

#### 05th January 2007



# Sector: Technology

**Surface Analysis** 

# DR. KALLIWODA | RESEARCH

# COMPANY ANALYSIS

Coverage: Since Q3/2006

INITIAL C	COVERAGE	
BUY	Risk:	HIGH
€ 10.19	Last Price:	€ 7.80
	INITIAL C BUY € 10.19	INITIAL COVERAGE BUY Risk: € 10.19 Last Price:



# • Outstanding technology in the Surface Analysis area

- Improvement of the economies of scale to be expected
- An eye on liquidity

#### **COMPANY DESCRIPTION**

The focus of NanoFocus AG is on the development, construction and distribution of opto-electronic measuring systems and quality assurance systems. The company is headquartered in Oberhausen and currently employs approx. 30 staff. It was founded in 1994.

#### **HISTORY & ESTIMATES**



Figures in EUR		2006e	2007e	2008e	2009e	
EPS Dr. Kalliwoda		-0.19	-0.13	0.08	0.21	
Dividend		0.00	0.00	0.00	0.00	
Revenues (incl. oth.inc	.)(mln)	4.1	5.0	6.4	7.0	
EBIT per Share		-0.11	-0.03	0.15	0.26	
Working Capital (mln)		2.1	2.8	2.1	2.3	
Cash Flow (mln)		0.2	0.4	1.4	0.7	
Price (curr)	7.80	Sha	res out (mln)		1.93	
52 W high	18.50	List	ing year		2005	
52 W low	5.81	Free	e Float (in %)		36.21	
Market Cap (mln)	15.06	Inde	x	Ent	ry Standard	
Last Dividend	0	Abb	reviation		N2F	
No. Employees	30	Acc	ounting		HGB	
Web Page	www.papofocus.de	ISIN	ı Š		540066	

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#### SWOT

- + Innovations
- + Established internat. clientele
- + Diversified client structure
- + Human resources
- - Output quantities
- - High fixed costs
- - Capital endowment
- - Growth





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#### 1. Presentation of the business model

With its products, NanoFocus AG can render minute objects in the micrometre and nanometre range visible. On the basis of innovative physical-technical procedures, the company has developed innovative analysis tools for the high-resolution and – above all – completely non-contact optical 3D surface analysis. The products made by NanoFocus enable a 3D presentation of surfaces up to and in the nanometre range. Furthermore, users are supplied with elevation data of the surface structures for further processing.

With this technology in the field of non-contact surface analysis, NanoFocus is providing the entire nanotechnology industry and in particular the manufacturing and processing industry and related research with a useful tool.

Those researching nanomaterials or within the nano range will need an adequate analysis tool sooner or later. As equipment provider, NanoFocus is directly linked to the growth market of nanotechnology. Some developments in the nanotech sector will only become possible with the assistance of the company's optical analysis tools.

The company can fall back on mature products. Be it in laboratories, in restoration, criminal investigations or industrial production – the applications are varied. NanoFocus can serve a broad customer base with its products. Only a minor part of the scheduled business development of NanoFocus AG is secured by firm orders or binding cooperation agreements; clearly defined business focuses with an established customer base in the fields of criminal investigation, quality assurance in the production of engines and the steel-processing industry as well as 3D quality assurance systems for eroding machines form a good starting point for a future dynamic development of the company.

The valuation is primarily based on the existing products µscan and µsurf. We arrived at a target valuation for NanoFocus AG or up to EUR 19.67 million market capitalisation. In our view, the share is fairly valued at EUR 10.19. Not every company that has developed a brilliant technology has also successfully marketed it. However, NanoFocus' special position and the experience of the CEO, Dr Schreier – as former manager of a technology park – in transforming companies, make us feel confident that it will succeed. NanoFocus AG has every chance to establish its technology as a new benchmark in the area of non-contact, optical surface-measuring technologies. The company

#### 2. Company facts

NanoFocus AG, headquartered in Oberhausen, is a leading high-tech company in the field of non-contact, optical surface measuring-technologies. It develops, produces and sells tools for the 3D characterisation of technical surfaces in the micrometre and nanometre range. The company was founded by engineers and scientists from the optics, electronics and software areas in 1994, in the form of a private limited company. As early as the company's foundation, it was already active in basic research and the development of high-resolution 3D microscopy, confocal white light microscopy and 3D analysis software. In 1999, the company started distributing its products  $\mu$ Surf and  $\mu$ Scan, both of which are based on innovative physical-technical procedures and enable high-resolution optical surface analysis. With the integration of OM Engineering Messtechnik GmbH 2001, the company also changed its legal form to a shareholding

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company. NanoFocus AG currently employs 29 staff. Since 2005, the company is also represented in the USA through its sales subsidiary NanoFocus Inc., Richmond. In 2006, NanoFocus concluded a sales co-operation with the Taiwan-based company Kaitronic to gain a foothold on the Asian market.

### 3. Shareholder structure and listing

NanoFocus AG has been listed on the open market of the Frankfurt Stock Exchange since 14 November 2005. The listing was effected in accordance with the transparency requirements of the "Entry standard". According to this standard, semi-annual reports must be published on a regular basis and current company news must be made available on the homepage of the issuer. The concrete design of the interim reports is left to the issuer. Prior to the listing, the company executed a pre-market capital increase, during which the share capital of EUR 1,588,500 was extended by EUR 397,125, nominally. Institutional investors and the company's employees could participate in the capital increase. The listing was accompanied by VEM Aktienbank AG, which also fulfils the function of a broker alongside equinet Securities AG.

The participation of Nanostart AG as largest shareholder of NanoFocus AG has dropped to approximately 19.33% of shares as a result of the IPO. The company accrued approx. EUR 3.5 million due to the capital increase. The new funds are primarily to be used to finance the pending leap in growth. Strategic marketing and sales capacity are to be extended, in particular, while the development of the US American sales activities is also an important issue.

The funds are also scheduled for the development of new product generations, which will thus be financed until maturity. The OEM business plays a particularly important role with regard to the future expansion of NanoFocus.

# 4. An introduction to nanotechnology

While it cannot be allocated to any particular area in research or business, nanotechnology is considered THE technology of the future. In general, nanoresearch deals with the analysis and modification of objects that are smaller than 100 nanometres (nm) – one nanometre is the millionth part of a millimetre and this is where it derives its name from. Nanotechnology therefore opens up the "world of the minutest objects" in which other physical laws often apply. Its goal is the utilisation of the specific properties of nanostructures. Their mechanical, optical, magnetic, electrical or chemical characteristics do not depend solely on the raw material used but also on the size and form of these most minute structures – and NanoFocus' tools can render these visible three-dimensionally with deposited data. By intervening with the "nanocosmos", new material properties or functionalities are generated that may result in new or improved product characteristics. Nanotechnology is thus an interdisciplinary technology which will most likely make its way into virtually all areas of natural sciences and technology and the progress of which will be decisive with regard to the further development of future-oriented industries.

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Research in cluster and surface physics, semiconductor physics, certain areas in chemistry and yet to a very limited extent in some areas in mechanical engineering is currently referred to as nanotechnology in popular scientific terms. This umbrella term used in popular science is based on the scale from an individual atom up to a structural size of 100 nanometres (nm) which is utilised in all nano research areas. A nanometre is a billionth metre (10-9 m). This scale refers to a borderline area in which the surface properties play an ever greater role as compared to the volume characteristics of the materials and in which quantum physical effects must increasingly be taken into consideration.

Nanomaterials that are generally produced chemically or mechanically already play an important role. Some of them are commercially available and are utilised in day-to-day products, others are important models for physical-chemical and material sciences research. Another significant application is in nanoelectronics; however, its affinity to nanotechnology is not uniformly viewed in scientific and research-political practice.

One of the directions in which nanotechnology is developing can be viewed as a continuation and extension of microtechnology ('top-down approach'), while the further miniaturisation of micrometre structures generally requires completely unconventional new approaches.

(Source: http://.www.wikipedia.de, Nanotechnology, Current on: 20 October 2006)

Estimates on economic relevance vary, depending on their delimitation and range from several hundred million US dollars in respect of the raw materials (inorganic nanoparticles and powder) to several hundred billion US dollars across all application areas.

The future market volume and the application opportunities for nanotechnologies appear to be unlimited. NanoFocus should be able to benefit from the increasing market penetration across all industries. The current trend toward miniaturisation and the transition from the micrometre to the nanometre range opens up new application areas and markets for NanoFocus AG's tools. It is only with a precise measurement of surfaces in the nano range that processes for the manufacture of nano products can genuinely be controlled. In research and development, a particular focus is on knowledge of material interactions in the nano range. Here, the products made by NanoFocus can contribute significantly. NanoFocus' technology has the potential to play a key role in realising nanomachines. Viewed from this angle, the company can grow in line with the market – but also generate market growth with new technologies.

Surface analysis currently plays a key role in industrial quality control and assurance. Assuming a basic production volume of only 1% in respect of the equipment of quality assurance systems, this indicates a submarket of currently approx. USD 1 billion, which is to grow to USD 26 billion by 2014 according to the most optimistic estimates. NanoFocus has set itself the goal to achieve 1% of the quality assurance submarket which amounts to sales potential of initially several million US dollars to USD 100 million in 2010, based on this top-down view.



# 5. The market for vision technologies

Surface control and thus quality assurance play a key role in the market for vision technology or machine vision. NanoFocus and its products can – broadly speaking – be allocated to this market and is increasingly moving into this market with its OEM products. In the following section we will present, in detail, the area of vision technology and the sales volume forecast for it in order to underpin our growth forecast for NanoFocus, including the basic development scenario for this market segment, and present the current primary application areas of vision technology.

However, in contrast to NanoFocus, which could revolutionise quality control and surface analysis in the nano range with its measuring instruments, we consider the level of innovation to be lower. However, "normal" control through machine vision is also becoming increasingly important.

The market for vision technologies is continually growing. This is also shown by the recent survey carried out by Automated Imaging Association (AIA), the internationally active association of the image-processing industry that has more than 200 members in 23 nations. According to the forecast of AIA, sales volume is set to grow from an estimated USD 7.2 billion in 2004 to approx. USD 10 billion in 2008. The average rate of growth from 2004 would therefore be 9% p.a. and total sales volume from 2004 to 2008 would therefore increase by a forecast 37%.

A similarly positive image is also provided in respect of Germany or the German market. In the context of the "Machine Vision Market Survey", the Verband Deutscher Maschinen- und Anlagenbauer (VDMA) evaluated the answers of 54 companies. In 2003, sales in Germany rose 15% to EUR 830 million and growth rates of 10% to EUR 915 million were forecast for 2004. Earlier estimates again assume double-digit growth in 2005, which would subsequently result in the German machine vision sector reaching the EUR 1 billion sales threshold. The sector is largely dominated by smaller companies, among them several very small ones, and a few medium-sized companies. In general, an increase of the number of employees can be recorded in connection with the sales increases.

The major share of sales of approx. 63% is achieved by systems, followed by cameras with 19.1% and memory chips with 5.6%. The classic area of application of Machine Vision is still quality assurance, which still achieves the largest share at 44.4%. It is in this area that NanoFocus is primarily active with its products. The area of process control is also among the areas of application of NanoFocus' products. The "other industrial areas of application" also gained further ground, even on the German market. In so doing, production automation contributed 16.9%; material flow control 6.1% and machine control 2.7% to sales.

Car manufacturers and their suppliers are among the most important customers of the machine vision technology. They represent approx. 23.1% of sales, followed by transport and traffic with 13.6%. Business with the electro-technology and electronics industries ranks third with 9.5% of sales, while the fourth and fifth ranks are held by

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mechanical engineering, metal processing with 8.2% and the glass and ceramics industry with 7.5%.

The company's link with nanotechnology and the potential of NanoFocus' technology to become an industry standard in its own right should result in considerably higher rates of medium-term growth.

# 6. The product portfolio of NanoFocus AG

With its modular products, NanoFocus provides a set of tools for optical surface measurement. The outstanding performance of NanoFocus' products as a threedimensional measuring system reveals itself the greater the complexity of the surface structure. The measuring results that are obtained non-contact are comparable with the values obtained using the surface profile method and meet the requirements of the DIN EN ISO parameters. However, there are many surfaces for which the surface profile method cannot be used as these mechanically scan layered materials and thus scratch soft materials. With optical measurement, samples with sensitive surfaces can be measured gently and non-contact. In addition, the equipment produced by NanoFocus works semi-automatically, as a result of which time-consuming setting and incorrect evaluations are avoided. The decisive factor at NanoFocus is the interaction of the hardware components with the software developed. The software controls mechanical, electrical and optical components and records, processes and assesses the data. The use of white light allows for high-resolution and precise measurements in the nanometre range within fractions of seconds. The confocal measuring microscope µSurf is ideally suited for high-resolution measurements of areas up to several mm<sup>2</sup>. If larger areas of up to 100 mm<sup>2</sup> are to be measured, the laser profilometer  $\mu$ Scan is the better choice.

# 6.1 The µSurf platform of products

Using the 3D measuring system  $\mu$ Surf by NanoFocus, complex structures can be measured laminar and can be presented with a high vertical and lateral resolution. The results obtained show a high level of correlation with the most precise tactile instruments that scan mechanically. The technology used by NanoFocus is based on a confocal multi-pinhole technology which, on principle, functions as follows: light reflected from the object passes through a pinhole, as a result of which stray light is significantly reduced. The effective resolution is thus much higher than with conventional light microscopes, even without further amplification. NanoFocus has fine-tuned this principle even further. The instruments will only record a pinpoint of light on the surface as a measuring point if the distance between the object to be measured and the surface level is suppressed by means of an optical filter. Up to 260,000 measuring points can be recorded at a single level, thanks to rapid image-processing technology. Through measurements at different levels an image is created with contour lines that overall represents the surface profile of the object measured. This enables the

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investigation of minute details within the nano range. By using white light a confocal microscope can produce a coloured image. The multi-pinhole technology, i.e. the parallel observation of several optical paths, enables a real-time image.

 $\mu$ Surf was developed for research and development as well as industrial quality control by means of optical 3D systems. The basic system offers a reasonably priced introduction for use in laboratories and production.  $\mu$ Surf consists of a compact measuring module that is mounted on a massive granite tripod and can be positioned precisely in direction z. The object is located on a computer-controlled gantry. The modular system can subsequently be upgraded with the goal of increasing precision, measuring comfort or the level of automation. Thus, large areas can be merged using the optional "Stitching procedure" (generation of a large photography from a number of smaller individual photographs) which utilises software to merge successive individual measurements (so-called stacks). Currentl  $\mu$ Surf is available in two variants: Type CX and Type CI which has been fitted with improved optical properties. The  $\mu$ Surf sensor button produced by NanoFocus is also offered as an OEM module.

In contrast to the scanning electron microscope (SEM) which provides only a twodimensional image the data of  $\mu$ Surf are available as real elevation co-ordinates (x, y, and z) that can be processed and evaluated. With  $\mu$ Surf, the topography can be presented colour-coded as a topographical map and in profile.

# 6.2 The product platform µScan

The laser profilometer  $\mu$ Scan by NanoFocus is a modular scanning procedure with which non-contact optical surface measurements can be performed in the micrometre and nanometre range.  $\mu$ Scan's core is a highly precise scanning module that can be fitted with different sensors, depending on the area of application: an autofocus sensor, a holographic sensor, a confocal point sensor or a chromatic white light sensor. The measuring system was developed with quality assurance and process control in mind.

The system is controlled by the standard software  $\mu$ Soft that runs under Windows XP.  $\mu$ Scan represents the results and enables comprehensive 2D and 3D evaluations. The system can be further extended with numerous hardware and software options. With ActiveX, NanoFocus offers modules for the automation of measuring processes that can be programmed with Visual Basic, e.g. in connection with Microsoft Excel.



# 7. The budget as basis for the company valuation

With regard to the future-oriented valuation of the company, a business plan was drawn up on the basis of external information, which will be used as the foundation of our value-driver model. The following overviews demonstrate the planning premises of the budget calculation.

Planning assumptions for the planning of NanoFocus AG's profit and loss statement:

Item	Assumptions
Sales volume plan (total)	10%
- thereof µScan	35%
- thereof µSurf	45%
- thereof services	20%
Planned prices	
- µscan	58
- µsurf	65
Changes in inventory	constant
Operating income	10 % of the overall performance
Material expenses	30 % of the overall performance
Personnel expenses	1.3 million EUR
	Rise of the number of staff to 35 employees
Depreciations	constant
Operating expenses	30%
Interest cost	8 % of the liabilities
Interest earnings	3 % of cash and cash equivalents
Taxes	constant (avisting loss carniovers)



#### **Budgeted balance sheet**

The facts to be taken into consideration in the context of the budgeted balance sheet are based on the following assumptions:

### Planning assumptions for the planning of the balance sheet of NanoFocus AG

ltem	Assumptions
Intangible assets; goodwill	Scheduled depreciation, no acquisitions or increases
Tangible assets	BGA: Allowance for depreciation = Investments, increase from 2011
Financial assets	No significant changes
Inventories	Grows in line with overall performance
Receivables	Terms of accounts receivable constant
Other assets	1.8% of the overall performance (PY)
Profit appropriation	Transfer to retained earnings, no dividend payout
Provisions	4.2% of sales (PY)
Trade payables	Terms of accounts payable constant
Other liabilities	Terms -> see securities prospectus, level constant
Amounts due to bank	Term and level -> Table of liabilities, constant
Capital increase in 08	Contingent capital in accordance with the memorandum of association
Start-up expenses	Allowance for depreciation of a quarter

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# Statement of income

			Phase I								ā	lase II								
Position/Year	200 Units	D6e TEUR	200 Units	07e TEUR	2008 Units	te TEUR	2009 Units	te TEUR	2010 Units	e TEUR	2011e Units	TEUR	2012¢ Units	TEUR	2013¢ Units	e TEUR	2014 Units	4e TEUR	2015 Units	TEUR
Revenues			:								1				-		i		-	
- thereof µScan - thereof µSurf	52 53	1,682	32 33	1,856 2,275	44	2,436 2,860	46 48	2,680 3,146	51 53	2,948 3,461	56 59	3,242 3,807	61	3,567 4,187	68 71	3,923 4,606	74	4,316 5,067	82 86	4,747 5,573
- thereof services		827		826		1,059		1,165		1,282		1,410		1,551		1,706		1,876		2,064
Changes in inventories		43		43		43		43		43		43		43		43		43		43
Goods on an own account		50		50		50		50		50		50		50		50		50		50
Capitalized service		845		505		645		708		778		855		940		1,033		1,135		1,248
Gross profit		5,072		5,555		7,093		7,792		8,561		9,407		10,337		11,361		12,487		13,725
Material cost		2,029		2,222		2,837		3,117		3,424		3,763		4,135		4,544		4,995		5,490
Personnel costs		1,300		1,300		1,400		1,400		1,400		1,400		1,400		1,400		1,400		1,400
Depreciation		430		430		440		445		445		460		470		470		480		480
Other expenses		1,522		1,667		2,128		2,338		2,568		2,822		3,101		3,408		3,746		4,118
EBIT		-208		-63		288		493		723		962		1,231		1,538		1,866		2,238
Interest earnings		51		34		25		25		25		25		25		25		25		25
Interest costs		210		214		161		121		06		68		51		38		29		21
Тах		-		2		-		-		~				30		100		200		250
Profit/Loss		-369		-246		151		396		657		916		1,175		1,425		1,662		1,991
	Source: Dr. K/	ALLIWODA   RES	SEARCH © Co	byright 2006																

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# **Balance sheet**

			Balance	Shee	t															
Position/Year	200	6e	200	7e	200	8e	200	9e	201	0e	201	1e	2012	2e	201	3e	201	4e	201	5e
Assets	TEOR	70	TEUR	70	TEUR	70	TEUR	70	TEOR	70	TEOR	70	IEUK	70		70	TEUR	70	TEUK	70
Start-up expenses	70	0.9	50	0.6	30	0.4	10	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Intangible assets Licence Goodwill Advanced payments	60 3,141 0	0.7 38.3 0.0	40 2,792 0	0.5 35.6 0.0	20 2,443 0	0.3 33.9 0.0	20 2,094 0	0.3 32.1 0.0	20 1,745 0	0.3 23.9 0.0	20 1,396 0	0.2 16.5 0.0	20 1,047 0	0.2 10.6 0.0	20 698 0	0.2 5.7 0.0	20 349 0	0.1 2.5 0.0	20 0 0	0.1 0.0 0.0
Property, plant and equipment Technical equipment and machinery Other equipment, plant and office equipment	3 250	0.0 3.0	3 250	0.0 3.2	3 250	0.0 3.5	103 250	1.6 3.8	103 300	1.4 4.1	103 270	1.2 3.2	103 270	1.0 2.7	103 270	0.8 2.2	103 270	0.7 1.9	103 270	0.6 1.7
Investments in associated companies	124	1.5	124	1.6	124	1.7	124	1.9	124	1.7	124	1.5	124	1.3	124	1.0	124	0.9	124	0.8
Current assets Inventories, Inventories, materials and supplies Work in process Finished goods	656 10 574	8.0 0.1 7.0	660 60 555	8.4 0.8 7.1	732 70 623	10.2 1.0 8.7	654 227 564	10.0 3.5 8.7	687 178 832	9.4 2.4 11.4	753 186 900	8.9 2.2 10.6	935 222 865	9.5 2.3 8.8	973 60 851	8.0 0.5 7.0	1,124 60 984	8.0 0.4 7.0	1,305 60 1,142	8.0 0.4 7.0
Receivables Trade accounts receivable Receivables from associated and related companies Other assets Securities Cash and cash equivalents	788 263 62 8 2,181	9.6 3.2 0.8 0.1 26.6	1,254 251 230 8 1,545	16.0 3.2 2.9 0.1 19.7	744 230 43 7 1,853	10.3 3.2 0.6 0.1 25.8	813 209 39 7 1,394	12.5 3.2 0.6 0.1 21.4	784 234 220 7 2,051	10.7 3.2 3.0 0.1 28.1	844 823 51 8 2,967	10.0 9.7 0.6 0.1 35.0	840 315 248 10 4,807	8.5 3.2 2.5 0.1 48.9	1,167 389 73 12 7,393	9.6 3.2 0.6 0.1 60.8	1,349 450 84 14 9,093	9.6 3.2 0.6 0.1 64.7	1,566 522 98 16 11,050	9.6 3.2 0.6 0.1 67.7
Prepaid expenses and deferred charges	15	0.2	14	0.2	23	0.3	12	0.2	22	0.3	32	0.4	25	0.3	27	0.2	28	0.2	35	0.2
Total assets	8,205	100.0	7,834	100.0	7,195	100.0	6,519	100.0	7,306	100.0	8,477	100.0	9,830	100.0	12,160	100.0	14,051	100.0	16,311	100.0
Shareholders equity and liabilities																				
Shareholders equity Capital stock Contributed capital Additional paid-in capital Retained earnings Unappropriated net income/loss (carried forward) Net income/loss	1,931 0 3,649 -117 -369	23.5 0.0 44.5 0.0 -1.4 -4.5	1,931 0 3,649 -486 -246	24.6 0.0 46.6 0.0 -6.2 -3.1	1,931 0 3,649 -731 151	26.8 0.0 50.7 0.0 -10.2 2.1	1,931 0 3,649 -580 396	29.6 0.0 56.0 0.0 -8.9 6.1	1,931 0 3,649 -184 657	26.4 0.0 49.9 0.0 -2.5 9.0	1,931 0 3,649 473 916	22.8 0.0 43.0 0.0 5.6 10.8	1,931 0 3,649 0 695 1,175	19.6 0.0 37.1 0.0 7.1 12.0	1,931 0 3,649 450 1,420 1,425	15.9 0.0 30.0 3.7 11.7 11.7	1,931 0 3,649 1,000 2,295 1,662	13.7 0.0 26.0 7.1 16.3 11.8	1,931 0 3,649 1,650 3,307 1,991	11.8 0.0 22.4 10.1 20.3 12.2
Special reserve with an equity portion	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Accruals Other accruals	127	1.5	139	1.8	177	2.5	195	3.0	214	2.9	235	2.8	258	2.6	284	2.3	312	2.2	343	2.1
Liabilities																				
Liabilites to banks Advances received Trade accounts payable Payables to associated and related companies Payables to shareholder Other liabilities	500 0 210 12 0 2,249	6.1 0.0 2.6 0.1 0.0 27.4	300 55 215 12 0 2,250	3.8 0.7 2.7 0.2 0.0 28.7	300 0 335 12 0 1,360	4.2 0.0 4.7 0.2 0.0 18.9	250 0 176 12 0 479	3.8 0.0 2.7 0.2 0.0 7.3	250 0 286 12 0 482	3.4 0.0 3.9 0.2 0.0 6.6	351 0 400 12 0 500	4.1 0.0 4.7 0.1 0.0 5.9	500 0 420 12 0 1,180	5.1 0.0 4.3 0.1 0.0 12.0	500 0 450 12 0 2,029	4.1 0.0 3.7 0.1 0.0 16.7	500 0 460 12 0 2,219	3.6 0.0 3.3 0.1 0.0 15.8	500 0 490 12 0 2,427	3.1 0.0 3.0 0.1 0.0 14.9
Deferred income	13	0.2	15	0.2	11	0.2	11	0.2	10	0.1	10	0.1	10	0.1	10	0.1	10	0.1	10	0.1
	8,205	100.0	7,835	100.0	7,195	100.0	6,519	100.0	7,307	100.0	8,477	100.0	9,830	100.0	12,160	100.0	14,051	100.0	16,311	100.0
	Source:	Dr. KA		RESE	ARCH ©	Copyrig	ht 2006								<u> </u>					



### 8. Company valuation

The valuation procedure used can be allocated to the total evaluation method. In so doing, we decided in favour of the DCF method (entity approach). As a future-oriented procedure, it is approved by the Institut der Wirtschaftsprüfer (German Institute of Chartered Accountants) in the context of the IDW p. 1. The fact that the valuation date lies within the current financial year was taken into account in determining the operating free cash flows. The valuation date is 30 September 2006. In determining the free cash flows, the ordinary operating result was used as starting point. In analysing the working capital of the company, possible cash assets and securities not necessary for operations were not eliminated. The basis of the valuation method is a tri-phase model. In the first phase (2006 - 2008), we continue to assume that the company achieves a negative net income for the year and that the financial resources required are not covered.

In this phase in particular, the determination of the cash flow situation will depend on the extent to which the capital measures to be executed can support the liquidity situation to be able to meet the obligations from the partial profit transfer agreements and the profit participation loan. In this phase an eye should be kept on the liquidity situation of the company. The capital market should be utilised to finance corporate growth. In the second phase (2009 - 2015), we anticipate an average annual volume growth of 10%. Due to the company's positive operating business, capital market participants and finance providers are increasingly prepared to invest in the company or to make capital available to the company. In the residual value phase, we anticipate average growth of 1%. The basis for determining the residual value is the operating gross cash flow in 2015.

	Operat	ting Free	Cashflov	/s						
		Phase I					Phase I			
Figures in TEUR	2006e	2007e	2008e	2009e	2010e	2011e	2012e	2013e	2014e	2015e
EBIT	-208	-63	288	493	723	962	1,231	1,538	1,866	2,238
- adjusted taxes (38,5 %)	0	0	111	190	278	370	474	592	718	861
=NOPLAT	-208	-63	177	303	445	592	757	946	1,148	1,376
+ Depreciation	430	430	440	445	445	443	455	468	476	322
Provisions	127	139	177	195	214	235	258	284	312	343
+ Increase (-decrease) provisions	-2	12	38	17	19	21	23	26	28	31
= (operative) gross cash flow	220	379	656	765	909	1,056	1,235	1,440	1,652	1,729
- Investments	18	53	53	153	70	120	0	50	50	50
Working Capital	2,143	2,794	2,107	2,330	2,649	3,157	3,005	3,063	3,590	4,202
- Increase (+ decrease) Working Capital	-285	-651	687	-222	-319	-508	152	-59	-527	-612
= Operative free cash-flow (oFCF)	-47	-220	1,395	696	660	668	1,388	1,431	1,175	1,167
Source: Dr. KAL		ESEARCH	l © Copyrie	aht 2006						



The discount rate was determined on the basis of the weighted capital costs, assuming that the current capital structure does not alter significantly. No adjustments of external capital to the current market interest rate were effected. The risk-free return is based on the average return of long-term Federal bonds. The determination of the risk premium is in line with the Capital Asset Pricing Model (CAPM) and, in particular, covers the systematic risks (market-risk premium or company-specific risk). The market-risk premium in our model is based on approved studies. The market-risk premiums determined by universities generally fluctuate between 6% and 8%, depending on the market, the period observed and the method used. The beta value used by us for the determination of company-specific risk is not oriented on the development of the share price and a correlated reference price, but is based on balance sheet ratios (fundamental beta). In so doing, our scoring model is oriented on the RSW scoring method (Return, Growth, Security) of the Institute for Business Management of the University of Kiel.

	WACC: DO	CF - Entity approach	
Cost of equity		Cost of debt	
Interest rate			
Risk-free rate	3.81	Interest rate	3.81
		+ Risk premium	5.00
	3.81	= Cost of debt before tax	8.81
General market risk		- Company tax	-3.39
Beta	1.35	= Cost of debt after tax	5.42
* Risk premium	8.00	- half of personnel risk	0.95
= individual risk premium	10.80		4.47
- half of personnel tax	1.89		
	8.91		
Company specific risk			
individual risk premium	2.00		
- half of personnel tax	0.35		
	1.65	_	
Sum of I+II+III	14.37	-	
Cost of equity (Quote)	62.50	Cost of debt	37.50
WACC	10.66	=	
	Source: Dr. KALLI	WODA   RESEARCH © Copyright 2	006

The fair value of the share determined by us amounts to EUR 10.19. It is thus 57% higher than the current price (EUR 6.50). The growth rate of the terminal value is 1. We

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have identified the growth drivers to be the products µscan and µsurf. We can see potential for success in areas such as production, laboratories and quality assurance as well as in criminal investigations and the examination of historic paintings. This potential should be used. In comparison with peer group companies (similar business size and earnings structure), NanoFocus AG is fairly valued at a market capitalisation of EUR 19.7 million. As the forecasts required for a peer group comparison are not yet sufficiently available, a market-oriented comparison was not executed.

	Fair value of	NanoFo	cus AG									
		2006e	2007e	2008e	2009e	2010e	2011e	2012e	2013e	2014e	2015e	TV
Discount rate	10.66											
Multiplier Operative free cash flows (thsd.) Present value of cash flows (thsd.)		0.975 -47.4 -46.2	0.904 -219.5 -198.4	0.817 1,395.3 1,139.4	0.738 696.1 513.7	0.667 660.0 440.1	0.603 667.8 402.4	0.545 1,387.8 755.7	0.492 1,430.8 704.1	0.445 1,174.8 522.5	0.402 1,167.2 469.1	1,729.1 17,719.2
Present value of cash flows (thsd.) Present value of terminal value (thsd.) Sum of cash flows (thsd.) Third parties	4,702.5 17,719.2 <b>22,421.7</b> 0.0 0.0		Shares N Fair Valu	No.(thsd.) Ie:	1,931.0 <b>10.2</b>							
Entity value (thsd.) - liabilities (thsd.) Equity value per 31 12 2005 (thsd.)	22,421.7 2,749.0											
Source: Dr. KALLIWODA   RESEAF	RCH © Copyrig	jht 2006										

			Sen	<b>sitivity Ana</b> WACC	lysis				
Growth	8.66	9.16	9.66	10.16	10.66	11.16	11.66	12.16	12.66
0%	11.51	10.88	10.31	9.76	9.32	8.88	8.48	8.11	7.77
0.50%	12.14	11.44	10.82	10.25	9.73	9.26	8.83	8.43	8.06
1.00%	12.86	12.08	11.38	10.75	10.19	9.67	9.20	8.77	8.38
1.50%	13.68	12.79	12.01	11.32	10.69	10.13	9.62	9.15	8.72
2%	14.62	13.61	12.73	11.95	11.26	10.64	10.07	9.56	9.10
	Source	: Dr. KALLI	WODA   RES	EARCH © C	Copyright 200	6			

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# 9. SWOT Analysis

In the following overview, select general and corporate data were integrated into a SWOT profile. We wish to point out that from an external standpoint the execution of a resource analysis involved many uncertainties.

SWOT - Analysis	
Company	General
Strength	Opportunities
<ul> <li>Product innovations</li> <li>Human resources</li> <li>Patents, rights and licenses</li> <li>Known customer range</li> <li>Product applications</li> </ul>	<ul> <li>Market size</li> <li>Market growth</li> <li>High market entry barriers</li> <li>Level of awareness</li> <li>Fragmented sales and procurement markets</li> <li>Focus on specialised customer groups</li> </ul>
Weaknesses	Threats
<ul> <li>Volume growth since market launch 1999</li> <li>Capital resources</li> <li>Low output</li> <li>Accounting</li> </ul>	<ul> <li>Bargaining power of customers</li> <li>New competitors</li> <li>New competitive products</li> <li>Market position</li> <li>Low economies of scale</li> <li>Low rate of replacement</li> </ul>
Source: Dr. KALLIWODA   RESEARCH @	Copyright 2006



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ACCUMULATE	On a basis of our prognoses the stock should have a performance of between 10% and 20% in the following 12 months.
HOLD	On a basis of our prognoses the stock should have a performance of between minus 10% and plus 10% in the following 12 months.
REDUCE	On a basis of our prognoses the stock should have an underperformance of between minus 10% and minus 20%.
SELL	On a basis of our prognoses the stock should have an underperformance of at least minus 20%

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