Acarix

Sector: Medtech

Diagnostic advance

Acarix's significant potential hinges on its CADScor system's invention of coronary artery disease (CAD) testing, plus an attractive razor/razorblade model under which high-margin (90%) disposable patches will generate the bulk of sales. While nearer-term upside is limited by the lack of reimbursement, the scope for the CADScor system to become a new standard supports the longer-term case.

High precision CAD testing

The CADScor system provides a highly sensitive and precise way of ruling out CAD in patients presenting at their local doctor with stable chest pain. This major triage role will avoid the need for many patients to undergo more advanced and costly invasive diagnostic procedures.

USD 850m+ market

We estimate CADScor's addressable market at USD +850 million in Europe and the US alone at current patch pricing. In our view, CADScor represents a major advance over the current treadmill stress test. We forecast peak EU and US penetration of 5% and 3% respectively. However, sales are unlikely to take off fully until public reimbursement is in place for the important German market, which we expect in H1 21.

Long-term upside

Our risk-adjusted DCF analysis indicates that Acarix is fairly valued at current levels, with a base case of SEK 1.5 per share. If it fulfils its ambition of getting CADScor included in clinical guidelines for CAD diagnostics, the share offers substantial longer-term upside towards our bull case valuation of SEK 6.

FAIR VALUE RANGE

BEAR	BASE	BULL
0.1	**1.5**	6.0

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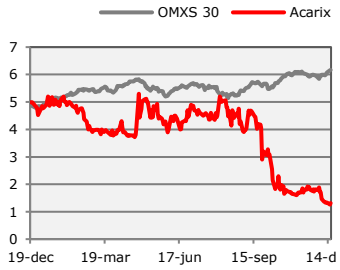
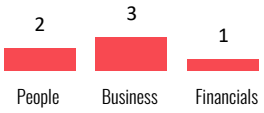


REDEYE RATING



KEY STATS

Ticker	ACARIX
Market	First North
Share Price (SEK)	1.4
Market Cap (MSEK)	67
Net Debt 19E (MSEK)	-48
Free Float	56 %
Avg. daily volume ('000)	50

KEY FINANCIALS (SEKm)	2017	2018	2019E	2020E	2021E	2022E
Net sales	1	1	1	3	7	16
EBITDA	-29	-40	-49	-53	-52	-44
EBIT	-31	-43	-49	-53	-52	-44
EPS (adj.)	0.0	-1.8	-0.9	-1.0	-1.0	-0.9
EV/Sales	-166.3	-60.2	14.0	27.4	19.1	11.0
EV/EBITDA	3.4	1.5	-0.4	-1.4	-2.4	-4.0
EV/EBIT	3.2	1.4	-0.4	-1.4	-2.4	-4.0
P/E	0.0	0.0	-1.4	-1.3	-1.3	-1.5

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Investment thesis

Disruptive CAD diagnostic technology

Based on a proprietary algorithm, the CADScor system uses sound from the heart to assess the risk of coronary artery disease (CAD) in patients presenting at their local doctor with stable chest pain. Today approximately 10% of those patients will be diagnosed with CAD, meaning that the larger part of the patients should not be part of the cardiology caseload.

With >97% NPV (negative predictive value), the CADScor system can successfully rule out CAD in up to 50% of patients at the very first stage of the diagnostic pathway. This compared to the more commonly used treadmill stress test, which sends too many healthy patients for further invasive testing due to poor sensitivity.

We see the CADScor system adding advantages in CAD diagnostics, with a compelling value proposition for patients, providers and payers.

Substantial market opportunity

With full reimbursement increasingly in place, starting in Germany from H1 2021 according to our forecasts, we expect Acarix to incrementally ramp up sales and deliver 3-year CAGR of over 100% (2020-23). The company's razor/razorblade model and high operating leverage give significant growth potential. While near-term revenue is driven by the number of CADScor systems sold, the bulk of long-term revenue will be generated from disposable high-margin (90%) patches.

We argue that the CADScor system is poised to gain market share from the more resource demanding treadmill stress test. With limited competition from other new technologies, we expect the system to gain ground and ultimately capture 5% and 3% of the total addressable market in Europe and US, respectively – representing a USD +850 million opportunity according to our estimates.

Longer-term potential intact

When Acarix went public in late 2016, investors had very high expectations about a near-term commercial breakthrough for the CADScor system. These have been reflected in the share's continuing decline since the IPO. If Acarix starts delivering growth with increasing profitability, we expect investors' perception of the company to shift.

Commercializing a medical device takes time. While Acarix is still many years from profitability, we view the CADScor system as an advancement due to its ease of use, cost savings potential and high diagnostic accuracy. If Acarix succeeds in its ambition of establishing the CADScor system as a standard device for ruling out stable CAD, the share offers vast upside potential.

Key catalysts

Dan-NICAD II results in H2 '20

As Acarix gathers more clinical data, Dan-NICAD II should improve the CADScor system sensitivity even further. Moreover, it will potentially allow the use of the CADScor system in patients below the age of 40, increasing the market potential further.

German public reimbursement

Acarix is awaiting key reimbursement status for the public sector in Germany, which accounts for 90% of the country's health care market. We forecast this will happen in H1 2021. Once this is in place, Acarix should see a pick-up in revenue. Attaining full reimbursement in Germany would also leverage reimbursement efforts in other European countries.

Order from high-volume hospitals

Acarix is currently selling the CADScor system to low volume hospitals and private clinics. An order from a German high-volume hospital would provide a significant validation of the CADScor system. It would further be a valuable reference center for Acarix to gain traction in the European medtech community and increase bargaining power with new customers.

Counter thesis

Changing behavior

Given the high level of industry conservatism, investors should not underestimate the challenge of changing physicians' clinical practice. Replacing industry standards takes time and will be costly. Furthermore, the lack of competition makes it even more difficult, forcing Acarix to invest heavily and drive the change as the only innovative player. It is important that the CADScor system is included in national guidelines and secure reimbursement to gain traction with the European medtech community.

Margin pressure

As the company's near-term focus is on rolling out the CADScor system in European clinics, margins will suffer in the short to medium-term. With systems and patches increasingly being put to use, however, margins will expand and profitability will follow.

Low insider ownership

With management and the board currently holding less than 1% of the shares, insider ownership is notably low. We would be encouraged if management increases their holdings to better align their interests with shareholders'.

Table of Contents

Acarix: Share performance since IPO

Source: Bloomberg

When Acarix was listed on First North Premier in late 2016, a valuation of almost SEK 500 million indicated investors had expectations of a near-term commercial breakthrough for the CADScor system in Europe. In addition, following the announcement of an exciting partnership with Chinese investment fund Puhua Jungxin, an expedited path to commercialization in China seemed in prospect – another giant market opportunity for the CADScor system.

However, changes in the Chinese regulatory requirements have added a significant delay for the Chinese registration, hence priorities in market expansion has changed. In addition, Acarix has been hurt by delays to reimbursement in important European markets and a pick-up in sales has not yet been seen - leaving investors impatient. The failure to live up to the high expectations has been reflected in a declining share price, with Acarix now trading ~90% lower than its IPO price.

Its listing on the First North Premier means that Acarix has struggled to attract institutional investors, as limited liquidity in the stock discourages larger investors from taking a position. Given the free float of 56%, fundamental events have the potential to drive significant movements in the stock - both up and down.

Q3 and the recent rights issue

In the third quarter, Acarix generated sales of SEK 0.1 million compared to SEK 0.4 million in same quarter previous year. In total, three CADScor systems and 496 patches were sold in Germany. With operating expenses of SEK 11.4 million, the cash burn rate for the quarter was SEK 11.3 million. Acarix ended the third quarter with a cash position of SEK 27.7 million.

During the third quarter, clinical studies were progressing and Acarix announced the publication of a meta-analysis including a total of 2,245 patients. Results showed that the CADScor system was more than three times as effective as current practice. The findings were published in The International Journal of Cardiovascular Imaging. We are encouraged by the results are believe these data will be key in order to leverage reimbursement efforts in Europe.

Acarix: 2019 financials

	Q1	Q2	Q3	Q4E
Net sales	0.3	0.7	0.1	0.3
COGS	-0.1	-0.1	0.0	-0.1
OPEX	-13.0	-12.8	-11.4	-12.8
EBIT	-12.8	-12.3	-11.3	-12.6
Financials	0.0	0.0	0.0	0.0
Tax	0.0	-0.1	0.0	0.0
Net income	-12.8	-12.4	-11.3	-12.6

Source: Acarix, Redeye Research

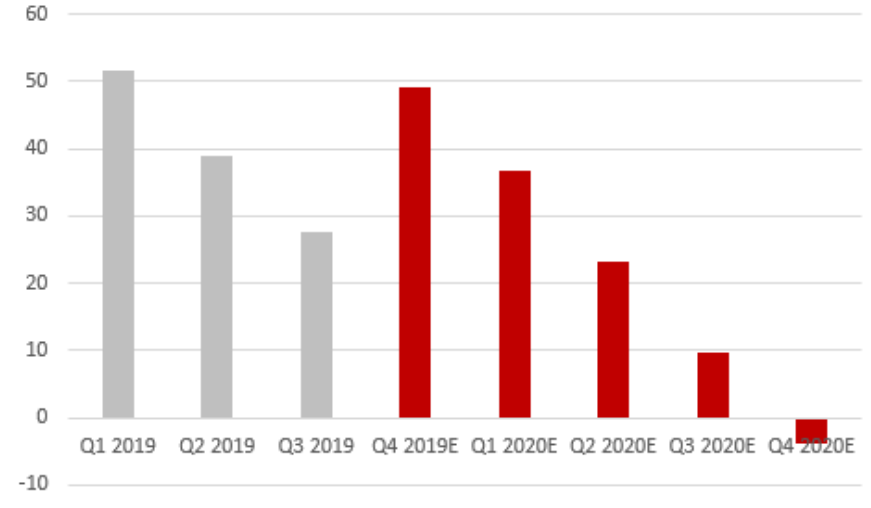
However, the most important event during the quarter was the announcement of a rights issue totaling to a maximum of SEK 51.8 million before deduction of transaction costs. The rationale for acquiring capital is primarily to expand the business in Europe, work towards FDA approval and pursue clinical studies with the CADScor system.

The transaction was executed during the fourth quarter at SEK 1.5 per share and brought in SEK 43 million before transaction costs. Approximately 47.4 percent of the issue was subscribed for by exercise of subscription rights and 9.6 percent was subscribed for without use of subscription rights. 26 percent of the rights issue, translating to SEK ~13.5 million was taken by guarantors.

Following the rights issue, the guarantors hold around 9m shares with an implicit purchase price of between SEK ~1.1-1.3 and are likely to seek exit opportunities. With average daily turnover volumes of roughly SEK 300,000 over the last three months, this is likely to hold back any pick-up in the share in the coming months. However, we believe this selling pressure will not be fundamentally driven and may instead create opportunities for more long-term committed investors to get a good entry in the stock.

Assuming transaction costs of SEK ~9 million, we estimate Acarix' cash position to roughly SEK 49 million at the end of Q4. Given a cash burn rate of SEK ~11-14 million on a quarterly basis, we forecast the company is now funded until Q4 2020.

Acarix: Estimated cash position



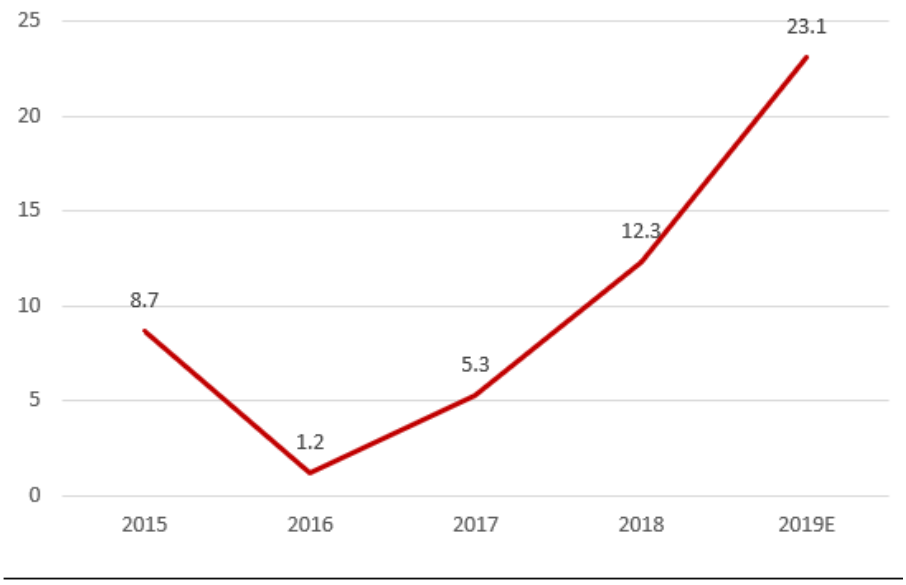
Source: Redeye Research

R&D ramp-up

Following the Adopt study which formed the basis for CE approval of the CADScor system back in 2015, R&D spending has been at a low level. In an early stage medtech company it is key to pursue studies to show clinical and economic benefits over the current standard to achieve inclusion in national guidelines.

We find it encouraging that the new management is ramping up the R&D efforts. With several ongoing studies in Europe, we believe that Acarix is well on its way to attract more interest among European clinicians. In order to achieve a broader adoption, Acarix must further strengthen the documentation of the CADScor system's economic benefits.

Acarix: R&D spending



Source: Acarix, Redeye Research

An acknowledgement of Acarix's R&D efforts came in March when the CADScor system was included in the UK National Institute for Health and Care excellence (Nice) advice programme on the basis of two studies with the CADScor system conducted by Winther et al.[1] While this is not yet a formal inclusion in the NICE guidelines, it is an important validation of the CADScor system since NICE is a reputable guidance and advisory body with international standing. We believe its inclusion will leverage reimbursement efforts and help gain traction for the CADScor system in other European countries.

[1] NICE 2019

Company profile

Acarix was established in 2009 as a spin-out from Coloplast A/S and is a company that develops and markets cardiology diagnostic products. The company was listed on Nasdaq First North Premier in late 2016. (For further discussion about management, board of directors and ownership structure, see appendix below.)

Acarix provides the CADScor system, a cost-efficient, non-invasive and non-radiation testing method for ruling out stable Coronary Artery Disease (CAD) at the very first stage of the diagnostic pathway. The system is built around an acoustic sensor and proprietary algorithm, giving it the competitive advantage of providing results in approximately 10 minutes. Acarix holds patents for the algorithm technology in major EU markets, the US and China until 2026 and later.

In 2015, Acarix was granted a CE approval for the CADScor system. Sales, primarily in Germany and the Nordic region, are under way and growing.
Acarix has set its key priorities going forward as:

- Continuing to develop market awareness and commercial activities in Germany, UK and the Nordics primary
- Gain US- FDA approval and developing and executing US partnering strategy
- Generating further clinical data to support adoption (Dan-NICAD II, FILTER SCAD)

Business model and strategy

Acarix offer the CADScor system as a multi-tool with disposable patches. Customers can either purchase a system or rent it for a monthly fee. Given its razor/razorblade model, revenue will be driven in the short term by the number of CADScor systems sold. But in the longer term the bulk of revenue will be generated by the sale of highly profitable disposable patches.

The CADScor system is currently selling in the Swedish, Danish, German and Austrian markets in low volumes. The plan is to subsequently enter the Netherlands and the UK, where regulatory structures and reimbursement policies are favorable. In the German market, the CADScor system is currently sold to clinics covered by the private health insurance system under existing reimbursement codes.

While the goal is to use the CADScor system in primary care, the initial focus is to establish the product among cardiologists and key opinion leaders to gain traction in the industry.
Furthermore, Acarix is seeking to establish the CADScor system in high-volume hospitals, which should act as reference centers for the medical community to spur commercialization of the product.

Acarix: Historical milestones

Year	Event
2007	The technology was developed at Aalborg University
2008	Recieves DKK 6.8m from HøjteknologiFunden in Denmark
2010	Directed equity of DKK 21m with Sunstone capital, Seed capital entering as new owners
	CADScor prototype finished
	First studies initiated on high-risk CAD patients
2013	New share issue of DKK 27m
2014	New share issue of DKK 18.7m
2015	Obtains CE-mark for the European market
2016	Completes the CADScor system's transition from prototype to end product
	Chinese investment fund Puhua Jingxin initites partnership and invests in Acarix
	The CADScor system obtains regulatory approval in Canada
2017	The CADScor system displayed a NPV of 96% - DAN-NICAD-study
2019	The CADScor system was included in NICE's Medtech Innovation Briefing
2019	New share issue of SEK 43m

Source: Redeye Research, Acarix

The CADScor system overview – innovative CAD diagnostics

Every year, we estimate over 20 million people present with chest pain at their local doctor in Europe and US alone. Of these, only 10% are diagnosed having Coronary Artery Disease (CAD). It follows that 90% of patients with chest pain are not suffering from CAD, but instead have symptoms such as muscle pain or psycho-social stress. The need to be able to rule these individuals out of further testing at the very first stage of the diagnostic pathway is substantial.

Causes of chest pain in patients who seek primary care

Etiology of chest pain	Percentage of patients with diagnosis
Musculoskeletal conditions (including costochondritis)	29%-36%
Nonspecific chest pain	11%-16%
Gastrointestinal disease	10%-19%
Stable CAD	8%-10%
Psychosocial or psychiatric disease	8%-17%
Pulmonary disease (pneumonia, pneumothorax, lung cancer)	5%-20%
Other cardiovascular disease (pulmonary embolus, heart failure)	3.5%-5%
Unstable CAD	1.5%

Source: The journal of family practice

The CADScor system was developed to fill this need by improving triaging of patients and reducing the need for costly further invasive diagnostic investigations. With 97% NPV (negative predictive value), the CADScor system can rule out up to half of patients who present symptoms of CAD but are experiencing chest pain due to another illness.

The CADScor system is an advanced diagnostic aid that records and analyses sounds from the heart to deliver a CAD risk score on a 0-100 scale. Patients recieving a score >20 are classified as high-risk and should receive additional testing for CAD, while a score <20

indicates low risk and CAD can be ruled out. The CADScor system is highly standardized and an examination can be performed at the point of care by a nurse, making the device particularly useful in primary care. The total time required to complete the test is about 10 minutes.

CADScor - How it works

Source: Acarix Prospectus

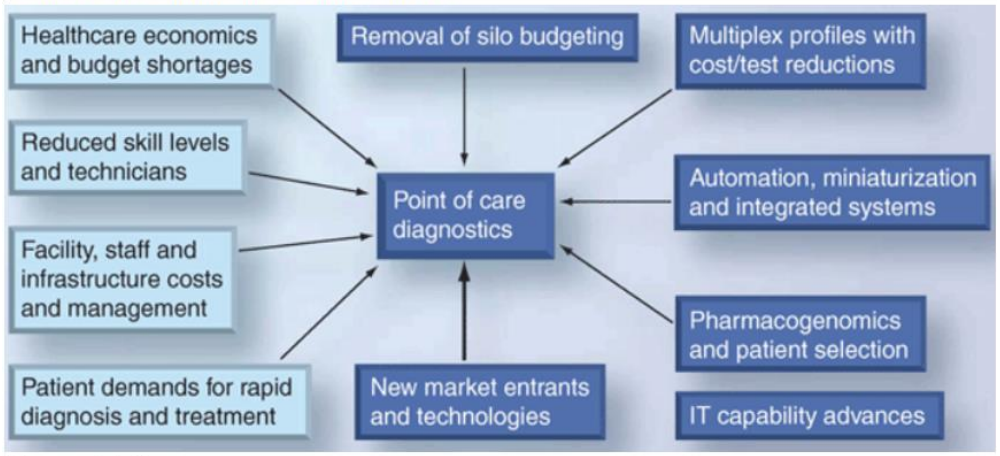
Point-of-care testing – an increasingly popular approach

Point-of-care testing is set for higher growth than the overall In vitro diagnostics market. Recent industry reports suggest this segment will deliver a CAGR of 7-9% over the coming five years, primarily driven by higher incidence of chronic health conditions and increased overall government healthcare spending.

Point-of-care testing is a diagnostic process performed outside laboratories - in the doctor's office, emergency rooms or similar. This dramatically shortens the process and gives results within minutes rather than hours. This is a necessity in some cases, and a large cost and time saver in more standardized inquiries.

The accuracy of point-of-care tests is commonly measured in terms of sensitivity and specificity. A test's sensitivity (true positive rate) measures the proportion of actual positives that are correctly identified as having the condition. A test's specificity (true negative rate), on the other hand, measures the proportion of actual negatives that are currently identified as not having the condition.

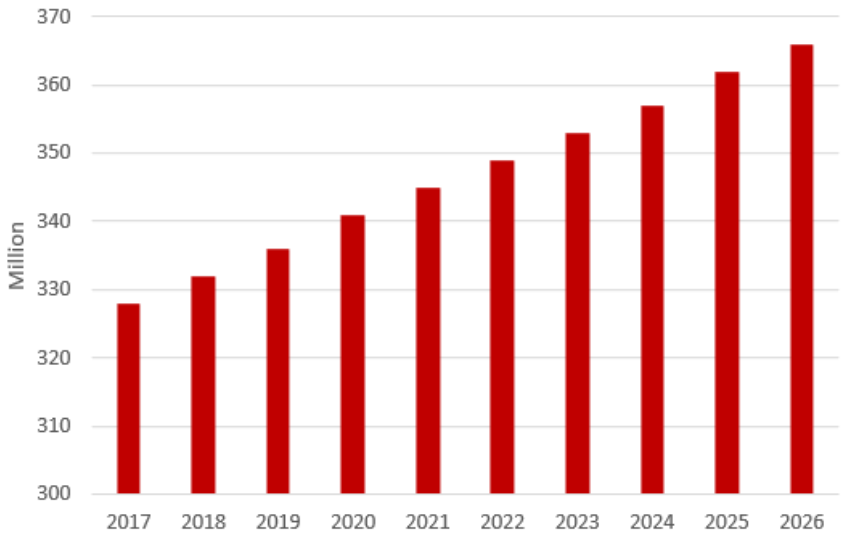
Point-of-care diagnostics - market drivers



Source: Medscape

Cardiovascular diseases – a growing public health issue

Prevalent cases of CAD globally, 2017-2026



Source: Datamonitor

Asia is estimated to have had the largest number of prevalent cases of CAD in 2017 (171.3 million cases), while the Oceania region is estimated to have had the smallest number (1.7 million cases). North America and Europe numbers are estimated to 18 million and 32 million, respectively.

The total global cost of cardiovascular diseases (CVD) amounted to USD 863 billion in 2010 and is expected to increase to USD 1,044 billion by 2030 according to World Economic Forum. This includes both direct healthcare costs (~55 %) and other societal costs. Key drivers are global population growth, a larger share of the population over 60 and lifestyle factors such as poor diet and physical inactivity.

The CADScor system - addressable market

The CADScor system's target market is patients who enters the healthcare system with stable chest pain. As estimating this population for each individual market is very challenging, we have used extrapolated available statistics from a large stable CAD incidence study conducted in Finland to other countries and adjusted for a slightly higher stable CAD incidence rate in the US.

We see Acarix' primary target markets as developed countries in Europe (EU15+BeNeLux+Nordics) and the US. For now, we restrict our market model to countries that will be the company's short and medium-term focus.

Age- and sex-specific annual incidence risk of stable angina

Age Group, y	New Cases/Total Population		Incidence per 100 Population		Sex Ratio (95% CI)
	Women	Men	Women	Men	
		Nitrate Angina			
45-54	3938/376 622	4834/387 100	0.35	0.42	1.19 (1.14-1.24)
55-64	10 165/271 357	8299/254 182	1.25	1.09	0.87 (0.85-0.90)
65-74	19 354/250 901	12 291/184 712	2.57	2.22	0.86 (0.84-0.88)
75-84	18 545/161 718	7935/75 957	3.82	3.48	0.91 (0.89-0.94)
85-89	4439/38 519	1526/13 348	3.84	3.81	0.99 (0.94-1.05)
All†	56 441/1 099 117	34 885/915 299	1.56	1.43	0.91 (0.90-0.93)
		Test-Positive Angina			
45-54	1034/376 622	3377/387 100	0.09	0.29	3.16 (2.95-3.40)
55-64	2763/271 357	5171/254 182	0.34	0.68	2.00 (1.91-2.09)
65-74	4392/250 901	5172/184 712	0.58	0.93	1.60 (1.54-1.67)
75-84	2747/161 718	1848/75 957	0.57	0.81	1.43 (1.35-1.52)
85-89	455/38 519	238/13 348	0.39	0.59	1.51 (1.29-1.76)
All†	11 391/1 099 117	15 806/915 299	0.33	0.60	1.84 (1.78-1.90)

Source: Jama, 2006

The study enrolled a total of ~118 000 patients aged 45 to 89 years who had no history of coronary disease. New cases of stable CAD were defined as either "nitrate angina" based on nitrate prescription (56 441 women and 34 885 men) or "test-positive angina" based on abnormal invasive or noninvasive test results (11 391 women and 15 806 men).[2]

The CAD incidence defined as test-positive angina was slightly higher in women than in men and was somewhat positively correlated with age. In total, we estimate the annual stable CAD incidence to ~1 million cases in EU15+BeNeLux+Nordics.

Estimated CAD incidence - EU15+BeNeLux+Nordics

Age	Male (m)	CAD incidence rate, male	CAD incidence, male (m)	Female (m)	CAD incidence rate, female	CAD incidence, female (m)
40-44	12.7	0.29	0.04	12.8	0.09	0.01
45-49	13.3	0.29	0.04	13.6	0.09	0.01
50-54	13.3	0.68	0.09	13.7	0.34	0.05
55-59	13.8	0.68	0.09	14.6	0.34	0.05
60-64	12.5	0.93	0.12	13.7	0.58	0.08
65-69	10.3	0.93	0.10	11.8	0.58	0.07
70-74	8.0	0.81	0.06	9.3	0.57	0.05
75-79	5.3	0.81	0.04	6.6	0.57	0.04
80-84	3.4	0.60	0.02	4.5	0.39	0.02
85-	3.0	0.60	0.02	5.4	0.39	0.02
Total			**0.6**			**0.4**

Source: Redeye Research

We have used the same statistics and extrapolated the numbers to the US market. We have then adjusted for a slightly higher CAD incidence rate in the US compared to the European countries. In total, we estimate the annual stable CAD incidence to ~0.9 million cases in US.

Considering the fact that only 10% of the patients who seek primary care for chest pain actually are diagnosed with stable CAD, we estimate the number of test opportunities for the CADScor system to be 8-10x times the stable CAD incidence.

[2] Jama 2006

Assuming a growth rate of 0.5%, in line with the overall population growth, and a pricing of 50 dollars per test in US and EU, we estimate the addressable market for the CADScor system to be USD 411 million and USD 483 million in the US and EU, respectively.

Market opportunity, US	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Stable CAD incidence (m)	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
No. patients presenting with chest pain (m)	7.8	7.8	7.9	7.9	7.9	8.0	8.0	8.1	8.1	8.1	8.2	8.2
Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Pricing ($)	50	50	50	50	50	50	50	50	50	50	50	50
Market opportunity ($m)	**389**	**391**	**393**	**395**	**397**	**399**	**401**	**403**	**405**	**407**	**409**	**411**

Source: Redeye Research

Market opportunity, EU15+BeNeLux+Nordics	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Stable CAD incidence (m)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1
No. patients presenting with chest pain (m)	9.1	9.2	9.2	9.3	9.3	9.4	9.4	9.5	9.5	9.6	9.6	9.7
Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Pricing ($)	50	50	50	50	50	50	50	50	50	50	50	50
Market opportunity ($m)	**457**	**459**	**462**	**464**	**466**	**469**	**471**	**473**	**476**	**478**	**481**	**483**

Source: Redeye Research

Industry outlook

Coronary Artery Disease

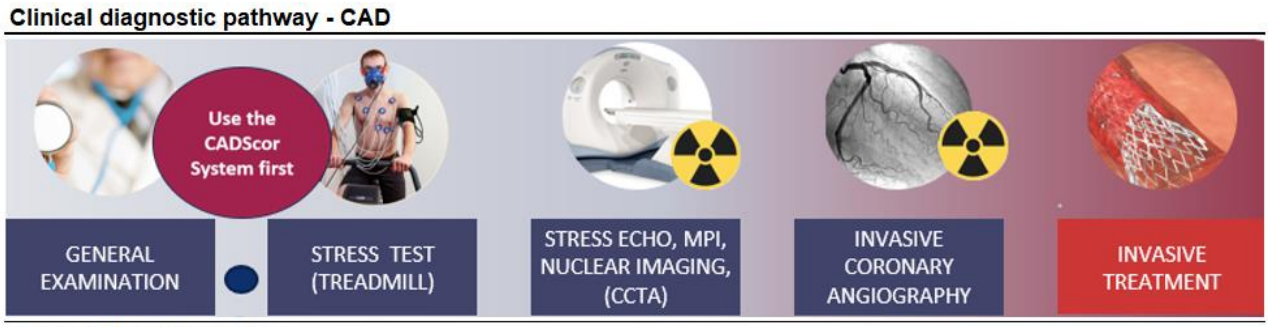
Cardiovascular diseases are the leading cause of death worldwide, accounting for over 30% of all deaths. Coronary Artery Disease (CAD) is one of the most common cardiovascular diseases with a global prevalence of ~330 million according to Datamonitor.

CAD occurs due to the narrowing of coronary arteries that supply oxygen-rich blood to the heart. Plaque builds up within the coronary artery walls until the flow of oxygen-rich blood to the heart muscle is limited. The first sign of CAD is usually chest pain, also known as angina. This could be either stable angina or unstable angina.

Unstable angina symptoms occur in a random and unpredictable fashion. It is most often caused by the actual rupture of a plaque in a coronary artery. About two of three people who have heart attacks experience unstable angina, shortness of breath, or fatigue a few days or weeks beforehand. Accordingly, patients experiencing unstable angina should immediately seek aid at a hospital.

In contrast, stable angina usually occurs with activity or emotional stress. Stable angina is caused by a stable blockage in a coronary artery and not an actual rupture, making it less acute than the unstable angina. It is, however, important for stable angina to be diagnosed and treated to avoid permanent cardiac damage, or worse. Patients with stable angina are the addressable population for the CADScor system.

Diagnosing stable CAD in practice



Soruce: Acarix prospectus

General examination - Diamond Forrester classification

When presenting at your doctor with chest pain, you will first be asked about your medical history. For the past 30 years the Diamond Forrester classification (DF Score) has been used to estimate the probability of CAD in patients with chest pain. An advantage of the DF model is its simplicity, using only age, gender, and chest pain details to estimate the likelihood of obstructive CAD. There are other methods with similar objectives developed locally in different markets, so called anamneses. Based on their Score, patients are placed in low-risk, intermediate-risk or high-risk groups. The low-risk group will be ruled out of additional testing for CAD, whereas the high-risk will be sent further on for more comprehensive assessment.

Cardiac stress test

Many patients classified as intermediate risk will undergo a cardiac stress test. This is done by simply walking on a treadmill. As the heart beats progressively harder, an electrocardiogram (ECG) monitors the electrical rhythms of the patient's heart. The doctor is also measuring blood pressure as well as monitoring whether the patient has symptoms such as chest pain or fatigue. If heart rate, blood pressure or ECG deviate from normal levels, it could be an indication of CAD. As a result, stress tests detect severely narrowed arteries (>70 %) since this is what causes the symptoms.

However, stress tests are known for low sensitivity in detecting CAD, meaning many patients are diagnosed having CAD even if they are healthy. The issue with over-estimating the prevalence of CAD is that too many patients are sent further through the diagnostic chain – leading to more invasive testing and a higher burden for the healthcare system. Further, it is also important to emphasize that a stress test result cannot exclude the possibility of the patient later having a plaque that ruptures and blocks an artery.

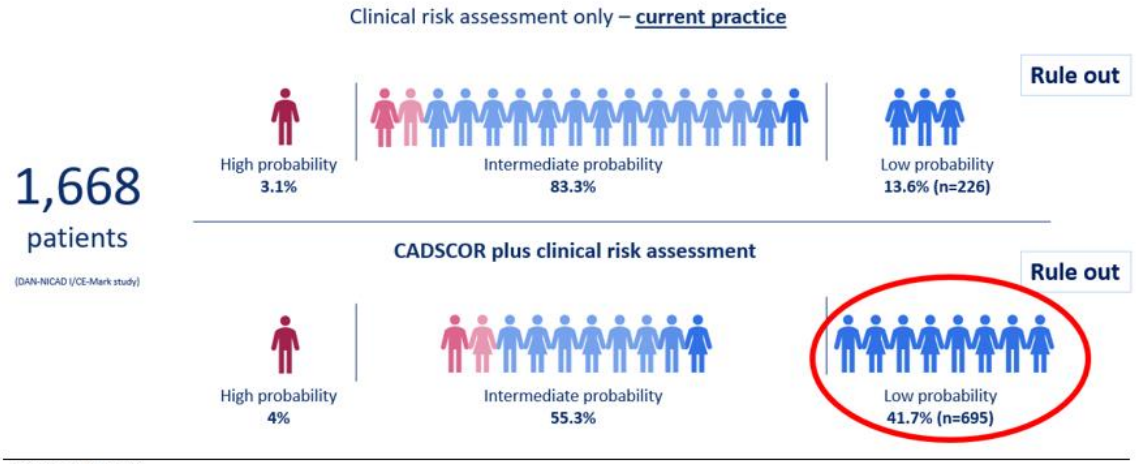
It takes about one hour to perform a cardiac stress test. This does not include the preparations mentioned above or waiting time for results.

In the new Guidelines, published in September 2019, the European Society of Cardiology (ESC) has changed the classification of Stress ECG supporting the need of alternative methods, an opportunity for the CADScor system.

The CADScor system's place in the diagnostic chain

The CADScor system will be positioned as a rule-out device in primary care, in conjunction with clinical risk assessment such as the DF Score or similar. Based on data from the DAN-NICAD-study, 41.7% of patients presenting with chest pain could be ruled out from additional testing for CAD, using a combination of the CADScor system and DF Score - compared to a rule-out of 13.6% if the DF score is used alone.

CADScor performance in conjunction with risk assessment



Source: Acarix

Given these advantages, we see a strong rationale for the CADScor system to replace the cardiac stress test as a rule-out for stable CAD. The CADScor system should increase the utility for everyone involved:

- Patient's perspective: Higher sensitivity, saves more healthy patients from moving through to invasive testing. Can be performed at the point-of-care, taking only 10 minutes. Shortened waiting times for diagnosis.
- Clinics' perspective: Highly standardized and can be performed by a nurse – saves time for cardiologists. No exposure to Radiation and immediate results.
- Payers' perspective: Significantly lower cost burden by ruling out more patients from additional, more cumbersome testing and procedures to rule out CAD.

Clinical validation

Several studies have been conducted to validate the CADScor system as a diagnostic tool for CAD. In total, more than 2000 patients have been enrolled in clinical studies with CADScor, and an additional ~3000 patients have been tested in a commercial setting.

Completed trials

Adobt CAD (2015) – basis for CE approval

In a single-center study conducted by Winther et al, 255 patients with symptoms of CAD were enrolled to evaluate the diagnostic accuracy of the CADScor system and compare it to the Diamond-Forrester (DF) and Coronary Artery Calcium (CACS) scores. The patients all belonged to one of three groups; obstructive CAD (the most severe type), non-obstructive CAD and non-CAD. CAD scores were divided as a binary variable into three levels: low (<20),

intermediate (20-30), and high (>30). The outcome measurement of the study was area under the curve (AUC), which determines how well the test can distinguish between the groups.

The diagnostic accuracy evaluated by AUC was 72% for the CADScor system, compared to 79% and 86% for DF and CACS, respectively. Combining the CADScor system and DF, AUC increased to 82%. The authors concluded that the combination of clinical risk scores and an acoustic test (in this case CADScor) seems to optimize patient selection for diagnostic investigation.

The high number of patients reclassified to the very low risk category indicates the CADScor system's clinical potential in primary risk stratification.

Dan-NICAD (2017) – CADScor displayed a NPV of 96%

In 2017 Winther et al conducted another study of the CADScor system in which the objective was to evaluate version 3 against the earlier version of the test (version 2). A total of 1676 patients with low to intermediate likelihood of CAD were enrolled. Low risk in the study was indicated by a CADScor value ≤20.

Given a cut-off value of 20, the sensitivity and specificity of the new version of the CADScor system was 81% and 53%, respectively. Particularly notable was the high negative predictive value (NPV) of 96% for diagnosing CAD. The positive predictive value (PPV) was 16%.

The authors concluded that sound-based detection of CAD enables risk stratification superior to clinical risk scores. Utilizing the CADScor system as a rule-out system could potentially supplement clinical assessment to guide decisions on the need for further diagnostic investigation.

Ongoing/Planned trials

Acarix continues to invest heavily in R&D and has four ongoing/planned trials, where more than 4000 patients will be included.

Dan-NICAD II – inclusion ending H1 2020

The Dan-NICADII study is intended to further support the eligibility, document the positive effects on health economics and also expand the applicability to patients 30-39 years of age. The trial results are expected to involve 2000 patients from four Danish hospitals with a low-to-intermediate likelihood of CAD. The study results are expected to improve on the negative predictive value of 97%, which suggests using the CADScor system as a first-line CAD rule-out method.

FILTER-SCAD trial – "real life scenario"

The FILTER-SCAD trial is set to begin enrollment in 2019/2020. Its objective is to evaluate the CADScor system in a randomized study compared to standard evaluation. This trial further aims to follow a "real life scenario" where patients will be followed up after a rule-out from the CADScor system. Approximately 2000 patients will be enrolled prospectively at four different study sites. Results from this study should be available by 2022.

SEISMO study – new indication

Acarix is also pursuing a study to develop a diagnostic algorithm that could lead to new functionality of the CADScor system for early detection of heart failure. Heart Failure is a globally rapidly growing indication, and this is an exploratory study investigation the opportunity to expand the CADScor algorithm towards other indications. The study was initiated in December 2018 and will include 200 patients. Results from the study are due in 2020.

CADScor: Ongoing and planned trials

	Dan-NICAD II	Seismo	AKUSTIK	FILTER-SCAD
Objective	To support the eligibility, document the positive effects on health economics and possibly expand the applicability to patients 30-39 years of age.	To develop a diagnostic algorithm that could lead to new CADScor functionality for early detection of heart failure	To investigate if CADScor as a first-in-line rule out device could lead to less late-stage investigations for stable CAD	12 month follow-up of patients ruled-out from CAD with CADScor. Investigate if CADScor could reduce number of test without jeopardize patient safety
No. patients	~2000	~200	~250	~2000
Patient population	Low-to-intermediate likelihood of stable CAD.	Heart failure	Stable CAD	Stable CAD
Reference object	Updated Diamond-Forester score	Echocardiography	Stress test	Diamond-Forester score & stress test
Start date	H1 2018	H1 2018	H1 2019	H1 2020
Expected results	H2 2021	H2 2020	H2 2020	H2 2022

Source: Redeye Research, Acarix

Market opportunity

Acarix's goal is to commercialize the CADScor system step by step in Europe, with Germany, Austria and Scandinavia as the initial focus markets. Near-term prospective markets are the Netherlands, UK and other European markets where the CADScor will be sold solely through distributors.

Europe

We regard Europe as typically a slower market in which to develop new medical devices. Due to countries' different requirements and healthcare systems, the process of obtaining reimbursement is often lengthy and administratively burdensome. The market is also more fragmented than the US, making it more challenging to build a large installed base. Adoption is likely to be slow in most European countries, unless there is strong national KOL support and traction with the medical community. We view Germany as the most important market in the early commercialization phase.

Germany, Scandinavia, Austria – direct sales

In the German market, the CADScor system is currently sold to clinics covered by the private health insurance system under existing reimbursement codes. As the private sector accounts for just 10% of the total German market, sales potential is limited until Acarix manages to get reimbursement for the CADScor system in the public sector.

The reason for this is that the private insurance providers operate their own reimbursement scheme and tend to be early adopters of new technologies that save costs. The government

scheme, on the other hand, take at least two years to decide on whether to reimburse and at what level.

Previously Acarix was aiming for full reimbursement in Germany by the end of 2019. However, new legislation hurt this timeline. Acarix has now intensified its contact with the Federal Joint Committee, G-BA, over the further pathway to full reimbursement status in Germany. We expect the process to drag on and forecast full reimbursement for the German market to be in place by H1 21 the earliest.

Focus on Scandinavia is the most natural path of expansion after Germany. There is an ongoing health technology assessment (HTA) in south Sweden evaluating the diagnostic accuracy of stress test for CAD. If these assessments are negative, it could create opportunities for new technologies such as CADScor to win ground in the Swedish market and possibly gain inclusion in national guidelines.

Denmark is a more challenging market to establish the CADScor system as current guidelines imply that the highly sensitive CT-scan should be performed early in the diagnostic chain for CAD.

UK, Netherlands, Italy – distributor sales

As noted, the CADScor system was included in the (British National Institute for Health and Care Excellence (NICE) advice programme In March. As NICE is a reputable national guidance and advisory body, inclusion is an important acknowledgment which we believe will leverage regulatory efforts for the CADScor system in other European markets.

We regard the inclusion as an important validation of the CADScor system which will strengthen the case in the pursuit of reimbursement in the UK and other territories. Next on the agenda is accelerating Acarix strategy of introducing the CADScor system in the UK. First, Acarix will negotiate with National Health Services England and Clinical Commissioning Groups (CCG), which are responsible for approximately two-thirds of total National Health Service spending.

The Netherlands is known for being adaptable and has many of the same basic characteristics as Acarix's main markets, Germany and Scandinavia. The Dutch reimbursement system is well structured and fits the CADScor system well. Existing DRG codes can potentially be used for the CADScor system in the early phase.

US market

In contrast to the European market, the US is characterized by a high level of concentration, enabling high volumes with a relatively small customer base. As hospitals operate under the same healthcare system and regulatory requirements across the whole market, obtaining reimbursement is usually a smoother process. Given the vast number of clinics in the US, we assume Acarix will commercialize though a distributor in the US market. This would enable Acarix to leverage their focus on product development without having to build the infrastructure needed to commercialize the CADScor system by itself in the US.

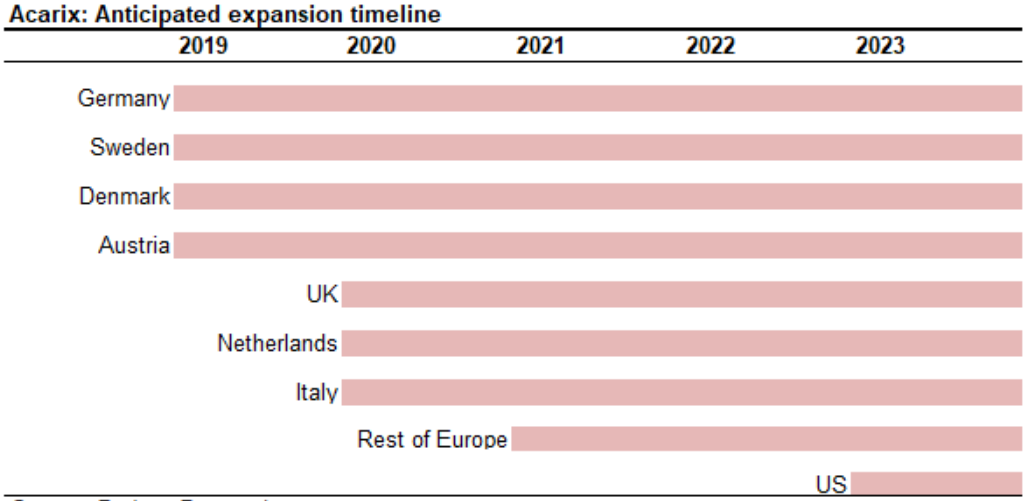
An essential step in achieving commercial success in US is to get included in guidelines by the two medical cardiology associations, the American Heart Association and American College of Cardiology. If Acarix uses a distributor, it will need to take in account a distributor

discount and expand the price range accordingly. Price sensitivity is, however, less significant as the US market tends to adopt new technology more enthusiastically.

In December, Acarix filed a De Novo application to the FDA for the CADScor system. This regulatory route is for new, novel devices whose type has not previously been classified. If approved though a de novo submission, the CADScor system may serve as a predicate device for 510(k) submissions of future devices of the same type.

Given a solid clinical data package of the CADScor system from European studies, we believe Acarix will be able to use available clinical data and in addition conduct a study with 150-200 patients in the US for its de novo submission. While Acarix could leverage its extensive clinical evidence for the CADScor system, which could expedite the regulatory process in the US, we chose to be conservative and estimate an US market launch in late 2022/early 2023. We summarize our expansion timeline assumptions for the CADScor system in the table below.

Acarix: Anticipated expansion timeline



Source: Redeye Research

China

With an estimated 230 million hospital visits for cardio-related diseases per year China is an attractive potential market for Acarix. The company suggests that 16 million people visiting hospitals after CAD symptoms corresponding to about SEK 3 billion per year.

An important partnership was inaugurated in 2016 when Puhua Jingxin Guzhou Health Management Partnership ("Puhua Jungxin") bought into the company. Puhua Jungxin is an investment fund that will play a key role in the establishment of Acarix in China after regulatory approval from CFDA (China Food and Drug Administration).

While China is an appealing target market for Acarix in the longer term, we choose not to include it in our valuation currently. We believe that the market will be less in focus for a foreseeable future and it will linger until we see any significant sales in that region.

Competition

The CADScor system's competitive landscape is limited. Only one other device addresses the same medical need. However, at this early stage of commercialization the major challenge will be changing physicians' behavior and building a market for the product. Accordingly, increased competition should be viewed positively at this early stage. Despite its low sensitivity, Stress ECG remains the biggest competitor as it is the current standard in relevant markets.

The CADScor system: Competitive landscape

	CADScor System (Acarix)	CADence (AUM Cardiovascular)	Stress ECG (Generic)
Status	**CE mark EU and Canada**	CE mark EU, FDA approved	Golden standard
Time to do test	**10 minutes**	15 minutes	1 hour
Time to get results	**5 minutes**	10 min	Varies a lot
Negative predictive value	**97%**	91%	75%
Area under curve	**0.77**	0.74	0.82
Pricing per test	**~50$**	~200$	~100$
Target patients	**Low to moderate risk symptomatic**	Moderate to high risk symptomatic	Symptomatic patients

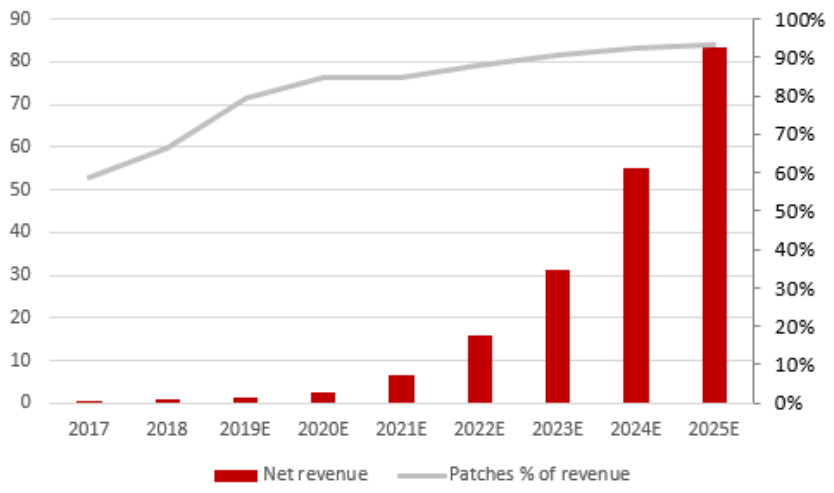
Source: Redeye Research

The CADence device is not labeled as a diagnostic tool for ruling our CAD but approved as electric stethoscope in the US under a 510k. This greatly reduces the odds of it becoming a future competitor to the CADScor system, in our view.

Financials

Acarix's razor/razorblade business model offers high growth potential and high operating leverage. While near-term revenue will be driven by the number of CADScor systems sold, the bulk of revenue will be generated in the longer term from high-margin (90%) patch sales – pushing gross margins incrementally higher. Accounting for increasing economies of scale, we expect gross margins to approach 90% at the end of our forecast period.

Acarix: Revenue and patches share of revenue



Source: Redeye Research

According to Acarix, the list price for systems and patches is SEK ~50,000 and SEK ~500, respectively. We anticipate that systems will, however, be sold at large discounts initially as the highest priority is the roll-out of systems to clinics to maximize patches sold.

Working back from 2017 and 2018 annual figures, we see that systems were sold for average prices of SEK 26,200 and SEK 18,700, respectively. We expect these prices to increase over time with reimbursement in place and more systems rolled out in European clinics, which will give Acarix better bargaining power with new customers. We estimate that the full list price for the CADScor system will be reached in 2025 and that systems installed are replaced every fifth year.

We forecast that revenues will not pick up significantly in the near term, but anticipate a breakthrough once full reimbursement is in place in Germany, which we expect in H1 21. In near-term, we expect the bulk of revenue will come from Germany, Austria, Sweden and Denmark where Acarix has established its own salesforce. We thus expect a more rapid market uptake of the CADScor system in these regions.

The strategy is to apply a distribution model for the rest of Europe and the US. In our model, we assume that fees to a distributor/sales partner will amount to 30% of revenue in Europe and US, respectively.

The CADScor system is currently sold in low volumes to cardiologists and key opinion leaders with the focus to reach a broader industry acceptance for the product. We expect it will take a couple of years for the CADScor system to gain traction within European primary care clinics, where the appealing high-volume sales potential for the product exists.

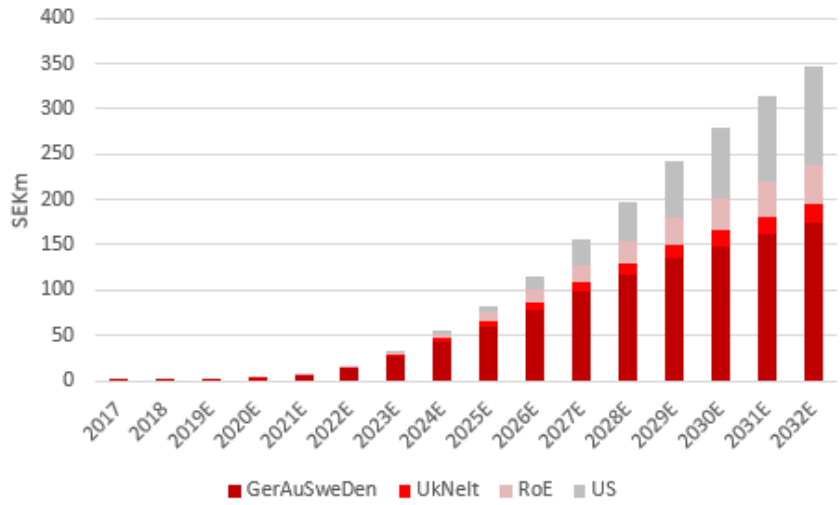
Acarix: Revenue model

	2017	2018	2019E	2020E	2021E	2022E	2023E	2024E	2025E
Systems sold	10	19	17	20	32	50	70	93	109
ASP system (SEK)	26200	18700	16500	20000	27500	32500	40000	45000	50000
Revenue from replaced systems (SEKm)	0.0	0.0	0.0	0.0	0.3	0.6	0.7	0.9	1.6
Revenue, systems (SEKm)	**0.3**	**0.4**	**0.3**	**0.4**	**1.2**	**2.2**	**3.5**	**5.1**	**7.0**
Installed base	10	29	46	66	98	148	218	311	420
Patches sold/system installed	136	73	75	91	137	207	276	355	412
Patches sold for the year	1360	2117	3450	6004	13442	30626	59967	110386	173044
ASP patches (SEK)	275	328	310	375	425	475	500	500	500
Revenue, patches (SEKm)	**0.4**	**0.7**	**1.1**	**2.3**	**5.7**	**14.5**	**30.0**	**55.2**	**86.5**
Distributor costs	0.0	0.0	0.0	0.0	-0.3	-0.9	-2.3	-5.2	-10.0
Net revenue (SEKm)	**0.6**	**1.0**	**1.4**	**2.6**	**6.6**	**15.8**	**31.2**	**55.1**	**83.5**

Source: Redeye Research

In our sales estimates for Acarix we use a bottom-up approach until 2025, forecasting the installed base of systems in every market and number of patches sold per system. From 2026 and forward, we apply a top-down approach where we forecast system and patch sales ramping up and ultimately reaching peak market penetration in EU15 and US of 5% and 3%, respectively.

Acarix: Estimated revenue per region

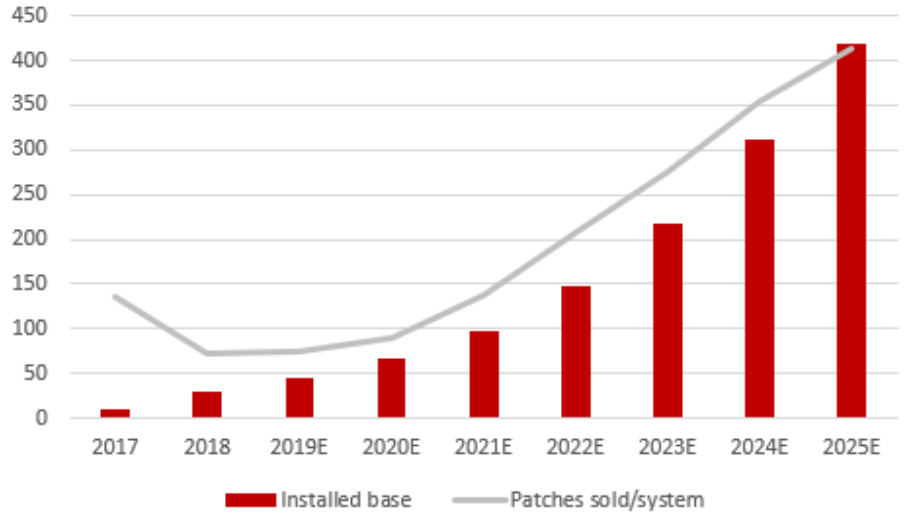


Source: Redeye Research

Apart from raising prices for systems and patches, there are two ways for Acarix to increase revenue: 1) growing the installed base of the CADScor system and 2) increasing the number of patches sold per active system.

We estimate the current installed base of the CADScor system to over 40 systems across clinics in Germany, Sweden, Denmark and Austria. In 2018 the average number of patches sold per system was 73. We forecast this will increase substantially to ~280 patches per system in 2023, as the CADScor system is introduced in larger clinics and the product enters a more commercial heavy phase. Like the systems, patches are sold with a discount to its list price and we expect these to reach its full price by 2023.

Acarix: Two key drivers for growth



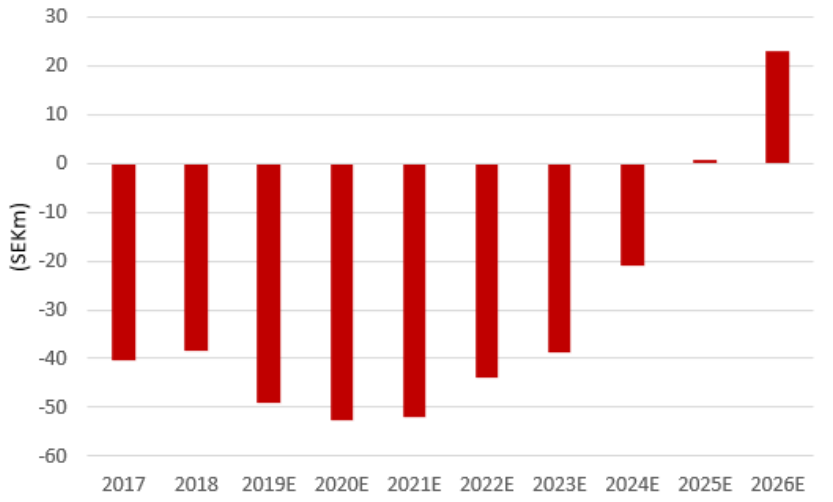
Source: Redeye Research

Acarix: Near-term financials							
(SEKm)	FY 2017	FY 2018	FY 2019E	FY 2020E	FY 2021E	FY 2022E	FY 2023E
Net Revenue	0.6	1.0	1.4	2.6	6.6	15.8	31.2
COGS	-0.2	-0.2	-0.3	-0.5	-1.1	-2.4	-4.3
Gross Profit	**0.5**	**0.7**	**1.0**	**2.1**	**5.5**	**13.5**	**26.9**
OPEX	-31.0	-42.9	-50.0	-54.8	-57.6	-57.5	-65.7
EBIT	**-30.5**	**-42.2**	**-49.0**	**-52.7**	**-52.1**	**-44.0**	**-38.8**
Net financials	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Tax	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Earnings	**-29.5**	**-41.9**	**-49.0**	**-52.7**	**-52.1**	**-44.0**	**-38.8**
Revenue growth Y/Y	N/A	65%	29%	95%	150%	140%	97%
Gross margin	74%	70%	75%	80%	84%	85%	86%

Source: Redeye Research

Acarix has a history of high cash burn due to heavy investments in commercializing the CADScor system in Europe. We forecast operating expenses will rise further as a consequence of higher sales and marketing costs over the coming years. Costs for research and development should continue at a high level until H1 20 when expenses for the large DAN-NICAD II study fade out. We estimate positive EBIT on a yearly basis to be reached in 2025.

Acarix: Estimated EBIT



Source: Redeye Research

Valuation

Our research outlines possible scenarios, with the Base case the likeliest. We also model bear and bull cases with corresponding key assumptions. This allows investors to compare our assessment with their perception.

Our discounted cash flow model indicates a value of SEK 1.5 per share for Acarix.

Acarix: DCF valuation, Base Case

	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	TERM
EBIT	**-49**	**-53**	**-52**	**-44**	**-39**	**-21**	**1**	**23**	**41**	**56**	**74**	**91**	**105**	**120**	**122**	
Depreciation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Paid taxes	0	0	0	0	0	0	0	0	0	0	0	-20	-23	-26	-27	
Change in working capital	1	0	0	-1	-3	-3	-6	-7	-8	-8	-9	-8	-7	-7	-1	
Operating cash flow	**-48**	**-53**	**-52**	**-45**	**-42**	**-24**	**-5**	**16**	**33**	**48**	**65**	**63**	**75**	**87**	**94**	
CapEx, tangible assets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
CapEx, intangible assets	2	-1	-1	-3	-1	-2	-1	-2	-3	-2	-1	0	1	0	-1	
Other items	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Free cash flow	**-46**	**-53**	**-54**	**-49**	**-43**	**-26**	**-6**	**14**	**30**	**46**	**63**	**63**	**77**	**86**	**93**	**967**
Discounted free cash flow	-46	-46	-41	-32	-24	-13	-3	5	10	13	16	13	14	14	13	136
Sum, discounted free cash flow	30															
Debt	0															
Cash (end Q4 estimate)	49															
Value of equity	**80**															
Value of equity, per share	**1.5**															
Terminal growth rate	2%		CAGR 2019-2023			119%										
Terminal EBIT margin	35%		CAGR 2023-2033			28%										
WACC	15%															
Shares outstanding (million)	51.7															

Source: Redeye Research

Scenario analysis

The following two assumptions are applied in each of our scenarios - Base Case (most likely), Bear Case (pessimistic) and Bull Case (optimistic):

WACC of 15%. A central part of our valuation is the weighted average cost of capital (WACC). To estimate WACC Redeye uses a proprietary rating model, Redeye Rating, that reflects the company's qualities and risks on several parameters. In our rating of Acarix, we estimate a WACC of 15%. If the company delivers on our expectations, the WACC should fall. Read more about our WACC sensitivity and Rating below.

EU15 and US are key markets. We have only included the EU15 and the US in our valuation as these markets are Acarix's highest priorities at this stage. We see scope to upgrade our valuation with additional markets once expansion is achieved in other regions.

Our fundamental Discounted Cash Flow (DCF) analysis indicates a valuation range of **SEK 0.1-6.0**, with a base case of **SEK 1.5 per share**. The wide spread indicates the high uncertainty and potential in the case.

Bear Case: SEK 0.1

In our bear case, CADScor does not gain traction within Europe and is only used by cardiologists in low volumes.

Acarix struggles to secure further financing to fund operations. The majority pf upcoming capital raises is taken up by guarantors with no long-term commitment to the company.

Given its limited liquidity, guarantors' sales push the stock to new lows. Positive fundamental events in the company will be seen as a selling opportunity for guarantors, which limits the upside potential

Base Case: SEK 1.5

Key assumptions:
2019-2023 CAGR: 119%
2023-2033 CAGR: 28%
Terminal EBIT margin: 35%
EU market penetration: 5%
US market penetration: 3%

This scenario sees a ramp-up of sales in 2021 once full reimbursement is in place in Germany. More clinics choose to evaluate CADScor, but the number of patches sold per system is still relatively low. Acarix reaches sales of SEK ~80 million in 2025.

Acarix has to pursue more studies in the US to gain approval though the de novo route – entailing a US launch of CADScor in 2023.

Bull Case: SEK 6

Key assumptions:
2019-2023 CAGR: 133%
2023-2033 CAGR: 33%
Terminal EBIT margin: 40%
EU market penetration: 10%
US market penetration: 5%

This scenario assumes faster adoption of CADScor in European clinics as a result of encouraging study results and strong traction from key opinion leaders. Acarix reaches sales of SEK ~130 million in 2025.

It further assumes that Acarix only has to undertake one small additional study in the US to gain FDA approval for CADScor – enabling a US launch in 2022.

WACC Sensitivity

Company valuation is not a science and our DCF model is very sensitive to the discount rate (WACC). We apply a discount rate of 15% to Acarix based on Redeye Rating. Below we show the impact of changes in WACC on our valuation.

Acarix: WACC sensitivity - share price					
Case	13%	14%	15%	16%	17%
Base	2.8	2.1	**1.5**	1.1	0.7

Source: Redeye Research

Summary Redeye Rating

The rating consists of three valuation keys, each constituting an overall assessment of several factors that are rated on a scale of 0 to 1 point. The maximum score for a valuation key is 5 points.

Redeye wants to understand and value the companies we cover better than anyone else. Our refined rating model is a unique approach to assess investment cases. It evaluates companies across as many as 100 criteria and is ultimately designed to generate more appropriate estimations of WACC than traditional financial theory. In Redeye's view, a realistic hands-on approach that combines fundamentals with common sense is called for in analyzing small growth stocks. These lack the market visibility and trading liquidity of large-cap names. Our new model is a bold and important move in Redeye's pursuit of leadership in our sectors.

People: 2
Acarix's management has very substantial knowledge of the Medical Device sector and a solid understanding of moving from concept stage to finished product. CEO Persson has spent the last 28 years in various management positions in the industry.

Business: 3
Acarix's razor/razorblade business model offers high growth potential and high operating leverage. Revenue will be driven in the short term by the number of CADScor systems sold. But in the longer term the bulk of revenue will be generated by the sale of high margin (90%) disposable patches.

Financials: 1
With a high burn rate, and positive cash flow not expected until 2024, the need for additional capital to fund operations is evitable.

Appendix

Management

Acarix's management has substantial knowledge of the Medical Device sector and a solid understanding of moving from concept stage to finished product. CEO Per Persson joined Acarix in 2018. He has spent the last 28 years in various management positions in the industry, including commercialization strategy and sales.

Name	Position	Holdings	Experience
Management			
Per Persson	CEO	48,500 shares	Per Persson took office as CEO of Acarix in 2018. He has extensive experience from senior executive roles within the medical device industry. Prior to joining Acarix, Per was CEO of the Swedish medtech company Airsonett AB. Per holds an academic degree from Lund University.
Claus Bo Vöge Christensen	COO	154,982 shares 112,500 warrants	Claus Bo Vöge Christensen has broad experience of research from research departments, projects and start-ups. He has previous experience from Novozymes A/S, MIC-DTU, and from Coloplast A/S, being responsible for medical monitoring and diagnostics, from where Acarix A/S was initiated.
Charlotte Öljemark	CMO	18,432 shares	Charlotte Öljemark has more than 12 years of experience from the medical device industry, with senior positions in product management and marketing. She has worked at companies such as Baxter, Atos Medical, Arjohuntleigh and GlaxoSmithKline.
Christian Lindholm	CFO	5,000 shares and 25,500 warrants	Christian Lindholm has during the last 17 years held positions as CFO within both private and listed companies. Prior to joining Acarix in 2016 he was CFO at Doro AB and TFS International AB. Christian Lindholm has studied economy at University of Växjö and Kristianstad.

Sources: Acarix (2019), Redeye Research

Ownership structure

Acarix is backed by two investment companies, Seed Capital and Sunstone Capital, that hold ~18% of votes and capital. Apart from these, institutional investors are largely missing. The Chinese investment fund Puhua Jingxin bought into the company in 2016 and will play a role once Acarix starts to pursue an entry into China.

Insider ownership is notably low. We would be encouraged to see management increase its holdings to show investors conviction in the case.

Acarix: Ownership structure

Shareholders	Number of shares	Ownership %
Sunstone LSV Fund II K/S	4,749,081	9.19%
SEED Capital DK II K/S	4,749,081	9.19%
Puhua Jingxin	2,654,259	5.13%
Coloplast A/S	1,683,072	3.26%
Others	37,858,550	73.24%

Source: Acarix, Redeye Research

Board of directors

Name	Position	Holdings	Experience
Board of Directors			
Werner Braun	Chairman	3,600 shares and 20,000 warrants	Werner Braun entered Acarix's Board of Directors in 2016 and has long-term experience from leading positions in medtech companies from Germany, Austria, Switzerland and the United States. Currently, he is Chairman of the Board and assigned CEO of Miracor Medical Systems GmbH. Werner Braun holds a doctors degree in physics from the Technical University of Munich, Germany.
Claus Andersson	Board member	-	Claus Andersson is a partner in the venture capital firm Sunstone Capital and has been a board member of Acarix since 2010. He has an industrial background within blood diagnostics from founding four companies, and is currently board member of Cantargia and FBC Device ApS, amongst others. Claus Andersson is an educated civil engineer in chemistry and has a PhD in mathematical statistics from University of Copenhagen and Humbold University.
Paolo Raffaelli	Board member	-	Paolo Raffaelli has over 20 years of management experience in commercial international positions in both sales and marketing. Paolo's latest assignment was Marketing and Education Director EMEA at Abbott for the Cardiac Rhythm Management business.
Hong Yun Fei	Board member	-	Hong Yun Fei has extensive experience from senior executive positions within the pharmaceutical industry. He is currently CSO of the listed Chinese company ZheJiangJingxin Pharmaceutical Co. Ltd as well as board member of Asmedic. Ltd and ShangHai RuiTai Bio-techology CO. Hong Yun Fei holds a MSc degree in Pharmaceutical Science.
Johanne Louise Braendgaard	Board member	-	Johanne Louise Brændgaard has 13 years of global sales, marketing and product mangement experience from the medtech industry through positions within Cook Medical and Getinge. Previous to this, she worked in the venture capital and IT industries. Johanne holds a Master's degree in International Business Economics from Aalborg University.
Ulf Rosén	Board member	-	Ulf Rosén is General Partner at the investment company SEED Capital responsible for investments in medical technology and Digital Health Solutions. He has comprehensive board work experience from for example Stille AB, Follicum AB and Navamedic Medtech AB and entered Acarix's board of directors in 2014.

Sources: Acarix (2019), Redeye Research

INCOME STATEMENT	2017	2018	2019E	2020E	2021E
Net sales	1	1	1	3	7
Total operating costs	-30	-41	-50	-55	-59
EBITDA	-29	-40	-49	-53	-52
Depreciation	0	0	0	0	0
Amortization	-1	-3	0	0	0
Impairment charges	0	0	0	0	0
EBIT	-31	-43	-49	-53	-52
Share in profits	0	0	0	0	0
Net financial items	0	0	0	0	0
Exchange rate dif.	0	0	0	0	0
Pre-tax profit	-31	-42	-49	-53	-52
Tax	1	0	0	0	0
Net earnings	-30	-42	-49	-53	-52

BALANCE SHEET	2017	2018	2019E	2020E	2021E
Assets					
Current assets					
Cash in banks	103	65	48	0	0
Receivables	4	4	2	2	3
Inventories	2	3	2	2	3
Other current assets	0	0	0	0	0
Current assets	109	72	52	5	7
Fixed assets					
Tangible assets	0	0	0	0	0
Associated comp.	0	0	0	0	0
Investments	0	0	0	0	0
Goodwill	0	0	0	0	0
Cap. exp. for dev.	0	0	0	0	0
O intangible rights	25	24	22	22	24
O non-current assets	0	0	0	0	0
Total fixed assets	25	24	22	22	24
Deferred tax assets	0	0	0	0	0
Total (assets)	134	95	74	27	30
Liabilities					
Current liabilities					
Short-term debt	4	5	0	5	59
Accounts payable	2	3	1	2	3
O current liabilities	0	0	0	0	0
Current liabilities	5	7	1	7	62
Long-term debt	0	0	0	0	0
O long-term liabilities	0	0	0	0	0
Convertibles	0	0	0	0	0
Total Liabilities	5	7	1	7	62
Deferred tax liab	0	0	0	0	0
Provisions	0	0	0	0	0
Shareholders' equity	129	88	73	20	-32
Minority interest (BS)	0	0	0	0	0
Minority & equity	129	88	73	20	-32
Total liab & SE	134	95	74	27	30

FREE CASH FLOW	2017	2018	2019E	2020E	2021E
Net sales	1	1	1	3	7
Total operating costs	-30	-41	-50	-55	-59
Depreciations total	-1	-3	0	0	0
EBIT	-31	-43	-49	-53	-52
Taxes on EBIT	1	0	0	0	0
NOPLAT	-30	-43	-49	-53	-52
Depreciation	1	3	0	0	0
Gross cash flow	-28	-40	-49	-53	-52
Change in WC	-4	0	1	0	0
Gross CAPEX	-27	-1	2	-1	-1
Free cash flow	-59	-41	-46	-53	-54

CAPITAL STRUCTURE	2017	2018	2019E	2020E	2021E
Equity ratio	96%	92%	99%	74%	-105%
Debt/equity ratio	3%	5%	0%	25%	-185%
Net debt	-100	-60	-48	5	59
Capital employed	29	28	25	25	27
Capital turnover rate	0.0	0.0	0.0	0.1	0.2

GROWTH	2017	2018	2019E	2020E	2021E
Sales growth	14,900	67%	35%	95%	150%
EPS growth (adj)	0%	0%	-48%	8%	-1%

DCF VALUATION

CASH FLOW, MSEK

PROFITABILITY	2017	2018	2019E	2020E	2021E
ROE	0%	-39%	-61%	-113%	0%
ROCE	-46%	-37%	-59%	-107%	-199%
ROIC	0%	-146%	-177%	-215%	-206%
EBITDA margin	-4900%	-4000%	-3629%	-2001%	-790%
EBIT margin	-5133%	-4250%	-3629%	-2001%	-790%
Net margin	-4967%	-4220%	-3629%	-2001%	-790%

DATA PER SHARE	2017	2018	2019E	2020E	2021E
EPS	0.00	-1.83	-0.95	-1.02	-1.01
EPS adj	0.00	-1.83	-0.95	-1.02	-1.01
Dividend	0.00	0.00	0.00	0.00	0.00
Net debt	0.00	-2.62	-0.93	0.10	1.14
Total shares	0.00	23.00	51.70	51.70	51.70

VALUATION	2017	2018	2019E	2020E	2021E
EV	-99.8	-60.2	18.9	72.3	126.1
P/E	0.0	0.0	-1.4	-1.3	-1.3
P/E diluted	0.0	0.0	-1.4	-1.3	-1.3
P/Sales	0.0	0.0	49.8	25.5	10.2
EV/Sales	-166.3	-60.2	14.0	27.4	19.1
EV/EBITDA	3.4	1.5	-0.4	-1.4	-2.4
EV/EBIT	3.2	1.4	-0.4	-1.4	-2.4
P/BV	0.0	0.0	0.9	3.3	-2.1

SHARE PERFORMANCE		GROWTH/YEAR	16/18E
1 month	-32.3 %	Net sales	50.0 %
3 month	-67.7 %	Operating profit adj	26.1 %
12 month	-74.0 %	EPS, just	0.0 %
Since start of the year	-71.2 %	Equity	-24.8 %

SHAREHOLDER STRUCTURE %	CAPITAL	VOTES
The Bank of New York Mellon SA/NV	21.0 %	21.0 %
Sunstone Capital	20.6 %	20.6 %
Seed Capital	20.6 %	20.6 %
Puhua Jingxin Guzhou Health	11.5 %	11.5 %
SEB	11.5 %	11.5 %
Coloplast A/S	7.3 %	7.3 %
Seventure Partners SA	4.3 %	4.3 %
Avanza Pension	2.7 %	2.7 %
BNY Mellon Sa/Nv Frkn Jyske Bank	2.5 %	2.5 %
Peter Samuelsen	2.2 %	2.2 %

SHARE INFORMATION	
Reuters code	ACARIX.st
List	
Share price	1.3
Total shares, million	51.7
Market Cap, MSEK	67.2

MANAGEMENT & BOARD
CEO
CFO
IR
Chairman

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Redeye Rating and Background Definitions

Company Quality

Company Quality is based on a set of quality checks across three categories; PEOPLE, BUSINESS, FINANCE. These are the building blocks that enable a company to deliver sustained operational outperformance and attractive long-term earnings growth.

Each category is grouped into multiple sub-categories assessed by five checks. These are based on widely accepted and tested investment criteria and used by demonstrably successful investors and investment firms. Each sub-category may also include a complementary check that provides additional information to assist with investment decision-making.

If a check is successful, it is assigned a score of one point; the total successful checks are added to give a score for each sub-category. The overall score for a category is the average of all sub-category scores, based on a scale that ranges from 0 to 5 rounded up to the nearest whole number. The overall score for each category is then used to generate the size of the bar in the Company Quality graphic.

People

At the end of the day, people drive profits. Not numbers. Understanding the motivations of people behind a business is a significant part of understanding the long-term drive of the company. It all comes down to doing business with people you trust, or at least avoiding dealing with people of questionable character.

The People rating is based on quantitative scores in seven categories:

- Passion, Execution, Capital Allocation, Communication, Compensation, Ownership, and Board.

Business

If you don't understand the competitive environment and don't have a clear sense of how the business will engage customers, create value and consistently deliver that value at a profit, you won't succeed as an investor. Knowing the business model inside out will provide you some level of certainty and reduce the risk when you buy a stock.

The Business rating is based on quantitative scores grouped into five sub-categories:

- Business Scalability, Market Structure, Value Proposition, Economic Moat, and Operational Risks.

Financials

Investing is part art, part science. Financial ratios make up most of the science. Ratios are used to evaluate the financial soundness of a business. Also, these ratios are key factors that will impact a company's financial performance and valuation. However, you only need a few to determine whether a company is financially strong or weak.

The Financial rating is based on quantitative scores that are grouped into five separate categories:

- Earnings Power, Profit Margin, Growth Rate, Financial Health, and Earnings Quality.

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Disclaimer

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Redeye Rating (2019-12-20)

Rating	People	Business	Financials
5p	11	11	2
3p - 4p	88	68	28
0p - 2p	9	29	78
Company N	108	108	108

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CONFLICT OF INTERESTS

Ludvig Svensson owns shares in the company : No
Anders Hedlund owns shares in the company : No
Redeye performs/have performed services for the Company and receives/have received compensation from the Company in connection with this.