

# Crunchfish AB

## Major TAM expansion with broadening to secure and scalable mobile card payments

Johan Widmark | 2024-03-27 12:00

With the broadening of its Digital Cash technology to support secure Host-based Card Emulation (HCE) for online as well as offline, Crunchfish can now offer both secure and scalable mobile card payments. This expands Crunchfish's total addressable market (TAM) manyfold as it offers to fill a blank spot in the Android/Google Pay ecosystem, as it addresses the tradeoff between security and scalability facing payment providers, banks, central payment systems and card companies today. Crunchfish's approach to HCE payments also enable novel use cases, like offline, scan and pay (QR) and P2P payments. For details on today's announcement, please see the simplified structure of the implementation architectures of HCE payment applications below.

As a consequence of the increased potential customer and counterparty base, ranging from Google Pay, card companies, to payment systems, banks, central payment systems, and mobile operators, we see improved chances for one or more agreements. However, we continue to expect that all such will be preceded by some form of pilot, which is why the impact on revenues will come gradually. Following today's announcement, we have adjusted our expectation for initial revenues up to SEK 5 million (2) in 2024E, although we also see a chance for considerably larger deals already this year.

While we continue to note that the company's cash reserves will need to be replenished before the end of the year, we view the surge in the stock price, with a doubling just in March, as a sign that the valuation has reached some sort of local bottom. As the investment case now seems just a tad less binary, we now find support for a fair value of SEK 15-18 (13-16) per share. Also, the structural process with EY Corporate Finance, which includes the divestment of Gesture Interaction, adds a potential catalyst to the case.

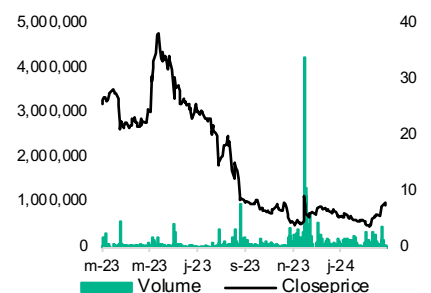
For our interview with CEO Joachim Samuelsson where he elaborates on today's announcement (in SWE), please see <https://www.youtube.com/watch?v=0RzKYiKsVA0>

	Current HCE payments	Secure HCE payments
<b>Software-based Security</b>	<p>HCE payment application REE on a smartphone</p> <p>HCE is implemented in scalable but unsecure REE.</p>	<p>Crunchfish HCE Trusted Application App-integrated TRE on a smartphone</p> <p>Executes in an app-specific, virtual TRE, providing isolated runtime and secure storage for EMV tokens, credentials etc. on the smartphone. Scalable, secure and maintainable without OS, OEM or MNO dependencies.</p>
<b>Hardware-based Security</b>	<p>EMV payment applet TRE on a smartphone</p> <p>ICCs are not used for HCE payments.</p>	<p>HCE payment applet Hardware-based TRE on a smartphone</p> <p>HCE may be secured on a smartphone using a hardware-based TRE. Hard to scale as they are controlled by OEMs or MNOs</p>
<b>Definitions of Acronyms</b>	<p>OEM = Original Equipment Manufacturer MNO = Mobile Network Operator REE = Rich Execution Environment</p>	<p>ICC = Integrated Circuit Cards HCE = Host-based Card Emulation TRE = Tamper Resistant Secure Element</p>

Source: Emergers, Crunchfish

### Crunchfish

<b>Fair Value, SEK</b>	<b>15 - 18</b>
Current Price, SEK	7.61
Shares (M)	39.6
Market Capitalisation (MSEK)	302
Net Cash (MSEK)	-29.3
Enterprise Value (MSEK)	272
Market	First North



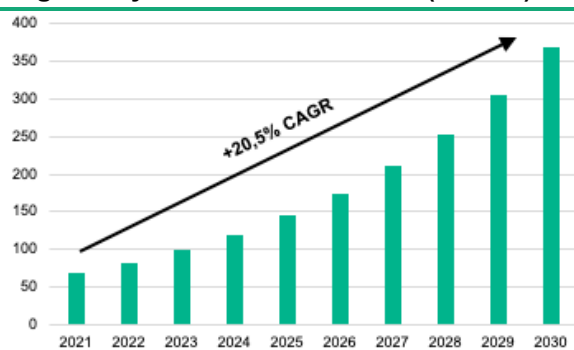
MSEK	2022	2023	2024E	2025E	2026E
Revenue	6	1	5	12	30
EBITDA	-18	-27	-39	-34	-16
EBIT	-24	-49	-61	-53	-34
EPS Adjusted	-0.73	-1.24	-1.53	-1.37	-0.90
Sales Growth, %	56%	-84%	406%	140%	150%
EBITDA Margin, %	-293%	-2687%	-778%	-279%	-53%
EBIT Margin, %	-392%	-5000%	-1212%	-443%	-115%
EV/Sales	102.1	639.7	126.4	28.8	12.1
EV/EBITDA	-34.9	-23.8	-16.2	-10.3	-22.9
EV/EBIT	-26.1	-12.8	-10.4	-6.5	-10.5
P/E	-27.5	-5.6	-4.6	-5.5	-8.5

Source: Emergers

## Crunchfish in brief

Crunchfish is a deep tech 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.

### Digital Payments Market Growth (USDbn)



Source: Grandviewresearch, Emergers

## Addressing growing problems on a global scale

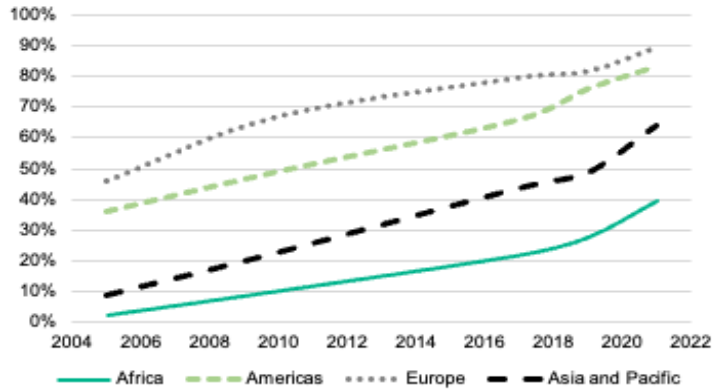
### Offline digital payments

Even though internet connectivity is good throughout the developed world, it doesn't work everywhere, all the time. Payment rails, built on circuit-switched systems, only works if everything else supporting it works, making modern societies vulnerable to IT-attacks, system failures or even just downtime maintenance.

Connectivity in general 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.

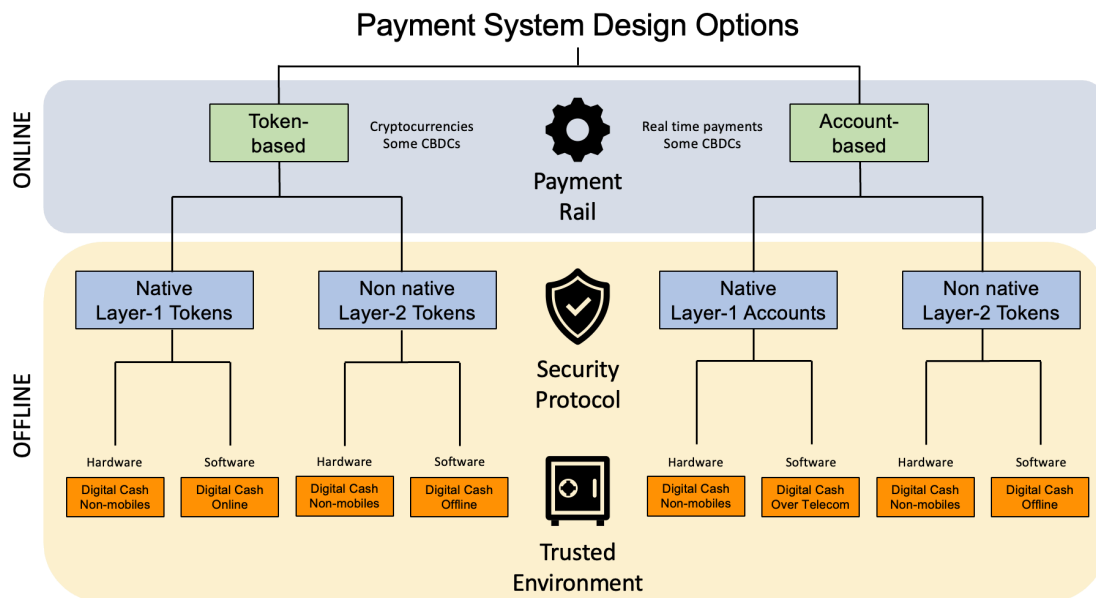
As internet connectivity varies a lot between regions, systems are prone to downtime, and internet connection has become a vital part of existing payment infrastructure, this adds up to a problem in urgent need of a solution. Despite the poor connectivity, India is the supreme leader in real-time payments, where over 74 billion transactions were made through UPI (India's version of Swish) in 2022 alone. This compares to the 4 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

## Payment System Design Options



Source: Lipis Advisors, Emergers

## 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 10%/25%/50%/85% 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.

With the assumption that Crunchfish manages to 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 82.5m in 2026 from DC Offline alone.

### **IDFC First Bank Commercial Agreement**

On the 29<sup>th</sup> of June 2023 Crunchfish signed their first commercial agreement for its Digital Cash Offline-solution with IDCF First Bank. The first release to the bank's customers is planned for late Q3, and the initial use case will be to enable offline UPI payments over the telecom network.

The 3-year license includes a first trench of users, out of a maximum of seven. Should IDFC Bank decide they want to offer the service to more of its customers, additional licenses will have to be purchased.

### **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. With an annual OPEX currently at about SEK 40m per year (which the company expects to keep intact going forward), future profitability will be high should high volume deals be signed.

### **Valuation**

In our DCF-model we use a discount factor (WACC) of 25% to take into account the high uncertainty regarding all future cash flows. With estimated sales of SEK 12m in 2025E, to reach SEK 83m in 2027E, our DCF and target multiple valuation approach support a fair value of SEK 15 per share.

### **Risks**

**Unproven business model:** Even though one Digital Cash commercial deal has been signed, the business model, earning capacity and rollout-pace are still 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.

**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	2021	2022	2023	2024E	2025E	2026E
Sales	4.0	6.2	1.0	5.0	12.0	30.0
Operating Costs	-49.3	-39.8	-46.1	-45.5	-45.7	-45.8
EBITDA	-29.2	-18.1	-26.5	-38.9	-33.5	-15.8
Depreciation	-7.7	-6.1	-22.8	-21.7	-20.6	-19.6
Amortisation of Goodwill	0.0	0.0	0.0	0.0	1.0	1.0
EBIT	-36.9	-24.3	-49.4	-60.6	-53.1	-34.4
Non-recurring Items	0.0	0.0	0.0	0.0	0.0	0.0
Associated Companies	0.0	0.0	0.0	0.0	0.0	0.0
Net Financial Items	-1.6	0.2	0.1	-0.3	-0.3	-0.3
<b>Pre-tax Result</b>	<b>-38.5</b>	<b>-24.0</b>	<b>-49.3</b>	<b>-60.8</b>	<b>-53.4</b>	<b>-34.7</b>
Tax	0.0	0.0	0.0	0.0	0.0	0.0
Minority Interest	0.0	0.0	0.0	0.0	1.0	1.0
<b>Net Result</b>	<b>-38.5</b>	<b>-24.0</b>	<b>-49.3</b>	<b>-60.8</b>	<b>-52.4</b>	<b>-33.7</b>

### Capital Expenditure

	2021	2022	2023	2024E	2025E	2026E
Capital Expenditure, Absolute	15.8	13.6	1.2	0.3	-0.6	-1.5
As a Pct of Sales	400%	220%	125%	5%	-5%	-5%
Depreciation Multiple	2.1	2.2	0.1	0.0	0.0	-0.1

### Key Ratios

Share Price: SEK 7.61

	2021	2022	2023	2024E	2025E	2026E
Share Price at 31 Dec	25.00	20.00	7.00	7.61	7.61	7.61
Number of Shares (Millions)	30.93	33.04	39.65	39.65	39.65	39.65
Market Cap	773.1	660.8	277.5	301.7	301.7	301.7
Enterprise Value	740.9	631.9	248.2	310.8	345.2	362.8
EPS (Reported)	-1.24	-0.73	-1.24	-1.53	-1.37	-0.90
EPS (Adjusted)	-1.24	-0.73	-1.24	-1.53	-1.37	-0.90
CEPS	-1.24	-0.73	-1.24	-1.53	-1.37	-0.90
P/CEPS	n.a.	n.a.	n.a.	n.a.	-5.5	-8.5
Book Value/Share	1.8	1.8	1.3	-0.2	-1.6	-2.5
P/BV	13.8	11.2	5.3	-35.2	-4.8	-3.1
Dividend	0.00	0.00	0.00	0.00	0.00	0.00
Dividend Yield (%)	0.0	0.0	0.0	0.0	0.0	0.0
Dividend Payout Ratio (%)	0.0	0.0	0.0	0.0	0.0	0.0
EV/Sales	187.3	102.1	639.7	126.4	28.8	12.1
EV/EBITDA	-25.4	-34.9	-23.8	-16.2	-10.3	-22.9
EV/EBIT	-20.1	-26.1	-12.8	-10.4	-6.5	-10.5
P/E (Adjusted)	-20.1	-27.5	-5.6	-5.0	-5.5	-8.5
Sales Growth, Y/Y (%)	-63.6	56.4	-84.0	406.2	140.0	150.0
EBIT Growth, Y/Y (%)	46.2	-34.2	103.6	22.7	-12.3	-35.2
EPS Growth (Adjusted), Y/Y (%)	39.2	-41.5	71.0	23.4	-10.6	-34.4
EBITDA Margin (%)	-738.2	-292.8	-2687.2	-777.8	-279.3	-52.8
EBIT Margin (%)	-931.8	-392.0	-5000.1	-1211.9	-442.8	-114.7
Return on Equity (%)	-84.8	-41.9	-88.8	-278.6	152.0	44.1
Tax Rate (%)	0.0	0.0	0.0	0.0	0.0	0.0

### Financial Position

	2021	2022	2023	2024E	2025E	2026E
Interest-Bearing Net Debt	-32	-29	-29	9	43	61
Net Debt/Equity	-0.6	-0.5	-0.6	-1.1	-0.7	-0.6
Equity Ratio	0.9	0.9	0.8	-5.2	1.6	2.5
Net Debt/EBITDA	1.1	1.6	1.1	-0.2	0.0	0.0

Source: Emergers, Company reports

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