EQUITY RESEARCH – COMMISSIONED RESEARCH Research report prepared by DNB Markets, a division of DNB Bank ASA

Information Technology

Q3 results review

This report was completed and disseminated at 6:37 CET on 06 November 2020

MARKETS



IAR SYSTEMS

A stable ship

While there are cyclical components to IAR Systems' perpetual licence model, design activity and secular drivers have remained resilient through the pandemic. We see two dimensions to the story. The stock is trading 30% below its historical 29x P/E, and we forecast a 2020–2022e EPS CAGR of 30%+ with IAR Systems ready to reap the fruit of its rapid investment pace. We reiterate our SEK180–250 fair value.

Q3 EBIT 27% above our forecast. Sales were SEK89m (2% below our forecast), corresponding to -6% organic growth (we expected -4%), with the transaction-based business (~20% of sales) still holding up fairly well despite purchasing process delays due to Covid-19. Opex control and SEK18m capitalised development costs helped drive an EBIT beat of 27% versus our forecast, implying a 28.6% margin (up 0.5%-points YOY). More importantly, FCF was up a strong 143% YOY (17% margin), signalling the company is past the peak of its 2-year SEK350m+ investment phase.

The road ahead. While the short-term outlook remains clouded by the pandemic, large strategic customers (~20% of sales) remain unaffected and grew 60% YOY in Q3, showing interest (from a low base) in IAR Systems' new IoT security and RISC-V products. We expect OEM design activity levels to remain healthy as they cannot compromise on code performance as next-generation embedded applications become even more complex, benefiting a market and technology leader like IAR Systems.

2020-2022 EPS forecasts raised by 2% to reflect FX and outlook comments.

Our SEK180–250 fair value corresponds to a 2022e EV/EBIT of 18x and P/E of 25x (a 15% discount to its historical average). We still estimate the legacy workbench licence business should be valued at ~SEK160/share. We see prospects that IAR Systems could re-establish its growth credentials, reversing slowing organic growth (we forecast a 9% organic sales CAGR for 2019–2022e, up from 5% for 2015–2019), and see improved FCF generation (9% FCF margin in 2018–2020e, versus 27% in 2015–2017).

Year-end Dec	2016	2017	2018	2019	2020e	2021e	2022e
Revenue (SEKm)	328	345	385	406	379	437	508
EBITDA adj (SEKm)	113	127	140	146	139	167	217
EBIT adj (SEKm)	101	107	119	108	92	118	159
PTP (SEKm)	100	106	117	107	89	116	156
EPS rep (SEK)	6.18	6.33	6.67	5.96	4.96	6.41	8.63
EPS adj (SEK)	6.18	6.33	6.67	5.96	4.96	6.41	8.63
DPS (SEK)	7.00	5.00	5.00	3.00	0.00	2.48	3.21
Revenue growth (%)	5.4	5.1	11.7	5.3	-6.5	15.2	16.4
EPS growth adj (%)	23.0	2.6	5.3	-10.6	-16.7	29.2	34.6
EBITDA margin adj (%)	34.5	36.9	36.4	35.9	36.6	38.3	42.6
EV/Sales adj (x)	7.63	6.58	8.32	6.30	4.71	4.08	3.46
EV/EBITDA adj (x)	22.1	17.8	22.9	17.5	12.9	10.6	8.1
EV/EBIT adj (x)	24.9	21.1	27.0	23.6	19.5	15.1	11.1
P/E adj (x)	33.4	29.8	36.4	31.2	26.8	20.7	15.4
P/Book (x)	9.31	8.22	6.02	4.28	2.83	2.62	2.36
ROE (%)	27.3	28.1	21.6	14.2	11.0	13.1	16.1
ROCE (%)	34.9	33.6	26.1	17.7	12.7	14.7	18.4
Dividend yield (%)	3.4	2.6	2.1	1.6	0.0	1.9	2.4
FCF yield (%)	3.7	3.6	1.4	0.9	2.1	2.0	3.6

Source: Company (historical figures), DNB Markets (estimates)

IARB versus OMXS30 (12m)



Source: Factset

SUMMARY	
Share price (SEK)	133
Tickers	IARB SS
CAPITAL STRUCTURE	
No. of shares (m)	13.6
No. of shares fully dil. (m)	13.7
Market cap. (SEKm)	1,813
NIBD adj end-2020e (SEKm)	-27
Enterprise value adj (SEKm)	1,785
Net debt/EBITDA adj (x)	-0.20
Free float (%)	100

Source: Company, DNB Markets (estimates)

NEXT EVENT			
Q4 2020		09/	02/2021
ESTIMATE CHAN	GES (SEK)		
Year-end Dec	2020e	2021e	2022e
Sales (old)	394.5	447.5	505.7
Sales (new)	379.1	436.8	508.5
Change (%)	-3.9	-2.4	0.5
EPS (old)	4.89	6.48	8.28
EPS (new)	4.96	6.41	8.63
Change (%)	1.6	-1.0	4.3

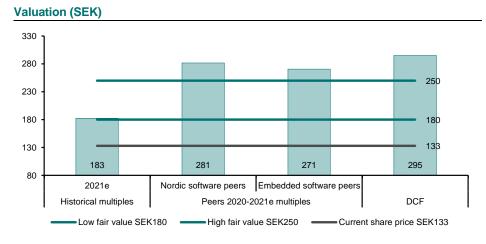
Source: DNB Markets,

This report has been commissioned and paid for by the company, and is deemed to constitute an acceptable minor non-monetary benefit as defined in MiFID II

ANALYSTS Joachim Gunell

Please see the last two pages for important information. This research report was not produced in the US. Analysts employed by non-US affiliates are not registered/ qualified research analysts with FINRA in the United States.

Overview



Source: DNB Markets

Downside risks to our fair value

- Failure to resurrect the growth story. If investors lose trust in IAR Systems' ability to resume growth, it could trigger a share devaluation, as in 2019.
- Disappointing disclosures regarding key strategic partnerships, in terms of when they will materialise and the fee structure. For instance, the Renesas Synergy agreement has yet to appear in IAR Systems' sales. Thus, it would be negative if the Secure Thingz collaboration were to fall short of management's expectations.
- IAR Systems is highly sensitive to a strengthening of the SEK (particularly against the USD, EUR and JPY).

Source: DNB Markets

DNB Markets estimates

- We believe IAR 4.0 will mark the point when the market starts to view it as the go-to tools partner for global names as they position their embedded systems ahead of the IoT. We would highlight the market opportunity within secure embedded systems and RISC-V.
- We expect the sales growth acceleration in late 2020/early 2021 to cement IAR Systems' central position in the embedded industry's key growth themes.
- We estimate that IAR Systems should generate a 2020–2022 EPS CAGR of 30%+, with significant potential expected beyond our forecast period.
 Source: DNB Markets

Valuation methodology

- Blending our peer group of Nordic software and embedded software peers with IAR Systems' historical multiples and a DCF suggests a SEK180–250 fair value (methodology unchanged).
- Applying its historical valuation (P/E 28x, EV/EBIT 21x) to our 2021 estimates suggests SEK180–230.
- Our estimates correspond to a 2022e P/E of 25x, an EV/EBIT of 18x, and an EV/sales of 6x, comprising a ~15% discount to its five-year average.

Source: DNB Markets

Source: DNB Markets

Upside risks to our fair value

- The company over-delivering on its financial targets (particularly 10–15% organic growth).
- If IAR Systems' new security offering gains faster penetration than we assume by leveraging on its headstart, we believe there is potential for shareholder value creation beyond our fair value.
- Value-enhancing acquisitions to be integrated in its product offering or new strategic partnerships.
- Better cost control (as it has a reputation for tight cost control), implying higher margins.

```
469.0
  449.0
                                                                                                                                                                                          0.0
                                                                                                                                                                  -13.1
  429.0
  409.0
                                            -20.6
                                                                                                                                           70.8
  389.0
                                                                                            0.0
                                                                     -6.0
  369.0
  349.0
  329.0
                     405.6
                                                                                                                  379.1
                                                                                                                                                                                                                436.8
  309.0
                       2019
                                                                                                                                                                                                                  2021e
                                               Drganic
                                                                                                                     2020e
                                                                                                                                            Drganic
                                                                                                                                                                                           Structure
                                                                                             Structure
                                                                      Currency
                                                                                                                                                                    Currency
Source: DNB Markets (forecasts), company (historical data)
```

Sales bridge 2019–2021e (SEKm)

ESG overview

Sustainability assessment

	Positive	Negative
Conclusions	 IAR Systems' software development tools are market-leading in terms of code quality, analysis, functional safety and security. Its software ensures that the code is in line with industry standards, thereby guaranteeing its reliability when applied. Increased IoT security legislation drives demand for its products, as its OEM customers must comply with new security design requirements. 	 Data loss or security bugs in the software code could trigger regulatory scrutiny as well as legal costs and reputational damage, hampering its growth prospects. IAR Systems' competitiveness relies greatly on its ability to continuously innovate. For this, its highly skilled workforce is a key resource. Failure to attract and retain such professionals could lead to
Actions being taken by company	Embedded programmers clearly need to protect their code from IP theft and illegal copying, as IoT security issues are becoming increasingly prevalent. Following the acquisition of Secure Thingz, IAR Systems' tools are increasingly linked to sustainability as they help developers take control of security from inception in the IP throughout the lifecycle of a digital product.	 delays in innovation and a loss of market share. IAR Systems' development tools are the most used in the embedded industry, owing to its leading optimisation technology, comprehensive debugger quality and renowned technical support. This is confirmed by its loyal customer base. It has 46,000 OEM customers and 150,000 technology users, 95% of which are recurring customers, we believe.
Key ESG drivers Short-term	Today, fewer than 5% of new IoT devices have embedded security. ABI research forecasts that penetration will increase to 20% by 2022.	To stay ahead of the competition, IAR Systems relies heavily on its employees in the development and innovation of new technologies.
	IAR Systems' security offering (C-Trust and Embedded Trust) ensures that its customers' intellectual property is protected against IP theft, overproduction, piracy, and that software updates can be managed in a secure fashion. In other words, it creates a secure infrastructure and protects its customers' digital products from sabotage programmes and data intrusion. Examples of customer use cases have included:	 Following the integration of Secure Thingz, IAR Systems' addressable market has expanded from application development into manufacturing and update management (the entire lifecycle of embedded systems). To keep pace with competition in a larger market, it needs to retain highly skilled software engineers, which could come at a higher cost than its traditional business. As an increasingly larger part of IAP. Systems
	A leading vending machine provider, whose IP was stolen (stolen credit card and transaction details); a global white goods company, whose stolen IP led to twice as many products being manufactured; a leading door sensor provider, whose IP was stolen internally, which led to direct revenue loss, etc.	As an increasingly larger part of IAR Systems should revolve around Cambridge-based Secure Thingz, this could create some corporate cultural challenges versus the Uppsala-based legacy business.
Long-term	Regulators will also play an active role in the long- term uptake of secure development tools. This is having an increasing impact on programmers' designs, as applications need to remain secure across the entire lifecycle to comply with new legislation. We note legislation initiatives in Europe (UK government, ETSI, ENISA), the US (California IoT Security law, NIST evolving cyber security act), and government initiatives across Singapore,	Considering its offering of software development tools to over 46,000 clients, as well as the sensitive nature of the data it handles, IAR Systems is exposed to possible hacking attempts and misappropriation of technological data.

Japan, South Korea and China, etc.

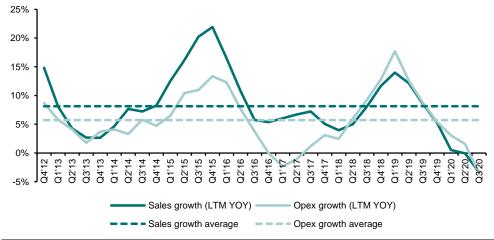
Q3 results

Figure 1: Q3 results versus expectations

Key highlights	Q3 2	020	Deviation (%)	Deviation,	Q3 2019	DNBe
(SEKm, except per share data)	Actual	DNB	DNB	DNB	Actual	2020e
Sales	88.9	90.5	-2%	-2	100.0	379.1
Gross profit	86.2	88.1	-2%	-2	97.5	365.0
Margin	97.0%	97.4%			97.5%	96.3%
EBIT adjusted	25.4	20.0	27%	5	28.1	91.8
Margin	28.6%	22.1%	6.5pp		28.1%	24.2%
One-offs	0.0	0.0			0.0	0.0
EBIT	25.4	20.0	27%	5	28.1	91.8
Margin	28.6%	22.1%	6.5pp		28.1%	24.2%
EPS	1.37	1.10	25%	0	1.58	4.96
Growth YOY						
Sales grow th	-11.1%	-9.5%	-1.6pp		2.1%	-6.5%
-of w hich organic	-5.6%	-3.6%	-2pp		-2.8%	-5.1%
-of which FX	-5.5%	-5.9%	0.4pp		4.9%	-1.5%
Divisions	Q3 20	020			Q3 2019	2020e
(SEKm)	Actual	DNB			Actual	DNE
Sales						
Legacy IAR Systems	88.5	87.5	1%	1	98.1	373.5
Royalty-based revenue	0.0	0.0	n.a.	0	1.6	0.0
Secure Thingz	0.4	3.0	-87%	-3	0.3	5.5
Group	88.9	90.5	-2%	-2	100.0	379.1
EBIT adjusted						
Legacy IAR Systems + Secure Thin	25.4	20.0	27%	5	26.5	91.8
Royalty-based revenue	0.0	0.0	n.a.	0	1.6	0.0
Group	25.4	20.0	27%	5	28.1	91.8
FX impact						
Sales	-5.5%	-5.9%	0.4pp		4.9%	-1.5%

Source: Company (historical figures), DNB Markets (estimates)

Figure 2: Sales growth surpassed by opex growth in recent years (LTM)



Source: DNB Markets (forecasts), company (historical data)

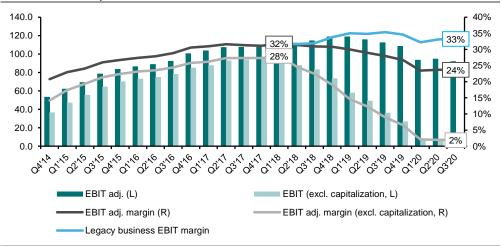
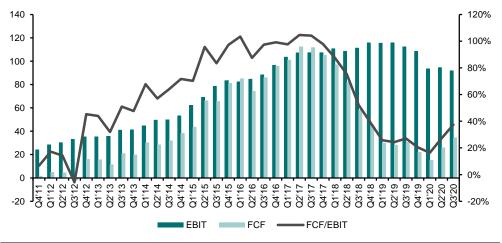


Figure 3: EBIT and margin trajectory (excl. capitalisation of development costs) (LTM, Q4 2014–Q3 2020)

Source: DNB Markets (estimates), company (historical data)

Figure 4: Unimpressive cash conversion since the Secure Thingz acquisition in 2018 could be at a turning point



Source: DNB Markets (forecasts), company (historical data)

Estimate revisions

Figure 5: Estimate changes

		Old			New		Change			
(SEKm, except per share data)	2020e	2021e	2022e	2020e	2021e	2022e	2020e	2021e	2022e	
Sales										
Legacy IAR Systems	381.9	418.1	446.2	373.5	414.5	448.2	-2%	-1%	0%	
Royalty-based revenue	0.0	0.0	0.0	0.0	0.0	0.0				
Secure Thingz	12.6	29.3	59.5	5.5	22.3	60.3	-56%	-24%	1%	
Group Total	394.5	447.5	505.7	379.1	436.8	508.5	-4%	-2%	1%	
EBIT adjusted										
Legacy IAR Systems + Secure Thingz	89.8	119.4	152.3	91.8	118.3	159.1	2%	-1%	4%	
Royalty-based revenue	0.0	0.0	0.0	0.0	0.0	0.0				
Group Total	89.8	119.4	152.3	91.8	118.3	159.1	2%	-1%	4%	
EBIT adjusted margin										
Legacy IAR Systems + Secure Thingz	22.8%	26.7%	30.1%	24.2%	27.1%	31.3%	145bp	41bp	118bp	
Royalty-based revenue	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0bp	0bp	0bp	
Group Total	22.8%	26.7%	30.1%	24.2%	27.1%	31.3%	145bp	41bp	118bp	
Organic growth components										
Legacy IAR Systems	-2.2%	12.5%	6.0%	-4.6%	14.0%	7.4%	-239bp	151bp	147bp	
Royalty-based revenue	-1.5%	0.0%	0.0%	-1.5%	0.0%	0.0%	0bp	0bp	0bp	
Secure Thingz	2.8%	4.6%	7.1%	1.0%	4.7%	9.0%	-182bp	5bp	193bp	
Group Total	-0.9%	17.1%	13.0%	-5.1%	18.7%	16.4%	-422bp	157bp	340bp	
Group										
Sales	394.5	447.5	505.7	379.1	436.8	508.5	-4%	-2%	1%	
Sales grow th	-2.7%	13.4%	13.0%	-6.5%	15.2%	16.4%	-381bp	180bp	340bp	
Organic	-0.9%	17.1%	13.0%	-5.1%	18.7%	16.4%	-422bp	157bp	340bp	
Structure	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0bp	0bp	0bp	
Currency	-1.9%	-3.7%	0.0%	-1.5%	-3.4%	0.0%	40bp	24bp	0bp	
Gross profit	380.8	434.3	490.9	365.0	423.0	492.5	-4%	-3%	0%	
Margin	96.5%	97.1%	97.1%	96.3%	96.8%	96.9%	-22bp	-22bp	-21bp	
EBIT adjusted	89.8	119.4	152.3	91.8	118.3	159.1	2%	-1%	4%	
Margin	22.8%	26.7%	30.1%	24.2%	27.1%	31.3%	145bp	41bp	118bp	
Adjustments	0.0	0.0	0.0	0.0	0.0	0.0				
EBIT	89.8	119.4	152.3	91.8	118.3	159.1	2%	-1%	4%	
Margin	22.8%	26.7%	30.1%	24.2%	27.1%	31.3%	145bp	41bp	118bp	
Net financial Items	-2.1	-2.4	-2.9	-2.5	-2.5	-3.2		10/		
Pretax profit	87.7	117.0	149.4	89.2	115.8	155.9	2%	-1%	4%	
Tax	-21.0	-28.7	-36.6	-21.5	-28.4	-38.2	2%	-1%	4%	
Tax rate	24.0%	24.5%	24.5%	24.1%	24.5%	24.5%	12bp	0bp	0bp	
Net profit	66.6	88.3	112.8	67.7	87.4	117.7	2%	-1%	4%	
EPS adjusted	4.89	6.48	8.28	4.96	6.41	8.63	2%	-1%	4%	
EPS	4.88	6.48	8.28	4.96	6.41	8.63	2%	-1%	4%	
DPS	1.50	2.44	3.24	0.00	2.48	3.21	-100%	2%	-1%	

Source: DNB Markets

Figure 6: Quarterly estimates by division

(SEKm, except per share data)	Q1'19	Q2'19	Q3'19	Q4'19	Q1'20	Q2'20	Q3'20	Q4'20e	Q1'21e	Q2'21e	Q3'21e	Q4'21e
Sales												
Legacy IAR Systems	98.0	96.8	98.1	105.1	91.4	97.6	88.5	96.1	98.6	105.1	100.3	110.5
Royalty-based revenue	1.4	1.5	1.6	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Secure Thingz	0.4	0.7	0.3	0.3	0.9	2.5	0.4	1.7	2.1	3.2	6.0	11.0
Group Total	99.8	99.0	100.0	106.8	92.3	100.1	88.9	97.8	100.7	108.3	106.3	121.4
EBIT												
Legacy IAR Systems + Secure Thingz	28.0	22.3	26.5	25.7	14.4	25.0	25.4	27.0	22.0	31.2	27.3	37.8
Royalty-based revenue	1.4	1.5	1.6	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Total	29.4	23.8	28.1	27.1	14.4	25.0	25.4	27.0	22.0	31.2	27.3	37.8
EBIT adjusted margin												
Legacy IAR Systems + Secure Thingz	28.6%	23.0%	27.0%	24.5%	15.8%	25.6%	28.7%	28.1%	22.3%	29.7%	27.2%	34.3%
Royalty-based revenue	100.0%	100.0%	100.0%	100.0%							-=	
Group Total	29.5%	24.0%	28.1%	25.4%	15.6%	25.0%	28.6%	27.6%	21.8%	28.8%	25.7%	31.2%
Organic growth												
Legacy IAR Systems	3.4%	-2.3%	-2.7%	-1.2%	-11.0%	-0.8%	-5.6%	-3.0%	13.9%	13.7%	13.9%	14.6%
Royalty-based revenue	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.3%	0.0%	0.0%	0.0%	0.0%
Secure Thingz	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	1.4%	1.5%	0.9%	6.4%	10.0%
Group Total	3.5%	-2.3%	-2.8%	-1.3%	-11.1%	-0.8%	-5.6%	-2.9%	15.3%	14.5%	20.3%	24.6%
Group												
Sales	99.8	99.0	100.0	106.8	92.3	100.1	88.9	97.8	100.7	108.3	106.3	121.4
Sales grow th	12.3%	3.6%	2.1%	3.9%	-7.5%	1.1%	-11.1%	-8.5%	9.1%	8.2%	19.6%	24.2%
Organic	3.5%	-2.3%	-2.8%	-1.3%	-11.1%	-0.8%	-5.6%	-2.9%	15.3%	14.5%	20.3%	24.6%
Structure	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Currency	8.8%	5.9%	4.9%	5.2%	3.6%	1.9%	-5.5%	-5.6%	-6.2%	-6.4%	-0.7%	-0.3%
Gross profit	97.7	96.5	97.5	103.1	88.3	96.7	86.2	93.8	97.9	104.9	103.4	116.9
Margin	97.9%	97.5%	97.5%	96.5%	95.7%	96.6%	97.0%	96.0%	97.2%	96.9%	97.2%	96.2%
EBIT adjusted	29.4	23.8	28.1	27.1	14.4	25.0	25.4	27.0	22.0	31.2	27.3	37.8
Margin	29.5%	24.0%	28.1%	25.4%	15.6%	25.0%	28.6%	27.6%	21.8%	28.8%	25.7%	31.2%
Adjustments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EBIT	29.4	23.8	28.1	27.1	14.4	25.0	25.4	27.0	22.0	31.2	27.3	37.8
Margin	29.5%	24.0%	28.1%	25.4%	15.6%	25.0%	28.6%	27.6%	21.8%	28.8%	25.7%	31.2%
Net financial Items	-0.2	-2.0	0.7	0.1	-0.1	-1.9	-0.5	0.0	-0.4	-2.2	-0.2	0.1
Pretax profit	29.2	21.8	28.8	27.2	14.3	23.1	24.9	26.9	21.6	29.0	27.2	38.0
Тах	-6.3	-5.1	-7.2	-7.2	-3.2	-5.5	-6.2	-6.6	-5.3	-7.1	-6.7	-9.3
Tax rate	21.6%	23.4%	25.0%	26.5%	22.4%	23.8%	24.9%	24.5%	24.5%	24.5%	24.5%	24.5%
Net profit	22.9	16.7	21.6	20.0	11.1	17.6	18.7	20.3	16.3	21.9	20.5	28.7
EPS adjusted	1.64	1.20	1.58	1.46	0.81	1.29	1.37	1.49	1.20	1.61	1.50	2.10
EPS	1.68	1.23	1.58	1.47	0.81	1.29	1.37	1.49	1.20	1.61	1.50	2.10

Source: DNB Markets (forecasts), company (historical data)

	Mkt. cap.		P/E (x)		E	V/EBIT (x)	EV/Sales (x)		Div. yi	eld (%)	ROE	(%)	EBIT margin		CAGR 2019-2021e (%)		e (%)	
	(SEKbn)	2019e	2020e	2021e	2019e	2020e	2021e	2019e	2020e	2021e	2019e	2020e	2019e	2020e	2019e	2020e	Sales	EBIT	EPS
IAR Systems (DNBe)	1.8	26.8	20.7	15.4	19.7	15.2	11.3	4.8	4.1	3.5	0.0	1.9	11	13	24.2	27.1	4	4	4
Premium/discount		-55%	-59%	-63%	-60%	-64%	-66%	-67%	-67%	-67%									
IAR Systems (Cons.)	1.8	27.5	21.2	18.0	20.4	15.7	13.3	4.6	4.1	3.7	1.7	2.4	11	13	22.6	25.6	5	2	3
Premium/discount		-54%	-59%	-57%	-59%	-63%	-60%	-68%	-67%	-66%									
Nordic software peers																			
QT Group	11.4		70.6	45.7		59.4	37.9	14.5	11.7	9.5	0.0	0.2	44	41	17.2	19.2	29		
Admicom	5.5	70.5	51.2	39.7	61.3	43.6		24.1	19.7	16.0	0.9	1.3	34	38	39.0	44.4	31	36	41
Fortnox	17.8	90.1	69.1	55.6	68.2	51.7	41.1	25.5	20.4	16.9	0.3	0.3	54	46	37.2	38.8	28	41	38
HMS Networks	9.9	48.0	40.4	36.4	37.2	29.6	26.3	7.0	5.7	5.2	0.7	0.9	18	18	19.1	19.2	7	12	13
INVISIO Communications	7.6	70.8	44.6	34.6	51.4	33.5	25.6	12.6	9.7	8.0	0.8	1.0	27	35	24.3	28.4	24	41	31
Lime Technologies	4.2	59.7	51.4	42.4	53.9	45.3	36.0	12.5	10.7	9.3	0.7	0.8	71	57	23.0	23.2	16	34	33
SimCorp	46.0	48.4	39.7	35.2	37.2	30.6	26.8	9.7	8.8	8.1	0.9	1.0	36	37	25.7	28.2	6	6	5
Vitec Software	10.1	51.3	45.5	40.2	54.5	48.1	41.1	8.3	7.5	6.9	0.5	0.5	17	17	15.3	15.8	9	17	16
Embedded software peers																			
Cadence Design Systems	298.9	45.6	42.9	38.2	39.1	34.8	29.1	12.7	11.9	11.0		0.3	33	28	32.3	33.4	10	13	14
ANSYS	247.7	54.1	47.6	43.0	47.8	39.4	33.1	17.5	15.7	14.2	0.0	0.0	13	13	36.9	40.1	9	3	5
Xilinx	276.2	38.5	44.4	36.1	38.5	38.6	30.9	9.7	10.0	9.0	1.1	1.2	30	29	26.0	26.1	0	-9	-12
Altium	31.8	83.2	66.2	57.7	60.3	49.4	43.0	18.9	17.2	14.9	1.1	1.4	23	29	31.4	34.5	9	11	2
Average	80.6	60.0	51.1	42.1	49.9	42.0	33.7	14.4	12.4	10.7	0.6	0.7	33	32	27.3	29.3	15	19	17
Median	14.6	54.1	46.6	40.0	51.4	41.5	33.1	12.7	11.2	9.4	0.7	0.9	31	32	25.8	28.3	10	13	14

Figure 7: IAR Systems valuation versus listed peers

Source: Bloomberg (underlying data), DNB Markets (further calculations)

Summary of positives

World-leading provider of software development tools and services

Sweden-based IAR Systems is a world-leading provider of software tools and services for embedded systems (a chip containing embedded software) that enable the development of digital products for 46,000+ customers with 150,000+ users in end-markets, underpinned by growing demand for digital technology. We believe IAR Systems has a resilient business model selling flexible right-to-use licences to access its wholly owned software tool-chain (the IAR Embedded Workbench), which enables close customer relationships, high customer retention and consistent revenue streams, complemented by a royalty-based agreement with world-leading processor vendor Renesas Electronics. The March 2018 acquisition of Secure Thingz (the leading provider of advanced security solutions that help customers to take control of digital products from inception) has made IAR Systems the frontrunner ahead of the paradigm shift associated with security solutions for embedded systems in the Internet of Things (IoT).

Embedded resilience in a sticky business

We consider IAR Systems' key competitive advantage to be its proprietary technology platform, the IAR Embedded Workbench, which holds a ~40% global market share, as: 1) it is a unique line-up of a complete tool-chain for product developers; 2) being independent, IAR Systems supports a wide range of design architecture, meaning customers can choose the programming environment and tools according to their own needs, regardless of processor or project, which avoids locking customers in to one technical platform; 3) superior quality as its commercial customers cannot compromise on tools' code performance, reliability, user-friendliness, or time-to-market using inferior technologies such as open-source alternatives; 4) it is now a leading participant in embedded systems security, and should be able to leverage its head-start and unique technology to maximise the market potential; and 5) a scaled-up management team with the ability to execute the growth potential in the business, in our view.

IAR 4.0

IAR Systems has gone through various phases since 2010, having streamlined the business towards proprietary software, creating a more specialised company and shifted its project-based business model to scalable licence sales, which has substantially improved margins. In our view, it is now heading into its fourth phase: the growth story. We believe that IAR 4.0 (our interpretation of IAR Systems' next phase) marks the shift from being a supplier of a compiler to becoming the go-to software tool partner for global names such as Amazon and Renesas Electronics, as they position their embedded systems ahead of the Internet of Things (IoT).

Growing addressable market with the spread of digital technology

The spread of digital technology is driving the market for embedded systems. Thus, the market has numerous underlying drivers that all indicate a continuation of the solid industry growth of the past decade. Global Market Insights estimates a 6% market CAGR until 2025, and we believe the factors that could affect growth for IAR Systems are likely to be: 1) continued increase in the number (and complexity) of embedded systems driven by IoT; 2) demand for reliable and advanced software tools that offer faster time-to-market and a complete development platform; 3) the automotive opportunity as cars become mobile computing platforms; 4) RISC-V adoption; 5) market consolidation and participants becoming too dominant; and 6) untapped potential in security solutions for embedded systems.

Security for embedded systems could mark a paradigm shift for IAR Systems

Having acquired Secure Thingz in March 2018, we believe IAR Systems is now the frontrunner in offering secure embedded systems. Theft of IP (code), cloning, counterfeiting etc. has made security issues the number one barrier for IoT adoption. The security market for embedded systems is in its inception phase but we expect it to grow rapidly through to 2022, driven by: 1) securing IP as a business imperative; and 2) increasingly stringent security legislation. Thus, the share of secure new embedded products is set to grow from 5% today to almost 20% by 2022e, according to ABI Research. In Q2 2019, IAR Systems launched it security offering (C-Trust and Embedded Trust), which ensures that its customers' intellectual property is protected against IP theft, overproduction, piracy, and that software updates can be managed in a secure fashion.

Its software tools and services enable the development of digital products...

...in end-markets underpinned by growing demand for digital technology

IAR Systems owns the market for software development tools with c50% global market share

Key competitive strengths:

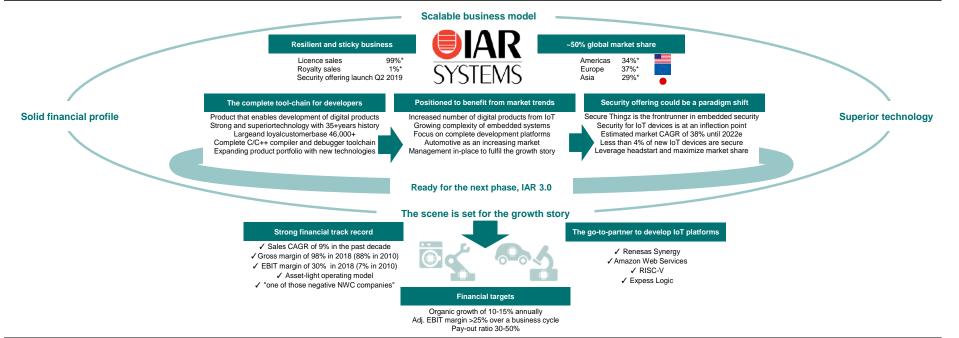
- 1) unique and complete tool-chain
- 2) independence
- 3) high-quality products
- 4) frontrunner in security solutions

5) management's ability to achieve its long-term potential

Setting the scene for the growth story

Numerous market drivers indicate a continuation of the solid industry growth

Untapped potential in security offering with an addressable market opportunity of USD3bn highlights that if IAR Systems is able to grab just a small market share, it could have a swing factor on its valuation



Source: Company (underlying data), DNB Markets (compilation)

We forecast 2019-2022 sales and EBIT CAGRs of 8% and 14%, respectively

We forecast a 2019–2022 sales CAGR and untapped potential in security solutions for embedded systems of 8% and an EBIT CAGR of 14%, based on a strong market outlook underpinned by: 1) an increase in the number (and complexity) of embedded systems; 2) growing demand for reliable and advanced software tools that offer faster time-to-market and complete development platforms; 3) the automotive opportunity, as cars become mobile computing platforms; and 4) rapid RISC-V adoption.

This should be driven by a 5% organic sales CAGR for its legacy licensing business (98% of 2019 sales), as the aforementioned market drivers should translate into more processors and lines of code, driving demand for software development tools and possibly programmers (user keys) for IAR Systems, as well as a full user-friendly total solution enabling customers to re-use large amounts of code. The large growth opportunities for its legacy business are:

- 1 Growing RISC-V adoption, as its tools launched in May 2019 have been well received by customers (especially in China, which accounts for 1% of group sales), setting the stage for accelerating organic growth.
- 2 Strategic customer sales now represent c10–15% of sales, highlighting that larger OEMs (in some cases 100+ developers) are increasingly standardising on IAR Systems' tools.
- 3 In addition, increased penetration from existing and new technologies in the IAR Embedded Workbench should drive add-on sales.

IAR Systems' security offering lends the greatest growth potential, in our view, as IAR Systems has a solid track record of offering new products to existing customers. In a simplified scenario, we believe its existing customer base could represent a >SEK10bn revenue pool for its security offering. This should provide a long runway for future growth, but in the short term we expect: 1) security legislation to play an active role in the update of secure development tools; and 2) the company to focus on larger customer accounts. Furthermore, discussions with its customers and partners at Embedded World 2019 cemented our view of IAR Systems' value proposition.

We forecast a 2019–2022 EBIT CAGR of 14%, implying a margin gain from 27% in 2019 to 31% in 2022e, driven by: 1) solid organic volume growth; and 2) ample operational leverage (hurt in 2018–2019 by the integration of Secure Thingz) in 2020–2022e, as we believe IAR Systems should continue to benefit from economies of scale due to its large fixed cost base.

Market drivers should create more processors and lines of code, driving demand for software development tools, and a user-friendly total solution enabling customers to re-use code

We expect Secure Thingz to contribute to group sales with 5% organic growth CAGR in 2019–2022

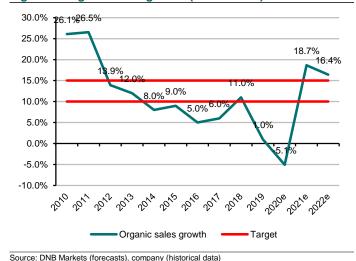
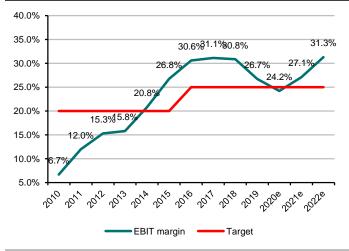


Figure 9: Organic sales growth (2010–2022e)

Figure 10: Adj. EBIT margin (2010-2022e)



Source: DNB Markets (forecasts), company (historical data)

Financial targets

IAR Systems has three financial targets: 1) average organic growth of 10–15% annually; 2) an adj. EBIT margin in excess of 25% over a business cycle; and 3) a dividend payout of 30– 50% of annual net income.

Figure 11: IAR Systems' financial targets - reported and DNB Markets' estimates

		Reporte	d fiscal yea	rs		DNB Markets' estimates				
	2015	2016	2017	2018	2019	IAR target	2020e	2021e	2022e	
Organic growth	9.0%	5.0%	6.0%	11.0%	1.0%	10-15%	-5.1%	18.7%	16.4%	
EBIT margin	26.8%	30.6%	31.1%	30.8%	26.7%	>25%	24.2%	27.1%	31.3%	
Payout ratio	99.7%	113.3%	79.0%	74.9%	83.9%	30-50%	0%	39%	37%	

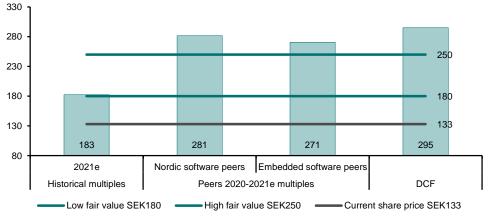
Source: DNB Markets (forecasts), company (historical data and targets)

We calculate a fair value of SEK180-250/share

Based on IAR Systems' historical valuation multiples (P/E of 29x, EV/EBIT of 21x), our group of Nordic software peers, embedded software peers, and our DCF model, we calculate a fair value of SEK180–250/share. At the current share price, our estimates suggest a 2022e P/E of 25x, EV/EBIT of 18x, and EV/sales of 6x, while our fair value suggests 35–88% potential upside.

Fair value of SEK180–250/share suggests potential of 35–88%





Source: DNB Markets

Summary of negatives

The key risks that could affect our fair value are: 1) IAR Systems' inability to resurrect the growth story, e.g. if it failed to capture the underlying market growth, or if there was prolonged market consolidation (causing market uncertainty) or delays in key strategic initiatives; 2) market entry by large and well-resourced participants that, until now, have overlooked the potential in software tools for embedded systems; and 3) FX headwinds, as the company is fairly sensitive to fluctuations in the SEK as it does not hedge its currency flows (with >99% of sales from markets outside Sweden but 50% of its cost base in SEK).

- Failure to resurrect the growth story. Having reported average local-currency growth of 20% in 2010–2013, 9% in 2014–2015 and 6% in 2016–2019, we believe the key risk to the valuation is a failure to resurrect the organic growth story. While we have identified numerous market drivers that should fuel organic growth in our forecast period, an inability to capture these trends, delays in when the factors materialise, or disappointing disclosures regarding the new strategic alliances in royalty fees, licensing structures, etc. could raise questions about the operations and thus the valuation.
- FX headwinds. Although >99% of sales are from markets outside Sweden, we estimate ~50% of the fixed cost base is denominated in SEK; hence the company is fairly sensitive to fluctuations in this currency. If the SEK were to strengthen by 10% against its most important currencies (USD, EUR, JPY) as well as the GBP and KRW in 2019, we estimate a ~10% FX headwind for sales and a ~30% headwind for 2020 EBIT.
- Intensified competitive landscape. While the company holds leading positions across most processor types, it still faces a highly competitive environment, particularly from the independent supplier Green Hills Software and Arm's development tool, Kiel. If competitiveness were to intensify or market growth rates were to abate, there could be pressure on the pricing of software licences (from those not giving it away free) in efforts to recapture growth or gain market share. While we believe the commercial viability of open source names is a limited risk for IAR Systems' offering today, any success for these alternatives could result in reduced licensing revenues for IAR Systems.
- Continued market consolidation. The ongoing consolidation trend among processor vendors could last longer than IAR Systems expects. If this continues to create market uncertainty and disrupt IAR Systems' partner network, it could hamper its growth prospects. Also, if the acquisitions of embedded software companies continue, it could cap IAR Systems' ability to integrate new technologies into its product offering. If it fails to acquire new technologies or create strategic alliances to integrate into its offering, this could impede its ability to address new market trends that should contribute to growth.
- Large company entering the market. While we believe barriers to entry are considerable, we also believe the attractiveness of this market has been somewhat overlooked by industry giants as they have often acquired development-tool companies and given away the products 'free' to reduce costs. As many competitors in the semiconductor industry (particularly processor vendors) but especially global giants such as Google and Amazon are well resourced, it could pose a threat if they were to consider increasing their presence in software development tools.
- Limited supply of qualified personnel. In an industry characterised by rapid technological development, it is vital for IAR Systems to continually improve its product offering through innovation. A need for its technology and products to be market-leading means it has to retain well-qualified employees, particularly in the technological aspects of product development. Failure to respond quickly to technological developments through qualified personnel could hurt its operations.
- Worsening economic conditions. A deteriorating global economy would probably cause a downturn in the cyclical semiconductor industry and customers' end-markets, which could affect the number of new microprocessors, and consequently demand for software development tools that programme the chips.

Until now large well-resourced competitors have overlooked the potential in software tools for embedded systems

IAR Systems is sensitive to fluctuations in the SEK

Growth prospects could be hampered by further consolidation

Retaining talented employees is key

Business overview

Dating back to 1983, IAR Systems is an independent provider of software for the programming of microprocessors in embedded systems (the control function in digital products). Its leading software – the IAR Embedded Workbench – facilitates, quality-assures, and improves the time-to-market of programming instructions in processors. The customer base of 46,000+ OEM customers and 150,000+ technology users is found mainly in end-markets underpinned by growing demand for digital technology and embedded systems, such as industrial automation, medical technology, telecommunications, consumer electronics, and the automotive industry.

World-leading provider of software for programming processors in embedded systems, which enable the development of digital products

Figure 13: IAR Systems' role in customers' product development



Source: Company

Headquartered in Uppsala (Sweden), the company holds a leading global market share of ~40% with 95%+ of sales stemming from markets outside the Nordics and a headcount of 216. IAR Systems' business model is primarily licence-based, where customers pay for a flexible right-to-use licence to access the IAR Embedded Workbench®, giving it attractive and steady revenue streams (~35% recurring revenues). In addition to this, IAR Systems underwent two of the most comprehensive product launches in its history in 2019. With the launch of its security offering (C-Trust and Embedded Trust) as well as for RISC-V tools introducing a subscription-based model, we believe the building blocks are in place take the case to the next level:

IAR Embedded Workbench (99% of 2019 sales) based on the number of licence users (perpetual software keys) of the IAR Embedded Workbench sold when a developer programmes a product. The traditional licence costs cSEK30,000 (upfront) while the customer can add support and updates for an annual cost of 20% of the licence price. 50% global market share with 98% licence-based revenues, which are flexible for customers and leverage the number of programmers using its licence...

... in 2019 IAR Systems also introduced a subscription model via its RISC-V tools and Embedded Trust...

...complemented by royalty-based revenue that leverages the number of chips used in customers' production, which falls straight through to EBIT

Secure Thingz (0%). C-Trust at ~SEK30,000/seat as a perpetual licence targeting IAR Systems' 150,000 users, Embedded Trust at ~SEK150,000/seat as an annual subscription licence targeting the security experts at IAR Systems' 46,000 OEM customers.

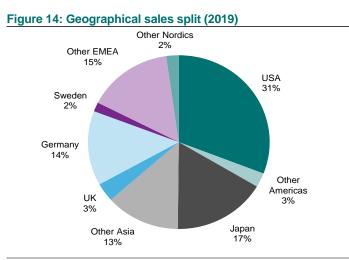
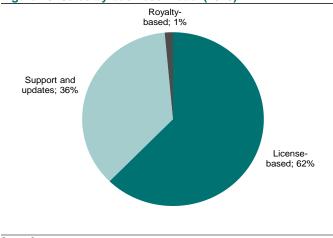


Figure 15: Sales by business model (2019)



Source: Company

IAR Systems was acquired by IT conglomerate Nocom in 2005. However, by 2010, Nocom (known as Intoi by then) wanted to focus on proprietary software and create a more specialised company, so it kept only IAR Systems and took on that name.

With 2019 net sales of SEK406m, IAR Systems is 3x larger than the company acquired in 2005. While generating a sales CAGR of 9% over the past 10 years, it was able to significantly boost underlying profitability from an adj. EBIT margin of 12.3% in 2007 to 26.7% in 2019, which we attribute to: 1) the scalability of its high-gross-margin standardised software; 2) more focus on proprietary products; and 3) increased cost-efficiency (given the large fixed cost base, where personnel costs represent 46% of sales).

From an IT conglomerate to a streamlined proprietary software provider...

...with profitable growth, a sales CAGR of 9% and an adj. EBIT CAGR of 32% in the past 10 years

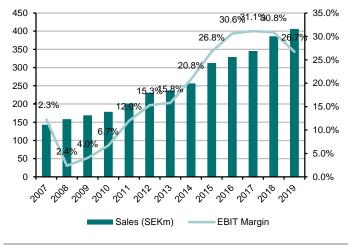


Figure 16: IAR Systems – sales (SEKm) and adj. EBIT margin

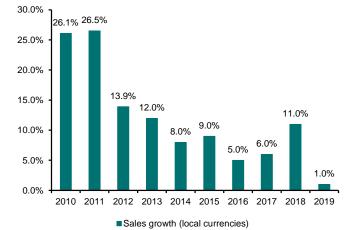


Figure 17: IAR Systems – sales growth local currencies

Source: Company

IAR Systems' key competitive advantage in our view is its flagship product, the IAR Embedded Workbench, which is a complete tool-chain for customers. Being independent, the software supports 14,000+ processors for embedded systems from the major process vendors with 8-, 16-, and 32-bit architecture, meaning customers can choose the programming environment and tools according to their own needs regardless of processor or project, which avoids locking customers into one technical platform. Moreover, it can re-use 70–80% of previously developed code instead of rewriting it (saving time and resources).

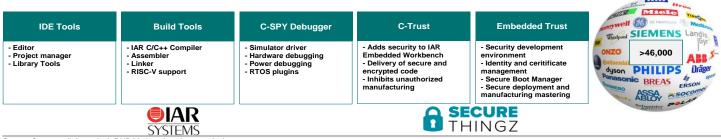
Over the past few years, IAR Systems has expanded its product portfolio and now offers several adjacent products integrated in the IAR Embedded Workbench to optimise the code programming, for instance C-STAT and C-RUN (static and dynamic analysis that quality-assures and strengthens the reliability of the programming), Embedded Trust (security development environment for IoT solutions) and C-Trust (delivering secure, encrypted code) through its acquisition of Secure Thingz, as well as support for RISC-V, positioning IAR Systems in two of the embedded industry's hottest themes. In addition to driving add-on sales, this has – combined with a comprehensive support organisation – translated into impressive customer retention (95% recurring customers) and strengthened IAR Systems' competitiveness.

Source: Company

Key competitive advantage: cutting-edge wholly owned technology that maximises customer benefits offering a complete solution...

...which, combined with complementary integrated products and comprehensive support, means a loyal customer base (95% recurring customers)

Figure 18: IAR Embedded Workbench ® sold to >46,000 customer organisations



Source: Company (information), DNB Markets (graph structuring)

Forecast changes – P&L

	New Old					Change			
(SEKm)	2020e	2021e	2022e	2020e	2021e	2022e	2020e	2021e	2022e
Revenues	379	437	508	395	447	506	-15	-11	3
Cost of sales	-14	-14	-16	-14	-13	-15	0	-1	-1
Gross profit	365	423	492	381	434	491	-16	-11	2
Operating expenses	-226	-256	-276	-243	-262	-280	17	7	4
EBITDA	139	167	217	138	172	211	1	-5	6
EBITDA adj	139	167	217	138	172	211	1	-5	6
EBITDA margin (%)	36.6	38.3	42.6	34.9	38.5	41.7	1.8	-0.2	0.9
Depreciation	-3	-4	-5	-4	-4	-6	0	1	1
Amortisation	-44	-45	-53	-44	-48	-53	0	3	0
EBIT	92	118	159	90	119	152	2	-1	7
EBIT adj	92	118	159	90	119	152	2	-1	7
Net financial items	-3	-3	-3	-2	-2	-3	0	0	0
PBT	89	116	156	88	117	149	2	-1	6
Taxes	-22	-28	-38	-21	-29	-37	0	0	-2
Minorities	0	0	0			0			0
Net profit	68	87	118	67	88	113	1	-1	5
Adjustments to net profit	0	0	0	0	0	0	0	0	0
Net profit adj	68	87	118	67	88	113	1	-1	5
Devictory data (CEK)									
<i>Per share data (SEK)</i> EPS	4.96	6.41	8.63	4.88	6.48	8.28	0.08	-0.07	0.36
						8.28			
EPS adj	4.96 0.00	6.41 2.48	8.63	4.89 1.50	6.48 2.44		0.08 -1.50	-0.07	0.36 -0.03
DPS ordinary			3.21			3.24		0.04	
DPS	0.00	2.48	3.21	1.50	2.44	3.24	-1.50	0.04	-0.03
Other key metrics (%)									
Revenue growth	-6.5	15.2	16.4	-2.7	13.4	13.0	-3.8	1.8	3.4
EBIT adj growth	-15.3	28.9	34.4	-17.2	33.0	27.5	1.8	-4.0	6.9
EPS adj growth	-16.7	29.2	34.6	-18.0	32.6	27.7	1.3	-3.4	6.9
Avg. number of shares (m)	14	14	14	14	14	14	0	0	0
Capex	-84	-89	-103	-92	-84	-77	7	-5	-26
OpFCF	55	78	114	46	88	134	9	-10	-20
Working capital	56	70	98	32	56	106	24	14	-7
NIBD adj	-27	-30	-52	-6	-23	-64	-21	-7	12

Source: DNB Markets

Forecast changes – By segment and assumptions

		New			Old		Change		
(SEKm)	2020e	2021e	2022e	2020e	2021e	2022e	2020e	2021e	2022e
Assumptions									
Revenue org. % YOY	-5.07	18.67	16.42	-0.85	17.10	13.02	-4.22	1.57	3.40
Structure impact % YOY	0.00	0.00	0.00			0.00			0.00
Currency impact % YOY	-1.48	-3.44	0.00	-1.88	-3.68	0.00	0.40	0.24	0.00

Source: DNB Markets

Quarterly numbers

(SEKm)	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020e	Q1 2021e	Q2 2021e	Q3 2021e	Q4 2021e
Revenues	99	100	107	92	100	89	98	101	108	106	121
Cost of sales	-3	-3	-4	-4	-3	-3	-4	-3	-3	-3	-5
Gross profit	97	98	103	88	97	86	94	98	105	103	117
Operating evapope	-64	-60	66	60	60	40	55	-64	-62	60	66
Operating expenses			-66	-62	-60 37	-49	-55			-63	-66 51
EBITDA	33	38	37	27	37	37	39	34	42	40	21
Depreciation	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1
Amortisation	-8	-9	-9	-12	-11	-11	-11	-11	-10	-12	-12
EBIT	24	28	27	14	25	25	27	22	31	27	38
Net financial items	-2	1	0	0	-2	-1	0	0	-2	0	0
PBT	22	29	27	14	23	25	27	22	29	27	38
					_0						
Taxes	-5	-7	-7	-3	-6	-6	-7	-5	-7	-7	-9
Minorities	0	0	0	0	0	0	0	0	0	0	0
Net profit	17	22	20	11	18	19	20	16	22	21	29
Adjustments to net profit	0	0	0	0	0	0	0	0	0	0	0
Net profit adj	17	22	20	11	18	19	20	16	22	21	29
Dividend paid	-68	0	0	0	0	0	0	0	-34	0	0
Avg. number of shares (m)	14	14	14	14	14	14		14		14	14
Per share data (SEK)											
EPS	1.23	1.58	1.47	0.81	1.29	1.37	1.49	1.20	1.61	1.50	2.10
EPS adj	1.20	1.58	1.46	0.81	1.29	1.37	1.49	1.20	1.61	1.50	2.10
DPS ordinary	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.48	0.00	0.00
DPS	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.48	0.00	0.00
Growth and margins (%)	-0.8	1.0	6.8	-13.6	8.5	-11.2	10.0	3.1	7.5	-1.8	14.2
Revenues, QOQ growth											
Revenues, YOY growth	3.6	2.1	3.9	-7.5	1.1	-11.1	-8.5	9.1	8.2	19.6	24.2
EPS adj, YOY growth	-16.1	-19.8	-8.5	-50.4	7.8	-13.4	2.0	47.4	24.7	9.9	40.9
Gross margin	97.5	97.5	96.5	95.7	96.6	97.0	96.0	97.2	96.9	97.2	96.2
EBITDA adj margin	33.2	37.5	34.6	28.8	36.8	41.4	39.6	33.6	39.2	37.6	42.2
Depreciation/revenues	-1.0	-0.7	-0.8	-0.8	-1.2	-0.4	-0.9	-0.8	-1.3	-0.5	-1.0
EBIT adj margin	24.0	28.1	25.4	15.6	25.0	28.6	27.6	21.8	28.8	25.7	31.2
Net profit margin	16.9	21.6	18.7	12.0	17.6	21.0	20.8	16.2	20.2	19.3	23.6

Source: Company (historical figures), DNB Markets (estimates)

Adjustments to quarterly numbers

(SEKm)	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020e	Q1 2021e	Q2 2021e	Q3 2021e	Q4 2021e
EBITDA	33	38	37	27	37	37	39	34	42	40	51
EBITDA adj	33	38	37	27	37	37	39	34	42	40	51
		20	07		05	25	07	20	24	07	20
EBIT	24	28	27	14	25	25	27	22	31	27	38
Other EBIT adjustments	0	0	0	0	0	0	0	0	0	0	0
EBIT adj	24	28	27	14	25	25	27	22	31	27	38
Net profit	17	22	20	11	18	19	20	16	22	21	29
Other EBIT adjustments	0	0	0	0	0	0	0	0	0	0	0
Tax adjustments	0	0	0	0	0	0	0	0	0	0	0
Other adjustments	0	0	0	0	0	0	0	0	0	0	0
Net profit adj	17	22	20	11	18	19	20	16	22	21	29

Quarterly numbers by segment and assumptions

(SEKm)	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020e	Q1 2021e	Q2 2021e	Q3 2021e	Q4 2021e
Assumptions											
Revenue org. % YOY	-2.30	-2.76	-1.26	-11.12	-0.81	-5.60	-2.86	15.33	14.52	20.32	24.57
Structure impact % YOY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Currency impact % YOY	5.86	4.90	5.16	3.61	1.92	-5.50	-5.62	-6.18	-6.36	-0.73	-0.34

Source: Company (historical figures), DNB Markets (estimates)

Annual P&L

(SEKm)	2013	2014	2015	2016	2017	2018	2019	2020e	2021e	2022e
Revenues	236	256	312	328	345	385	406	379	437	508
Cost of sales	-15	-13	-10	-12	-9	-9	-11	-14	-14	-16
Gross profit	222	243	301	316	337	376	395	365	423	492
Operating expenses	-171	-179	-203	-203	-209	-236	-249	-226	-256	-276
EBITDA	51	64	98	113	127	140	146	139	167	217
Depreciation	-2	-2	-3	-3	-2	-3	-3	-3	-4	-5
Amortisation	-7	-8	-12	-14	-17	-22	-34	-44	-45	-53
EBIT	41	53	83	97	107	116	108	92	118	159
Net financial items	0	0	0	0	-2	-2	-1	-3	-3	-3
PBT	37	54	83	100	106	117	107	89	116	156
Taxes	-12	-11	-20	-22	-26	-26	-26	-22	-28	-38
Effective tax rate (%)	31	21	24	22	24	22	24	24	25	25
Minorities	0	0	0	0	0	0	0	0	0	0
Net profit	26	42	63	78	80	91	81	68	87	118
Adjustments to net profit	3	0	0	-3	0	-2	0	0	0	0
Net profit adj	29	42	63	75	80	88	81	68	87	118
Dividend paid	-23	0	-63	-88	-63	-68	-68	0	-34	-44
Avg. number of shares	12	13	13	13	13	14	14	14	14	14
Per share data (SEK)										
EPS	2.10	3.34	5.02	6.18	6.33	6.67	5.96	4.96	6.41	8.63
EPS adj	2.10	3.34	5.02	6.18	6.33	6.67	5.96	4.96	6.41	8.63
DPS ordinary	1.85	0.00	5.00	7.00	5.00	5.00	3.00	0.00	2.48	3.21
DPS	1.85	0.00	5.00	7.00	5.00	5.00	3.00	0.00	2.48	3.21
Growth and margins (%)										
Revenue growth	2.7	8.3	21.9	5.4	5.1	11.7	5.3	-6.5	15.2	16.4
EPS adj growth	83.4	59.2	50.2	23.0	2.6	5.3	-10.6	-16.7	29.2	34.6
Gross margin	93.9	95.0	96.7	96.3	97.5	97.7	97.3	96.3	96.8	96.9
EBITDA margin	21.4	24.9	31.5	34.5	36.9	36.4	35.9	36.6	38.3	42.6
EBITDA adj margin	21.4	24.9	31.5	34.5	36.9	36.4	35.9	36.6	38.3	42.6
Depreciation/revenues	-0.9	-0.9	-0.8	-0.8	-0.7	-0.7	-0.8	-0.8	-0.9	-1.0
EBIT margin	17.5	20.8	26.8	29.4	31.1	30.0	26.7	24.2	27.1	31.3
EBIT adj margin	15.8	20.8	26.8	30.6	31.1	30.8	26.7	24.2	27.1	31.3
PBT margin	15.8	21.0	26.7	30.5	30.6	30.4	26.4	23.5	26.5	30.7
Net profit margin	11.0	16.5	20.3	23.8	23.2	23.6	20.0	17.9	20.0	23.1

Adjustments to annual P&L

(SEKm)	2013	2014	2015	2016	2017	2018	2019	2020e	2021e	2022e
EBITDA	51	64	98	113	127	140	146	139	167	217
EBITDA adj	51	64	98	113	127	140	146	139	167	217
EBIT	41	53	83	97	107	116	108	92	118	159
Other EBIT adjustments	4	0	0	-4	0	-3	0	0	0	0
EBIT adj	37	53	83	101	107	119	108	92	118	159
Net profit	26	42	63	78	80	91	81	68	87	118
Other EBIT adjustments	4	0	0	-4	0	-3	0	0	0	0
Tax adjustments	0	0	0	0	0	0	0	0	0	0
Other adjustments	0	0	0	0	0	0	0	0	0	0
Net profit adj	29	42	63	75	80	88	81	68	87	118
Per share data (SEK)										
EPS	2.10	3.34	5.02	6.18	6.33	6.67	5.96	4.96	6.41	8.63
Recommended adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EPS adj	2.10	3.34	5.02	6.18	6.33	6.67	5.96	4.96	6.41	8.63

Source: Company (historical figures), DNB Markets (estimates)

Cash flow

(SEKm)	2013	2014	2015	2016	2017	2018	2019	2020e	2021e	2022e
Net profit	26	42	63	78	80	91	81	68	87	118
Depreciation and amortisation	9	10	15	17	20	25	37	47	49	58
Cash flow from operations (CFO)	41	70	99	114	124	93	106	123	126	168
Capital expenditure	-21	-32	-19	-19	-19	-47	-84	-84	-89	-103
Acquisitions/Investments	0	0	0	0	0	-171	-19	0	0	0
Divestments	0	0 0	1	0	0	0	0	0	0	0
Cash flow from investing (CFI)	-19	-32	-18	-19	-38	-218	-102	-84	-89	-103
Free cash flow (FCF)	22	39	80	95	86	-125	4	39	37	65
Net change in debt	0	0	0	0	0	0	30	5	0	0
Dividends paid	-23	0	-63	-88	-63	-68	-68	0	-34	-44
Share issue (repurchase)	22	-53	0	0	0	172	0	0	0	0
Other	12	0	0	0	0	4	-14	-27	0	0
Cash flow from financing (CFF)	12	-53	-64	-88	-63	108	-52	-21	-34	-44
Total cash flow (CFO+CFI+CFF)	33	-15	17	7	23	-17	-49	17	3	21
FCFF calculation										
Free cash flow	22	39	80	95	86	-125	4	39	37	65
Less: tax shields/other	0	0	0	0	0	0	0	0	0	0
Less: acquisitions	0	0	0	0	0	171	19	0	0	0
Less: divestments	0	0	-1	0	0	0	0	0	0	0
Growth (%)										
CFO	6.3	72.7	40.4	15.7	8.5	-25.3	14.1	16.2	2.4	33.7
CFI	-5.5	-66.0	42.3	-3.3	-98.9	-478.5	53.0	17.6	-5.7	-15.7
FCF	6.9	78.7	108.3	18.5	-9.4	-244.7	102.8	1003.1	-4.8	77.2
CFF	1866.7	-550.8	-19.5	-39.0	28.5	270.4	-148.3	58.8	-58.1	-29.2
FCFF	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm

Balance sheet

(SEKm)	2013	2014	2015	2016	2017	2018	2019	2020e	2021e	2022e
Assets	370	375	399	396	410	722	825	864	919	995
			_	•	_	-	_			
Inventories	3	4	5	6	5	7	7	6	8	9
Trade receivables	34	39	44	48	51	63	67	58	68	77
Other receivables	15	11	20	19	12	38	52	70	70	70
Current financial assets	1	0	0	0	0	0	0	0	0	0
Cash and cash equivalents	82	71	89	99	120	106	61	77	80	101
Current assets	135	124	158	172	187	214	186	211	226	257
Property, plant and equipment	6	8	7	6	6	9	64	8	8	8
Other intangible assets	164	186	192	197	194	484	568	641	681	726
Defferred tax assets	59	51	37	16	3	13	5	2	2	2
Non-current financial assets	5	6	5	5	20	2	2	2	2	2
Non-current assets	235	251	241	224	223	508	639	653	693	738
Total assets	370	375	399	396	410	722	825	864	919	995
Equity and liabilities	370	375	399	396	410	722	825	864	919	995
Total equity	295	289	291	280	290	550	592	640	693	767
Trade payables	6	5	5	5	6	7	9	11	12	14
Other payables and accruals	54	65	84	92	31	131	117	40	40	40
Short-term debt	1	1	1	1	1	2	38	17	17	17
Total current liabilities	61	71	90	99	102	140	164	155	156	158
Long-term debt	1	2	1	2	2	1	41	32	32	32
Deferred tax liabilities	13	15	17	15	14	30	27	36	36	36
Other non-current liabilities	0	0	1	1	2	2	1	1	1	1
Total non-current liabilities	14	16	18	18	17	32	69	70	70	70
Total liabilities	75	87	108	116	120	172	233	225	226	228
Total equity and liabilities	370	375	399	396	410	722	825	864	919	995
Key metrics										
Net interest bearing debt	-79	-68	-88	-97	-117	-103	18	-27	-30	-52

Valuation ratios

(SEKm)	2013	2014	2015	2016	2017	2018	2019	2020e	2021e	2022e
Enterprise value										
Share price (SEK)	39.77	74.75	150.00	206.00	189.00	243.00	186.00	133.00	133.00	133.00
Number of shares (m)	12.34	12.63	12.63	12.63	12.63	13.62	13.63	13.63	13.63	13.63
Market capitalisation	491	944	1,895	2,602	2,387	3,310	2,535	1,813	1,813	1,813
Net interest bearing debt	-79	-68	-88	-97	-117	-103	18	-27	-30	-52
Adjustments to NIBD	0	0	0	0	0	0	0	0	0	0
Net interest bearing debt adj	-79	-68	-88	-97	-117	-103	18	-27	-30	-52
EV	411	876	1,807	2,505	2,270	3,206	2,554	1,785	1,783	1,761
EV adj	411	876	1,807	2,505	2,270	3,206	2,554	1,785	1,783	1,761
Valuation										
EPS	2.10	3.34	5.02	6.18	6.33	6.67	5.96	4.96	6.41	8.63
EPS adj	2.10	3.34	5.02	6.18	6.33	6.67	5.96	4.96	6.41	8.63
DPS ordinary	1.85	0.00	5.00	7.00	5.00	5.00	3.00	0.00	2.48	3.21
DPS	1.85	0.00	5.00	7.00	5.00	5.00	3.00	0.00	2.48	3.21
P/E	18.9	22.4	29.9	33.4	29.8	36.4	31.2	26.8	20.7	15.4
P/E adj	18.9	22.4	29.9	33.4	29.8	36.4	31.2	26.8	20.7	15.4
P/B	1.66	3.27	6.51	9.31	8.22	6.02	4.28	2.83	2.62	2.36
Average ROE	9.4%	14.5%	21.9%	27.3%	28.1%	21.6%	14.2%	11.0%	13.1%	16.1%
Earnings yield adj	5.3%	4.5%	3.3%	3.0%	3.4%	2.7%	3.2%	3.7%	4.8%	6.5%
Dividend yield	4.6%	0.0%	3.3%	3.4%	2.6%	2.1%	1.6%	0.0%	1.9%	2.4%
Free cash flow yield	4.4%	4.1%	4.2%	3.7%	3.6%	-3.8%	0.1%	2.1%	2.0%	3.6%
EV/SALES	1.74	3.42	5.80	7.63	6.58	8.32	6.30	4.71	4.08	3.46
EV/SALES adj	1.74	3.42	5.80	7.63	6.58	8.32	6.30	4.71	4.08	3.46
EV/EBITDA	8.1	13.8	18.4	22.1	17.8	22.9	17.5	12.9	10.6	8.1
EV/EBITDA adj	8.1	13.8	18.4	22.1	17.8	22.9	17.5	12.9	10.6	8.1
EV/EBIT	10.0	16.5	21.7	26.0	21.1	27.7	23.6	19.5	15.1	11.1
EV/EBIT adj	11.0	16.5	21.7	24.9	21.1	27.0	23.6	19.5	15.1	11.1
EV/capital employed	1.4	3.0	6.2	8.9	6.4	5.8	3.8	2.3	2.1	1.9
EV/NOPLAT	13.5	22.2	29.3	35.1	28.6	37.5	31.8	26.3	20.4	15.0
EV/OpFCF (taxed)	20.8	50.1	31.6	36.6	28.3	51.4	75.1	57.9	37.4	24.4

Key accounting ratios

	2013	2014	2015	2016	2017	2018	2019	2020e	2021e	2022e
Profitability (%)										
ROA	7.5	11.3	16.4	19.6	19.9	16.0	10.5	8.0	9.8	12.3
ROCE	13.4	18.1	28.5	34.9	33.6	26.1	17.7	12.7	14.7	18.4
ROCE after tax	9.9	13.4	21.1	25.8	24.8	19.3	13.1	9.4	10.9	13.6
Return on invested capital (%)										
Net PPE/revenues	2.6	3.1	2.1	1.9	1.8	2.3	15.7	2.1	1.9	1.6
Working capital/revenues	31.2	20.9	22.0	22.4	24.6	19.3	5.4	14.8	16.0	19.4
Cash flow ratios (%)										
FCF/revenues	9.1	15.1	25.8	29.0	25.0	-32.4	0.9	10.2	8.4	12.8
FCF yield	4.4	4.1	4.2	3.7	3.6	1.4	0.9	2.1	2.0	3.6
CFO/revenues	17.2	27.5	31.7	34.8	35.9	24.0	26.1	32.4	28.8	33.1
CFO/market capitalisation	8.3	7.4	5.2	4.4	5.2	2.8	4.2	6.8	6.9	9.3
CFO/capex	192.9	217.6	508.8	614.0	652.1	197.9	126.4	145.9	141.3	163.2
CFO/current liabilities	66.8	99.4	110.2	115.8	121.1	66.2	64.4	79.2	80.6	106.3
Cash conversion ratio	83.4	91.5	126.8	122.2	107.9	-137.6	4.3	57.0	42.0	55.3
Capex/revenues	8.9	12.6	6.2	5.7	5.5	12.1	20.6	22.2	20.4	20.3
Capex/depreciation	959.1	1404.3	776.0	744.0	791.7	1800.0	2696.8	2664.5	2300.5	2125.5
OpFCF margin	12.5	12.2	25.3	28.8	31.4	24.2	15.3	14.4	18.0	22.3
Total payout ratio	88.0	0.0	99.6	113.3	78.9	75.0	50.4	0.0	38.7	37.1
Leverage and solvency (x)										
Net debt/EBITDA	-1.57	-1.08	-0.89	-0.85	-0.92	-0.74	0.13	-0.20	-0.18	-0.24
Total debt/total capital (BV)	0.01	0.01	0.00	0.01	0.01	0.00	0.10	0.06	0.05	0.05
LTD / (LTD + equity (MV))	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02
Cash conversion cycle										
Inventory turnover days	83.1	104.7	180.7	167.5	223.3	267.7	223.1	157.3	201.3	194.0
Receivables turnover days	75.3	70.9	74.5	74.7	66.2	96.1	106.8	123.7	115.8	105.4
Credit period	143.5	147.1	170.1	158.6	244.8	296.1	310.9	295.7	325.1	328.1
Cash conversion cycle	14.8	28.5	85.1	83.7	44.8	67.7	18.9	-14.7	-8.0	-28.8

Important Information

Company:IAR SystemsCoverage by Analyst:Joachim GunellDate:05-11-2020

This report has been prepared by DNB Markets, a division of DNB Bank ASA. DNB Bank ASA is a part of the DNB Group. This report is based on information obtained from public sources that DNB Markets believes to be reliable but which DNB Markets has not independently verified, and DNB Markets makes no guarantee, representation or warranty as to its accuracy or completeness. This report does not, and does not attempt to, contain everything material which there is to be said about the Company. Any opinions expressed herein reflect DNB Markets' judgement at the time the report was prepared and are subject to change without notice. The report is planned updated minimum every quarter.

Any use of non-DNB logos in this report is solely for the purpose of assisting in identifying the relevant issuer. DNB is not affiliated with any such issuer.

This report is for clients only, and not for publication, and has been prepared for information purposes only by DNB Markets, a division of DNB Bank ASA.

This report is the property of DNB Markets. DNB Markets retains all intellectual property rights (including, but not limited to, copyright) relating to the report. Sell-side investment firms are not allowed any commercial use (including, but not limited to, reproduction and redistribution) of the report contents, either partially or in full, without DNB Markets' explicit and prior written consent. However, buy-side investment firms may use the report when making investment decisions, and may also base investment advice given to clients on the report. Such use is dependent on the buy-side investment firm citing DNB Markets as the source.

Conflict of interest

This report has been commissioned and paid for by the company, and is deemed to constitute an acceptable minor non-monetary benefit as defined in MiFID II.

This report has been commissioned and paid for by the Company.

Readers should assume that DNB Markets may currently or may in the coming three months and beyond be providing or seeking to provide confidential investment banking services or other services to the company/companies

Share positions in the company:	Analyst*	Employees**	DNB***
Number of shares	0	600	0

*The analyst or any close associates. **Share positions include people involved in the production of credit and equity research,

including people that could reasonably be expected to have access to it before distribution. ***Share positions as part of DNB Group. Holdings as part of DNB Markets investment services activity are not included.

Recommendation distribution and corporate clients for the last 12 months

	Buy	Hold	Sell	No_rec	Total						
Number	160	60	26	24	270						
% of total	59%	22%	10%	9%							
DNB Markets client	22%	8%	3%	3%	98						

Legal statement

These materials constitute research as defined in section 9-27 (1) of the Norwegian Securities Trading Regulations (Norwegian: verdipapirforskriften), and are not investment advice as defined in section 2-4(1) of the Norwegian securities trading act (Norwegian verdipapirhandelloven). It constitutes an acceptable minor non-monetary benefit as defined in MiFID II.

The analyst hereby certifies that (i) the views expressed in this report accurately reflect that research analyst's personal views about the company and the securities that are the subject of this report, and (ii) no part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in this report. DNB Markets employees, including research analysts, may receive compensation that is generated by overall firm profitability. Confidentiality rules and internal rules restricting the exchange of information between different parts of DNB Markets/DNB Bank ASA or the DNB Group are in place to prevent employees of DNB Markets and the DNB Group have incorporated internal rules and regulations in order to avoid any potential conflicts of interest.

The Report has been prepared by DNB Markets, a division of DNB Bank ASA, a Norwegian bank organized under the laws of the Kingdom of Norway and under supervision by the Norwegian Financial Supervisory Authority, The Monetary Authority of Singapore, and on a limited basis by the Financial Conduct Authority and the Prudential Regulation Authority of the UK, and the Financial Supervisory Authority of Sweden. Details about the extent of our regulation by local authorities outside Norway are available from us on request.

It is issued subject to the General Business Terms for DNB Markets and information about the terms is available at www.dnb.no. For requests regarding the General Business Terms of the Singapore Branch of DNB Bank ASA, please contact +65 6212 6144. Information about the DNB Group can be found at www.dnb.com. DNB Markets is a member of The Norwegian Securities Dealers Association, which has issued recommendations and market standards for securities companies. The Association's Internet address where the recommendations and market standards can be found is: www.vpff.no. This report is not an offer to buy or sell any security or other financial instrument or to participate in any investment strategy. No liability whatsoever is accepted for any direct or indirect (including consequential) loss or expense arising from the use of this report. Distribution of research reports is in certain jurisdictions restricted by law. Persons in possession of this report should seek further guidance regarding such restrictions before distributing this report. The report is not to be distributed or forwarded to private persons in the UK or the US. Please contact DNB Markets at 08940 (+47 915 08940) for further information and inquiries regarding this report, including an overview on all recommendations from DNB Markets over the last 12 Months according to Market Abuse Regulations.

Additional information for clients in Singapore

The report has been distributed by the Singapore Branch of DNB Bank ASA. It is intended for general circulation and does not take into account the specific investment objectives, financial situation or particular needs of any particular person. You should seek advice from a financial adviser regarding the suitability of any product referred to in the report, taking into account your specific financial objectives, financial situation or particular needs before making a commitment to purchase any such product. You have been deasy of the report because you have been classified either as an accredited investor, an expert investor or as an institutional indvisers Act (Cap. 110) ("FAA") and/or the Financial Advisers Regulations ("FAR"). The Singapore Branch of DNB Bank ASA is a financial adviser exempt from licensing under the FAA but is otherwise subject to the legal requirements of the FAA and of the FAR. By virtue of your status as an accredited investor or as an expert investor, the Singapore Branch of DNB Bank ASA is, in respect of certain of its dealings with you or services rendered to you, exempt from having to comply with certain regulatory requirements of the FAA and FAR, including without limitation, sections 25, 27 and 36 of the FAA. Section 25 of the FAA requires a financial adviser to disclose material information concerning designated investment products which are recommended by the financial adviser to you as the client. Section 27 of the FAA requires a financial adviser to include, within any circular or written communications in which he makes recommendations to you as the client. Section 36 of the FAA in the Singapore Branch of DNB Bank ASA at +65 6212 6144 in respect of any matters arising from, or in connection with, the report. The report is intended for and is to be circulated only to persons who are classified as an accredited investor or an institutional investor, please contact the Singapore Branch of DNB Bank ASA at +65 6212 6144. We, the DNB group, our associates, officers and/or employees

In the United States

Each research analyst named on the front page of this research report, or at the beginning of any subsection hereof, hereby certifies that (i) the views expressed in this report accurately reflect that research analyst's personal views about the company and the securities that are the subject of this report; and (ii) no part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in this report.

The research analyst(s) named on this report are foreign research analysts as defined by FINRA Rule 1050. The only affiliate contributing to this research report is DNB Bank through its DNB Markets division ("DNB Markets/DNB Bank"); the foreign research analysts employed by DNB Markets/DNB Bank are named on the first page; the foreign research analysts are not registered/qualified as research analysts with FINRA; foreign research analysts are not associated persons of DNB Markets, Inc. and therefore are not subject to the restrictions set forth in FINRA Rules 2242 regarding restrictions on communications with a subject company, public appearances and trading securities held by a research analyst

This is a Third Party Research Report as defined by FINRA Rules 2241 and 2242. Any material conflict of interest that can reasonably be expected to have influenced the choice of DNB Markets/DNB Bank as a research provider or the subject company of a DNB Markets/DNB Bank research report, including the disclosures required by FINRA Rules 2241 and 2242 can be found above.

This report is being furnished solely to Major U.S. Institutional Investors within the meaning of Rule 15a-6 under the U.S. Securities Exchange Act of 1934 and to such other U.S. Institutional Investors as DNB Markets, Inc. may determine. Distribution to non-Major U.S. Institutional Investors will be made only by DNB Markets, Inc., a separately incorporated subsidiary of DNB Bank that is a U.S. broker-dealer and a member of the Financial Industry Regulatory Authority ("FINRA") and the Securities Investor Protection Corporation ("SIPC").

Any U.S. recipient of this report seeking to obtain additional information or to effect any transaction in any security discussed herein or any related instrument or investment should contact DNB Markets, Inc., 200 Park Avenue, New York, NY 10166-0396, telephone number +1 212-551-9800.

In Canada

The Report has been distributed in reliance on the International Dealer Exemption pursuant to NI 31-103 subsection 8.18(2) and subsection 8.18(4)(b). Please be advised that: 1. DNB Bank ASA (DNB Markets) and DNB Markets, Inc. are not registered as a dealer in the local jurisdiction to make the trade. We provide our services in Canada as an exempt international dealer. 2. The jurisdiction of DNB Bank ASA (DNB Markets) and DNB Markets) and DNB Markets) and DNB Markets, Inc. is head office is Norway. 3. There may be difficulty enforcing legal rights against DNB Bank ASA (DNB Markets) and DNB Markets, Inc. because all or substantially all of their assets may be situated outside of Canada. 4. The name and address of the agent for service of process for DNB Bank ASA (DNB Markets) and DNB Markets, Inc. in the local jurisdiction is:

Iegai rights against DNB Bank ASA (DNB Markets) and DNB Markets, inc. because all of substantially all of their assets may be situated outside of Canada. 4. The name and address of the agent for service of process for DNB Bank ASA (DNB Markets) and DNB Markets) and DNB Markets, inc. in the local jurisdiction is: Alberta: Blake, Cassels & Graydon LLP, 855 - 2nd Street S.W., Suite 3500, Bankers Hall East Tower, Calgary, AB T2P 4J8. British Columbia: Blakes Vancouver Services Inc., 595 Burrard Street, P.O. Box 49314, Suite 2600, Three Bentall Centre, Vancouver, BC V7X 1L3. Manitoba: Aikins, MacAulay & Thorvaldson LLP, 30th Floor, Commodity Exchange Tower, 360 Main Street, Winnipeg, MB R3C 4G1. New Brunswick: Stewart McKelvey, Suite 1000, Brunswick House, 44 Chipman Hill, PO Box 7289, Station A, Saint John, NB E2L 2A9. Newfoundland and Labrador: Stewart McKelvey, Suite 1100, Cabot Place, 100 New Gower Street, P.O. Box 5038, St. John's, NL A1C 5V3. Nova Scotia: Stewart McKelvey, Purdy's Wharf Tower One, 1959 Upper Water Street, Suite 900, P.O. Box 997, Halifax, NS B3J 2X2. Northwest Territories: Gerald Stang, Suite 201, 5120-49 Street, Yellowknife, NT X1A 1P8. Nunavut: Field LLP, P.O. Box 1779, Building 1088C, Iqaluit, NU X0A 0H0. Ontario: Blakes Extra-Provincial Services Inc., Suite 4000, 199 Bay Street, Toronto, ON M5L 1A9. Prince Edward Island: Stewart McKelvey, 65 Grafton Street, Charlottetown, PE C1A 1K8. Québec: Services Blakes Québec Inc., 600 de Maisonneuve Boulevard Ouest, Suite 2200, Tour KPMG, Montréal, QC H3A 3J2. Saskatchewan: MacPherson, Leslie & Tyerman LLP, 1500 Continental Bank Building, 1874 Scarth Street, Regina, SK S4P 4E9. Yukon: Grant Macdonald, Macdonald & Company, Suite 200, Financial Plaza, 204 Lambert Street, Whitehorse, YK Y1A 3T2.

In Brazil

The analyst or any close associates do not hold nor do they have any direct/indirect involvement in the acquisition, sale, or intermediation of the securities discussed herein. Any financial interests, not disclosed above, that the analyst or any close associates holds in the issuer discussed in the report is limited to investment funds that do not mainly invest in the issuer or industry discussed in the report and the management of which these persons cannot influence.