

## MagForce AG <sup>\*5a,5b,11</sup>

**Rating: BUY**  
**Target Price: €14.30**

Current price: €5.44  
 23/9/2015 / ETR/17:36  
 Currency: EUR

**Key information:**

ISIN: DE000A0HGQF5  
 WKN: A0HGQF  
 Ticker symbol: MF6  
 Number of shares<sup>3</sup>: 25.62  
 Marketcap<sup>3</sup>: 139.26  
 Enterprise Value<sup>3</sup>: 119.68  
<sup>3</sup> in € million

**Transparency level:**  
 Entry Standard

**Market segment:**  
 Open Market

**Accounting standard:**  
 HGB

Financial year-end: 31/12

**Designated Sponsor::**  
 Hauck & Aufhäuser

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\* catalogue of potential conflicts of interests on page 12

Date of completion/ Date of publication:  
 23/9/2015

**Company Profile**

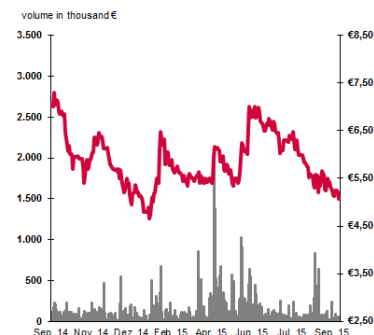
Sector: Medical Technology  
 Specialty: Cancer Treatment

Employees: 22 Status: 30/06/2014

Founded: 1997

Registered Office: Berlin

Executive Board: Dr. Ben J. Lipps, Prof. Dr. Hoda Tawfik, Christian von Volkmann



By its own account, MagForce AG, located in Berlin, is a leading company in the field of nanomedicine with a focus on cancer treatment. The NanoTherm<sup>®</sup> therapy developed by the company is said to be suitable for the local treatment of almost all solid tumours. The treatment is based on heat that is created by the activation of injected super-paramagnetic nanoparticles. The components of this therapy, the medical devices NanoTherm<sup>®</sup>, NanoPlan<sup>®</sup>, the thermometric catheter TK01, NanoActivator<sup>®</sup> with the thermometric unit are certified across the EU for the treatment of brain tumours. The objective of the new cancer treatment is to establish itself as a further pillar of cancer therapy alongside conventional treatment methods such as surgery, radiation and chemotherapy. According to available data, the NanoTherm therapy displays a promising degree of efficacy as well as being well-tolerated.

P&L in EURm	31/12/2014	31/12/2015e	31/12/2016e	31/12/2017e	31/12/2018e
Sales	7.66	1.88	4.11	19.23	53.27
EBITDA	-1.06	5.25	-9.14	3.84	24.47
EBIT	-1.28	-5.37	-9.28	3.68	24.30
Net profit*	-1.01	-5.37	-9.28	3.68	24.30

Per Share Figures in EUR					
Earnings per share*	-0.04	-0.21	-0.36	0.14	0.95
<i>*before minorities</i>					

Key Figures					
EV/Sales	15.62	63.66	29.10	6.22	2.25
EV/EBITDA	neg.	neg.	neg.	31.17	4.89
EV/EBIT	neg.	neg.	neg.	32.52	4.92
P/B before minorities	neg.	neg.	neg.	37.84	5.73

Financial dates
30/09/2015: Half-Year Report 2015

**last research published by GBC:
Date: Publication / Target Price in EUR / Rating
3/6/2015: RS / 13.20 / BUY
19/5/2015: RS / 13.20 / BUY

\*\* the research reports can be found on our website [www.gbc-ag.de](http://www.gbc-ag.de) or can be requested at GBC AG, Halderstr. 27, D-86150 Augsburg

## Executive Summary

- **Business development in financial year 2014 in line with our expectations**  
For MagForce AG, financial year 2014 was in line with our expectations in terms of operating figures. Due to the lack of marketing revenues, a negative earnings situation, with an EBIT of €-1.28 million (previous year: €-1.58 million), prevails as forecast. The slight EBIT increase is attributable to a higher overall performance in connection with the transfer of the service and development rights for the NanoTherm<sup>®</sup> therapy to the US subsidiary.
- **Constant development of the liquidity situation**  
The earnings situation, which remains negative, and the corresponding negative free cash flow of €-10.32 million was offset by a capital increase, which was successfully implemented in November 2014 (issue proceeds: €10.2 million). The liquid funds therefore remained constant at €9.15 million, and the equity capital and the corresponding equity capital ratio were raised to €24.43 million and 85.1%.
- **Milestone reached in the development process for prostate treatment in the USA**  
In May 2015, MagForce AG submitted an application to the American regulatory authority FDA to conduct a clinical study on the treatment of patients with prostate cancer. This submission represents an important milestone in the American approval process. We expect to start the study at the end of 2015 and to receive market approval by mid-2017.
- **Post-marketing study proceeds as planned; commercial treatment starts**  
A post-marketing study is currently being carried out for the approval of the NanoTherm therapy for the treatment of glioblastoma patients in Europe. The aim of the study is to pool key opinions and to raise awareness. In parallel to this, commercial treatment of glioblastoma patients has begun at three clinics in Germany.
- **Increase of target price to €14.30, BUY rating**  
We have not changed the forecasts since our previous study (see the Initial Coverage Research Study from 19/05/2015). In the DCF valuation model, however, changes have arisen as a result of regular target price rollovers and the adjustment of the market conditions to changes to the discount rate. We have raised the target price to €14.30 (previously: €13.20) and confirm the BUY rating.

## NanoTherm® Technology

NanoTherm® therapy, developed and patented by MagForce to combat solid tumours, is comprised of the medical products NanoTherm®, NanoPlan® thermometry catheter and the NanoActivator® with a thermometry unit:

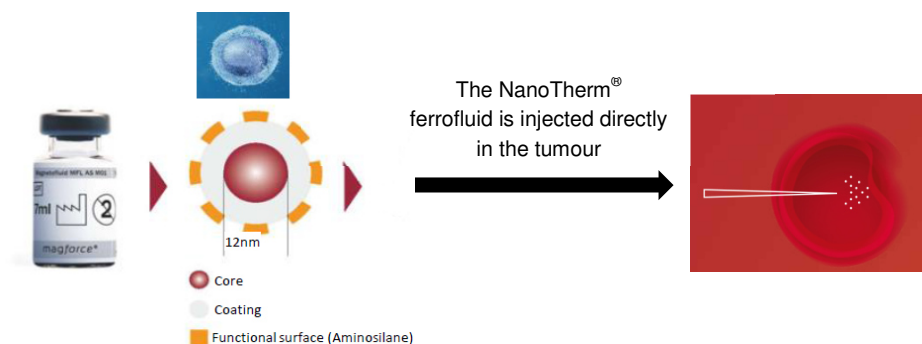


Source: MagForce AG; GBC AG

NanoTherm® therapy is an intratumoural thermotherapy that has been approved in Europe since May 2010 as the currently only nanomedicine-based therapy for the treatment of brain tumours. MagForce AG pursues the objective of establishing this novel therapy as a further treatment standard besides conventional treatment methods such as surgery, radiation and chemotherapy.

### NanoTherm®

NanoTherm® is a liquid containing super-paramagnetic, nano-sized iron oxide particles. These particles consist of an iron oxide core of approximately 14 nanometres and an aminosilane coating. NanoTherm® is inserted (instilled) into the solid tumour during a minimally invasive procedure. Due to the properties of the aminosilane coating, the iron oxide particles permanently remain in the instillation site, which enables multiple treatment cycles. The NanoTherm® particles are not or very slowly broken down by the body, as they agglomerate and therefore remain in the body, similar to an implant.

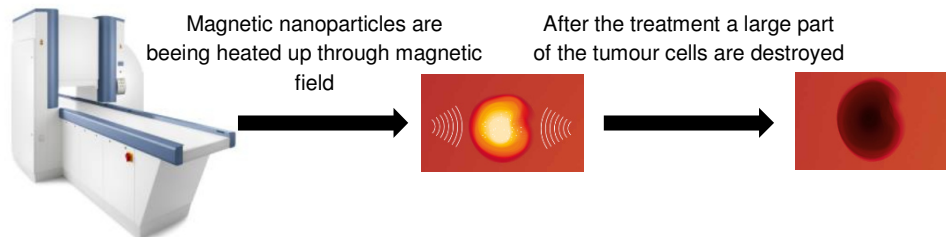


Source: MagForce AG; GBC AG

The iron oxide core is super-paramagnetic and, because of this property, responds well to a magnetic impulse.

### **NanoActivator®**

The magnetic field is created by the NanoActivator®, developed and manufactured by the MagForce subsidiary MT MedTech Engineering GmbH. This device, specially adapted to the application of NanoTherm therapy, creates an alternating magnetic field which activates the nanoparticles, whereby the orientation of the magnetic field alternates around 100,000 times per second, resulting in the activation of the nanoparticles and therefore heating the tissue of the injected tumour. The rapid change in the nanoparticles' orientation is responsible for the generation of heat.



Source: MagForce AG; GBC AG

In contrast to existing "hyperthermia procedures", which allow temperatures of up to 43°C to be reached, the application of MagForce technology can achieve significantly higher temperatures of up to 80°C within the tumour's tissue. This results in the destruction of cancer cells directly at the NanoTherm depots, in addition to the hyperthermic effect in the vicinity of the tumour.

### **NanoPlan®**

NanoPlan®, a software developed by MagForce AG, is then used by the treating doctor to plan the treatment temperature and the magnetic field intensity. Once NanoTherm® has been injected, a post-installation CT scan is performed to display the precise location and dissipation of the nanoparticle depots. In combination with imaging performed before nanoparticle installation, this serves as a data basis for the calculation and simulation of temperature dissipation in the tumour and in the surrounding healthy tissue in relation to the applied alternating magnetic field. This allows NanoPlan® to determine the optimal magnetic field intensity of the NanoActivator® needed to reach the therapeutic temperature, while taking all safety measures for the healthy tissue into consideration.

During the first treatment, the temperature reached in the tissue of the tumour is accurately measured with a temperature probe, which is inserted into a catheter that was previously inserted during the instillation of NanoTherm®. The temperatures measured are compared with the simulated and calculated temperatures and the magnetic field intensity is adjusted, if required.

### **Footprint of the NanoTherm® technology**

Several factors are required to establish the NanoTherm® therapy as a recognised form of treatment for solid tumours. As this form of treatment is a medical device, the approval process can be implemented much more quickly and is associated with lower costs than is the case with clinical pharmaceutical approval. Nevertheless, verification of the efficacy of the NanoTherm® therapy within the scope of clinical studies is still a component of the approval process for all indications, and direct communication with the leading opinion leaders is an important criterion for the establishment of this technology. Together with n€osurgical opinion leaders, the new company management, under the leadership

of Chairman Dr Ben J. Lipps (former Chairman of Fresenius Medical Care), initiated a post-marketing study to familiarise themselves with the treatment method and to gain further insight into their efficacy. The commercial success of the NanoTherm® technology further requires the involvement of the largest possible number of treatment centres, with an appropriate number of installed NanoActivator® devices. There are currently a total of five NanoActivator® devices installed at the University Clinics in Cologne, Kiel, Münster, Frankfurt and Berlin.

### Footprint NanoActivator®



Source: MagForce AG; GBC AG

At this point, the new management at MagForce AG has set the course for a fast installation roll-out of NanoActivator® devices. The previous corporate management study planned the sale of the devices to the treatment centres, which, in our opinion, severely limited the number of installed NanoActivator® devices. This was specifically caused by the comparatively high advance investments of up to €1 million per device. To increase the number of installations, MagForce developed an alternative financing method within the framework of a pay-per-use model and therefore implemented a significant reduction in the investment volume for clinics. According to company information, a total of six locations in Germany will be tapped into by the end of 2015.

## Business development as at 31/12/2014

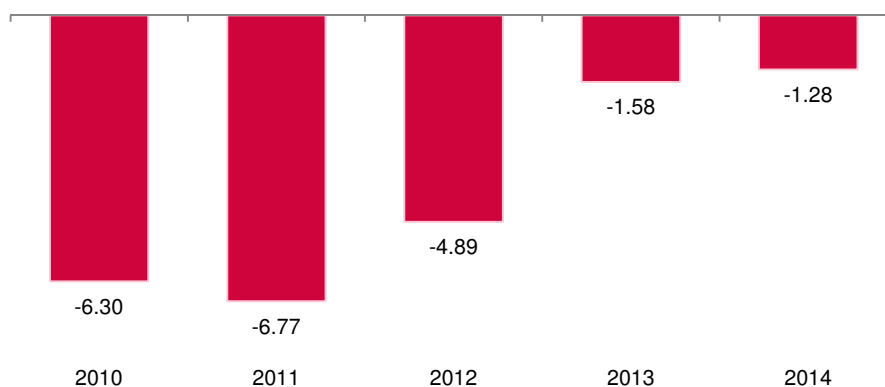
in €m	FY 2011	FY 2012	FY 2013	FY 2014
Total output	0.25	0.96	5.44	7.66
EBITDA	-6.50	-4.61	-1.45	-1.06
EBIT	-6.77	-4.89	-1.58	-1.28
Net profit or loss	-8.59	-5.72	-1.63	-1.01

Source: MagForce AG; GBC AG

For MagForce AG, the financial year 2014 was in line with expectations in terms of key operating figures or performance indicators. While the overall performance increased to €7.66 million (previous year: €5.44 million) and is therefore at its highest level since the company was founded. This increase is solely due to the transfer of the sales and development rights of the NanoTherm<sup>®</sup> therapy to the subsidiary MagForce USA, Inc. for the treatment of prostate cancer in the North American region. In the previous year, a transfer of the rights for the glioblastoma (malignant brain tumour) therapy range triggered a non-cash income of €5.44 million.

However, the low revenues are opposed by expenses mainly in the areas of human resources and other operating costs (legal and consulting fees, investor relation activities, etc.), meaning that a negative earnings situation prevails as forecast. The EBIT improved slightly to €-1.28 million (previous year €-1.58 million) as a result of a higher total output.

### EBIT performance (in € million)



Source: MagForce AG; GBC AG

The operating cost rose by a total of €1.92 million to €8.95 million (previous year: €7.02 million). This is mainly due to an increased average number of employees, the expansion of the board of directors in September 2013, and bonus payments relating to the financing rounds in 2014. These personnel-related factors can be seen as preparatory measures in relation to the forthcoming marketing of the NanoTherm<sup>®</sup> therapy. Another positive factor is the sustainable improvement of financial results, which was implemented in financial year 2013 as part of a debt-to-equity swap. The financial result of MagForce AG in 2014 amounted to a total of €0.27 million (previous year: €-0.05 million). Between 2010 and 2012, the average financial result stood at €-1.29 million.

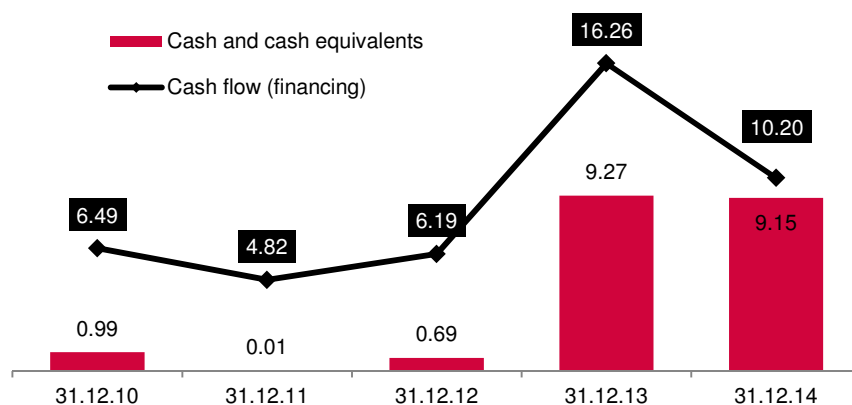
## Balance Sheet and Financial Situation as at 31/12/2014

in €m	31/12/2011	31/12/2012	31/12/2013	31/12/2014
Equity	0.00	0.00	15.24	24.43
<i>of which proportion of net loss</i>	<i>-31.83</i>	<i>-37.54</i>	<i>-39.17</i>	<i>-40.18</i>
Equity before adjustment items	-16.37	-16.63	15.24	24.43
Debt capital	19.25	19.59	2.49	4.28
Cash and cash equivalents	0.01	0.69	9.27	9.15
Cash flow (operative)	-4.54	-5.47	-6.79	-8.71
Cash flow (investment)	-1.26	-0.04	-0.89	-1.61
Cash flow (financing)	4.82	6.19	16.26	10.20

Source: MagForce AG; GBC AG

Due to the lack of revenue from the commercialisation of the NanoTherm® technology at the end of financial year 2014 and the associated lack of liquidity inflow, the liquidity situation plays an important role. Despite the negative annual net profit, the liquidity portfolio remained with €9.15 million by the end of financial year 2014 (31/12/13: €9.27 million) almost unchanged. This was solely due to a successfully implemented capital increase in November 2014 with issue proceeds amounting to €10.2 million. The free cash flow amounting to €-10.32 million has almost been offset, which has enabled an almost unchanged development of the liquidity portfolio.

### Development of cash and cash equivalents and financing cash flow (in € million)



Source: MagForce AG; GBC AG

Overall, a further improvement of the balance sheet ratios is noticeable, which we consider to be an important basis for the already implemented marketing activities relating to the NanoTherm® therapy. This is illustrated by the continued improvement in equity capital to €24.43 million (31/12/13: €15.24 million). Up to 31/12/12, and in earlier periods, MagForce AG had a negative equity capital. On the one hand, this significant improvement of equity capital is due to the debt-to-equity swap (€15.9 million) carried out in financial year 2013 and the capital increases of the last financial year on the other hand. In financial years 2013 and 2014 alone, equity capital has been significantly improved through capital measures amounting to €27.79 million, and the equity capital ratio has been raised to a high level of 85.1%.

## Forecasts and Model Assumptions

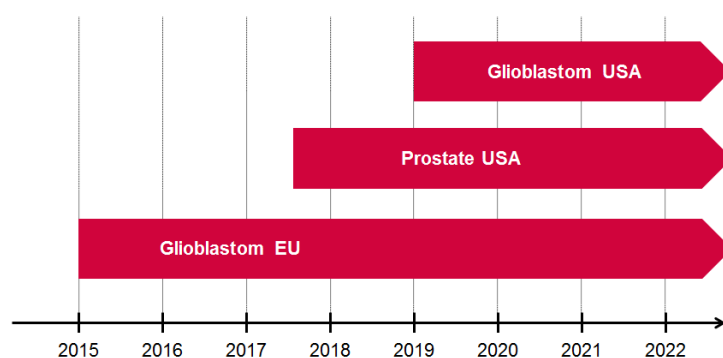
in Mio. €	2015e	2016e	2017e	2018e	2019e	2020e	2021e
Sales	1.88	4.11	19.23	53.27	84.42	117.07	140.74
Gross profit	5.50	3.29	13.54	42.47	67.39	94.04	113.01
EBITDA	-5.25	-9.14	3.84	24.47	40.71	57.04	68.54
EBIT	-5.37	-9.28	3.68	24.30	40.54	56.87	68.37
Net income before minorities	-5.37	-9.28	3.68	24.30	28.38	39.81	47.86

Source: GBC AG

In financial year 2014 and in the first half of 2015, MagForce AG has reached important milestones in terms of marketing its own NanoTherm<sup>®</sup> technology for treating glioblastoma patients in Europe, and also regarding approval for its prostate cancer therapy range in the USA.

The second post-marketing study for the approval of the treatment of glioblastoma recurrences in Europe, which began in 2013, continued. Meanwhile, more NanoActivator devices were installed in five university hospitals (Berlin, Münster, Kiel, Cologne and Frankfurt). The aim of the study is to pool key opinions in order to raise awareness, and to introduce users to MagForce technology at an early stage. In parallel to this, the commercial treatment of glioblastoma patients has begun at three clinics in Germany, meaning that the first revenues from the use of the NanoTherm<sup>®</sup> therapy can be expected in financial year 2015.

As well as the implementation of the post-marketing study and the first commercial treatment of glioblastoma patients in Europe, the application to carry out a clinical trial for the treatment of patients with prostate cancer was sent to the American regulatory authority, FDA. The planned single-arm study is designed to detect the ablation of prostate cancer lesions (cancer-related tissue damage), and is to be carried out in the prostate glands of up to 120 patients. With the submission of the IDE to the FDA, MagForce AG entered the approval process according to plan. According to the FDA, the review process of application documents as well as the study approval for a medical product takes up to 180 days. We can therefore assume that the study for the approval of the NanoTherm<sup>®</sup> therapy will start directly after receipt of the expected FDA approval, i.e. in late 2015. The marketing authorisation could be finalised by mid-2017 after completion of the clinical trial and the evaluation of the results. Overall, we predict that the approval process for the NanoTherm<sup>®</sup> therapy will entail the following:



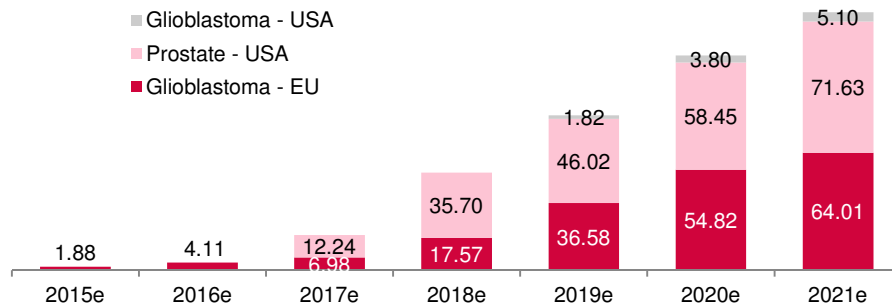
Source: GBC AG

Based on this schedule and the three pending revenue streams, we have formulated the sales forecasts for the next financial year. Because of the early timing of the marketing,



we place greater significance on our forecasts for the respective therapy ranges for glioblastoma in the EU and for prostate cancer in the USA.

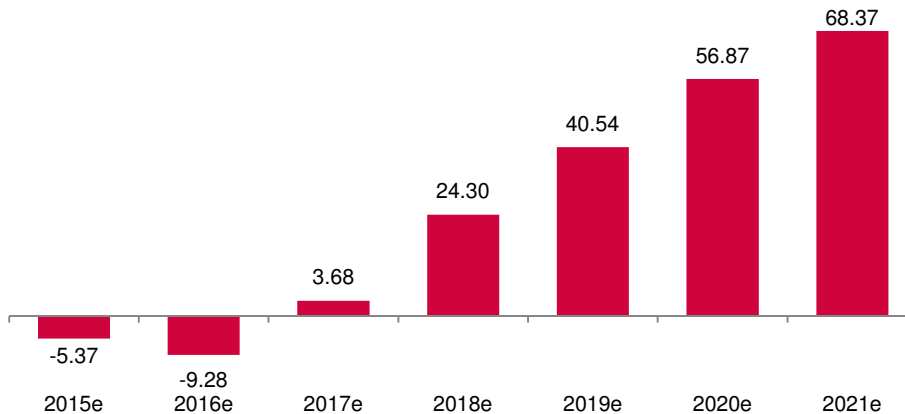
**Sales forecasts (in € million)**



Source: GBC AG

After the termination of the current post-marketing study and the approval study in the USA, MagForce AG may have a high gross margin against a background of a streamlined material cost structure. In connection with a flexible cost structure MagForce AG has a scalable business model. In light of increasing revenues, we are expecting a gradual improvement in profit margins, which corresponds to a disproportionate increase in EBIT.

**EBIT forecast (in € million)**



Source: GBC AG

In the DCF valuation model, changes have been made to the target price rollover to the end of financial year 2016 (previously: end of financial year 2015) and as a result of the market-related increase in the risk-free interest rate to 1.50% (previously: 1.00%). The rollover of the target price (rollover effect) prevails and we are therefore raising our price target to €14.30 (previously: €13.20). We therefore confirm the BUY rating due to the high price potential.

## MagForce AG - Discounted Cashflow (DCF) Valuation

Value driver of DCF-model after the estimate phase:

consistency - Phase		final - Phase	
EBITDA-margin	48.7%	Perpetual growth rate	3.0%
Working Capital to sales	13.4%	Perpetual EBITA margin	50.0%
		Tax rate terminal value	30.0%

### Three phases DCF - Model:

Phase in €m	estimate								Terminal value
	FY 15e	FY 16e	FY 17e	FY 18e	FY 19e	FY 20e	FY 21e	FY 22e	
Sales	1.88	4.11	19.23	53.27	84.42	117.07	140.74	172.26	
Sales change	neg.	neg.	367.5%	177.1%	58.5%	38.7%	20.2%	22.4%	3.0%
Sales to fixed assets	-5.25	-9.14	3.84	24.47	40.71	57.04	68.54	84.02	
EBITDA	neg.	neg.	neg.	45.9%	48.2%	48.7%	48.7%	48.8%	
EBITDA-margin	-5.37	-9.28	3.68	24.30	40.54	56.87	68.37	83.85	
EBITA	neg.	-225.5%	19.1%	45.6%	48.0%	48.6%	48.6%	48.7%	50.0%
EBITA-margin	0.00	0.00	0.00	0.00	-12.16	-17.06	-20.51	-25.16	
Taxes on EBITA	0.0%	0.0%	0.0%	0.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Taxes to EBITA	-5.37	-9.28	3.68	24.30	28.38	39.81	47.86	58.70	
EBI (NOPLAT)	-134.2%	-206.1%	61.3%	419.0%	135.2%	119.7%	103.7%	105.8%	91.5%
Return on capital									
	0.50	1.50	0.80	7.14	11.31	15.69	18.86	23.08	
Working Capital (WC)	neg.	36.5%	4.2%	13.4%	13.4%	13.4%	13.4%	13.4%	
WC to sales	-0.21	-1.00	0.70	-6.34	-4.17	-4.38	-3.17	-4.22	
Investment in WC	4.00	4.50	5.00	13.85	21.95	30.45	36.60	44.80	
Operating fixed assets (OFA)	-0.13	-0.14	-0.16	-0.17	-0.17	-0.17	-0.17	-0.17	
Depreciation on OFA	3.1%	3.1%	3.2%	1.2%	0.8%	0.6%	0.5%	0.4%	
Depreciation to OFA	-0.42	-0.64	-0.66	-9.02	-8.27	-8.66	-6.32	-8.37	
Investment in OFA	4.50	6.00	5.80	20.99	33.26	46.13	55.46	67.88	
Capital employed									
	-5.25	-9.14	3.84	24.47	40.71	57.04	68.54	84.02	
EBITDA	0.00	0.00	0.00	0.00	-12.16	-17.06	-20.51	-25.16	
Taxes on EBITA	-0.62	-1.64	0.04	-15.36	-12.44	-13.04	-9.49	-12.59	
Total investment	-0.42	-0.64	-0.66	-9.02	-8.27	-8.66	-6.32	-8.37	
Investment in OFA	-0.21	-1.00	0.70	-6.34	-4.17	-4.38	-3.17	-4.22	
Investment in WC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Investment in Goodwill	-5.87	-10.78	3.88	9.11	16.11	26.94	38.53	46.28	686.60

Value operating business (due date)	382.36	438.05
Net present value explicit free CF	66.84	85.46
Net present value of terminal value	315.52	352.59
Net debt	-13.71	-2.94
Value of equity	396.07	440.99
Minority interests	-67.04	-74.64
Value of share capital	329.03	366.35
Outstanding shares in m	25.62	25.62
Fair value per share in €	12.84	14.30

### Cost of capital:

Risk free rate	1.5%
Market risk premium	5.5%
Beta	2.04
Cost of equity	12.7%
Target weight	90.0%
Cost of debt	4.5%
Target weight	10.0%
Taxshield	28.7%
<b>WACC</b>	<b>11.7%</b>

	WACC				
	9.7%	10.7%	11.7%	12.7%	13.7%
89.5%	19.01	16.18	14.04	12.37	11.04
90.5%	19.20	16.33	14.17	12.48	11.14
91.5%	19.38	16.49	14.30	12.59	11.23
92.5%	19.57	16.64	14.43	12.70	11.33
93.5%	19.76	16.80	14.56	12.81	11.42

## ANNEX

### **Section 1 Disclaimer and exclusion of liability**

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### **Section 2 (I) Updates**

A detailed update of the present analysis/analyses at any fixed date has not been planned at the current time. GBC AG reserves the right to update the analysis without prior notice.

### **Section 2 (II) Recommendation/ Classifications/ Rating**

Since 1/7/2006 GBC AG has used a 3-level absolute share rating system. Since 1/7/2007 these ratings relate to a time horizon of a minimum of 6 to a maximum of 18 months. Previously the ratings related to a time horizon of up to 12 months. When the analysis is published, the investment recommendations are defined based on the categories described below, including reference to the expected returns. Temporary price fluctuations outside of these ranges do not automatically lead to a change in classification, but can result in a revision of the original recommendation.

**The recommendations/ classifications/ ratings are linked to the following expectations:**

BUY	The expected return, based on the derived target price, incl, dividend payments within the rel 10 %,
HOLD	The expected return, based on the derived target price, incl, dividend payments within the rel 10 % and < + 10 %,
SELL	The expected return, based on the calculated target price, incl, dividend payments within the <= - 10 %,

GBC AG's target prices are determined using the fair value per share, derived using generally recognised and widely used methods of fundamental analysis, such as the DCF process, peer-group benchmarking and/or the sum-of-the-parts process, This is done by including fundamental factors such as e.g. share splits, capital reductions, capital increases, M&A activities, share buybacks, etc,

**Section 2 (III) Past recommendations**

Past recommendations by GBC on the current analysis/analyses can be found on the internet at the following address:

<http://www.gbc-ag.de/de/Offenlegung.htm>

**Section 2 (IV) Information basis**

For the creation of the present analysis/analyses publicly available information was used about the issuer(s) (where available, the last three published annual and quarterly reports, ad hoc announcements, press releases, share prospectuses, company presentations, etc,) which GBC believes to be reliable, In addition, discussions were held with the management of the company/companies involved, for the creation of this analysis/these analyses, in order to review in more detail the information relating to business trends,

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GBC AG is currently represented by its board members Manuel Hölzle (Chairman), Jörg Grunwald and Christoph Schnabel,

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