

Initiate coverage with HOLD

We initiate coverage of SSH with a HOLD-recommendation and a target price of EUR 2.0. Our target price is based on our DCF value and 4.5x EV/Sales multiple on our 2019 revenue estimates. Current valuation is high, but we see compelling longer-term revenue and profitability potential which supports valuation.

Transformation in process

Under the management of the new CEO Ms. Kaisa Oikkonen, the company has taken a new strategic direction to reposition SSH into a more inclusive strategic PAM vendor for companies of all sizes operating in all IT-environments. With the launch of PrivX and further developing its PAM offering, the company intends to drive its growth by increasing its focus towards the subscription model, faster deployments and expanding into new customer segments.


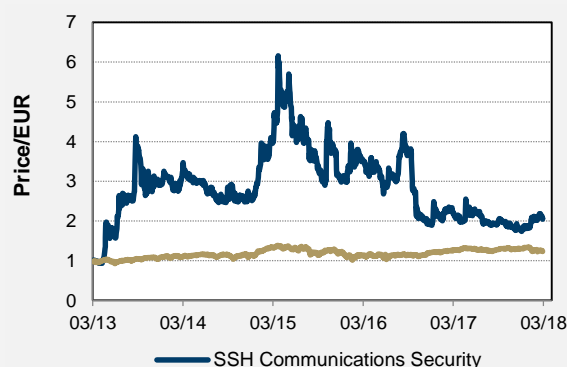
Building up momentum in 2018

We expect only slight revenue growth for 2018, but see growth accelerating during towards the end of '19-'21 period as sales of PAM offering picks up speed. We expect EBIT-margin to improve, but to remain negative during 2018-2020 due to further investments in growth. We have not included potential patent income and possible firewall related revenue in our estimates. If these projects were to materialize, they represent an upside risk to our estimates.

HOLD with a target price of EUR 2.0

On our estimates 2019E-2020E, SSH is trading at EV/Sales 4.3x and 3.7x, which is in line with the average 4.5x and 3.6x EV/Sales multiples for our small sample peer group. Current valuation is high, given that that the company is in the beginning of its transformation phase and risks are elevated, but we see compelling longer-term revenue and profitability potential which supports valuation.

Rating

 **HOLD**


Share price, EUR (Last trading day's closing price) 2.07

Target price, EUR 2.0

Latest change in recommendation 26-Mar-18

Latest report on company 26-Mar-18

Research paid by issuer: YES

No. of shares outstanding, '000's 38,441

No. of shares fully diluted, '000's 38,441

Market cap, EURm 80

Free float, % 20.0

Exchange rate EUR/USD 1.110

Reuters code SSH1V.HE

Bloomberg code SSH1V FH

Average daily volume, EURm 0.0

Next interim report 19-Apr-18

Web site www.ssh.com

Analyst Jonas Forslund

E-mail jonas.forslund@evli.com

Telephone

 BUY  HOLD  SELL

KEY FIGURES

	Sales EURm	EBIT EURm	EBIT %	Ptx profit EURm	EPS EUR	P/E (x)	EV/Sales (x)	P/CF (x)	EV/EBIT (x)	DPS EUR
2016	15	-11	-71.5%	-11	-0.35	-5.6	4.7	-7.7	-6.6	0.00
2017	16	-2	-10.5%	-2	-0.08	-21.9	4.1	93.2	-39.1	0.00
2018E	17	-2	-11.5%	-2	-0.08	-24.4	4.7	-747.4	-41.0	0.00
2019E	19	-1	-7.1%	-2	-0.07	-29.7	4.2	102.6	-59.0	0.00
2020E	23	-1	-2.6%	-1	-0.03	-73.7	3.6	45.7	-138.4	0.00
Market cap, EURm	80		BV per share 2018E, EUR		-0.1		CAGR EPS 2017-20, %		-29.6	
Net debt* 2018E, EURm	1		Price/book* 2018E		-40.7		CAGR sales 2017-20, %		11.6	
Enterprise value, EURm	80		Dividend yield 2018E, %		0.0		ROE 2018E, %		0.0	
Total assets 2018E, EURm	21		Tax rate 2018E, %		0.0		ROCE 2018E, %		-17.0	
Goodwill 2018E, EURm	0		Equity* ratio 2018E, %		-9.4		PEG, P/E 18/CAGR		0.0	

All the important disclosures can be found on the last pages of this report.

*EUR 12m hybrid included in debt

Investment summary

Finnish information security company with global sales and 3000+ clients

SSH Communications Security (SSH1V) is a Finnish information security company offering Privileged Account Management (PAM) software solutions. The company's software helps enterprises and governments protect their critical IT infrastructure from hacking incidents and internal threats caused by the unauthorized use of privileged IT accounts. Privileged accounts are special passes used by IT system administrators, software developers and machines that grant access to important information systems. The company employs 80 people and has 3000+ clients, with ~60% of its sales coming from the U.S, followed by EMEA and Asia.

Compelling market growth of 26%

The increasing number of data breaches and the expanding attack surface that companies face, is expected to increase security spending in the coming years. According to industry analysts, ~80% of major data breaches is due to the misuse of privileged credentials. The PAM market is expected to grow from ~\$1 billion in 2016 to \$2.27 billion by 2020 representing a CAGR of 26%. The market is dominated by U.S. players that are clearly larger than SSH, but we see the SSH's strong story, neutral background and R&D capabilities as advantages to capitalize on.

Shifting from enterprise perpetual model to subscription model

Historically, SSH has been operating on a perpetual license model and focusing on enterprise clients, such as major financial institutions and governmental agencies. Under the management of new CEO Ms. Kaisa Oikkonen, the company has taken a new strategic direction, which aims at repositioning SSH from an enterprise point solution provider to a more inclusive strategic PAM vendor for companies of all sizes operating in all IT-environments.

Reaching for the cloud opportunity and new customer segments

The company intends to drive its growth by increasing its focus towards the subscription model, faster deployments and expanding into new customer segments. The company launched in Q2/2017 a new product called PrivX, which is the company's first product for cloud use cases. PrivX is built for cloud architecture and companies of all sizes, which should support SSH's strategic expansion into new customer segments. As a next step, the company is planning to build a SaaS version of PrivX. We have modest sales expectations for PrivX in 2018, but see good revenue potential and expect PrivX to contribute roughly 12% to net sales in 2020.

Transformation in process, building up momentum in 2018

The company has not issued any financial targets. In 2018, we expect sales to be flattish around 5%, due to the company's increasing shift towards subscription model and as the new PAM offering will not yet be contributing significantly to sales. We estimate sales growth to accelerate to 13% and 17% during 2019-2021 as sales of the company's PAM offering picks up speed. We expect EBIT-margin to improve, but to remain negative during 2018-2020 due to further investments in growth. In 2021, we estimate the company to grow 20% and reach €27m net sales and €1.3m EBIT (5% EBIT margin). We have not included potential patent income and possible firewall related revenue in our estimates. If these projects were to materialize, they represent a clear upside risk to our estimates.

HOLD with a target price of EUR 2.0

We initiate coverage of SSH with a HOLD-recommendation and a target price of €2.0. Our target price is based on our DCF value and 4.5x EV/Sales multiple on our 2019 revenue estimates. On our estimates 2019E-2020E, SSH is trading at EV/Sales 4.3x and 3.7x, which is in line with the average 4.5x and 3.6x EV/Sales multiples for our small sample peer group. Current valuation is high, but we see compelling longer-term revenue and profitability potential which supports valuation. Sales growth is a key parameter at this stage and SSH needs to succeed in its transformation and get its sales engine started to live up to the elevated valuation.

Company description

SSH's solutions help enterprises manage their privileged accounts and access their data securely

SSH Communications Security is a Finnish information security company. The company's software helps corporations and governments protect their critical IT infrastructure from hacking incidents and internal threats caused by the unauthorized use of privileged IT accounts.

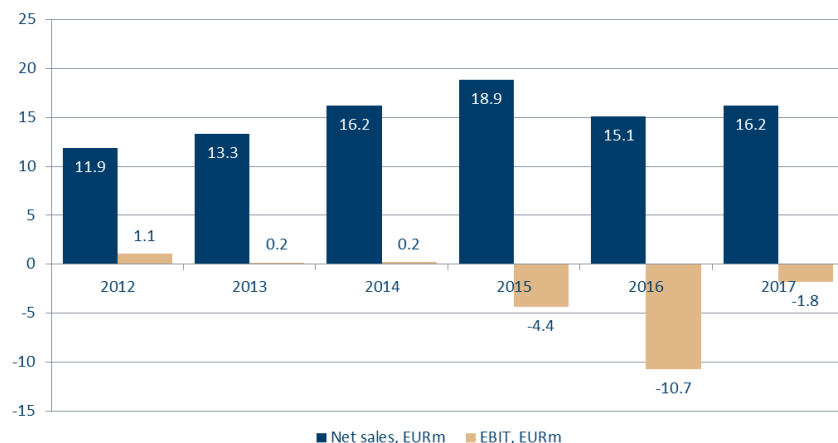
Privileged accounts can be described as special passes used by IT system administrators, software developers and machines that grant access to the most important information systems and data in any given IT environment. With the help of SSH's solutions, customers can access their data in a secure way and reduce the risk of serious data breaches, outages, and business disruption. Privileged access management (PAM) or Privileged Identity Management (PIM) is a collective term used to describe the software systems that organizations use to securely manage privileged accounts and access.

3000+ clients with ~60% of sales from the U.S.

The company was founded in 1995 and has been listed on NASDAQ OMX Helsinki since 2000. The company is headquartered in Helsinki, with regional offices in the U.S, U.K, Germany and Hong Kong. In the end of 2017, the company had 80 employees. The company has 3000+ clients, with ~60% of its sales coming from the U.S, followed by EMEA and Asia.

An important part of the company's story, is the Secure Shell protocol, also known as SSH, which is a technology used in practically all data centers in the world to establish secure connections between computers.

Chart 1: Net sales and EBIT, EURm (2012-2017)



Source: SSH

History

Inventor of the globally renowned SSH protocol

SSH Communications Security was founded in 1995 by Tatu Ylönen, who is also the inventor of the Secure Shell protocol. While working as a researcher at Helsinki University of Technology, the university's network experienced a hacking incident. That incident triggered Ylönen to study cryptography and develop a solution to remote login over the Internet safely. His friends proposed additional features, and three months later, in July 1995, Ylönen released his software implementation as freeware. The tool quickly gained in popularity and became a globally recognized technology for secure access to information systems.

In December 1995, Ylönen founded SSH Communications Security to provide commercial support for the software and to develop other cybersecurity solutions using the SSH technology. The company grew to 190 people and \$20m in sales by 2000 and went public on NASDAQ OMX Helsinki. The company started its US operations in 1998 and has done most of its business in the US since then. Tatu Ylönen has held various roles in the company throughout the years, including CEO, CTO, and Chief Innovation Officer. Currently he is an advisor to the firm and a member of the board of directors. He remains the largest shareholder of the company.

In the early years, the company derived most of its revenue from technology licensing with customers such as Sun Microsystems, Lucent, Compaq, Intel, Juniper, Nokia, Ericsson, NEC, and other telecommunications, networking, and cybersecurity vendors. From 2003, the company started focusing on enterprise customers. Today, its customers include many of the largest global banks, governmental organizations and 40% of the Fortune 500 companies.

The SSH protocol

The Secure Shell protocol (also referred to as SSH) is a method for secure remote login from one computer to another. In short, the SSH technology creates an encrypted channel that enables system administration and file transfers to take place securely over insecure networks.

The protocol is typically used in networks for:

- providing secure access for users and automated processes
- interactive and automated file transfers
- issuing remote commands
- managing network infrastructure and other mission-critical system components

Today, the protocol is used by information security specialists and system administrators for managing more than half of the world's web servers and practically every Unix or Linux computer, both on-premise and in the cloud. It is also embedded inside many file transfer and systems management solutions.

It is important to note that the SSH protocol is an open source software, which means that it's open to anyone to use, modify and distribute. Due to the software being open source and its popularity, there are several software programs from various developers that use SSH. Another implication of open source is that it tends to become more difficult to charge money for the software. In many cases providing customers with skilled software services and support is more lucrative.

How does the SSH protocol work?

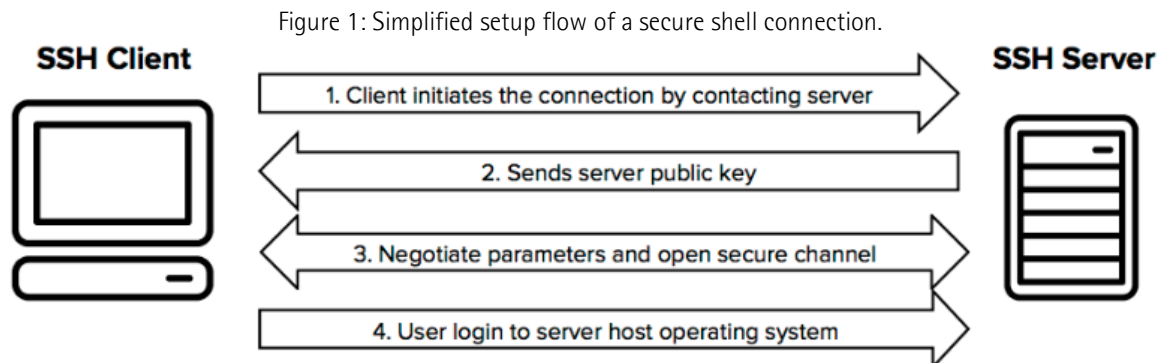
The basic idea behind the SSH protocol is that it establishes a secure (i.e. encrypted) way to connect between computers and it eliminates the need to enter or send the username and password every time the connection is created.

The technology uses cryptographic key pairs, known as SSH keys, that grant access and control who can access what. There are two types of keys; public keys and private keys. Functionally, the public key can be viewed as a lock and the private key is the key that opens that lock.

The public key can be placed on the company's server and shared with others, thus authorizing and granting access to anyone who has the private key to access the server. The private keys stay on the user's machine and should be kept safe.

By using a SSH key the user doesn't have to enter its username and password every time, and there is no password sent over the network. Compared to passwords, the strong cryptography behind SSH keys ensures that no one can decipher the private key from the public one.

In the SSH connection process, a connection is established by the SSH client connecting to the SSH server. A SSH client is a software program which uses the secure shell protocol to connect to a remote computer. The SSH client drives the connection setup process and uses a public key to verify the identity of the SSH server. After the setup phase, the SSH protocol uses strong symmetric encryption and hashing algorithms to ensure the privacy and integrity of the data that is exchanged between the client and server. There are several options that can be used for authentication, most common ones are passwords and public keys. Certificate authentication is technically a part of the public-key authentication method.



Source: SSH

Remote Desktop Protocol (RDP) or HTTPS are other well-known protocols that also provide a way to connect computers without revealing credentials to users. Different protocols have different use cases. For e.g. SSH is strong in Unix systems and renowned for its security, whereas RDP is the standard in Windows systems.

Software products

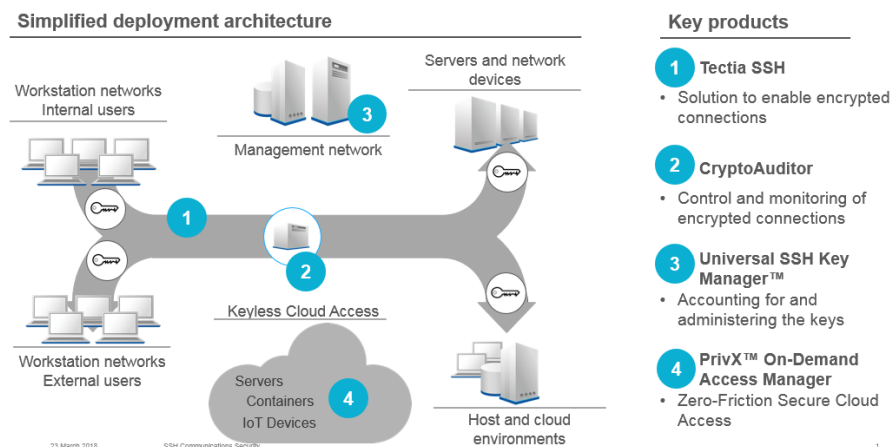
The company's software solutions help clients in providing secure access to servers and proper management of privileged credentials. They also help monitor and audit what happens inside encrypted connections at a firewall, such as in remote access and file transfers carried out by 3rd parties such as consultants.

Mature product portfolio,
PrivX product launched in
Q2/2017

The company's current software products include Tectia SSH, CryptoAuditor and Universal SSH Key Manager. Tectia can be seen as the company's legacy product, whereas UKM and CryptoAuditor being their current flagship products. In addition, the company launched 06/2017 a new "keyless" privileged access management (PAM) product called PrivX On-Demand Access Manager. The company is also working on a next generation firewall product.

The products are stand-alone products, but work well together and are all important parts of the overall privileged access management process.

Figure 2: Simplified overview of the company's current solutions.



Source: SSH

Tectia SSH

Tectia SSH is a server and client software that enables the secure connection between computers using the SSH protocol. The software enables secure access for remote system administration, encrypted file transfers, and secure system automation. It is available for Windows, Unix, Linux, and IBM mainframes (Tectia z/OS). It also supports standards-compliant X.509 certificates and smartcards for server and user authentication. Tectia is deployed as a software (perpetual or subscription license) and it requires a deployment project.

Tectia is a mature product and it competes directly with the OpenSSH freeware. Due to some of its specific features and support services, Tectia is a competitive alternative especially for financial institutions.

CryptoAuditor

CryptoAuditor is a privileged session management tool. CryptoAuditor gives the administrator the ability to monitor, control, and audit what happens inside encrypted privileged sessions involving corporate IT resources. CryptoAuditor inspects and records the sessions in real time for forensics and internal audit, and enforces configured policy on the sessions.

CryptoAuditor was launched in 2012. The software is installed between the client and the server, which means it only requires a light deployment and one-time configuration. CryptoAuditor is delivered as a virtual appliance, and is available through a perpetual or subscription license. According to management, CryptoAuditor could possibly be available as a cloud delivered software (SaaS) at some point, although currently the use case is more on-premise.

Universal SSH Key Manager

Universal SSH Key Manager (UKM) is a solution for managing public SSH keys within large organizations. With UKM, large enterprises can handle the provisioning and monitoring of keys, periodic key rotation, and proper access termination all from a centralized management platform.

Provisioning of keys is often incorporated in various identity and access management software tools and therefore the company provides APIs that can be used to integrate with existing enterprise identity management and ticketing systems.

UKM is deployed as a software or virtual appliance (perpetual or subscription license). It typically requires a fairly large deployment project, which lasts several months. In order to mitigate the long sales cycles associated with enterprise-level large deployments, the company has introduced three product deployment levels to UKM. The first level is a risk assessment service, where the company's specialists map out the clients SSH key environment. The next levels dive deeper into the proper management of SSH keys and the UKM product. UKM was launched in 2012.

Services

Both internal and external service personnel

The company offers services relating to deployment of software and customer support. Three level support services are provided for all current products. Most of the deployment services relate to UKM, whereas most of the support service revenue relate to Tectia followed by UKM and CryptoAuditor.

The company uses both own personnel as well as subcontractors to deliver deployment and support services. According to management, approximately 10 people work in support services (total number of employees 80 as of 12/2017).

PrivX On-Demand Access Manager

PrivX is the company's first PAM tool for cloud use cases

PrivX On-Demand Access Manager is the company's new privileged access management (PAM) tool, which it launched in 06/2017. PrivX is designed to help corporations easily manage privileged access in cloud environments and DevOps processes. The product is intended for companies of all sizes; from startups to large corporations, as well as teams within enterprises.

Where traditional SSH-key solutions and management systems are typically on-premise solutions and require deployment, the PrivX product is a light deployment "key-less" solution designed for cloud environments. In short, PrivX eliminates the need for passwords or keys from servers by using only short-term temporary credentials, that are created on demand, based on roles and entitlements. This eliminates the traditional need for issuing private keys that have to be safely stored (vaulted) and continuously monitored and rotated.

The advantages of PrivX is that it requires significantly less deployment, its TCO (total cost of ownership) is low, and it can rapidly scale according to the needs of the customer, which is highly important in today's cloudifying world. According to the company, PrivX can be deployed 10x faster than competing solutions and it supports AWS, Google, Azure and OpenStack. PrivX On-Demand Access Manager was first launched in 06/2017 with an updated version to be launched in Q1/2018. The product has been in test mode during H2/2017 and the company expects to start sales of the product during Q1/2018 and online sales to start Q2/2018. For now, PrivX is available as a virtual appliance through a subscription license, but the company has plans to develop a cloud SaaS version (subscription based application hosted on SSH's server) later in 2018.

Go-to-market strategy based on online and inside sales

The company's go-to-market strategy has emphasized the role of online sales and inside sales (i.e. remote sales to both existing and new clients). We see pursuing an API strategy to integrate PrivX with leading cloud native DevOps tools and application platforms as a logical next step. According to the company, the technology behind PrivX is patent pending.

Firewall

The company announced in January 2016 a frame agreement with Cinia Group, which is a Finland-based information and communications technology company owned by the Finnish state, employment pension company Ilmarinen and OP Financial Group.

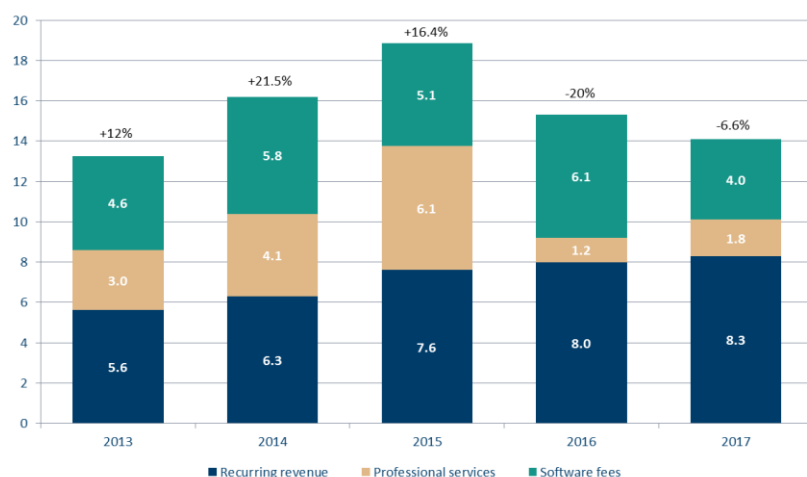
Firewall in final stages of certification process, no timetable disclosed

The frame agreement includes the utilization of a new next generation firewall solution, which SSH is developing. According to the company, the performance tests of the firewall have proceeded well and provided very promising results. The firewall product has now entered the final national CAA (Crypto Approval Authority) certification process. The successful completion of this certification process would enable sales to public sector customers in Finland. The company has also commented that the product would be commercially available for other companies at a later stage and that it is currently in preliminary talks with various clients. The company has not disclosed plans for seeking certification in other countries.

Business overview

The company divides its sales into software fees, professional services & other, and recurring revenue. Software fees include the license fees, professional services & other include deployment services revenue, and recurring revenue includes maintenance and support. The company received a one-time patent income of €2.1 million in Q4/2017, which was booked under the professional services & other item line.

Chart 2: Net sales by segment, EURm, excl. patent income 2017 (2013-2017)



Source: SSH, Evli Research

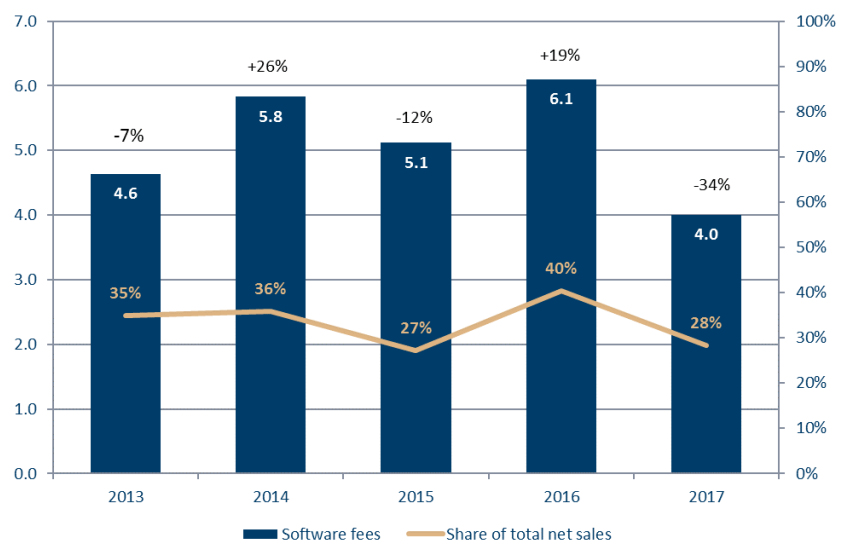
Software fees

The software license gives the client the right to use the software. The license fee can be a one-time so called perpetual license or it can be a term-based subscription license, which means that the fee is divided into yearly installments based on the length of the license. The price of the license is generally based on the number of users of the software, but depending on the case, it can also be based on e.g. number of servers, sessions or hours. Generally said, license fees offer high margins and scale very well with increasing adoption.

Increasing shift from perpetual license towards subscription license

As enterprise sales cycles are long and deal sizes can be relatively large, the license fee revenue has fluctuated quite much depending on the number and size of deals in each period. During the last years the software fee revenue has come under pressure as client preferences are shifting away from the traditional perpetual license model and large deployments towards subscription licenses and smaller test deployments. This means that instead of clients paying a large one-time software fee, the revenue is divided over a number of years. Due to the shift towards subscription licenses, increased competition and missed sales, the company's license fees declined 34% from 6.1 MEUR in 2016 to 4.0 MEUR in 2017. The company does not disclose the share between perpetual and subscription license sales. In 2016 and 2017 the company reported that subscription license sales grew 206% and 80% respectively, although from a low base.

Chart 3: Software fees, EURm, excl. patent income 2017, (2013-2017)



Source: SSH, Evli Research

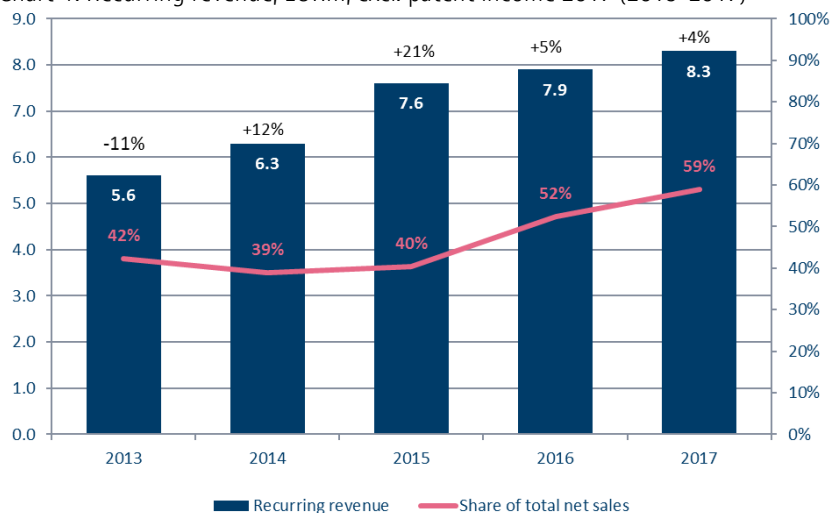
Recurring revenue (Maintenance & support)

In addition to the license fee, the company charges for maintenance and support, which it reports under the recurring revenue item line. Maintenance includes software updates or replacements, whereas support typically includes help desks, training, and fixing defects.

Support priced at 20% of order value

Maintenance and support revenue is a derivative of the license fee. Typically, software vendors charge for support and maintenance between 20% and 30% of the license fee per year. The company has around 10 people working in support functions. The company also outsources support e.g. in countries where it doesn't have a presence. As maintenance and support is subscription based and incurs limited additional costs, it offers stable and predictable revenue with healthy margins. The company's recurring revenue has been stable and growing, representing around 40% -60% of net sales during 2014-2017. Annual growth rate of recurring revenues has been approximately 10% between 2013-2017, with growth being around 4% the last two years.

Chart 4: Recurring revenue, EURm, excl. patent income 2017 (2013-2017)



Source: SSH, Evli Research

Professional services & other (deployment services and patent income)

The professional services & other segment is mostly revenue generated from deployment projects. Services projects do not generate recurring revenue and depend on the number of projects sold each period. Typically, most of the large deployment projects relate to the Universal Key Manager (UKM) product, where lead times can be up to several months. The company uses both own personnel and consultants such as systems integrators for deployment projects.

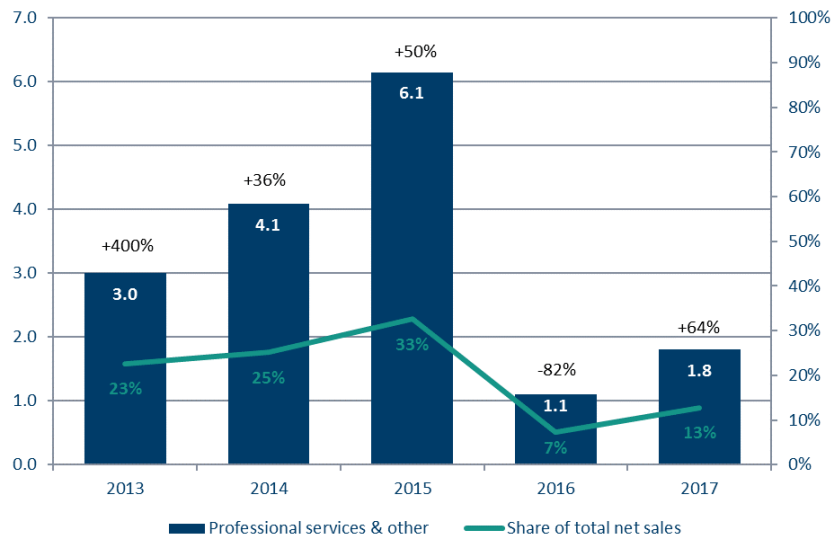
Services projects generally low margin, no longer core

The company's professional services revenue grew significantly between 2013 and 2015 mainly due to a few exceptionally large UKM related service projects. The completion of the large remediation projects can be seen in the -82% drop in services revenue in 2016. As services are generally low margin business, the company has announced that large services contracts are no longer part of their core business going forward. The company is now focusing more on value added services (e.g. risk assessment) which have better margins and help sell their products, while outsourcing large volume service contracts to system integrators. Outsourcing large service contracts to key system integrators also helps SSH to entice the systems integrators to work with them in large customer accounts.

First patent income of €2.1m received in Q4/2017

SSH is actively seeking patent income from its IPR portfolio and the potential patent income revenue is reported under the Professional services & other-segment. During Q4/2017 the company announced that it had entered into a patent cross-license agreement with a global technology company, which included a one-time license fee payment of €2.1 million. The company also announced another patent cross-license and settlement agreement in February 2018 with Sony, which according to the company will have a moderate positive impact on SSH's top line and EBIT in the first quarter of 2018.

Chart 5: Professional services & other, EURm, excl. patent income 2017 (2013-2017)



Source: SSH, Evli Research

Business model

Volatility of perpetual model and enterprise focus

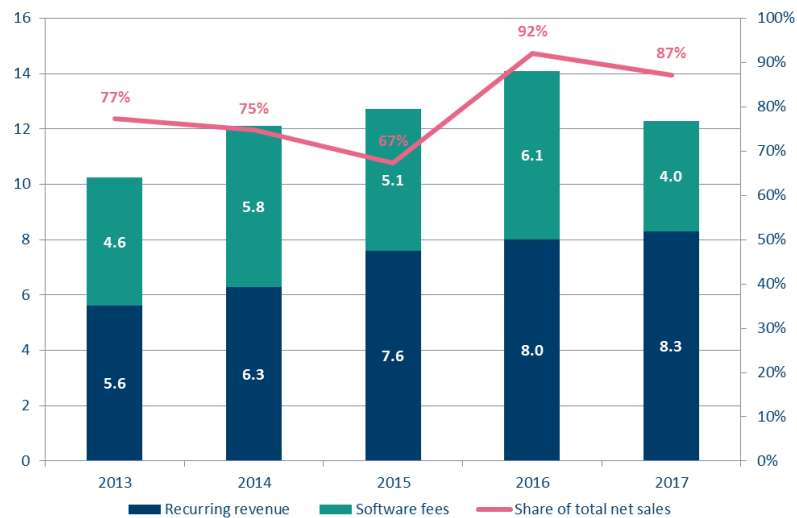
SSH Communications Security's business model can be described as traditional and typical for an enterprise level on-premise software company. The business model is based on selling subscription or perpetual software licenses that are accompanied with maintenance and support services. Software licenses are priced based on number of servers, sessions or users depending on the product. Maintenance and support services are priced at 20%-30% of the order value. Typically there is also services revenue from deployment project where the software is deployed and customized according to the client's requirements. The company's focus has been on global large enterprise clients, such as financial institutions, large IT companies and governmental organizations. 60% of the company's sales are from the U.S.

Most of the license revenue is still coming from relatively few deals (especially perpetual license deals) which means the revenue fluctuates quite a lot from quarter to quarter. The overall shift from the perpetual model towards subscription model puts pressure on license revenue growth, but increases predictability as the share of subscription licenses increase. The company's subscription based recurring revenue has been stable and growing, representing around 40% -60% of net sales during 2014-2017. Annual growth rate of recurring revenues has been approximately 10% between 2013-2017, with growth being around 4% the last two years. The professional services still play an important part in closing larger UKM deals, but going forward the company is increasingly outsourcing this low margin business to outside contractors.

Increasing transition towards subscription model, faster deployment

With the launch of PrivX and the company's new strategic direction, the company's business model is shifting increasingly towards subscription model and less deployment services, lower price points and expanding its client base to new customer segments.

Chart 6: Combined software fees and recurring revenue, excl. patent income 2017 (2013-2017)



Source: SSH, Evli Research

The company does not disclose average deal sizes, share of renewals or product penetration rates. We estimate the average order value for Tectia and CryptoAuditor to be between 20K-100K euros. Deal sizes for UKM are much larger, even in low single digit millions, but deals are less frequent.

Direct and partner-driven sales strategy

The company's sales model is based on direct sales and a network of global channel partners. The company operates regional headquarters in Helsinki (for EMEA) and Boston (for Americas). In EMEA, the company has sales and support offices in the UK and Germany. In the APAC region, the company has an office in Hong Kong. At the end of December 2017, the company had 29 employees in sales, marketing and customer services. Approximately 10 of these work in support services, while the sales force is approximately 7 people in the US, 7 in Europe, 4 in Hong Kong and 2 in Finland.

The company operates purely through a channel partner model in Asia, with its own representative office in Honk Kong. In Europe, the company combines direct sales and partners, whereas in the US the company mostly relies on its own sales force to sell to large enterprises. In total, SSH has around 50 channel partners, but according to the company only part of them are active.

Alliance or integration
strategy potential

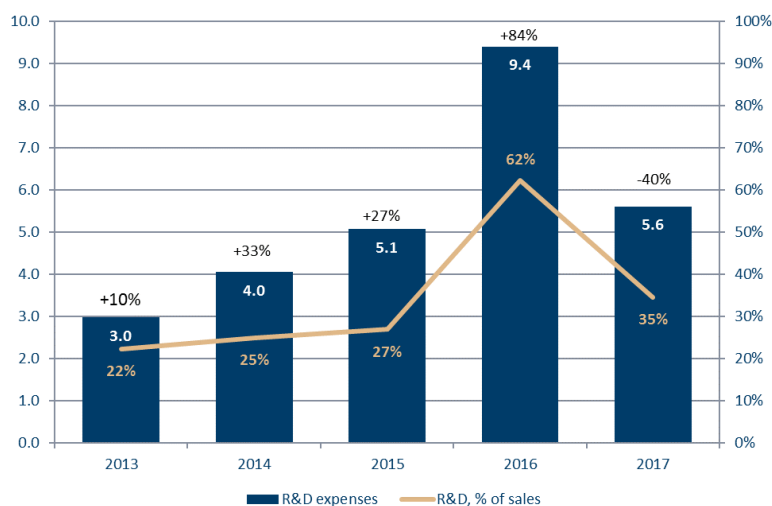
Looking at SSH's main competitors, we note that integration or alliances play an important part in their strategies. SSH offers API's for integration (e.g. UKM) with third party software, but an alliance or integration based strategy has not been a clear focus area for the company. According to management, this is an area of improvement.

Research & Development

At the end of 2017, the company had 35 employees in R&D. The company also uses external partners in R&D. Annual R&D costs have been between €3-5.6 million during 2013-2017, except for 2016 when R&D costs peaked at €9.4 million due to investments in new products, patent litigation costs and restructuring costs. R&D costs were 20-60% of net sales during 2013-2017. During 2017 and 2016, R&D cost capitalizations totaled €1.2 and €1.9 million respectively.

The company's current products have reached a mature phase, which means they don't require significant increases in R&D spending. We see that the future product roadmap relating to SSH's strategy however will require additional R&D spend.

Chart 7: R&D expenses, EURm (2013-2017)



Source: SSH

Personnel

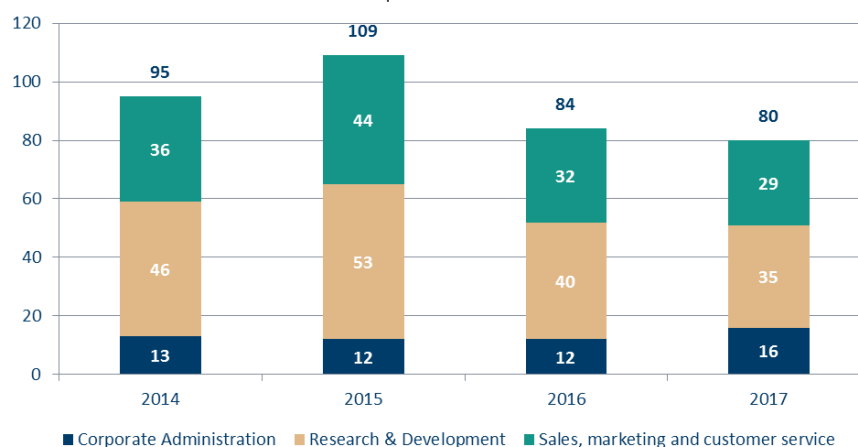
€7m annual OPEX reduction due to cost cuts in Q4/2016

At the end of December 2017, the company had 80 employees on its payroll, out of which 29 employees worked in sales, marketing and customer services, 35 in R&D, and 16 in corporate administration. The company went through a cost restructuring program in Q4/2016, which resulted in a 25 headcount decrease and a €7 million annual OPEX reduction.

High management turnover

The company has also seen a lot of turnover in its management team during the last two years. During 2016 the CEO, CFO, CMO, Chief Strategy Officer, VP of US Sales, VP of European Sales were all replaced. During 2017 both the CFO and the head of Americas resigned.

Chart 8: Personnel at the end of each period (2014-2017)



Source: SSH

Customers

3000+ clients including
40% of the Fortune 500

According to the company it has over 3000 customers, including many of the largest global banks and 40% of the Fortune 500. The company's clientele also includes public sector clients like the US government and several central banks. The company does not disclose splits between different client types.

Figure 3: SSH's customers

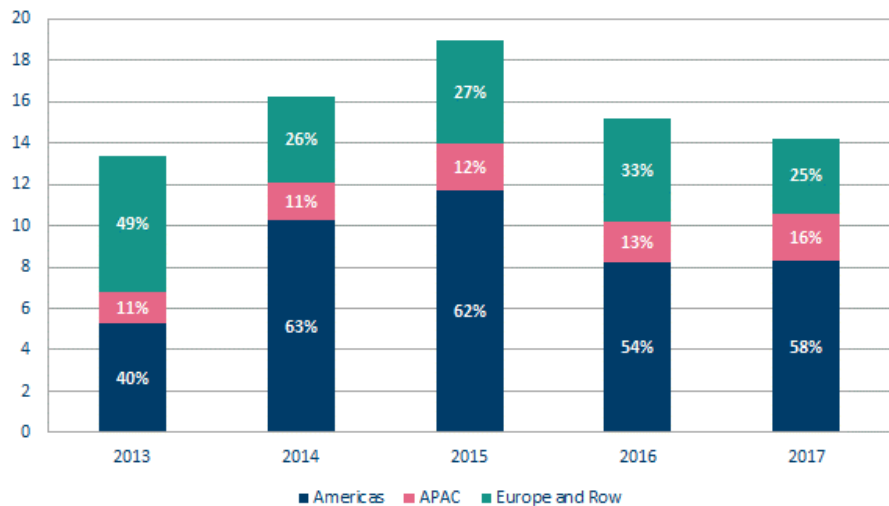


Source: SSH

60% of net sales from the
U.S.

Geographically, Americas (United States) has accounted for most of SSH's net sales, followed by Europe and rest of the world (RoW), and Asia Pacific. U.S. sales have accounted for 54-63% of net sales between 2014 – 2017.

Chart 9: Net sales by region EURm, excluding patent income received 2017 (2013-2017)



Source: SSH, Evli Research

IPR Portfolio

SSH Communications Security has a patent portfolio that has been developed since 1997. The company has over 100 patents and dozens of applications pending, and the company is actively seeking licensing revenues from its IPR portfolio. The company is actively licensing its NAT Traversal and IPSec patent portfolio to commercial players in the smartphone, tablet, laptop, voice-over-IP, and gaming industries.

NAT Traversal

Network Address Translation (NAT) is a technology for connecting multiple devices to a single external IP address. Most ADSL modems, firewalls, and mobile operators perform network address translation. NAT Traversal refers to techniques for making applications, such as voice-over-IP and multi-player games, work across devices that perform network address translation. Today, the technology is widely used in smartphones, tablets, laptops, IP telephones, smart TVs, and multi-player games.

SSH Communications Security owns several patents on NAT Traversal. Most of the patents are valid until 2020.

IPSec

Internet Protocol Security (IPSec) is a network protocol suite that authenticates and encrypts the packets of data sent over a network. According to the company, it was a key contributor in the development of the IPSec (IP Security) protocol, and patents used in IPSec solutions. IPSec is a central part of virtual private networks (VPN) and firewall solutions connecting home users to offices, the increasingly popular IPv6 Internet protocol and cellular systems. IPSec is also used in DSL modems, mobile phones, and telecommunications infrastructure.

First patent licensing deals

The company announced its first patent licensing deal in December 2017. According to the announcement, it had entered into a patent cross-license agreement with a global technology company, which included a one-time license fee payment of €2.1 million paid to the SSH. According to the agreements between SSH and Clausal Computing Ltd., SSH paid Clausal Computing Ltd. €462,000 of the license revenue as a royalty fee. Therefore, SSH's share of this patent cross license agreement was €1.638 million, which was visible in the Q4 2017 result. According to the company, SSH and Clausal Computing Ltd (controlled by SSH founder Tatu Ylönen) have collaborated in R&D and therefore the parties have a revenue sharing scheme. The cross-license agreement concerned the same patent, that was the subject of the litigation against Sony between 2015-2018.

The company was involved since 2015 in a litigation process with Sony relating to VoIP technology used in Sony's smartphones, but the parties reached a patent cross license and settlement agreement in February 2018 that resolved all disputes. SSH estimates that after taxes, costs and royalty fee paid to Clausal Computing Ltd, this patent license and settlement agreement will have a moderate positive impact on SSH's revenue and EBIT in the first quarter of 2018.

Currently the litigation case with Sony in Germany is settled. In the UK, the company is seeking to appeal the UK Court's first instance decision, although Sony is not a counterpart in the UK case anymore. The company has no ongoing litigation process in the US. SSH continues its licensing efforts and according to the company, they are currently involved in a number of licensing negotiations.

Market overview and competitive landscape

SSH's competes in the Enterprise Key & Certificate Market (EKM) as well as the broader Privileged Access Management (PAM) or Privileged Identity Management (PIM) market. We note that, there is a clear overlap between the terms EKM and PAM, and respective markets.

According to MarketsandMarkets' Enterprise Key Management Market report from June 2017, the Enterprise Key Management market is expected to grow from \$933 million in 2017 to \$2,343 million by 2022, at a compound annual growth rate (CAGR) of 20.2%.

Compelling market growth opportunity

The privileged access management (PAM) market is expected to grow faster than the EKM market. According to MarketsandMarkets' Global Forecast March 2017 report, the PAM market size is expected to grow from \$922 million in 2016 to \$3,792 million by 2021, at a compound annual growth rate of 32.7%. Gartner estimates the PAM market to grow from \$900 million in 2016 to \$2.27 billion by 2020 representing a CAGR of 26% over the period.

Market growth going forward will be boosted by mid-market

Market studies suggest that both markets are likely to gain traction during the forecast period, due to the expected increase in interest from small and medium-sized companies. In terms of geographical distribution, North America is expected to hold the largest market size and dominate the market during the forecast period, followed by Europe and Asia/Pacific. In Europe, adoption of PAM tools is lagging North America, but picking up speed according to the studies. Adoption in Asia/Pacific and Japan remains quite varied due to the diverse levels of IT maturity and security spending in the region. According to Gartner, the PAM market is rapidly maturing. Managed and cloud-based PAM services are slowly increasing from being a tiny portion of the market share, but the overall PAM market is still dominated by the sale of on-premise software and appliances.

Looking at the EKM and PAM markets, we note that the markets are currently quite small (~\$1 billion), but exhibit strong growth profiles. Looking at various market studies and underlying growth drivers, we estimate that a 20% average growth rate over the coming years seems achievable. The drivers behind the market growth are:

- The growing number of data breaches and insider threats
- Increasing attack surface due to IoT and growing number of endpoint devices
- The need to protect increasing volumes of sensitive data as organizations shift towards digital environments and digital services
- Increasing regulation and compliance standards to safeguard sensitive data, such as the EU General Data Protection Regulation (GDPR) coming into force May 2018
- The increasing need to grant privileged access to third parties such as contractors, vendors and service provider technicians

Competitive landscape

SSH main competitors are PAM software vendors such as CyberArk, BeyondTrust, Balabit (One Identity), Venafi and Centrify, to name a few. In some areas SSH also competes with large global IT companies such as Dell, Oracle and CA Technologies, but they also co-operate in many cases. In the pure cloud space, SSH competes with smaller companies like ScaleFT and Aqua Security.

CyberArk is clear leader in PAM space

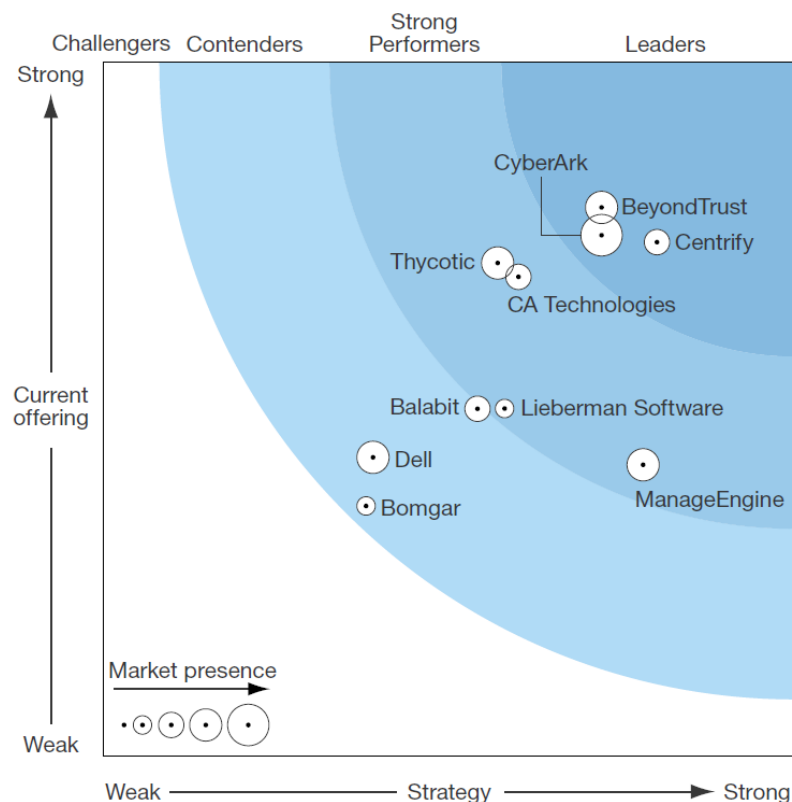
Generally, said the PAM market is filled with many smaller players who offer solutions that cover some parts of the customer's needs, but it's the larger end-to-end solution

providers that dominate the market space. According to Gartner, the PAM space is highly competitive with over 40 vendors serving the market, but five vendors accounting for two-thirds the revenue. CyberArk is currently the market leader in the ~\$1 billion market with about a 20% share.

European companies are few and market shares small

Essentially, the PAM market is dominated by companies from the U.S and Israel. Israel has a thriving cybersecurity ecosystem and the country is the second largest cyber security market after the U.S. in terms of cybersecurity investments. European competitors are e.g. Balabit from Luxembourg (acquired by One Identity 01/2018), Wallix from France, and Micro Focus, Osirium and Avecto from U.K. European companies with PAM offerings are notably few and their market shares small.

Figure 4: Forrester Wave™: Privileged Identity Management, Q3 2016 Report



Source: Forrester Research 2016

CyberArk

CyberArk is SSH's main competitor in the enterprise segment. CyberArk is an Israeli-founded publicly traded company, which is listed on Nasdaq. CyberArk's net sales in FY2017 were \$261.7 million with non-GAAP operating income of \$51.9 million (GAAP operating income \$20.3 million). The company has over 3400 customers including many Fortune 100 companies in multiple verticals including manufacturing, financial services, healthcare, education, retail, government, and high tech. CyberArk's PAM offering includes a suite of solutions including enterprise password vault, key management, session manager, threat analytics and endpoint privilege management.

CyberArk mainly operates on a perpetual license model and is very much focused on enterprise and on-premise. The company has however been actively acquiring targets that expand its offering towards cloud solutions. CyberArk acquired in May 2017

privately-held Conjur, a provider of DevOps security software for \$42 million in cash. With the deal, CyberArk positioned itself to provide a more complete suite of offerings to the quickly growing DevOps market segment. CyberArk also acquired in 2015 Viewfinity for \$30.5 million. Viewfinity offered solutions for endpoint privilege management.

BeyondTrust

BeyondTrust is a privately held US company offering solutions in privileged account management and vulnerability management. The company has approximately \$100m in annual revenues and is profitable. BeyondTrust has 4000+ customers worldwide, including over half of the Fortune 100. BeyondTrust's PAM offering, the PowerBroker suite includes enterprise credentials management and endpoint & server privilege management.

The company was formerly known as Symark, but adopted its target's name after the acquisition of Windows privileged management vendor BeyondTrust in 2009. After its sale to Symark in 2009, BeyondTrust bought five companies in 2011-12, including Lumigent (database monitoring), Likewise Software (Active Directory bridge), GentleSecurity (DLP), eEye Digital (vulnerability management) and Blackbird Group (privileged management). In September 2014, BeyondTrust was acquired for \$310 million by PE firm Veritas Capital.

Centrify

Centrify is a US privately held company that offers privileged identity management and Identity-as-a-service solutions. The company has 500 employees and about \$100m in annual revenues, with two thirds coming from PAM. The company has 5,000 customers including two thirds of the Fortune 50.

ScaleFT

ScaleFt is a small U.S. company offering a SSH key-based PAM solution for DevOps processes in cloud environments. The company's Scale Access product is partly similar to SSH's PrivX product in that it also uses fast-expiring credentials that are only valid for short periods. The company was founded in 2015 and has received \$2.8 million in seed funding according to Crunchbase.

Table 1: Overview of SSH's competitors

Competitive environment						
Company	HQ	Ownership	Revenues	Employees	Main products	no. Customers
PAM vendors						
CyberArk	US	Nasdaq, market cap \$1.6bn	FY2017 \$261.7m	~1000	Privileged Account Security	>3400
BeyondTrust	US	Veritas Capital (private equity)	n/a	200-500	PowerBroker PAM platform	>4000
Centrify	US	Accel Partners, Index Ventures & other PE	~\$100m	~500	Centrify Privilege Service	~5000
Venafi	US	Private equity	n/a	200-500	Venafi Platform (EKCM)	n/a
Thycotic	US	Private, Insight Venture Partners	n/a	n/a	Secret Server	>7500
Bomgar	US	Private, Thoma Bravo private equity	\$50-100m	200-500	Vault, Privileged Access	>13000
Wallix	France	Euronext, market cap €110m	FY2017 €11.5m	~80	Wallix Bastion	~500
Osirium	UK	LSE, market cap £14.6m	FY2016 £0.5m	~20	PxM platform	n/a
ScaleFT	US	Venture capital, Rackspace	n/a	10-50	Scale Access	n/a
Vendors with PAM solutions						
CA Technologies	US	Nasdaq, market cap \$14.7bn	FY2017 \$4bn	~12000	Privileged Access Manager	
Micro Focus	UK	LSE, market cap £8.6bn	FY2017 £1.38bn (15% PIM)	~4800	Privileged Account Manager	
ManageEngine	US	Zoho Corporation (private)	n/a	n/a	Password Manager Pro	
Oracle	US	Nasdaq, market cap \$200bn	FY2017 \$37.7bn	138000	Privileged Account Manager	

Source: Evli Research, company reports

Consolidation in the PAM space

The PAM space still largely consists of niche providers that solve discrete pieces of the privileged management process. This creates an opportunity for the larger or well-funded PAM players to acquire targets that help them build a more comprehensive service offering and help customers reduce the number of vendors in use. As PAM vendors are increasingly looking towards the cloud opportunity, there is a clear interest especially towards SaaS, DevOps and IoT solutions. Another M&A trend is IAM players stepping up efforts to integrate PAM as part of larger IAM solutions.

M&A activity high in 2018

Some of the recent market activities include:

- Thycotic acquired network security analytics firm Cyber Algorithms in 2016
- CyberArk acquired Conjur in 2017 for \$42 million
- One Identity acquires Balabit in 2018
- Bomgar acquires Lieberman Software in 2018

Terms of recent deals have not been disclosed.

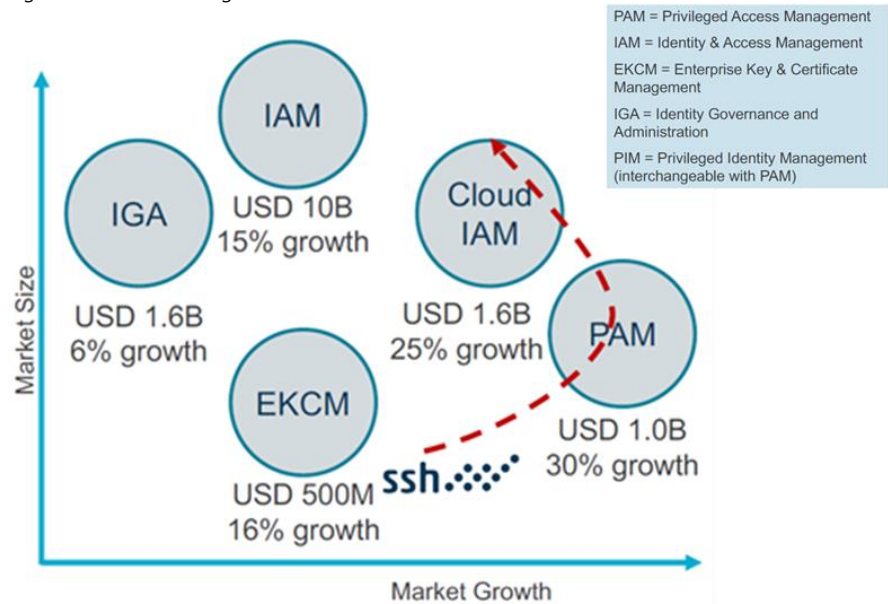
Strategy

The company's strategy has historically been to offer best in class SSH key management solutions for enterprises such as large financial institutions and governmental organizations. The strategy has relied on enterprise-grade products with a clear focus on being a leader in SSH technology. As stated earlier, the long sales cycles, the industry-wide shift towards smaller orders and smaller test deployment, as well as the overall strength in the more comprehensive offering that larger competitors offer, has led to challenges in SSH's sales engine. The company's business model and the resulting product offering has made cross-selling and moving downstream from enterprise clients challenging. SSH's products can be described as point solutions, meaning they have quite specific use cases and involve only a limited number of people within corporations. Despite SSH's large client base (~3000 clients), additional selling to existing customers (so called land & expand strategy) has proven to be challenging.

New strategic direction announced June 2017

The company announced in June 2017 a new cloud-driven strategic direction. In conjunction with the announcement, the company also announced its first privileged access management (PAM) product for the cloud, namely PrivX. The company's new strategy aims to reposition SSH from a pure enterprise key management point solutions provider into a broader strategic PAM vendor for companies of all sizes operating in all IT environments. PrivX is the first step in the new strategic direction and the company plans to introduce more products to further develop its PAM offering. As a next phase, the company is also looking at moving upstream to the IAM space. We see that the likely alternative here would be to pursue an API driven integration strategy.

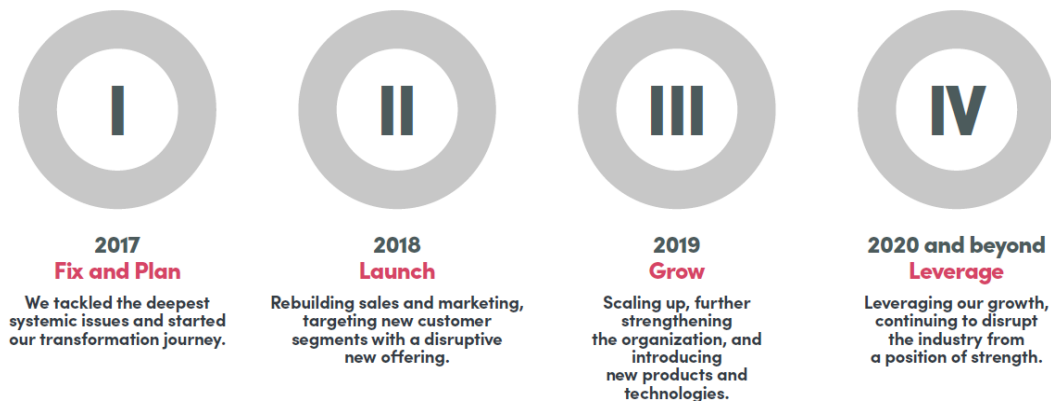
Figure 5: SSH's strategic direction



Source: SSH

The new strategic direction will mean an increasing transition into the subscription model (even in on-premises deals) and building out a faster deploying SaaS offering to supplement direct and channel sales. The company aims to start online sales of PrivX and the risk assessment service product (UKM first level) during Q2/2018. A PrivX SaaS version is also planned for 2018.

Figure 6: SSH's strategic roadmap



Source: SSH

We see SSH's new strategic direction as positive, as it increases the company's addressable market and growth outlook, and allows the company to expand into new customer segments that in turn increase upselling and cross selling opportunities. SSH is uniquely positioned in our view, as the PAM market is dominated mainly by U.S. and Israeli companies. As the inventor of the SSH protocol, the company has a strong story to leverage and it has the R&D capabilities to back it up. The fact that the company comes from a neutral country should be a strength in the global PAM market place.

No financial targets issued

The company has not issued any financial targets and does not give any short-term guidance. In Q2/2017, the company ceased giving revenue and earnings guidance due to the volatile nature of its business.

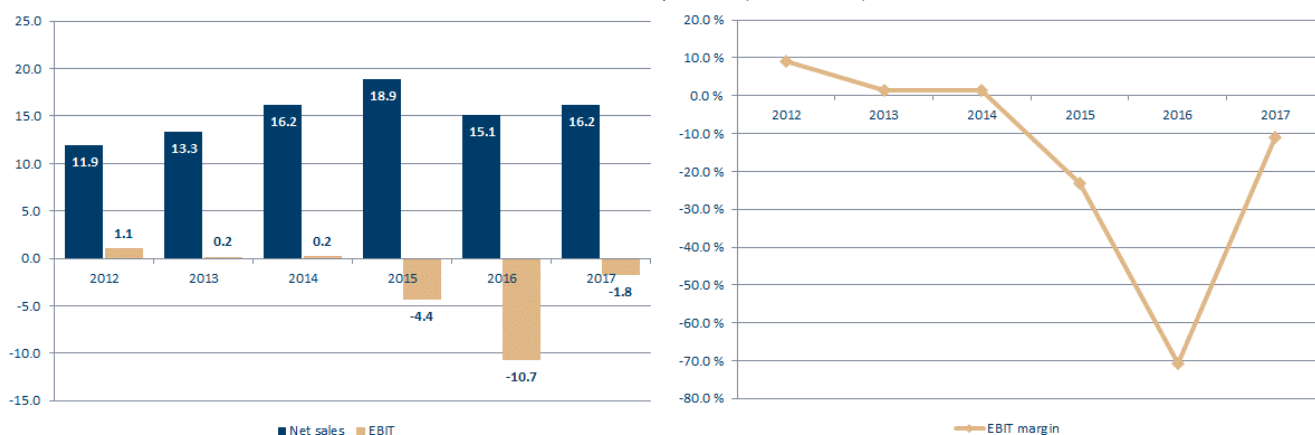
Financial performance

Growth between 2012-2015 due to professional services

SSH's net sales grew from €11.9m in 2012 to €18.9m in 2015, with a CAGR of 17%. Most of the sales growth during that period came from professional services. During that period professional services grew from €0.6m in 2012 to €6.1m in 2015, with a CAGR of 117%. The growth in professional services was due to several exceptionally large UKM related service projects for major global financial institutions during 2013, 2014 and 2015. License fees grew from €5m in 2012 to €5.1 in 2015 (1% CAGR) and recurring revenue grew from €6.3m in 2012 to €7.6m in 2015 (6% CAGR).

Due to the exceptionally large service contracts during 2013-2015, the company's cost of goods sold rose significantly resulting in gross margins declining from 92% in 2012 to 66% in 2015. The drop in gross margins coupled with the increase of operating expenses from €9.9m in 2012 to €16.7m in 2015, resulted in profitability being hurt. In 2015, the company's EBIT was -€4.4m due to the very large share of low margin professional services revenue (€6.1m), low gross margin of 66% and investments to sales and product development.

Chart 11: Net sales and EBIT, EURm (2012-2017)



Source: SSH

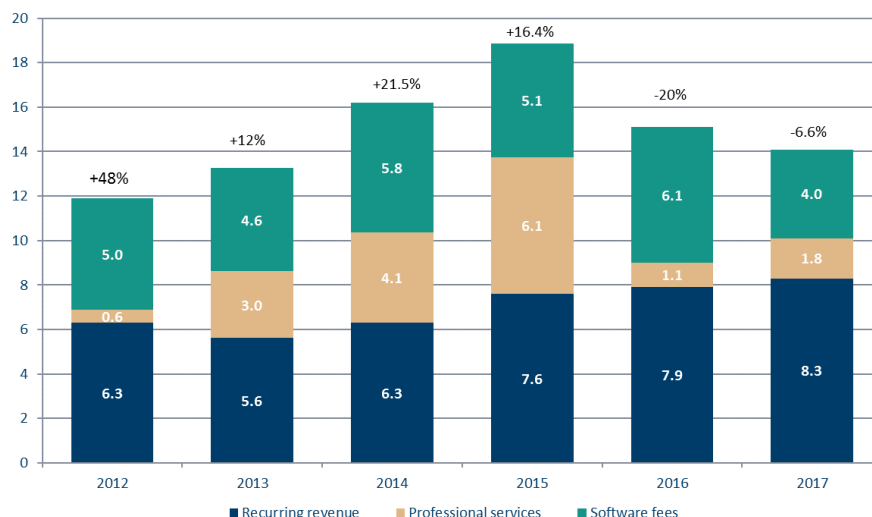
In 2016, net sales declined 20% from €18.9m in 2015 to €15.1m due to the completion of the major service contracts. Professional services decreased 80% from €6.1 in 2015 to €1.1m in 2016. License sales grew 19% to €6.1m and recurring revenue grew 4% to €7.9m. Operating expenses rose 43% from €16.7m in 2015 to €23.9m in 2016 due to increased R&D spend, one-time restructuring costs and patent litigation costs, resulting in €-10.7m EBIT loss. The company underwent a cost restructuring program in Q4/2017, which resulted in a 25 headcount decrease and a €7 million annual OPEX reduction.

In 2017, net sales grew 7.3% from €15.1m to €16.2m. The company closed its first patent cross-license agreement in Q4/2017, which resulted in a one-time patent income of €2.1million in Q4/2017. If we exclude the patent income, net sales declined -6.6% in 2017 compared to 2016. License sales declined 34% from €6.1m to €4.0m due to missed sales and shift towards subscription model. Professional services (excluding the patent income) was €1.8m compared to €1.1m in 2016. Recurring revenue grew 5% from €7.9m in 2015 to €8.3m.

Operating loss decreased to €-1.8 million in 2017 due to the lower OPEX level after the cost restructuring program in Q4/2016 and the one-time patent income received in Q4/2017. If we exclude the patent income in Q4/2017, which had a €1.638 million effect

on EBIT in that quarter, EBIT for 2017 was €-3.4 million. Operating loss (excluding patent income) improved significantly from -€10.7m in 2016 to -€3.4m in 2017.

Chart 12: Net sales by segment, EURm excl. patent income 2017 (2014-2017)

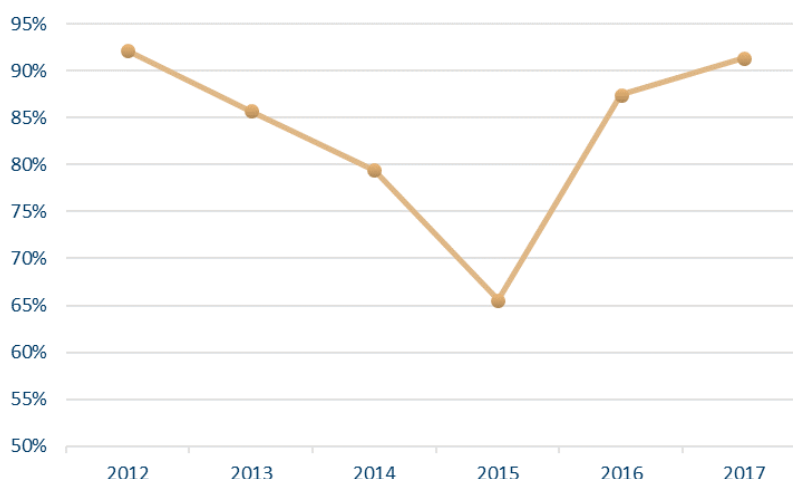


Source: SSH, Evli Research

Cost structure

The company's cost of goods sold (COGS) consists of sales commissions to channel partners and fees related to the use of third-party consultants in service projects. The company's cost of goods sold rose to 20.6% and 34% of net sales during 2014 and 2015 due to exceptionally large service projects during that period. Since 2016 and the decline in large service projects, COGS has been around 8-13% of net sales, resulting in healthier gross margins of about 90%.

Chart 13: Gross margins (2012-2017)



Source: SSH

Personnel costs ~60% of net sales 2017

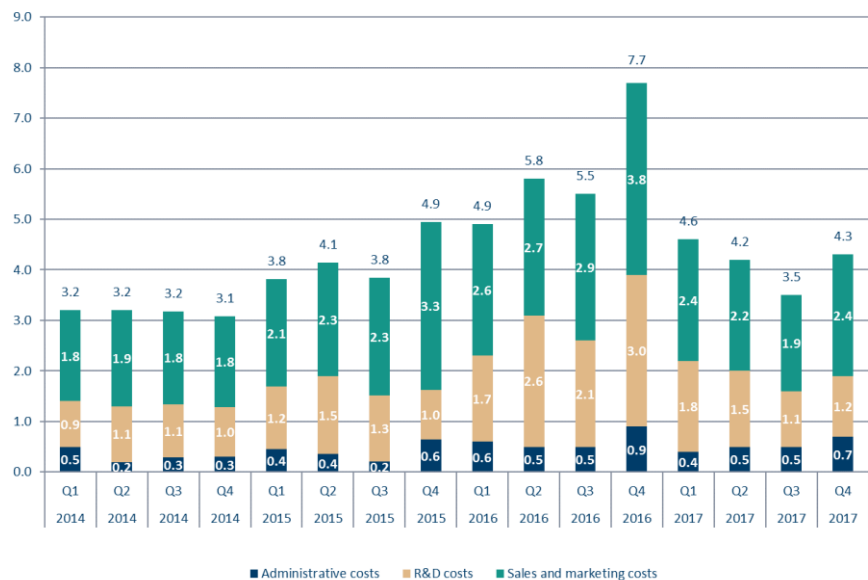
Most of SSH's costs are related to personnel, which means that the cost structure is fixed. Personnel expenses 2017 were €9.9 million representing about 60% of net sales. SSH employed 80 people in the end of 2017 (82 average for 2017), with 29 working in sales, marketing and support, 35 in R&D and 16 in administration.

R&D costs have been between €4-5.6 million during 2014-2017, except for 2016 when R&D costs peaked at €9.4 million due to investments in new products, one-time restructuring costs and patent litigation costs. R&D costs were 25-60% of net sales during 2014-2017. During 2017 and 2016, R&D cost capitalizations totaled €1.2 and €1.9 million respectively. The activation level has decreased due to maturing of the products and overall cost reduction. Depreciations mostly consist of previously capitalized development costs. Depreciations from R&D capitalization assets were €1.6 million in 2017, representing 10% of net sales. Sales and marketing costs have been between 45% and 80% of net sales.

Upward pressure in costs due to growth investments

Although many of SSH's products have reached a mature phase, we see upward pressure in R&D and sales and marketing expenses as the company is executing its new strategy and product roadmap.

Chart 14: Quarterly operating expenses, EURm (2014-2017)



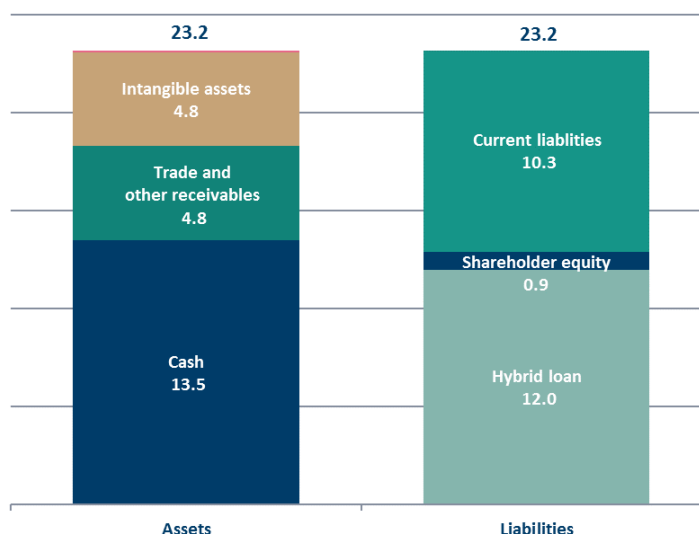
Source: SSH

Balance Sheet

Equity consists of €12m hybrid loan

The company's assets consist mostly of €13.5 million in cash, which is a result of a €7 million directed share issue in June 2017. Receivables were €4.8 million and intangible assets based mostly on immaterial rights were €4.8 million. Tangible assets were €0.1million. Liabilities consisted of €10.3 million in current liabilities. The company's equity was €12.9 million, which mostly consists of a €12 million hybrid loan. Equity ratio was 82.9% and gearing -104.5% at the end of 2017.

Chart 15: Balance sheet, EURm, per 31.12.2017



Source: SSH, Evli Research

Balance sheet strengthen through direct share issues and hybrid loan issue

To strengthen its balance sheet, the company raised €7 and €8 million through directed share issues in 2017 and 2016 respectively. The company also issued a €12 million hybrid loan in March 2015. The hybrid bears a fixed interest rate of 7.5% until 30 March 2020, after which the interest rate will increase by four percentage points. The hybrid loan has no maturity date, but the company has the right to redeem it after 3 but before 5 years from the issue date, under certain conditions, or after 5 years from the issue date. The investors have the right to convert the hybrid loan into shares at EUR 4.76 per share.

Estimates

Our estimates reflect the fact that the company is currently in a transformation phase, where the business model is changing and the company is in progress of ramping up new products according to its renewed strategic direction. We have not included potential patent income and possible firewall related revenue in our estimates due to the uncertainty around these projects. If these projects were to materialize, they represent a clear upside risk to our estimates.

Estimates for 2018-2021

We expect sales growth in 2018 to be flattish around 5%, due to the company's increasing shift towards the subscription model and as the new PAM offering will not yet be contributing significantly to sales. We expect only modest PrivX sales for 2018. We expect the company's gross margin to remain at a level of 92% due to lower level of deployments going forward and SaaS contributing gradually from 2019 onwards to the mix. We expect operating expenses to increase 6% from €16.6m to €17.6m as the company needs to invest in sales and marketing and further building its PAM offering. Because of flat sales and slight increase in OPEX, we expect EBIT to be negative at -€2m or roughly at 2017 year's level.

We estimate sales growth to accelerate during 2019-2021 as sales of the company's PAM offering picks up speed. We estimate sales to grow at 13% in 2019 and 17% in 2020, with PrivX contributing to roughly 12% of net sales in 2020. We expect EBIT-margin to improve, but to remain negative during 2018-2020 due to further investments

in growth. We estimate sales to grow 21% in 2021 and the company to reach a €1.3m EBIT (5% EBIT margin) in 2021 as sales reach critical levels and the relative cost base starts leveling off. In our long-term forecast for 2022-2027, we estimate average sales growth to be around 13% and the company to reach a typical software company operating margin of 20%.

Table 2: Evli's estimates 2018-2021E

	2015	2016	2017	2018E	2019E	2020E	2021E
Net sales	18.9	15.1	16.2	17.0	19.3	22.5	27.2
<i>growth %</i>	16%	-20%	7%	5%	13%	17%	21%
Cost of goods sold	-6.5	-1.9	-1.4	-1.4	-1.5	-1.8	-2.2
<i>of net sales %</i>	34%	13%	9%	8%	8%	8%	8%
Gross profit	12.4	13.2	14.8	15.6	17.7	20.7	25.0
<i>Gross margin %</i>	66%	87%	91%	92%	92%	92%	92%
Sales and marketing costs	-10.0	-12.0	-8.9	-9.4	-10.2	-11.4	-12.7
<i>of net sales %</i>	53%	79%	55%	55%	53%	51%	47%
R&D costs	-5.1	-9.4	-5.6	-6.0	-6.6	-7.5	-8.5
<i>of net sales %</i>	27%	62%	35%	35%	34%	33%	31%
Administrative costs	-1.6	-2.5	-2.1	-2.2	-2.3	-2.4	-2.5
<i>of net sales %</i>	9%	17%	13%	13%	12%	11%	9%
Operating expenses	-16.7	-23.9	-16.6	-17.6	-19.1	-21.3	-23.7
<i>of net sales %</i>	89%	158%	102%	104%	99%	95%	87%
EBIT	-4.4	-10.7	-1.8	-2.0	-1.4	-0.6	1.3
<i>EBIT margin %</i>	-23%	-71%	-11%	-12%	-7%	-3%	5%

Source: Evli Research

Valuation

HOLD with a target price of €2.00

We initiate coverage of SSH with a HOLD-recommendation and a target price of €2.00. Our target price is based on our DCF value and 4.5x EV/Sales multiple on our 2019 revenue estimates.

VALUATION	
	Implied value
DCF	1.94
Peer EV/Sales '19	2.15
Target price (EUR)	2.0

Source: Evli Research

Our peer multiple consists of only two companies, namely CyberArk and Wallix Group, as they are the only listed pure PAM vendors. We have excluded Osirium Technologies from our analysis as the company is very small and only has one analyst covering it. On our estimates 2019E-2020E, SSH is trading at EV/Sales 4.3x and 3.7x, which is in line with the average 4.5x and 3.6x EV/Sales multiples for our small sample peer group.

SSH's current valuation is high considering that the company is in the beginning of its transformation phase and execution risks are elevated. Longer term, we see compelling revenue and profitability potential which supports valuation. Sales growth is a key parameter at this stage and SSH needs to succeed in its transformation and get its sales

engine started to live up to the elevated valuation. The high EV/Sales multiples for the PAM sector reflect in our view the attractive PAM market growth outlook and high consolidation expectations.

PAM vendors	MCAP MEUR	EV/EBIT			EV/SALES			P/E		
		18	19	20	18	19	20	18	19	20
CyberArk Software	1490	26.7x	20.4x	14.8x	4.8x	4.0x	3.5x	42.1x	33.6x	26.9x
Osirium Technologies	16				12.9x	8.4x	5.8x			152.2x
Wallix Group	118	96.6x	40.8x	43.5x	6.6x	4.9x	3.8x	132.3x	57.6x	36.4x
Peer Group Average	541	61.6x	30.6x	29.2x	8.1x	5.8x	4.4x	87.2x	45.6x	71.8x
Peer Group Median	118	61.6x	30.6x	29.2x	6.6x	4.9x	3.8x	87.2x	45.6x	36.4x
SSH (Evli est.)	82	-41.7x	-60.7x	-142.3x	4.8x	4.3x	3.7x	-25.2x	-30.6x	-75.8x

SSH prem./disc. to peer median

-28% -11% 0%

Source Bloomberg, Evli Research

PAM vendors	Sales		Sales growth		EBIT-%		
	17	18	19	20	18	19	20
CyberArk Software	232	10%	18%	16%	17.9 %	19.8 %	23.3 %
Osirium Technologies			55%	44%	-249.2 %	-133.1 %	-69.9 %
Wallix Group	7	131%	36%	30%	6.9 %	12.0 %	8.6 %
Peer Group Average	120	70%	36%	30%	-74.8 %	-33.8 %	-12.6 %
Peer Group Median	120	70%	36%	30%	6.9 %	12.0 %	8.6 %
SSH (Evli est.)	16	5%	13%	17%	-11.5 %	-7.1 %	-2.6 %

Source Bloomberg, Evli Research

Cybersecurity	MCAP MEUR	EV/EBIT			EV/SALES			P/E		
		18	19	20	18	19	20	18	19	20
Check Point Software Tech	13747	12.6x	12.0x	11.0x	6.7x	6.3x	6.0x	18.0x	16.5x	15.1x
F-Secure	568	29.5x	18.6x	21.4x	2.6x	2.4x	2.2x	44.7x	27.7x	32.5x
Fortinet Inc	7363	24.0x	19.3x	14.9x	4.6x	4.0x	3.6x	37.7x	32.0x	27.2x
Imperva	1300	21.7x	17.5x	13.8x	3.3x	2.9x	2.6x	31.4x	26.3x	23.8x
Palo Alto Networks	14059	30.6x	24.1x		6.8x	5.8x	4.9x	43.9x	35.8x	29.3x
Sophos Group	2359	175.4x	63.7x	71.9x	4.4x	4.2x	3.6x	58.9x	58.9x	53.9x
Symantec	13430	11.5x	10.6x		4.0x	3.8x	3.6x	15.3x	13.7x	12.6x
Peer Group Average	6566	43.6x	23.7x	26.6x	4.6x	4.2x	3.8x	35.7x	30.1x	27.8x
Peer Group Median	4861	24.0x	18.6x	14.9x	4.4x	4.0x	3.6x	37.7x	27.7x	27.2x
SSH (Evli est.)	82	-41.7x	-60.7x	-142.3x	4.8x	4.3x	3.7x	-25.2x	-30.6x	-75.8x

SSH prem./disc. to peer median

10% 7% 3%

Source Bloomberg, Evli Research

Cybersecurity	Sales		Sales growth		EBIT-%		
	17	18	19	20	18	19	20
Check Point Software Tech	1645	-4%	6%	4%	52.8 %	52.7 %	54.6 %
F-Secure	170	9%	9%	7%	8.8 %	12.8 %	10.3 %
Fortinet Inc	1326	5%	13%	11%	19.0 %	21.0 %	24.4 %
Imperva	285	5%	15%	12%	15.4 %	16.6 %	18.8 %
Palo Alto Networks	1612	21%	16%	18%	22.1 %	24.1 %	
Sophos Group	483	21%	5%	17%	2.5 %	6.7 %	5.0 %
Symantec	3665	8%	5%	5%	34.8 %	36.1 %	
Peer Group Average	1312	9%	10%	11%	22.2 %	24.3 %	22.6 %
Peer Group Median	1326	8%	9%	11%	19.0 %	21.0 %	18.8 %
SSH (Evli est.)	16	5%	13%	17%	-11.5 %	-7.1 %	-2.6 %

Source Bloomberg, Evli Research

Risk factors

The main risks to the investment case are:

1. **Execution risk.** Unsuccessful execution and failure to expand into new customer segments.
2. **Increased competition.** The competition is intensifying due to consolidation and high growth expectations in the PAM market. Many large PAM vendors are looking to gain market share, which can have a dampening effect on pricing.
3. **Financing risk.** Execution of the company's new strategic direction will need growth investments, which will have a negative impact on profitability in the short-term. Due to low profitability, the company's cash flow may turn negative, which may weaken SSH's financial position. Currently its financial position is good.

VALUATION RESULTS	BASE CASE DETAILS	VALUATION ASSUMPTIONS	ASSUMPTIONS FOR WACC	
Current share price	2.07 PV of Free Cash Flow	23 Long-term growth, %	3.0 Risk-free interest rate, %	2.25
DCF share value	1.94 PV of Horizon value	50 WACC, %	11.0 Market risk premium, %	5.8
Share price potential, %	-6.4 Unconsolidated equity	0 Spread, %	0.5 Debt risk premium, %	2.8
Maximum value	2.1 Marketable securities	14 Minimum WACC, %	10.5 Equity beta coefficient	1.38
Minimum value	1.8 Debt - dividend	-12 Maximum WACC, %	11.5 Target debt ratio, %	15
Horizon value, %	68.5 Value of stock	74 Nr of shares, Mn	38.4 Effective tax rate, %	20

DCF valuation, EURm	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	Horizon
Net sales	16	17	19	23	27	31	35	39	44	50	52	53
<i>Sales growth, %</i>	<i>7.3</i>	<i>4.9</i>	<i>13.3</i>	<i>16.8</i>	<i>20.9</i>	<i>13.0</i>	<i>13.0</i>	<i>13.0</i>	<i>13.0</i>	<i>13.0</i>	<i>3.0</i>	<i>3.0</i>
Operating income (EBIT)	-2	-2	-1	-1	1	6	7	8	9	10	10	11
<i>EBIT margin, %</i>	<i>-10.5</i>	<i>-11.5</i>	<i>-7.1</i>	<i>-2.6</i>	<i>4.9</i>	<i>20.0</i>	<i>20.0</i>	<i>20.0</i>	<i>20.0</i>	<i>20.0</i>	<i>20.0</i>	<i>20.0</i>
+ Depreciation+amort.	2	2	1	1	1	2	2	2	3	3	3	
- Income taxes	0	0	0	0	0	0	0	0	0	0	0	
- Change in NWC	0	0	1	1	2	1	1	2	2	2	1	
<i>NWC / Sales, %</i>	<i>-34.0</i>	<i>-34.0</i>	<i>-34.0</i>	<i>-34.0</i>	<i>-34.0</i>	<i>-34.0</i>	<i>-34.0</i>	<i>-34.0</i>	<i>-34.0</i>	<i>-34.0</i>	<i>-34.0</i>	
+ Change in other liabs	0	0	0	0	0	0	0	0	0	0	0	
- Capital Expenditure	-1	-1	-1	-2	-2	-2	-3	-3	-4	-4	-3	-3
<i>Investments / Sales, %</i>	<i>9.2</i>	<i>6.5</i>	<i>4.8</i>	<i>8.4</i>	<i>8.9</i>	<i>8.0</i>	<i>8.0</i>	<i>8.0</i>	<i>8.0</i>	<i>8.0</i>	<i>6.6</i>	<i>6.6</i>
- Other items	-1	-1	-1	0	0	0	0	0	0	0	0	
= Unlevered Free CF (FCF)	-2	-2	-1	0	2	7	7	8	10	11	11	138
= Discounted FCF (DFCF)		-2	-1	0	1	4	4	4	4	4	4	50
= DFCF min WACC		-2	-1	0	1	4	4	4	4	5	4	56
= DFCF max WACC		-2	-1	0	1	4	4	4	4	4	4	45

INTERIM FIGURES

EVLI ESTIMATES, EURm	2017Q1	2017Q2	2017Q3	2017Q4	2017	2018Q1E	2018Q2E	2018Q3E	2018Q4E	2018E	2019E	2020E
Net sales	3	4	3	6	16	4	4	4	5	17	19	23
EBITDA	-1	0	0	2	0	0	0	0	0	0	0	1
<i>EBITDA margin (%)</i>	<i>-39.2</i>	<i>-3.1</i>	<i>-10.2</i>	<i>30.7</i>	<i>1.8</i>	<i>-2.3</i>	<i>-1.1</i>	<i>-0.5</i>	<i>-4.1</i>	<i>-2.2</i>	<i>0.0</i>	<i>2.8</i>
EBIT	-2	-1	-1	1	-2	0	0	0	-1	-2	-1	-1
<i>EBIT margin (%)</i>	<i>-54.8</i>	<i>-16.2</i>	<i>-25.8</i>	<i>22.2</i>	<i>-10.5</i>	<i>-11.5</i>	<i>-11.5</i>	<i>-11.5</i>	<i>-11.5</i>	<i>-11.5</i>	<i>-7.1</i>	<i>-2.6</i>
Net financial items	0	0	0	0	0	0	0	0	0	0	0	0
Pre-tax profit	-2	-1	-1	1	-2	-1	-1	-1	-1	-2	-2	-1
Tax	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tax rate (%)</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
Net profit	-2	-1	-1	1	-3	-1	-1	-1	-1	-3	-3	-1
EPS	-0.05	-0.03	-0.03	0.03	-0.08	-0.02	-0.02	-0.02	-0.02	-0.08	-0.07	-0.03
EPS adjusted (diluted no. of shares)	-0.05	-0.03	-0.03	0.03	-0.08	-0.02	-0.02	-0.02	-0.02	-0.08	-0.07	-0.03
Dividend per share	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SALES, EURm												
Software fees	1	1	1	2	4	1	2	1	3	6	8	11
Professional services	0	1	0	3	4	1	0	0	0	2	2	2
Recurring revenue	2	2	2	2	8	2	2	2	2	9	10	10
Total	3	4	3	6	16	4	4	4	5	17	19	23
SALES GROWTH, Y/Y %												
<i>Software fees</i>	<i>-14.3</i>	<i>-65.5</i>	<i>-41.7</i>	<i>30.8</i>	<i>-34.4</i>	<i>50.0</i>	<i>50.0</i>	<i>57.1</i>	<i>47.1</i>	<i>50.0</i>	<i>31.1</i>	<i>33.6</i>
<i>Professional services</i>	<i>300.0</i>	<i>0.0</i>	<i>0.0</i>	<i>316.7</i>	<i>254.5</i>	<i>200.0</i>	<i>-66.7</i>	<i>-50.0</i>	<i>-84.0</i>	<i>-48.7</i>	<i>-5.0</i>	<i>0.0</i>
<i>Recurring revenue</i>	<i>16.7</i>	<i>10.5</i>	<i>0.0</i>	<i>-4.5</i>	<i>5.1</i>	<i>4.8</i>	<i>0.0</i>	<i>15.0</i>	<i>14.3</i>	<i>8.4</i>	<i>5.6</i>	<i>6.3</i>
<i>Total</i>	<i>19.2</i>	<i>-22.9</i>	<i>-13.9</i>	<i>53.7</i>	<i>7.3</i>	<i>38.7</i>	<i>2.7</i>	<i>16.1</i>	<i>-15.9</i>	<i>4.9</i>	<i>13.3</i>	<i>16.8</i>
EBIT, EURm												
	-2	-1	-1	1	-2	0	0	0	-1	-2	0	0
	0	0	0	0	0	0	0	0	0	0	-1	-1
Total	-2	-1	-1	1	-2	0	0	0	-1	-2	-1	-1
EBIT margin, %												
<i>Total</i>	<i>-54.8</i>	<i>-16.2</i>	<i>-25.8</i>	<i>22.2</i>	<i>-10.5</i>	<i>-11.5</i>	<i>-11.5</i>	<i>-11.5</i>	<i>-11.5</i>	<i>-11.5</i>	<i>-7.1</i>	<i>-2.6</i>

INCOME STATEMENT, EURm	2013	2014	2015	2016	2017	2018E	2019E	2020E
Sales	13	16	19	15	16	17	19	23
<i>Sales growth (%)</i>	<i>10.9</i>	<i>22.7</i>	<i>16.6</i>	<i>-20.1</i>	<i>7.3</i>	<i>4.9</i>	<i>13.3</i>	<i>16.8</i>
Costs	-12	-15	-22	-24	-16	-17	-19	-22
Reported EBITDA	1	1	-3	-9	0	0	0	1
Extraordinary items in EBITDA	0	0	0	0	0	0	0	0
<i>EBITDA margin (%)</i>	<i>7.4</i>	<i>8.7</i>	<i>-14.7</i>	<i>-58.8</i>	<i>1.8</i>	<i>-2.2</i>	<i>0.0</i>	<i>2.8</i>
Depreciation	-1	-1	-2	-2	-2	-2	-1	-1
EBITA	0	0	-4	-11	-2	-2	-1	-1
Goodwill amortization / writedown	0	0	0	0	0	0	0	0
Reported EBIT	0	0	-4	-11	-2	-2	-1	-1
<i>EBIT margin (%)</i>	<i>1.5</i>	<i>1.2</i>	<i>-23.3</i>	<i>-71.5</i>	<i>-10.5</i>	<i>-11.5</i>	<i>-7.1</i>	<i>-2.6</i>
Net financials	0	0	1	0	0	0	0	0
Pre-tax profit	0	0	-4	-11	-2	-2	-2	-1
Extraordinary items	0	0	0	0	0	0	0	0
Taxes	0	0	0	0	0	0	0	0
Minority shares	0	0	0	0	0	0	0	0
Net profit	0	0	-4	-12	-3	-3	-3	-1
BALANCE SHEET, EURm								
Assets								
Fixed assets	3	4	5	5	5	4	4	5
<i>% of sales</i>	<i>26</i>	<i>25</i>	<i>26</i>	<i>36</i>	<i>30</i>	<i>26</i>	<i>21</i>	<i>21</i>
Goodwill	0	0	0	0	0	0	0	0
<i>% of sales</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Inventory	0	0	0	0	0	0	0	0
<i>% of sales</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Receivables	4	8	6	9	5	5	6	7
<i>% of sales</i>	<i>32</i>	<i>46</i>	<i>29</i>	<i>57</i>	<i>30</i>	<i>30</i>	<i>30</i>	<i>30</i>
Liquid funds	6	6	11	8	14	11	10	7
<i>% of sales</i>	<i>44</i>	<i>38</i>	<i>60</i>	<i>52</i>	<i>83</i>	<i>67</i>	<i>54</i>	<i>30</i>
Total assets	13	18	22	22	23	21	20	18
Liabilities								
Equity*	3	8	-1	-4	1	-2	-4	-5
<i>% of sales</i>	<i>26</i>	<i>48</i>	<i>-3</i>	<i>-25</i>	<i>6</i>	<i>-11</i>	<i>-22</i>	<i>-24</i>
Deferred taxes	0	0	0	0	0	0	0	0
<i>% of sales</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Interest bearing debt*	4	0	12	12	12	12	12	9
<i>% of sales</i>	<i>30</i>	<i>0</i>	<i>64</i>	<i>79</i>	<i>74</i>	<i>71</i>	<i>62</i>	<i>40</i>
Non-interest bearing current liabilities	4	10	10	14	10	11	12	14
<i>% of sales</i>	<i>29</i>	<i>60</i>	<i>55</i>	<i>90</i>	<i>64</i>	<i>64</i>	<i>64</i>	<i>64</i>
Other interest free debt	2	0	0	0	0	0	0	0
<i>% of sales</i>	<i>17</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Total liabilities	13	18	22	22	23	21	20	18
CASH FLOW, EURm								
+ EBITDA	1	1	-3	-9	0	0	0	1
- Net financial items	0	0	1	0	0	0	0	0
- Taxes	0	0	0	0	0	0	0	0
- Increase in Net Working Capital	-1	0	3	0	0	0	1	1
+/- Other	0	0	0	-1	-1	-1	-1	0
= Cash flow from operations	0	2	0	-10	-1	-1	-1	1
- Capex	-2	-2	-3	-2	-1	-1	-1	-2
- Acquisitions	0	0	0	0	0	0	0	0
+ Divestments	0	0	0	0	0	0	0	0
= Net cash flow	-2	0	-2	-12	-2	-3	-1	-1
+/- Change in interest-bearing debt	4	-4	12	0	0	0	0	-3
+/- New issues/buybacks	-3	4	-5	9	8	0	0	0
- Paid dividend	0	0	0	0	0	0	0	0
+/- Change in loan receivables	0	0	0	0	0	0	0	0
Change in cash	-1	0	5	-3	6	-2	-1	-4

*EUR 12m hybrid included in debt

KEY FIGURES	2014	2015	2016	2017	2018E	2019E	2020E
M-cap	78	95	67	68	80	80	80
Net debt*	-6	1	4	-1	1	2	2
Enterprise value	72	95	71	67	80	81	82
Sales	16	19	15	16	17	19	23
EBITDA	1	-3	-9	0	0	0	1
EBIT	0	-4	-11	-2	-2	-1	-1
Pre-tax	0	-4	-11	-2	-2	-2	-1
Earnings	0	-4	-12	-3	-3	-3	-1
Book value	8	-1	-4	1	-2	-4	-5
Valuation multiples							
EV/sales	4.4	5.1	4.7	4.1	4.7	4.2	3.6
EV/EBITDA	50.6	-34.3	-8.0	229.5	-212.1	12,601.2	127.7
EV/EBITA	358.2	-21.7	-6.6	-39.1	-41.0	-59.0	-138.4
EV/EBIT	358.2	-21.7	-6.6	-39.1	-41.0	-59.0	-138.4
EV/operating cash flow	38.9	-422.7	-8.2	91.2	-753.1	104.8	47.0
EV/cash earnings	46.3	-41.3	-7.8	-316.9	-103.1	-206.4	216.6
P/E	235.6	-24.1	-5.6	-21.9	-24.4	-29.7	-73.7
P/E excl. goodwill	235.6	-24.1	-5.6	-21.9	-24.4	-29.7	-73.7
P/B	9.9	-160.6	-17.6	75.6	-40.7	-18.8	-15.0
P/sales	4.8	5.0	4.4	4.2	4.7	4.1	3.5
P/CF	42.2	-419.7	-7.7	93.2	-747.4	102.6	45.7
Target EV/EBIT	0.0	-264.8	-29.4	-8.1	-39.6	-57.1	-133.8
Target P/E	0.0	-126.4	0.0	0.0	-23.6	-28.7	-71.2
Target P/B	0.0	18.7	0.0	0.0	-39.3	-18.2	-14.5
Per share measures							
Number of shares	30,974	31,370	34,561	38,441	38,441	38,441	38,441
Number of shares (diluted)	30,974	31,370	34,561	38,441	38,441	38,441	38,441
EPS	0.01	-0.13	-0.35	-0.08	-0.08	-0.07	-0.03
EPS excl. goodwill	0.01	-0.13	-0.35	-0.08	-0.08	-0.07	-0.03
Cash EPS	0.05	-0.07	-0.27	-0.01	-0.02	-0.01	0.01
Operating cash flow per share	0.06	-0.01	-0.25	0.02	0.00	0.02	0.05
Capital employed per share	0.06	0.00	0.01	-0.02	-0.03	-0.07	-0.08
Book value per share	0.25	-0.02	-0.11	0.02	-0.05	-0.11	-0.14
Book value excl. goodwill	0.25	-0.02	-0.11	0.02	-0.05	-0.11	-0.14
Dividend per share	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dividend payout ratio, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dividend yield, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Efficiency measures							
ROE	5.8	0.0	0.0	0.0	0.0	0.0	0.0
ROCE	2.6	-45.7	-110.1	-16.1	-17.0	-15.5	-10.3
Financial ratios							
Capex/sales, %	11.2	13.7	15.8	9.2	6.5	4.8	8.4
Capex/depreciation excl. goodwill,%	149.6	159.2	124.5	74.9	70.1	67.0	154.2
Net debt*/EBITDA, book-weighted	-4.3	-0.2	-0.5	-5.2	-1.6	257.9	3.6
Debt/equity, market-weighted	0.0	0.1	0.2	0.2	0.2	0.2	0.1
Equity ratio, book-weighted	62.9	-3.4	-29.1	3.9	-9.4	-21.1	-29.4
Gearing*	-0.78	-1.14	-1.09	-1.67	-0.31	-0.39	-0.43
Number of employees, average	95	109	84	80	0	0	0
Sales per employee, EUR	170,526	173,303	179,762	202,500	0	0	0
EBIT per employee, EUR	2,105	-40,367	-128,571	-21,250	0	0	0

*EUR 12m hybrid included in debt

COMPANY DESCRIPTION: SSH Communications Security is an information security company developing solutions for securing access to servers and the cloud.

OWNERSHIP STRUCTURE	SHARES	EURm	%
Ylonen Tatu	14,508,473	30.033	37.7%
Clausal Computing Oy	3,808,650	7.884	9.9%
Mikkonen Juha Taneli	2,100,000	4.347	5.5%
Elo Mutual Pension Insurance Company	1,500,000	3.105	3.9%
Gaselli Capital Oy	1,200,000	2.484	3.1%
Ilmarinen Mutual Pension Insurance Company	1,165,300	2.412	3.0%
Syrjala Timo Kalevi	835,011	1.728	2.2%
Varma Mutual Pension Insurance Company	755,300	1.563	2.0%
Taaleritehdas Mikro Markka Fund	623,000	1.290	1.6%
AC Invest Oy	400,000	0.828	1.0%
Ten largest	26,895,734	55.674	70%
Residual	11,545,266	23.899	30%
Total	38,441,000	79.573	100%

EARNINGS CALENDAR	
April 19, 2018	Q1 report
July 17, 2018	Q2 report
October 23, 2018	Q3 report
OTHER EVENTS	
March 28, 2018	AGM

COMPANY MISCELLANEOUS	
CEO: Kaisa Oikkonen	Korvetintie 3, FIN-00380 Helsinki
CFO: Helena Kukkonen	Tel: +358 20 500 7000

DEFINITIONS

P/E	$\frac{\text{Price per share}}{\text{Earnings per share}}$	EPS	$\frac{\text{Profit before extraordinary items and taxes} - \text{income taxes} + \text{minority interest}}{\text{Number of shares}}$
P/Sales	$\frac{\text{Market cap}}{\text{Sales}}$	DPS	Dividend for the financial period per share
P/BV	$\frac{\text{Price per share}}{\text{Shareholders' equity} + \text{taxed provisions per share}}$	CEPS	$\frac{\text{Gross cash flow from operations}}{\text{Number of shares}}$
P/CF	$\frac{\text{Price per share}}{\text{Operating cash flow per share}}$	EV/Share	$\frac{\text{Enterprise value}}{\text{Number of shares}}$
EV (Enterprise value)	Market cap + net debt + minority interest at market value – share of associated companies at market value	Sales/Share	$\frac{\text{Sales}}{\text{Number of shares}}$
Net debt	Interest bearing debt – financial assets	EBITDA/Share	$\frac{\text{Earnings before interest, tax, depreciation and amortisation}}{\text{Number of shares}}$
EV/Sales	$\frac{\text{Enterprise value}}{\text{Sales}}$	EBIT/Share	$\frac{\text{Operating profit}}{\text{Number of shares}}$
EV/EBITDA	$\frac{\text{Enterprise value}}{\text{Earnings before interest, tax, depreciation and amortisation}}$	EAFI/Share	$\frac{\text{Pretax profit}}{\text{Number of shares}}$
EV/EBIT	$\frac{\text{Enterprise value}}{\text{Operating profit}}$	Capital employed/Share	$\frac{\text{Total assets} - \text{non interest bearing debt}}{\text{Number of shares}}$
Div yield, %	$\frac{\text{Dividend per share}}{\text{Price per share}}$	Total assets	Balancesheet total
Payout ratio, %	$\frac{\text{Total dividends}}{\text{Earnings before extraordinary items and taxes} - \text{income taxes} + \text{minority interest}}$	Interest coverage (x)	$\frac{\text{Operating profit}}{\text{Financial items}}$
Net cash/Share	$\frac{\text{Financial assets} - \text{interest bearing debt}}{\text{Number of shares}}$	Asset turnover (x)	$\frac{\text{Turnover}}{\text{Balancesheet total (average)}}$
ROA, %	$\frac{\text{Operating profit} + \text{financial income} + \text{extraordinary items}}{\text{Balancesheet total} - \text{interest free short term debt} - \text{long term advances received and accounts payable (average)}}$	Debt/Equity, %	$\frac{\text{Interest bearing debt}}{\text{Shareholders' equity} + \text{minority interest} + \text{taxed provisions}}$
ROCE, %	$\frac{\text{Profit before extraordinary items} + \text{interest expenses} + \text{other financial costs}}{\text{Balancesheet total} - \text{non interest bearing debt (average)}}$	Equity ratio, %	$\frac{\text{Shareholders' equity} + \text{minority interest} + \text{taxed provisions}}{\text{Total assets} - \text{interest free loans}}$
ROE, %	$\frac{\text{Profit before extraordinary items and taxes} - \text{income taxes}}{\text{Shareholders' equity} + \text{minority interest} + \text{taxed provisions (average)}}$	CAGR, %	Cumulative annual growth rate = Average growth per year

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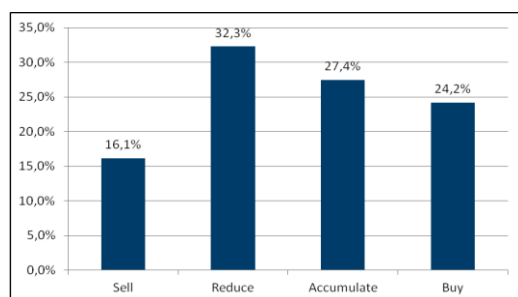
Detailed information about the valuation or methodology and the underlying assumptions is accessible via ERP:

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Investment recommendations are defined as follows:

Target price compared to share price	Recommendation
< -10 %	SELL
-10 – (+10) %	HOLD
> 10 %	BUY

ERP's investment recommendation of the analyzed company is in general updated 2 – 4 per year.



The graph above shows the distribution of ERP's recommendations of companies under coverage in 22nd of February 2017. If recommendation is not given, it is not mentioned here.

Name(s) of the analyst(s): Forslund

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Contact information**SALES AND TRADING HELSINKI****Equity Sales**

Ari Laine +358 9 4766 9115
 Lauri Ahokanto +358 9 4766 9117
 Niclas Henelius +358 9 4766 9116

Structured Investments

Heikki Savijoki +358 9 4766 9726
 Aki Lakkisto +358 9 4766 9123

Evli Investment Solutions

Johannes Asuja +358 9 4766 9205
 Markku Reinikainen +358 9 4766 9669

Trading

Lauri Vehkaluoto (Head) +358 9 4766 9130
 Pasi Väisänen +358 9 4766 9120
 Antti Kassi +358 9 4766 9120

Corporate Bonds sales and trading

Jukka Hyvönen +46 8 407 8138
 Thomas Kaukonen +358 9 4766 9542

ETFs and Derivatives

Tobias Björk (Head) +358 9 4766 9130
 Joachim Dannberg +358 9 4766 9123
 Kimmo Lilja +358 9 4766 9130

Derivatives Trading

Sami Järvinen +358 9 4766 9110

SALES AND TRADING STOCKHOLM

Urban Lawesson (Head) +46 8 407 8021
 Thomas Kährström +46 8 407 8018

EQUITY RESEARCH**Forestry, Pulp&Paper, Chemicals, Utilities, Packaging**

Markku Järvinen (Head of Research, Finland) +358 9 4766 9635

Technology, Software

Jonas Forslund +358 9 4766 9314

Retail, Consumer Goods, Telecommunications, Healthcare

Joonas Häyhä +358 9 4766 9662

Construction, Real Estate

Tommi Lindell +358 9 4766 9204

Research Analysts

Olli Pöyhönen +358 9 4766 9643
 Jerker Salokivi +358 9 4766 9149

**EVLI BANK PLC**

Aleksanterinkatu 19 A
 P.O. Box 1081
 FIN-00101 Helsinki, FINLAND
 Phone +358 9 476 690
 Fax +358 9 634 382
 Internet www.evli.com
 E-mail
 firstname.lastname@evli.com

**EVLI BANK PLC,
 STOCKHOLMSFILIAL**
 Kungsgatan 27, P.O. Box 16354
 SE-111 56 Stockholm
 Sverige
 stockholm@evli.com
 Tel +46 (0)8 407 8000
 Fax +46 (0)8 407 8001