

Update: Report Q1 2022

2022-05-19

Crunchfish: Central banks calling

- Stronger than expected net result in Q1 due to lower OPEX
- Central banks eager to learn how Crunchfish could foster CBDC
- We maintain our valuation interval SEK 41.60 – 66.20 per share

Analysts

Alf Riple, CFA
073-840 4008
alf.riple@vhcorp.se

Jens Jacob Aabel Nordkvist
073-422 5876
jensjacob.aabelnordkvist@vhcorp.se

Stock ticker: CFISH
Industry: Technology
Listed on: Nasdaq First North
Latest stock price (SEK): 17,17
Market cap (MSEK): 573
Enterprise Value (MSEK): 540
Total number of shares (M): 30,93
- of which free float (M): 17,80

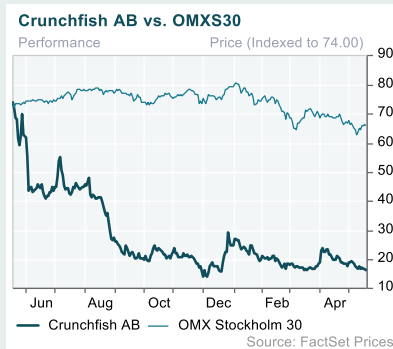
VHCF fair value per share
DCF model SEK 41.60 - 66.20

Crunchfish AB
Address: Stora Varvsgatan 6A
211 19 Malmö
Webpage: crunchfish.com
CEO: Joachim Samuelsson

Main owners (31 Mar 2022)

	Capital (%)
Femari Invest AB	24,3
Corespring Invest AB	18,3
Paul Cronholm	3,5
Carlquist Holding AB	3,2
Mikael Kretz	2,3

Stock price history



	-1m	-3m	-12m
Change (%)	-18,3	-8,8	-77,6
52 w k range (Low / Hi) - SEK		13,30 / 80,60	

Source: FactSet

Crunchfish reported a stronger net result than we had expected in Q1, largely because of lower operating expenses compared to our estimates. There were few surprises in the report otherwise. Operationally, the focus remains on engaging with central banks, banks and payment providers within digital cash and on positioning the gesture technology for a host of applications, primarily within AR and in-car monitoring systems. The overall picture is consistent with the projections in our latest research update from late March and we maintain the valuation interval unchanged at SEK 41.60 – 66.20 per share.

Net revenues in the quarter came in at SEK 0.2 million. The company booked SEK 3.4 million in capitalised development costs and SEK 0.6 million in other operating income, which brings the sum of total operating income to SEK 4.2 million. This was 15 percent below the SEK 5.0 million in Q1 last year. Operating expenses (excluding depreciation) summed to SEK 9.6 million, implying an EBITDA of SEK -5.3 million. The corresponding figures in Q1 last year were SEK 10.6 million and SEK -5.6 million, respectively. Net result for the period came in at SEK -6.7 million (SEK -7.8 million) and the cash holdings at the close of the quarter stood at SEK 23.6 million.

Crunchfish reports continued work on a number of initiatives within digital cash, primarily in Asia. The company is engaging in talks with monetary authorities in India on how to foster financial inclusion and reduce the reliance on cash. Furthermore, Crunchfish has joined the innovation hub T-Hub in arranging an accelerator program for Indian fintech companies who are supported in developing payment solutions based on Crunchfish's technology.

Table 1: Financial Overview

MSEK	2020	2021	2022e	2023e	2024e
Total revenues	23,2	20,3	18,2	60,3	170,0
Growth (%)	10%	-12%	-11%	232%	182%
EBITDA	-17,6	-29,2	-28,5	-3,8	86,1
EBITDA margin (%)	neg	neg	neg	neg	51%
EBT	-25,3	-38,5	-34,8	-11,6	77,0
Cash holdings	8,7	32,8	19,1	15,5	72,5
Total assets	44,3	64,2	59,7	78,4	155,8
Total equity	34,8	55,8	50,2	68,6	145,5
Solidity (%)	79%	87%	84%	87%	93%
P/E	neg	neg	neg	neg	7,4
ROE	neg	neg	neg	neg	53%
EV/EBIT (x)	neg	neg	neg	neg	7,0
EV/Sales (x)	23,3	26,5	29,7	8,9	3,2

Source: Västra Hamnen Corporate Finance

Customer integration in Vietnam

Crunchfish also continues to work together with its partner V-Key on engaging with potential customers in Southeast Asia. This has so far led to a customer integration with one of the leading e-wallet providers in Vietnam. Crunchfish has delivered its digital cash offline SDK (software development kit) to the customer, who intends to use it for mobile-to-mobile payments in a setting that makes internet access non-essential. A major finesse of this implementation is that the party who receives payment can immediately spend the received amount, still without internet access, enabling mobile-to-mobile-to-mobile payments in a totally offline mode. Crunchfish reports that the combined efforts with V-Key are gaining traction also in the Philippines and Indonesia.

Crunchfish's digital cash solution apt for CBDC

There is also ongoing work towards central banks in the area of central bank digital currencies (CBDC). Crunchfish CEO Joachim Samuelsson estimates that 90 percent of the world's central banks are looking into the issue at present, exploring different routes. Central banks are looking to emulate in digital form most of the features that characterise physical cash; offline payments, privacy, inclusion and universal acceptance. Crunchfish's digital cash can facilitate all these requirements, since the universal acceptance is secured by the solution's compatibility with all payment rails and portability to a plethora of devices, not only mobile phones.

Crunchfish reports that the company is being approached by central banks and governments around the globe, including the ECB, the G20 group of countries, the Swedish Riksbank to name a few, with requests for information as these entities are developing an understanding of the issues.

Patent filed for quantum-safe encryption

The company announced a technical innovation in April, for which it has submitted a patent application. The solution is a means of heightening security for digital cash in light of the coming super-fast quantum computers. This next generation of computers will have the power to break most present encryption keys. In anticipation of their introduction, which is still some years away, Crunchfish has developed a quantum-safe encryption method in two steps, first between the payer and payee and subsequently between both parties and their respective payment providers.

XR Skeleton Stereo attracting attention

There are also further developments in the gesture business area. Crunchfish reports that its new XR Skeleton Stereo model is gaining attention in the tech community. The model combines the image streams from two cameras located at a small distance from each other. By analysing the image streams together, the software can determine the depth of the image with very high accuracy. The intended application is in AR glasses, where the wearer can reach out and touch virtual objects in their field of vision and experience it with a precision that mimics reality.

Automotive market is ripening

Another hot area is the use of gesture tracking in automotive applications, particularly as a part of driver monitoring systems. As we wrote in further detail in our [previous research update](#), the EU has introduced requirements in this area this year and will expand it to all newly produced cars in 2026. Crunchfish's hand and body tracking software is well fitted to the task of helping monitor the safe handling of the vehicle and we see this as an interesting market opportunity.

New tool to accelerate deep learning

Finally, an innovation worth mentioning is what Crunchfish terms its image domain transfer tool. The solution will significantly speed up the deep learning algorithms that make a computer able to decide what it is looking at. Machine learning relies on feeding the algorithms a very high number of images – sometimes millions – and teaching them to recognise e.g. a hand from every image. But this means that a human must first annotate every image to teach the computer the “right” answer. Crunchfish's new technique involves building a detailed 3D model of a hand from a photogrammetry scan and

using that to generate automatically annotated images using different hand poses and backgrounds etc. This saves significant time and man-hours in algorithm training.

Lower OPEX than expected

Table 2 below shows that Crunchfish's revenue for the quarter came in about SEK 0.9 million lower than our forecast, which is the main explanation for the discrepancy of SEK 1 million in total revenue. As for OPEX, personnel costs were SEK 0.9 million lower than expected and other expenses about SEK 2 million lower than forecast. This is due to Crunchfish's headcount being lower than what we had anticipated and lower than a year ago. Routine personnel turnover in combination with a couple of employees on parental leave meant this quarter came out on the low side in terms of personnel costs. This also explains the discrepancy in other expenses as they are interlinked with personnel costs.

Table 2: Estimates vs actual, Q1 2022

kSEK	Q1 '21	Q1 '22e	Q1 '22a	Diff
Net revenues	1 101	1 070	216	-854
Capitalised development cost	3 346	3 657	3 435	-223
Other revenues	545	508	591	83
Total revenue	4 992	5 235	4 241	-993
Cost of goods	-150	0	0	0
Personnel costs	-5 799	-6 241	-5 322	918
Other expenses	-4 140	-6 228	-4 210	2 018
Profit from affiliated companies	-481	0	-32	-32
EBITDA	-5 578	-7 234	-5 323	1 911
Amortisation and Depreciation	-1 993	-2 767	-1 449	1 318
EBIT	-7 571	-10 001	-6 772	3 229
Other financial items, net	-195	0	39	39
EBT	-7 766	-10 001	-6 733	3 268
Net Profit	-7 766	-10 001	-6 733	3 268
Cash and Equivalents	11 534	22 630	23 583	952
Total Equity	27 182	45 843	49 111	3 268

Source: Västra Hamnen Corporate Finance

Smaller net loss than forecast

This taken altogether explains Crunchfish's EBITDA coming in SEK 1.9 million better than forecast. The difference in EBITDA combined with lower depreciation than forecast means the net result came in SEK 3.3 million stronger than expected. This discrepancy fully explains the difference in total equity.

Minor changes to model implemented

As we recently released an updated analysis of Crunchfish and nothing has occurred since then that makes us change our long-term view, we only make minor adjustments to our valuation model. In response to our revenue and OPEX forecasts being too high we have decided to shave a little off our estimates for both for the coming quarters. We have also made a minor change to our forecast for depreciation and amortization going forward, so that our forecast more accurately matches Crunchfish's historical progression on that front.

Financing necessary going forward

Our forecast for the company implies a need for further financing even after the execution of the warrant program that comes due in Q4 2022. We make no changes to the financing side of our model, hence we forecast a new equity issue of SEK 30 million in 2023. The timing, magnitude and kind of financing however is highly uncertain, and this solely represents our best estimate.

We maintain our valuation interval

The minor short-term changes we make to our valuation interval bear no impact on our fair value estimate, hence we maintain the valuation interval for Crunchfish of SEK 41.60 – 66.20 unchanged.

Income Statement - Annual Data

kSEK	2020	2021	2022e	2023e	2024e	2025e	2026e	2027e
Net revenues	10 883	3 957	1 499	42 998	152 233	248 386	422 683	769 312
Capitalised development cost	10 106	14 342	14 225	14 704	14 963	15 208	15 454	15 702
Other revenues	2 215	2 045	2 434	2 635	2 852	3 087	3 341	3 617
Total revenues	23 204	20 344	18 158	60 336	170 048	266 681	441 478	788 631
Cost of goods sold	-213	-211	0	0	0	0	0	0
Personnel costs	-20 965	-23 388	-23 896	-32 091	-42 016	-53 577	-68 318	-87 116
Other external costs	-16 936	-16 011	-19 998	-27 278	-35 714	-45 540	-58 070	-74 048
Other operating expenses	-48	-755	-2 749	-4 750	-6 218	-7 929	-10 111	-12 893
Profit from affiliated companies	-2 595	-9 186	-32	0	0	0	0	0
EBITDA	-17 553	-29 207	-28 517	-3 782	86 100	159 635	304 978	614 574
Amortisation & depreciation	-7 662	-7 661	-6 279	-7 793	-9 141	-10 284	-11 260	-12 100
EBIT	-25 216	-36 868	-34 796	-11 575	76 959	149 351	293 719	602 473
Financial items, net	-120	-1 600	39	0	0	0	0	0
EBT	-25 336	-38 468	-34 757	-11 575	76 959	149 351	293 719	602 473
Taxes	0	0	0	0	0	0	0	0
Net profit	-25 336	-38 468	-34 757	-11 575	76 959	149 351	293 719	602 473
Earnings per share (SEK)	-0,92	-1,26	-0,99	-0,33	2,15	4,17	8,20	16,81
Growth (%)								
Net revenues	-25,3%	-63,6%	-62,1%	2768,3%	254,0%	63,2%	70,2%	82,0%
EBITDA	na	na	na	na	na	85,4%	91,0%	101,5%
EBIT	na	na	na	na	na	94,1%	96,7%	105,1%
Net profit	na	na	na	na	na	94,1%	96,7%	105,1%
% of revenues (%)								
EBITDA margin	neg	neg	neg	neg	50,6%	59,9%	69,1%	77,9%
EBIT margin	neg	neg	neg	neg	45,3%	56,0%	66,5%	76,4%
EBT margin	neg	neg	neg	neg	45,3%	56,0%	66,5%	76,4%
Profit margin	neg	neg	neg	neg	45,3%	56,0%	66,5%	76,4%
Personnel costs	192,6%	591,1%	1594,1%	74,6%	27,6%	21,6%	16,2%	11,3%
Total OPEX	348,7%	1014,8%	3111,5%	149,1%	55,1%	43,1%	32,3%	22,6%
Profitability (%)								
ROE	neg	neg	neg	neg	52,9%	50,6%	49,9%	50,6%
ROIC	neg	neg	neg	neg	83,7%	131,2%	187,2%	266,2%

Source: Västra Hamnen Corporate Finance

Balance Sheet - Annual Data

kSEK	2020	2021	2022e	2023e	2024e	2025e	2026e	2027e
Inventories	0	0	0	0	0	0	0	0
Account receivable	3 048	771	599	15 639	29 683	42 145	72 131	123 579
Receivables fr affiliated comp	472	33	1 000	1 000	1 000	1 000	1 000	1 000
Prepaid costs & accrued inco	1 318	1 384	1 633	1 746	1 840	1 931	2 025	2 124
Other receivables	869	1 093	1 068	1 114	1 169	1 226	1 286	1 348
Cash and cash equivalents	8 668	32 756	19 052	15 490	72 549	204 484	464 001	1 011 411
Total current assets	14 374	36 037	23 353	34 988	106 241	250 786	540 443	1 139 462
Tangible assets	1 265	696	772	852	917	971	1 014	1 049
Intangible assets	20 829	27 323	35 433	42 504	48 502	53 614	58 005	61 812
Long-term receivables	5	0	0	0	0	0	0	0
Affiliated companies	7 823	137	104	104	104	104	104	104
Total fixed assets	29 921	28 155	36 309	43 461	49 524	54 689	59 124	62 966
Total assets	44 296	64 192	59 662	78 449	155 765	305 475	599 566	1 202 428
Accounts payable	2 381	1 104	2 163	2 175	2 184	2 193	2 203	2 212
Accrued cost & prepaid incon	4 611	4 188	4 803	5 109	5 367	5 629	5 903	6 190
Other liabilities	1 905	3 057	2 538	2 584	2 672	2 760	2 850	2 942
Loans	0	0	0	0	0	0	0	0
Total current liabilities	8 897	8 349	9 504	9 867	10 223	10 583	10 955	11 344
Total non-current liabilities	561	0	0	0	0	0	0	0
Total equity	34 838	55 843	50 158	68 583	145 541	294 892	588 611	1 191 084
Total equity and liabilities	44 295	64 192	59 662	78 449	155 765	305 475	599 566	1 202 428

Source: Västra Hamnen Corporate Finance

Cash flow statement

kSEK	2020	2021	2022e	2023e	2024e	2025e	2026e	2027e
Operating activities	-14 968	-20 952	-28 484	-3 782	86 100	159 635	304 978	614 574
Changes in working capital	2 027	1 566	203	-14 836	-13 837	-12 251	-29 767	-51 221
Investing activities	-15 151	-15 837	-14 465	-14 944	-15 204	-15 449	-15 694	-15 943
Financing activities	23 640	59 303	29 071	30 000	0	0	0	0
Cash flow for the period	-4 453	24 022	-13 733	-3 563	57 059	131 935	259 517	547 410
Beginning cash balance	13 181	8 668	32 755	19 052	15 490	72 549	204 484	464 001
Adjustments	-60	65	30	0	0	0	0	0
Ending cash balance	8 668	32 755	19 052	15 490	72 549	204 484	464 001	1 011 411

Source: Västra Hamnen Corporate Finance

Income Statement - Quarterly Data

kSEK	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022e	Q2 2022e	Q3 2022e	Q4 2022e
Net revenues	1 101	917	1 056	883	216	250	350	683
Capitalised development cost	3 346	4 448	2 926	3 622	3 435	3 680	3 484	3 626
Other revenues	545	504	498	498	591	602	614	627
Total revenues	4 992	5 868	4 480	5 003	4 241	4 532	4 448	4 936
Cost of goods sold	-150	0	0	-61	0	0	0	0
Personnel costs	-5 799	-6 493	-5 283	-5 812	-5 322	-5 857	-6 165	-6 552
Other external costs	-4 140	-5 211	-3 203	-3 457	-4 210	-4 979	-5 240	-5 569
Other operating expenses	0	-74	-210	-472	0	-867	-912	-970
Profit from affiliated companies	-481	-380	-702	-7 623	-32	0	0	0
EBITDA	-5 578	-6 289	-4 918	-12 421	-5 323	-7 170	-7 870	-8 154
Amortisation & depreciation	-1 993	-1 953	-1 932	-1 784	-1 449	-1 503	-1 615	-1 711
EBIT	-7 571	-8 242	-6 850	-14 205	-6 772	-8 674	-9 485	-9 866
Financial items, net	-195	-388	-443	-574	39	0	0	0
EBT	-7 766	-8 630	-7 293	-14 779	-6 733	-8 674	-9 485	-9 866
Taxes	0	0	0	0	0	0	0	0
Net profit	-7 766	-8 630	-7 293	-14 779	-6 733	-8 674	-9 485	-9 866
Earnings per share (SEK)	-0,27	-0,30	-0,26	-0,42	-0,19	-0,25	-0,27	-0,28
Y-o-Y Growth (%)								
Net revenues	-43,5%	-60,7%	-64,5%	-75,7%	-80,4%	-72,7%	-66,9%	-22,7%
EBITDA	na	na	na	na	na	na	na	na
EBIT	na	na	na	na	na	na	na	na
Net profit	na	na	na	na	na	na	na	na
% of revenues (%)								
EBITDA margin	neg	neg	neg	neg	neg	neg	neg	neg
EBIT margin	neg	neg	neg	neg	neg	neg	neg	neg
EBT margin	neg	neg	neg	neg	neg	neg	neg	neg
Profit margin	neg	neg	neg	neg	neg	neg	neg	neg
Personnel costs	526,6%	708,4%	500,3%	658,3%	2460,0%	2342,8%	1761,5%	959,6%
Total OPEX	902,6%	1284,9%	823,5%	1103,3%	4405,9%	4681,0%	3519,5%	1917,3%
Profitability (%)								
ROE	neg	neg	neg	neg	neg	neg	neg	neg
ROIC	neg	neg	neg	neg	neg	neg	neg	neg

Source: Västra Hamnen Corporate Finance

Balance Sheet - Quarterly Data

kSEK	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022e	Q2 2022e	Q3 2022e	Q4 2022e
Inventories	0	0	0	0	0	0	0	0
Account receivable	479	784	841	771	581	192	307	599
Receivables fr affiliated comp	546	292	145	33	16	1 000	1 000	1 000
Prepaid costs & accrued inco	1 255	1 297	2 248	1 384	1 412	1 665	1 761	1 633
Other receivables	718	719	1 151	1 093	961	1 010	1 085	1 068
Cash and cash equivalents	11 534	1 385	6 028	32 756	23 583	20 668	8 805	19 052
Total current assets	14 531	4 477	10 412	36 037	26 552	24 534	12 958	23 353
Tangible assets	1 170	1 083	1 026	696	700	725	749	772
Intangible assets	22 277	24 785	25 626	27 323	29 364	31 575	33 481	35 433
Long-term receivables	5	5	0	0	0	0	0	0
Affiliated companies	8 342	7 961	7 759	137	104	104	104	104
Total fixed assets	31 794	33 834	34 411	28 155	30 168	32 405	34 334	36 309
Total assets	46 325	38 311	44 823	64 192	56 720	56 940	47 292	59 662
Accounts payable	1 938	1 487	797	1 104	1 298	2 166	2 176	2 163
Accrued cost & prepaid incon	4 511	5 152	4 970	4 188	4 726	4 902	4 837	4 803
Other liabilities	2 695	3 119	2 796	3 057	1 586	2 698	2 591	2 538
Loans	10 000	10 000	25 000	0	0	0	0	0
Total current liabilities	19 143	19 759	33 564	8 349	7 610	9 766	9 604	9 504
Total non-current liabilities	0	0	0	0	0	0	0	0
Total equity	27 182	18 552	11 260	55 843	49 111	47 173	37 688	50 158
Total equity and liabilities	46 325	38 311	44 823	64 192	56 720	56 940	47 292	59 662

Source: Västra Hamnen Corporate Finance

Cash flow statement

kSEK	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022e	Q2 2022e	Q3 2022e	Q4 2022e
Operating activities	-5 362	-6 184	-4 480	-4 926	-5 289	-7 170	-7 870	-8 154
Changes in working capital	2 463	558	-2 415	961	-361	1 259	-449	-246
Investing activities	-4 346	-4 448	-3 421	-3 622	-3 495	-3 740	-3 544	-3 686
Financing activities	10 042	-45	14 943	34 306	-58	6 736	0	22 335
Cash flow for the period	2 796	-10 119	4 627	26 718	-9 203	-2 915	-11 863	10 248
Beginning cash balance	8 668	11 534	1 385	6 028	32 756	23 583	20 668	8 805
Adjustments	70	-30	15	10	30	0	0	0
Ending cash balance	11 534	1 385	6 028	32 756	23 583	20 668	8 805	19 052

Source: Västra Hamnen Corporate Finance

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Västra Hamnen Corporate Finance AB

Jungmansgatan 12

211 11 Malmö

Telefon: +46 40 200 250

E-post: info@vhcorp.se

