

Crunchfish AB

The most interesting fintech rollout since iZettle

Andreas Eriksson & Johan Widmark | 2023-01-24 11:30

With the rise of digital cash, the shift to online has created a gap for users with poor or no connectivity, forcing emerging markets' Central Banks, commercial banks and payment service providers to scramble for solutions. With a digital payment platform covering the whole spectrum of the ecosystem and an ongoing pilot with India's largest bank (>60 million customers), Crunchfish now looks to rollout their digital cash solution globally. Estimating 50 million users in 2025 and a per-app-user fee structure, we find support for a fair value range of SEK 48-63 per share in 12-24 months.

Offline the next frontier in digital payments

The payment industry's shift online and towards the cloud has left a gap for retail customers with limited internet connectivity, primarily in emerging markets. IMF as well as Swedish Riksbanken address the issue of financial inclusion as central banks worldwide rush to develop Central Bank Digital Currencies (CBDC), highlighting a global demand for a payment system that could "verify availability of funds and validate transactions without the need to check with an online [ledger](#)".

Crunchfish offers a proprietary platform that enable offline payments as an extension of any payment system regardless of type of payment rail. It now has an ongoing initial pilot with two banks in India, of which one is HDFC Bank, India's leading commercial bank with over 60m customers, and overseen by the Indian Central Bank, RBI. The company has also entered a development agreement with the Nigerian Central Bank CBN, for an offline digital currency solution, as well as partnered up with leading payment platform providers Wibmo, setting the stage for an imminent global rollout. In the midst of a partnership with Danish Socio ApS, who is putting together a conglomerate to provide affordable infrastructure in Africa, Crunchfish and Socio have signed an MoU regarding a direct equity investment of 3 million shares at market price in Q1'23, which would secure the runway to profitability.

Enabling offline payments in an online world

Digital payment ecosystems are built upon either an account-based (Swish and UPI) or token-based (Cryptocurrency) payment rail. Crunchfish's solution applies to both. Nor does it matter if the security protocol is native or non-native or if the end solution is based on a hardware (card, bracelet etc) or software (smartphone application). The versatility of Crunchfish's platform and solution makes it a suitable provider to all choices of design, making the potential addressable market enormous.

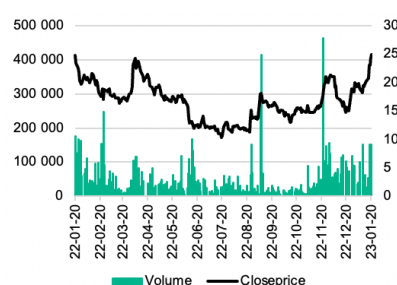
Reaching 100 million users by 2026 in our Base case

We expect Crunchfish to sign an initial deal with a major bank like HDFC Bank already in 2023, which will ignite a slow-burning snowball effect. While the potential is considerable, we note that the company operates in a sensitive ecosystem, where customers are slow to change. Since no deal has been signed yet, we can only speculate on what an agreement will look like.

To be prudent, our Base Case estimates the solution to be rolled-out via customer banks to 100 million users by 2026, translating to annual sales just shy of SEK 300m, based on a license of SEK 3 per user, charged to the banks in tranches. In a Bull Case, we estimate a more rapid implementation rate and a fee of SEK 5 per user, which translates to annual sales of SEK 225m in 2024 and SEK 725m in 2026. With a highly scalable platform offering, we expect >70% to trickle down to EBITDA long term. With a combined DCF and target multiple valuation approach we find support for a fair value of SEK 48-63 per share, in 12-24 months. However, the speed of implementation and fee per user, are two key variables that can significantly impact our forecast and valuation.

Crunchfish

Fair Value, SEK (12-24 m)	48 - 63
Current Price, SEK	27,00
Shares (M)	33,0
Market Capitalisation (MSEK)	892
Net Cash (MSEK)	30,8
Enterprise Value (MSEK)	923
Market	First North



Financial Summary

MSEK	2020	2021	2022E	2023E	2024E
Revenue	11	4	7	20	78
EBITDA	-18	-29	-24	-21	29
EBIT	-25	-37	-30	-28	22
EPS Adjusted	-0,89	-1,24	-0,88	-0,85	0,65
Sales Growth, %	-	-64%	81%	179%	288%
EBITDA Margin, %	-161%	-738%	-330%	-107%	37%
EBIT Margin, %	-232%	-932%	-419%	-140%	28%
EV/Sales	68,08	187,3	103,5	37,0	9,6
EV/EBITDA	-42,21	-25,4	-31,4	-34,7	25,9
EV/EBIT	-29,38	-20,1	-24,7	-26,5	34,0
P/E	-17,90	-20,1	-28,4	-29,3	38,3

Source: Emergers

Crunchfish in brief

Crunchfish is a fintech company founded in 2010. With an initial focus on developing applications for smartphones, and a soon realized expertise in gesture recognition, the journey towards commercializing the technology began. Today Crunchfish is based on two business verticals, Digital Cash (DC) and Gesture Interactions (GI), where the company is addressing two global markets in rapid growth.

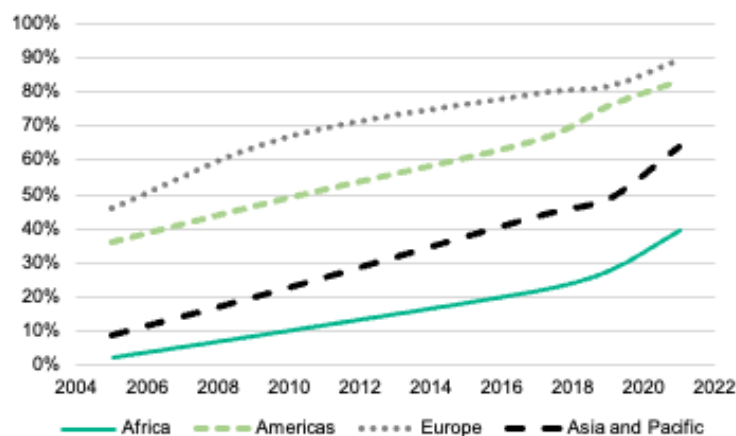
Addressing growing problems on a global scale

Offline digital payments

While internet connectivity isn't a pressing issue in developed countries, it is a major concern in other parts of the world. In India for example, only about 50% of the 1,4 billion citizens enjoy a stable connection. The same goes for a country like Nigeria, where 70% of the population lives without solid internet connection.

As internet connectivity varies a lot between regions, systems are prone to downtime, and internet connection has become a vital part of existing payment infrastructure, this adds up to a problem in urgent need of a solution. Despite the poor connectivity, India is the supreme leader in real-time payments, where over 74 billion transactions were made through UPI (India's version of Swish) in 2022 alone. This compares to the 2.3 billion transactions that has been made on Swedish Swish since the service launched in 2012.

Internet penetration by region (% of population)



Source: International Telecommunication Union, Emergers

Unloading outdated core banking systems

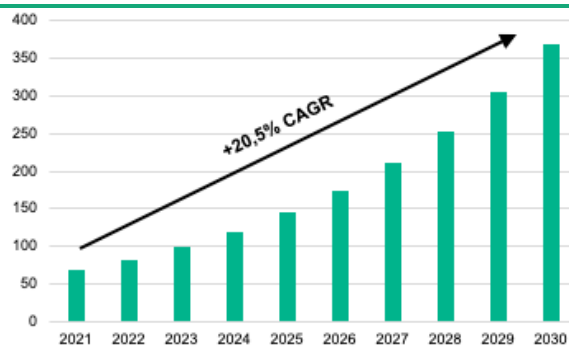
Commercial banks are today run on often outdated technical systems, Core Banking Systems, which are used to operate the banks day to day business. This means all bank accounts and their associated functions are relying on these systems to be operational 24/7.

As banks have grown larger, the Core Banking Systems have been patched and fixed, rather than rebuilt completely to better cope with modern banking and all its demands. Therefore, the systems are massive in scale, slow in operation and prone to unplanned downtime, jeopardising the whole payment system.

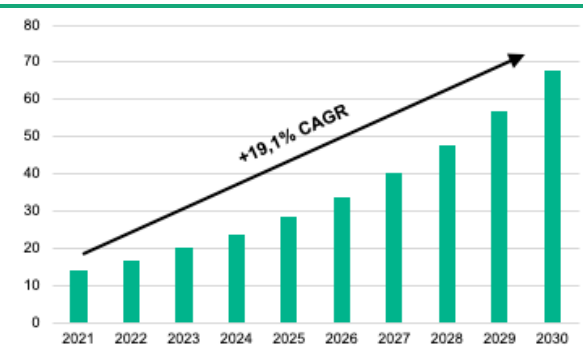
Improved gesture recognition to AR/VR and automotive industry

Consumer electronics and automotive are the fastest growing sectors for gesture recognition software applications. The automotive industry's growth is primarily driven by autonomous driving, where EU in 2022 implemented a regulation that requires all new cars with some sort of autonomous function to have camera-based driver monitoring systems installed. The regulation will cover all new cars from 2026, regardless of the level of autonomous driving.

Digital Payments Market Growth (USDbn)



Gesture Recognition Market Growth (USDbn)



Source: Grandviewresearch, Emergers

The tech

With over 40 patents approved or pending Crunchfish's has developed technology with significant potential, addressing two markets with a current combined market value of USD 83bn (69 + 14) while the markets' expected Compound Annual Growth Rate (CAGR) growth is 20.5% and 19.1% respectively.

Digital Cash

Crunchfish's main philosophy with regards to their vision to augment payments is to clearly separate the three steps of payments: reserve, pay and settle. There are two general reasons why payments fail today: no internet access and disruptions in banks' backend.

Digital Cash Online

The primary area of usage for DC Online is to unload the massive core banking systems that are handling our bank accounts today and provide a safety net so that we can make payments, regardless of whether the banks are having issues or not. The technology can be compared to the one used by cryptocurrencies, where additional layers of payment rails were created to increase transaction speed and capacity.

Digital Cash Offline

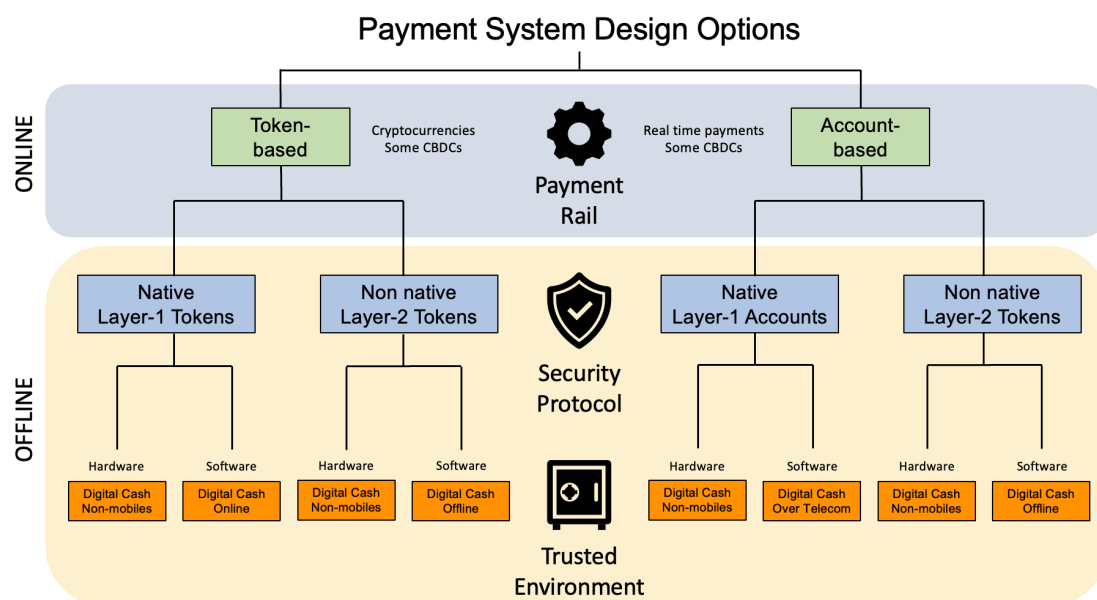
DC Offline addresses both the lack of internet access as well as the issues of backend disruptions. Crunchfish's platform can ensure that users are able to pay in proximity in full offline mode or over the telecom network, rather than

internet. By separating settlement from the other two steps, reserve and pay, Crunchfish guarantees successful payments in proximity or over the telecom network.

Potential customers include Central Banks, commercial banks and payment service providers such as Amazon Pay, Google Pay and PhonePe. Right now, Crunchfish is doing a pilot project with Indian HDFC bank and another undisclosed bank, which is overseen by the Indian Central Bank, RBI. The pilot is expected to last through Q1'23, and assuming a positive result, a first firm deal with HDFC shouldn't be too far away.

Whether the account-based or token-based payment rail will be the dominant one in the future, Crunchfish can apply its Digital Cash platform to any design option, which underlines the versatility of the technology. Crunchfish is also engaged with the Nigerian Central Bank regarding offline payments for their eNaira (their CBDC), currently used in their eNaira application with millions of onboarded citizens.

Payment System Design Options



Source: Lipis Advisors, Emergers

Gesture interaction

Crunchfish Skeleton Platform

Crunchfish has an AI technology with an ability to detect and track both hand and body movement with extreme accuracy, making it suitable for consumer electronics (AR/VR) as well as for the automotive industry considering the new regulatory landscape. The platform tracks 21 detection points of each hand (in total 42 points simultaneously), creating a skeletal image. Today the platform consists of three different products, listed below, as well as camera rigs, neural networks and processes to create synthetic data.

XR Skeleton Stereo

With dual-camera input, XR Skeleton Stereo enables precision tracking of both hands' (21x2) detection points in all three dimensions, making it suitable for the AR/VR-industry.

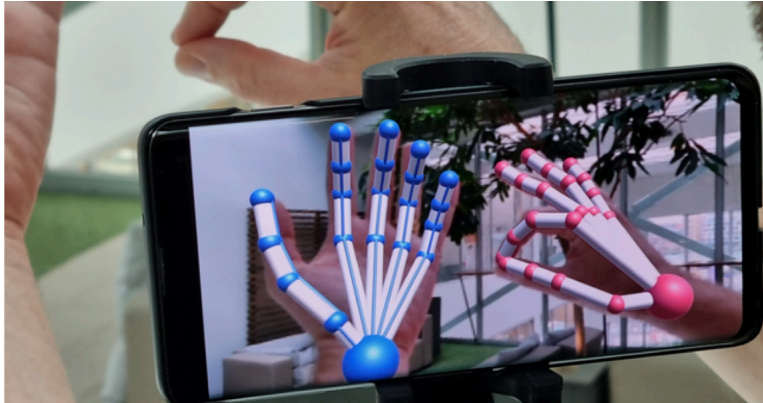
FB Skeleton

The XR Skeleton Stereo makes it possible to detect and track full body gestures by using up to 34 detection points from head to toe.

PS Skeleton

PS Skeleton is developed to fulfill the needs of new automotive regulations of Driver Monitoring System (DMS) and Occupant Monitoring System (OMS). The product can track the number of people in front of the camera while detecting body positions and hand movements fast and precise.

Crunchfish Gesture Interaction



Source: Crunchfish

Forecasting an unproven business model

Digital Cash Offline

While the tech itself has a proven track record in test surroundings, and we believe that the need for Crunchfish's Digital Cash solution is global and in high demand, it is still an unproven business model. This means we can only speculate how, who and in what way Crunchfish will charge for their platform. To quantify and estimate future revenues we have made the following assumptions in our **Base Case**:

- A model of yearly fees based on SEK 3 per user paid by the bank/payment solution provider
- Three sets of counterparts i.e. banks or payment solution providers with an average of 20/10/5 million users per counterpart
- A step-wise rollout of 25%/50%/75%/100% of the bank/payment solution providers users
- This means that these deals and the rollout will likely be made in tranches where the bank buys a license for part of its retail customers. For a large bank with 20m customer this would mean a rollout to 5m customers in year 1, another 5m in year 2 etc.

With the assumption that Crunchfish manages to land a deal with HDFC Bank in 2023, and a rollout to one (1) big client, two (2) medium clients and two (2) small clients per year starting in 2024, this would amount to sales of SEK 285m in 2026 from DC Offline alone.

Digital Cash Offline – Scenario Analysis

Scenario	Implementation rate	Price (based on) per user (SEK)	Sales 2026 (MSEK)
Bull	50%-100%	5	725
Base	25%-50%-75%-100%	3	285
Bear	20%-40%-60%-80%	1	76

Source: Emergers

Digital Cash Online

As we perceive current focus to be on rolling out DC Offline, we have forecasted a slow rollout for DC Online starting in 2025, based on a fee of 0,1% per transaction, an average transaction of SEK 210 and an average number of transactions of 250 per year and person. A rollout where a total of 1 million people use the service, this would contribute sales of SEK 50m. Given the high uncertainty about business model, focus and rollout pace, we risk adjusted all future revenues by 50%.

Gesture Interaction

We believe that the single most important trigger for Crunchfish's GI-vertical to kick in is for major players like Apple or Samsung to release their first line of AR/VR-products. This would create ripple effects across the industry where companies like Lenovo, Oppo etc. would follow suit, which would benefit Crunchfish as a sub-supplier to the Tier-2 and Tier-3 players. According to Bloomberg, Apple's AR-glasses will be released in 2024 or early 2025.

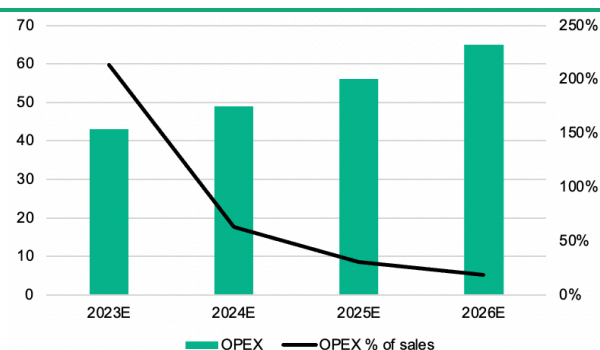
Based on the most recent USD 500k-deal signed with OPPO, that covered only a small portion of Crunchfish's tech, there's reason to believe that sales will kick off once the AR/VR-industry is at a stage where Crunchfish's tech goes from a "nice to have" to a "need to have".

We have therefore estimated a ramp-up from SEK 5m sales in 2023, to SEK 20m by 2025. We see a similar potential for the Automotive vertical, where the regulatory changes will drive a significant increase in demand. While Crunchfish is well on their way, the implementation of their tech is still a bit too far away to include a meaningful scale-up in our model now.

SaaS business model with high scalability

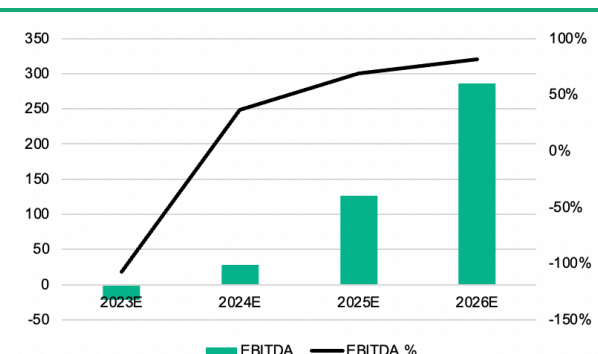
As both of Crunchfish's verticals are fully based on software, the business is highly scalable by nature with high margins. Combined with the tight ship Crunchfish is running, with OPEX at about SEK 35-40m per year (which the company expects to keep intact going forward), future profitability will be high.

OPEX and OPEX as % of sales



Source: Emergers

EBITDA & EBITDA %



Financial Situation

Crunchfish has secured their financials for 2023 through a 93% subscribed warrant program in December 2022, which provided the company with SEK 21.5m before transaction costs. The partnership together with Danish management and investment company Socio ApS, (and Eferio Communication, Radiocloud, and Radio Innovation) to provide infrastructure and new technology in Africa has led a Memorandum of Understanding (MoU) between the Crunchfish and Socio. The MoU a direct equity investment of three million shares at market price. As cash amounted to SEK 11m in Q3 (+ SEK 21.5m from warrants and TO9 in December), the financing through 2023 was already secured, considering a burn rate of SEK 8-9m per quarter. An additional three million shares at today's price of SEK 25 per share would inject another SEK 75m, while diluting current shareholders by about 8,3%.

Valuation

While both DC Online and Gesture Interaction shows a high potential, we focus on DC Offline as it's the side of the business that is closest to major deals. The USD 500k deal with OPPO led to a positive EBITDA in Q3 2022, which illustrated that Crunchfish has tight cost control and that profitability shouldn't be too far away. A major deal with any of the banks or payment service providers could therefore lead to an operating profit already in 2023. We are however a bit more cautious and forecast a positive EBITDA and last row profit in 2024.

In our DCF-model we use a discount factor (WACC) of 20% to take into account the high uncertainty regarding all future cash flows. With estimated sales of SEK 78m in 2024, to reach SEK 1.4bn in 2030, our DCF indicates a Market Cap of SEK 3.3bn. With the application of a 60% probability-factor in our DCF, we find support for a fair value of SEK 60 per share.

Peers

For our peer group we have chosen some mature tech companies, where we also include payment service providers Visa and Mastercard. These trade at multiples of 17x and 13x sales and 29x and 19x EBITDA respectively. On an average, our peer group is trading at 7x sales and 16x EBITDA. As previously stated, these are mature companies with proven business models, why we see a target multiple-discount for Crunchfish as justified. Applying a target multiple of 13x EBITDA`26 equals a fair value of SEK 51 per share.

Peers

Company	Fx	Market Cap (M)	EV (M)	Revenue (M)	EBITDA (M)	Rev. growth 1y	EBITDA %	EV/S	EV/EBITDA	Share price dev. 1y
AMD	USD	98 789	96 088	22 828	5 751	54%	25%	4,2	16,7	-49%
Cisco Systems Inc	USD	192 461	181 555	52 289	16 505	3%	33%	3,5	11,0	-22%
Fingerprint Cards	SEK	1 421	1 658	1 028	-15	-25%	3%	1,6	neg.	-82%
Mastercard Inc	USD	358 282	364 771	21 636	12 673	22%	60%	16,9	28,8	0%
Qualcomm Inc	USD	132 042	141 142	44 200	17 250	32%	38%	3,2	8,2	-34%
Taiwan Semiconductor	USD	343 937	322 989	73 673	24 517	29%	65%	4,4	13,2	-34%
Texas Instruments Inc	USD	157 256	156 103	20 190	11 460	15%	56%	7,7	13,6	-6%
Visa Inc	USD	363 897	367 825	29 310	19 681	22%	70%	12,5	18,7	2%
Average								6,8	15,7	
Median								4,3	13,6	

Source: Emergers

Risks

Unproven business model: With no Digital Cash firm deals signed yet, the business model, earning capacity and rollout-pace are highly uncertain.

Addressing a slow-moving market: Crunchfish's business is focused on critical financial infrastructure such as payment systems. We believe that even though the technology works, an investor needs to keep in mind that these

institutions are slow to change and that a rollout might take longer than expected.

Corporate Governance

CEO of Crunchfish AB Joachim Samuelsson has a Master of Science in industrial Engineering and Management from Linköping University. As a serial entrepreneur since 1996, Samuelsson has had successful engagements in ComOpt AB, Actix Ltd and Biomain AB. Before that Samuelsson worked several years for Ericsson in international technical and marketing roles.

Chairman of the board Göran Linder has a Master of Science in Engineering from KTH Royal Institute of Technology in Stockholm. Linder also serves as CEO of Corespring New Technology AB and serves on the board in Powercell AB, Promore Pharma AB, Minesto AB and QCG Sweden AB.

COO of Crunchfish AB and CEO of Crunchfish Gesture Interaction AB Joakim Nydemark has a Master of Science in Electrical Engineering from Lund University, with more than 20 years of experience from organizational development and sales as both CEO and executive sales roles.

CEO of Crunchfish Digital Cash AB Patrik Lindeberg has a Master of Science in Electrical Engineering from Lund University and National University of Singapore, bringing experience in commercial and technical areas of responsibility.

Founder and CTO Paul Cronholm has a master's degree in theoretical physics from Lund University within the field of complex computer simulations. Cronholm has more than 15 years of experience as a senior software designer and project manager in various projects to implement mobile internet around WAP, 3G and DVB-H.

Crunchfish

Income Statement

MSEK	2020	2021	2022E	2023E	2024E
Sales	10,9	4,0	7,2	20,0	77,5
Operating Costs	-40,5	-46,2	-42,7	-49,0	-56,3
EBITDA	-17,6	-29,2	-23,6	-21,4	28,6
Depreciation	-7,7	-7,7	-6,4	-6,6	-6,8
Amortisation of Goodwill	0,0	0,0	0,0	0,0	0,0
EBIT	-25,2	-36,9	-30,0	-27,9	21,8
Non-recurring Items	0,0	0,0	0,0	0,0	0,0
Associated Companies	0,0	0,0	0,0	0,0	0,0
Net Financial Items	-0,1	-1,6	0,9	-0,3	-0,3
Pre-tax Result	-25,3	-38,5	-29,1	-28,2	21,6
Tax	0,0	0,0	0,0	0,0	0,0
Minority Interest	0,0	0,0	0,0	0,0	0,0
Net Result	-25,3	-38,5	-29,1	-28,2	21,6

Capital Expenditure

	2020	2021	2022E	2023E	2024E
Capital Expenditure, Absolute	15,1	15,8	0,4	1,0	3,9
As a Pct of Sales	139,2	400,3	5,0	5,0	5,0
Depreciation Multiple	2,0	2,1	0,1	0,2	0,6

Key Ratios

Share Price: SEK 27,00

	2020	2021	2022E	2023E	2024E
Share Price at 31 Dec	16,0	25,00	27,00	27,00	27,00
Number of Shares (Millions)	28,35	30,93	33,04	33,04	33,04
Market Cap	453,6	773,1	892,1	892,1	892,1
Enterprise Value	453,6	740,9	882,9	905,5	881,0
EPS (Reported)	-0,89	-1,24	-0,88	-0,85	0,65
EPS (Adjusted)	-0,89	-1,24	-0,88	-0,85	0,65
CEPS	-0,89	-1,24	-0,88	-0,85	0,65
P/CEPS	n.a.	n.a.	n.a.	n.a.	41,4
Book Value/Share	1,2	1,8	0,8	0,0	0,6
P/BV	13,0	13,8	33,3	-639,8	44,2
Dividend	0,00	0,00	0,00	0,00	0,00
Dividend Yield (%)	0,0	0,0	0,0	0,0	0,0
Dividend Payout Ratio (%)	0,0	0,0	0,0	0,0	0,0
EV/Sales	68,1	187,3	103,5	37,0	9,6
EV/EBITDA	-42,2	-25,4	-31,4	-34,7	25,9
EV/EBIT	-29,4	-20,1	-24,7	-26,5	34,0
P/E (Adjusted)	-17,9	-20,1	-30,7	-31,7	41,4
Sales Growth, Y/Y (%)	-	-63,6	80,9	179,5	287,5
EBIT Growth, Y/Y (%)	-	46,2	-18,7	-6,8	-178,1
EPS Growth (Adjusted), Y/Y (%)	-	39,2	-29,3	-3,0	-176,5
EBITDA Margin (%)	-161,3	-738,2	-329,6	-106,8	36,9
EBIT Margin (%)	-231,7	-931,8	-418,8	-139,6	28,2
Return on Equity (%)	-	-84,8	-70,3	-222,0	229,7
Tax Rate (%)	0,0	0,0	0,0	0,0	0,0

Financial Position

	2020	2021	2022E	2023E	2024E
Interest-Bearing Net Debt	0	-32	-9	13	-11
Net Debt/Equity	0,0	-0,6	-0,3	-9,6	-0,5
Equity Ratio	0,8	0,9	0,8	-0,1	0,2
Net Debt/EBITDA	0,0	1,1	0,4	-0,6	-0,4

Source: Emergers, Company reports

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