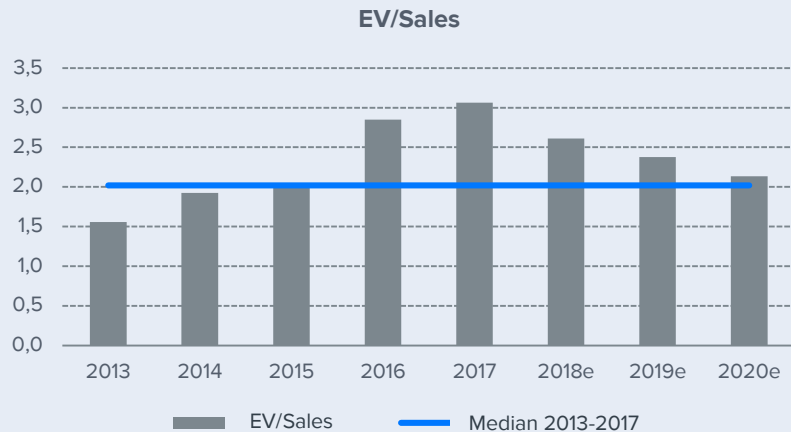
Corporate security	Pessimistic	Neutral	Optimistic
Net sales 2018e	85	85	85
x pricing multiple (EV/S)	3.2x	3.6x	4.0x
EV	272	306	340

Sum of the parts	Pessimistic	Neutral	Optimistic
Consumer security	175	213	256
Corporate security	272	306	340
EV	447	519	596
- Net debt at the end of 2017	-90	-90	-90
Value of entire stock	537	610	686
<i>Value per share</i>	<i>3.43</i>	<i>3.89</i>	<i>4.38</i>



Valuation summary

Valuation level	2013	2014	2015	2016	2017	2018e	2019e	2020e	2021e
Share price	1.87	2.25	2.47	3.48	3.89	3.65	3.65	3.65	3.65
Market value	289	357	392	544	610	572	572	572	572
EV	242	296	298	451	519	475	467	456	435
P/E (adjusted)	17.6	17.5	27.7	34.6	57.0	71.5	48.1	35.3	20.1
P/E	17.6	22.2	32.0	34.6	57.0	71.5	48.1	35.3	20.1
P/cash flow	12.2	16.9	8.3	32.3	32.1	46.9	40.1	30.7	19.2
P/B	4.0	4.5	5.1	7.2	8.8	8.0	7.4	6.7	5.5
P/S	1.9	2.3	2.7	3.4	3.6	3.1	2.9	2.7	2.5
EV/Sales	1.6	1.9	2.0	2.8	3.1	2.6	2.4	2.1	1.9
EV/EBITDA	6.7	9.1	10.6	18.4	29.9	28.9	21.5	16.4	9.8
EV/EBIT	8.9	12.8	13.4	23.5	46.8	47.5	30.8	21.9	11.7
Payout ratio-%	56 %	161 %	158 %	119 %	59 %	78 %	66 %	58 %	60 %
Dividend yield %	3.2 %	7.1 %	4.9 %	3.4 %	1.0 %	1.1 %	1.4 %	1.6 %	3.0 %



Peer group valuation

Company	Share price	Market value	EV	EV/EBIT		EV/EBITDA		EV/Sales		P/E		Dividend yield %		P/B
		MEUR	MEUR	2018e	2019e	2018e	2019e	2018e	2019e	2018e	2019e	2018e	2019e	2018e
FireEye Inc	18.11	2,800	2,603	262.5	75.3	35.3	28.2	3.9	3.7	851.6	121.6			4.8
Symantec Corp	27.45	13,641	16,102	11.9	11.6	9.1	9.3	4.1	4.1	16.8	15.1	1.2	1.1	3.6
Trend Micro Inc	6,010.00	6,405	5,247			13.0	12.0	4.3	4.0	28.8	25.9	2.7	3.0	4.5
Sophos Group PLC	516.50	2,595	2,795	93.4	62.4	57.2	42.9	5.5	4.7	100.3	62.1	0.7	0.9	37.8
Rapid7 Inc	27.72	1,017	944				112.4	5.1	4.2					
Fortinet Inc	53.08	7,103	6,095	23.4	19.5	19.6	16.2	4.4	3.9	37.1	31.8			12.3
Cyberark Software Ltd	50.37	1,401	1,157	25.5	19.8	21.8	17.5	4.6	3.9	41.1	32.8			4.5
Imperva Inc	47.55	1,324	1,013	21.9	17.8	18.1	14.8	3.4	3.0	32.1	27.9			4.7
Palo Alto Networks Inc	187.33	13,784	12,905	34.2	26.6	29.4	23.1	7.2	6.1	48.0	38.5			23.1
Check Point Software Technologies Ltd	104.88	13,832	12,695	15.2	14.4	15.0	14.2	8.1	7.6	18.3	16.8		0.7	4.4
Qualys Inc	77.60	2,415	2,138	34.9	28.5	26.7	22.3	9.6	8.2	54.5	46.1			7.4
Proofpoint Inc	120.59	4,833	4,180	90.5	55.5	60.2	40.6	7.7	6.0	121.8	77.1			30.5
NCC Group PLC	210.60	633	683	20.5	17.3	14.8	13.0	2.5	2.3	27.8	23.1	2.3	2.5	2.7
Nixu Oyj	11.90	85	87	28.8	17.3	21.6	14.4	2.1	1.9	27.2	18.3	1.3	1.9	3.9
F-Secure (Inderes)	3.65	572	475	47.5	30.8	28.9	21.5	2.6	2.4	71.5	48.1	1.1	1.4	8.0
Average				55.2	30.5	26.3	27.2	5.2	4.5	108.1	41.3	1.7	1.7	11.1
Median				27.1	19.7	21.6	16.8	4.5	4.0	37.1	31.8	1.3	1.5	4.7
Difference % cf. median				75 %	57 %	34 %	28 %	-42 %	-41 %	93 %	51 %	-15 %	-8 %	69 %

Source: Reuters / Inderes. NB! The market value used by Inderes does not take into consideration treasury shares.

Quarterly estimates

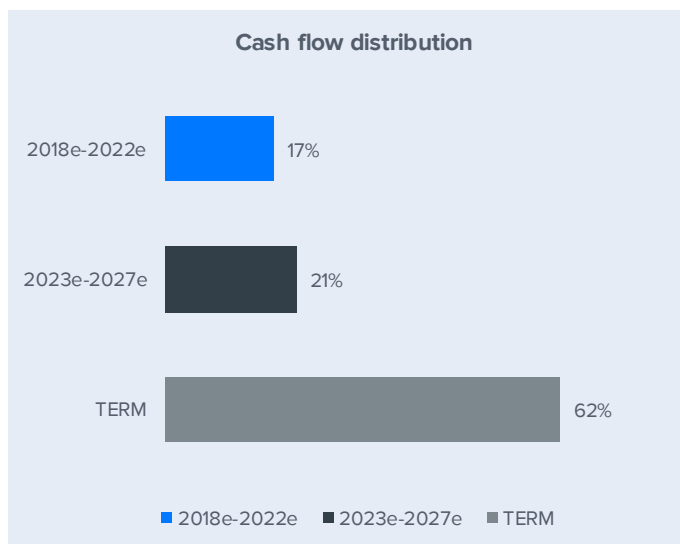
Quarterly earnings development	2016	Q1'17	Q2'17	Q3'17	Q4'17	2017	Q1'18e	Q2'18e	Q3'18e	Q4'18e	2018e	2019e	2020e
Net sales	158.3	41.0	43.2	41.0	44.5	169.7	43.3	46.6	44.3	47.9	182.0	196.6	213.3
Corporate security	62.5	16.7	18.8	16.8	20.3	72.6	19.2	22.6	19.8	23.4	85.0	98.6	114.4
Consumer security	95.8	24.3	24.4	24.2	24.2	97.1	24.1	24.0	24.4	24.4	97.0	97.9	98.9
Operating margin	24.5	3.0	3.8	4.9	5.7	17.4	3.9	4.1	4.3	4.3	16.5	21.7	27.7
Depreciation and impairment	-5.3	-1.4	-1.5	-1.6	-1.8	-6.3	-1.6	-1.6	-1.6	-1.6	-6.5	-6.5	-6.9
Operating profit excluding non-recurring items	19.2	1.6	2.3	3.3	3.9	11.1	2.2	2.5	2.6	2.6	10.0	15.2	20.8
Operating profit	19.2	1.6	2.3	3.3	3.9	11.1	2.2	2.5	2.6	2.6	10.0	15.2	20.8
Net financial expenses	1.6	-0.1	1.1	0.2	-0.4	0.8	0.2	0.2	0.2	0.2	0.7	0.7	0.8
Profit before taxes	20.8	1.5	3.4	3.5	3.5	11.9	2.4	2.6	2.8	2.8	10.7	15.9	21.6
Taxes	-5.1	-0.5	1.1	-0.9	-0.9	-1.2	-0.6	-0.7	-0.7	-0.7	-2.7	-4.0	-5.4
Minority interest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit	15.7	1.0	4.5	2.6	2.6	10.7	1.8	2.0	2.1	2.1	8.0	11.9	16.2
EPS (adjusted)	0.10	0.01	0.03	0.02	0.02	0.07	0.01	0.01	0.01	0.01	0.05	0.08	0.10
EPS (reported)	0.10	0.01	0.03	0.02	0.02	0.07	0.01	0.01	0.01	0.01	0.05	0.08	0.10
Key indicators	2016	Q1'17	Q2'17	Q3'17	Q4'17	2017	Q1'18e	Q2'18e	Q3'18e	Q4'18e	2018e	2019e	2020e
Net sales growth %	7.2 %	8.5 %	9.9 %	5.7 %	5.0 %	7.2 %	5.5 %	7.9 %	8.0 %	7.6 %	7.2 %	8.0 %	8.5 %
Growth % of adjusted operating profit	-13.9 %	-50.0 %	-50.0 %	-27.3 %	-43.1 %	-42.2 %	40.0 %	8.1 %	-20.0 %	-32.2 %	-9.8 %	51.4 %	37.5 %
Operating margin %	15.5 %	7.3 %	8.8 %	12.0 %	12.8 %	10.3 %	8.9 %	8.8 %	9.6 %	8.9 %	9.0 %	11.0 %	13.0 %
Adjusted operating profit %	12.1 %	3.9 %	5.3 %	8.0 %	8.8 %	6.5 %	5.2 %	5.3 %	6.0 %	5.5 %	5.5 %	7.7 %	9.8 %
Net profit %	9.9 %	2.4 %	10.4 %	6.3 %	5.8 %	6.3 %	4.2 %	4.3 %	4.7 %	4.4 %	4.4 %	6.1 %	7.6 %

Source: Inderes

DCF cash flow calculation

DCF model (MEUR)	2017	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e	TERM
EBIT (operating profit)	11,1	10,0	15,2	20,8	37,1	42,0	46,8	49,4	45,7	46,7	47,8	
+ Depreciation	6,3	6,5	6,5	6,9	7,2	7,9	8,0	7,9	8,3	8,7	8,8	
- Paid taxes	-1,9	-2,7	-4,0	-5,4	-9,5	-10,8	-11,5	-12,2	-10,8	-11,1	-11,4	
- Tax, financial expenses	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
+ Tax, financial income	0,1	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,3	0,3	0,4	
- Change in working capital	8,3	3,0	2,0	2,1	2,6	1,3	0,9	0,7	1,0	0,5	1,1	
Operating cash flow	24,9	17,0	19,9	24,6	37,6	40,7	44,5	46,1	44,5	45,1	46,7	
+ Change in other long-term liabilities	4,6	1,8	1,9	2,1	1,2	1,2	0,8	0,8	0,8	0,8	0,9	
- Gross CAPEX	-10,5	-6,6	-7,6	-8,1	-9,1	-8,0	-7,8	-9,0	-9,3	-9,2	-9,4	
Free operating cash flow	19,0	12,2	14,3	18,6	29,7	33,9	37,4	38,0	36,0	36,7	38,1	
+/- Other	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
FCFF	19,0	12,2	14,3	18,6	29,7	33,9	37,4	38,0	36,0	36,7	38,1	658,5
Discounted FCFF		11,5	12,4	15,0	22,1	23,3	23,7	22,2	19,5	18,4	17,6	304,4
Sum of FCFF present value		488	478,6	466,2	451,3	429,2	405,9	382,2	359,9	340,4	322,1	304,4
Debt free DCF		488										
- Interesting bearing debt		0,0										
+ Cash and cash equivalents		90,2										
- Minorities		0,0										
- Dividend/capital return		0,0										
Equity value DCF		578										
Equity value DCF per share		3,69										

WACC	
Tax-% (WACC)	25,0 %
Target debt ratio (D/(D+E))	0,0 %
Cost of debt	4,0 %
Equity Beta	1,10
Market risk premium	4,75 %
Liquidity premium	0,00 %
Risk free interest rate	3,0 %
Cost of equity	8,2 %
Average cost of capital (WACC)	8,2 %



Profit and loss account and balance sheet

Income statement

(MEUR)	2015	2016	2017	2018e	2019e	2020e
Net sales	148	158	170	182	197	213
Costs	-122	-134	-152	-166	-175	-186
EBITDA	25,9	24,5	17,4	16,5	21,7	27,7
Depreciation	-5,9	-5,3	-6,3	-6,5	-6,5	-6,9
EBIT	20,0	19,2	11,1	10,0	15,2	20,8
<i>NRIs in EBIT</i>	-2,3	0,0	0,0	0,0	0,0	0,0
<i>EBIT (excl. NRIs)</i>	22,3	19,2	11,1	10,0	15,2	20,8
Net financial items	0,7	1,6	0,8	0,7	0,7	0,8
Associated companies	0,0	0,0	0,0	0,0	0,0	0,0
Pre-tax profit	20,7	20,8	11,9	10,7	15,9	21,6
Other items	0,0	0,0	0,0	0,0	0,0	0,0
Taxes	-8,6	-5,1	-1,2	-2,7	-4,0	-5,4
Minorities	0,0	0,0	0,0	0,0	0,0	0,0
Net earnings	12,0	15,7	10,7	8,0	11,9	16,2
<i>Net earnings (excl. NRI)</i>	14,3	15,7	10,7	8,0	11,9	16,2
Extraordinaries	0,0	-0,5	0,0	0,0	0,0	0,0
Profit for period	12,0	15,2	10,7	8,0	11,9	16,2
<i>EPS</i>	0,08	0,10	0,07	0,05	0,08	0,10
EPS (excl. NRIs)	0,09	0,10	0,07	0,05	0,08	0,10

Balance sheet

Assets (MEUR)	2015	2016	2017	2018e	2019e	Liabilities (MEUR)	2015	2016	2017	2018e	2019e
Non-current assets	25	27	32	32	33	Equity	77	76	70	71	77
Goodwill	8	8	10	10	10	Share capital	2	2	2	2	2
Intangible assets	12	13	15	15	16	Retained earnings	76	73	67	68	74
Tangible assets	3	3	3	3	3	Shares repurchased	-7	-6	-5	-5	-5
Associated companies	0	0	0	0	0	Revaluation reserve	1	2	1	1	1
Other investments	0	0	0	0	0	Other equity	5	5	5	5	5
Other non-current assets	0	0	1	1	1	Minorities	0	0	0	0	0
Deferred tax assets	1	3	4	4	4	Non-current debt	13	14	19	21	23
Current assets	144	141	142	151	163	Deferred tax liabilities	1	0	0	0	0
Inventories	0	0	1	1	0	Provisions	0	0	1	1	1
Other current assets	0	2	1	0	0	Long term debt	0	0	0	0	0
Receivables	49	46	50	54	58	Convertibles	0	0	0	0	0
Cash and equivalents	94	93	90	97	105	Other long term liabilities	12	14	18	19	21
Balance sheet total	168	168	175	183	197	Current debt	78	78	86	91	97
						Short term debt	0	0	0	0	0
						Payables	64	73	84	89	95
						Other current liabilities	14	5	2	2	2
						Balance sheet total	168	168	175	183	197

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Recommendation potential*	Upside
Buy	> 15 %
Accumulate	5 - 15 %
Reduce	-5 - 5 %
Sell	< -5 %

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Recommendation history, LTM

Date	Recommendation	Target price	Share price
9.3.2018	Accumulate	3,90 €	3,65 €

Inderes Oy



2015

#1 Estimates



2014, 2016

#1 Recommendations



2014, 2015, 2016

#1 Estimates



2012, 2016

#1 Recommendations



2012, 2016

#1 Recommendations



2017

#3 Recommendations



2017

#1 Recommendations

Inderes equity research is the information link between companies and the capital markets. Our goal is to improve the efficiency of Finnish capital markets. The company was founded in 2009 and is owned by employees.

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