

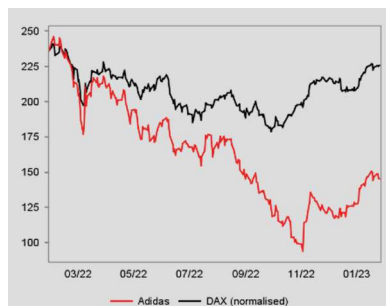
<b>Buy</b> (Hold) <b>EUR 180.00</b> (EUR 185.00)  Price EUR 145.28 <b>Upside 23.9 %</b>	<b>Value Indicators:</b> EUR DCF: 180.00	<b>Warburg ESG Risk Score: 5.0</b> ESG Score (MSCI based): 5.0 Balance Sheet Score: 5.0 Market Liquidity Score: 5.0	<b>Description:</b> The group is a leading player in the sporting goods industry.
	<b>Market Snapshot:</b> EUR m Market cap: 25,850 No. of shares (m): 178 EV: 28,360 Freefloat MC: 23,911 Ø Trad. Vol. (30d): 70.53 m	<b>Shareholders:</b> Freefloat 92.50 % GBL 7.50 %	<b>Key Figures (WRE):</b> 2022e Beta: 1.2 Price / Book: 5.3 x Equity Ratio: 27 % Net Fin. Debt / EBITDA: 0.8 x Net Debt / EBITDA: 1.0 x

## Ready for a comeback

It is time to revisit the adidas story, the stock having strongly underperformed in 2022 on the back of disappointing sales and an EBIT margin collapse to just 3% (expected), i.e. the lowest margin in adidas' history as a public company. This low starting point, however, ensures that earnings and news-flow will improve in 2023.

- Adidas lowered its outlook for 2022 several times. Despite sales growth of 21% in October, its most recent assumption implies mere mid-single-digit sales growth for Q4 2022 on foot of the Yeezy termination, which is expected to pose a burden of EUR 500m. Furthermore, management has guided for only EUR 250m in full-year net income so far, implying a Q4 loss of around EUR 500m. Against this low benchmark, we expect an end to the disappointments with the full-year results.
- The combination of the energy crisis in Europe and the zero-Covid policy in China was weighing heavily on adidas' growth outlook just a couple of weeks ago as these regions account for over 50% of sales. Substantial stimulus and the slump in European gas prices since mid-December has now alleviated the threat of a severe recession in Europe (indeed some economists now think we can avoid a recession altogether). On the back of the reopening in China, the improving economic outlook and increases in average selling prices, we expect adidas to deliver high single-digit constant currency sales growth despite the headwinds from the discontinuation of the Yeezy partnership.
- As the 2022 margin is burdened by a number of one-offs, the EBIT margin is set to improve despite the headwinds from adverse USD hedging and the discontinuation of Yeezy. On the positive side, China's reopening and a business improvement programme that started in late 2022 are to offset the negative dynamics. Furthermore, we expect lower freight rates to be a meaningful positive factor as of H2. Overall, we consider the current consensus estimates of just over 5% EBIT margin for 2023 as too low (WRE +1pp). We wouldn't bet on a bullish 2023 guidance given the recent misses and CEO Björn Gulden's conservative guidance approach, which is likely to offer an entry opportunity.
- We upgrade the stock to Buy. While we wish we had been bolder in late 2022, the Chinese reopening, the improved economic outlook in Europe, and the leadership transition are strong positive developments. We expect adidas to beat near-term earnings estimates. While the stock has recovered, its relative valuation is just on the historical average, while the low 2022 margin should lead to a period of outgrowing Nike. We thus upgrade the stock to Buy with a DCF-based price target of EUR 180.

Changes in Estimates:				Comment on Changes:			
FY End: 31.12. in EUR m	2022e (old)	+ / -	2023e (old)	+ / -	2024e (old)	+ / -	
Sales	23,225	-1.9 %	25,083	-2.8 %	26,839	-2.8 %	Inclusion of the Q3 2022 profit warning and the end of the Yeezy collaboration in our estimates
EBIT adj.	1,658	-60.2 %	2,107	-29.5 %	2,683	-24.2 %	
EPS adj.	6.70	-83.7 %	8.30	-36.6 %	10.74	-29.7 %	
c. c. growth	5.0 %	-60.0 %	7.0 %	25.7 %	7.0 %	0.0 %	

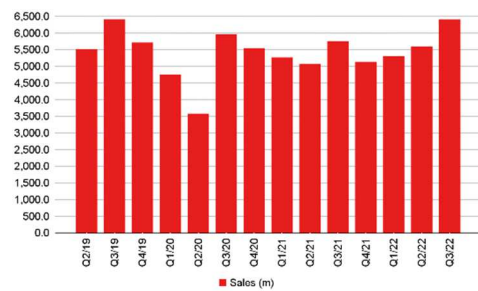


Rel. Performance vs DAX:	
1 month:	6.9 %
6 months:	-24.6 %
Year to date:	5.3 %
Trailing 12 months:	-34.3 %

Company events:	
08.03.23	FY 2022
05.05.23	Q1
11.05.23	AGM
03.08.23	Q2

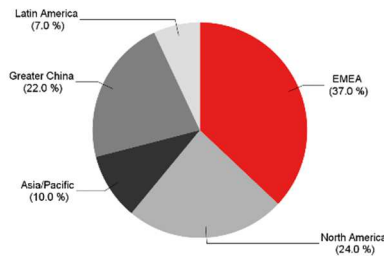
FY End: 31.12. in EUR m	CAGR (21-24e)	2018	2019	2020	2021	2022e	2023e	2024e
Sales	7.1 %	21,915	23,640	19,844	21,234	22,775	24,378	26,084
Change Sales yoy		3.3 %	7.9 %	-16.1 %	7.0 %	7.3 %	7.0 %	7.0 %
Gross profit margin	-1.1 %	51.9 %	52.0 %	49.7 %	50.7 %	47.4 %	47.5 %	49.0 %
EBITDA	2.3 %	2,858	3,874	2,121	3,136	1,955	2,785	3,354
Margin		13.0 %	16.4 %	10.7 %	14.8 %	8.6 %	11.4 %	12.9 %
EBIT	0.8 %	2,368	2,660	751	1,987	660	1,485	2,034
Margin		10.8 %	11.3 %	3.8 %	9.4 %	2.9 %	6.1 %	7.8 %
Net income	-3.3 %	1,707	1,917	419	1,450	202	935	1,313
EPS	-11.5 %	8.42	10.00	2.21	10.90	3.34	5.25	7.55
EPS adj.	0.4 %	8.46	9.70	2.15	7.47	1.09	5.26	7.55
DPS	-2.5 %	3.35	0.00	3.00	3.30	1.34	2.09	3.06
Dividend Yield		1.7 %	n.a.	1.2 %	1.2 %	0.9 %	1.4 %	2.1 %
FCFPS		9.96	10.24	4.99	13.21	4.16	7.36	9.63
FCF / Market cap		5.1 %	4.1 %	2.0 %	4.6 %	2.9 %	5.1 %	6.6 %
EV / Sales		1.8 x	2.1 x	2.5 x	2.6 x	1.3 x	1.2 x	1.1 x
EV / EBITDA		13.5 x	12.7 x	23.3 x	17.3 x	14.7 x	10.2 x	8.4 x
EV / EBIT		16.3 x	18.5 x	65.7 x	27.3 x	43.5 x	19.1 x	13.8 x
P / E		23.1 x	25.1 x	115.4 x	26.2 x	43.4 x	27.7 x	19.2 x
P / E adj.		23.0 x	25.9 x	119.0 x	38.2 x	132.9 x	27.6 x	19.2 x
FCF Potential Yield		5.1 %	6.1 %	3.5 %	-0.5 %	6.5 %	3.2 %	5.4 %
Net Debt		-708	-353	-542	-1,066	1,901	2,460	2,781
ROCE (NOPAT)		28.6 %	32.3 %	8.7 %	24.8 %	6.3 %	15.0 %	19.1 %
Guidance:		low single digit sales growth, around 2.5% EBIT margin, EUR 0.25bn net income						

**Sales development**  
in EUR m



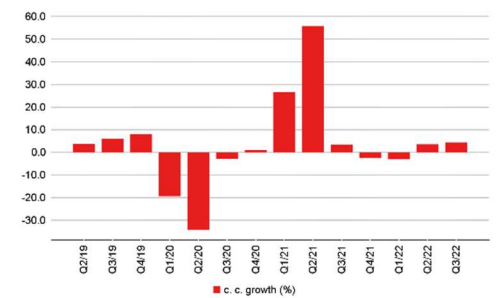
Source: Warburg Research

**Sales by regions**  
2021; in %



Source: Warburg Research

**constant currency sales change**  
in %



Source: Warburg Research

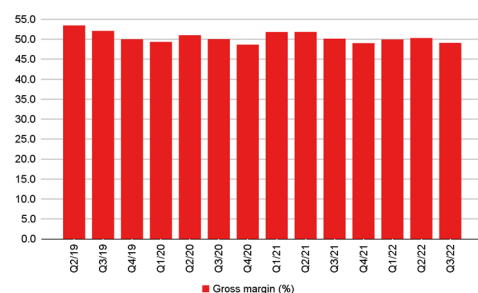
**Company Background**

- The adidas group is the world's second-largest sporting goods company. The product range includes athletic footwear (ca. 55% of sales), apparel (ca. 40% of sales) and hardware (ca. 5% of sales).
- Following several unsuccessful forays into other brands, adidas is now again 100% focused on the adidas brand.
- More than 50% of sales are generated in wholesale while own retail generates around 40% of sales. Online accounts for a high teens share of sales.
- adidas doesn't manufacture but almost exclusively purchases its wares from Asian manufacturers, particularly athletic footwear and hardware, making adidas a net USD buyer (volume ca USD 6bn).
- Ca. 45% of sales are generated in emerging markets. The group holds excellent market positions especially in Russia and China.

**Competitive Quality**

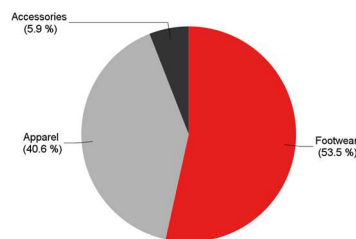
- For the adidas performance division, acquisition of market share is based on product innovation with a focus on technology, e.g. "Techfit" or "Clima" to strengthen muscles or to cool.
- For the adidas Sport Style division the company is expanding its market share in the fast fashion business e.g. with the NEO collection, targeting teenagers (from 12-19).
- The retail share has risen to around 40% from 25% in 2015. E-commerce accounted already for 20% of group sales in 2020 (i.e. > EUR 4bn). By 2025 management intends to double the online business to around EUR 8-9bn.
- Market share to be gained by focusing on leading consumer segment, core sports and growing sales channels in the US. This should clearly raise the below-average margins in this region.

**Gross margin development**  
in %



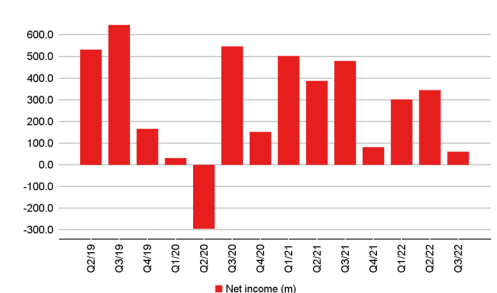
Source: Warburg Research

**Sales by segments**  
2021; in %



Source: Warburg Research

**Net income development**  
in EUR m



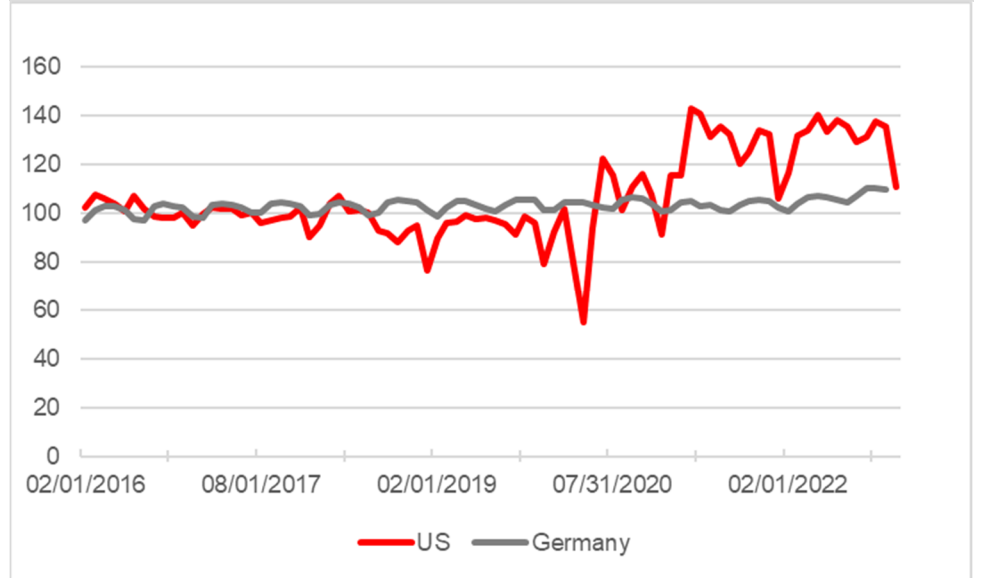
Source: Warburg Research

**Growth outlook brightening**

**Recession fears receding**

China reopening is a major growth driver for 2023

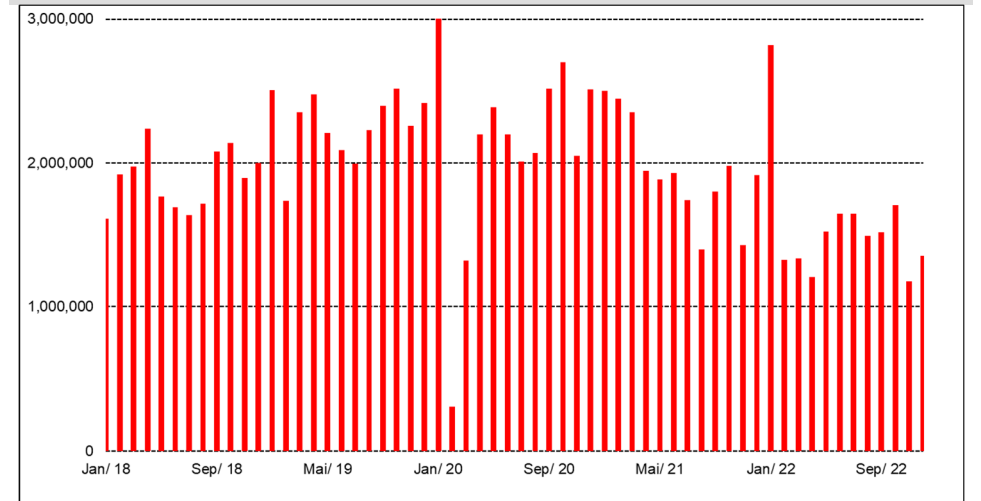
**US sporting goods sales boosted by the pandemic**



Source: Factset

The pandemic-related stimulus and excess savings have boosted sporting goods demand in developed markets. However, as the increase in remote working is here to stay, albeit at a slightly lower level than during the pandemic, there should, to some extent, also be somewhat higher base demand. The market is currently concerned that the discontinuation of the Yeezy franchise, which generated sales of around EUR 1.3bn, will stop the top-line recovery dead in its tracks. However, as Yeezy will already burden Q4 2022 by EUR 500m, there is only another EUR 800m incremental burden for 2023, i.e. just over 5% of adidas' sales in North America and EMEA. Assuming on average a high single-digit ASP due to passing on of inflation and stable volumes, adidas should still be able to generate low to mid-single-digit sales growth in these two regions, which represent around 65% of its sales. This forecast implicitly assumes that volumes lost due to a weaker economy will be balanced out by measures to save some of the Yeezy sales, by selling the merchandise under the adidas logo only (rather than co-branding).

**Pousheng indicates the huge rebound potential in China**



Source: Pousheng

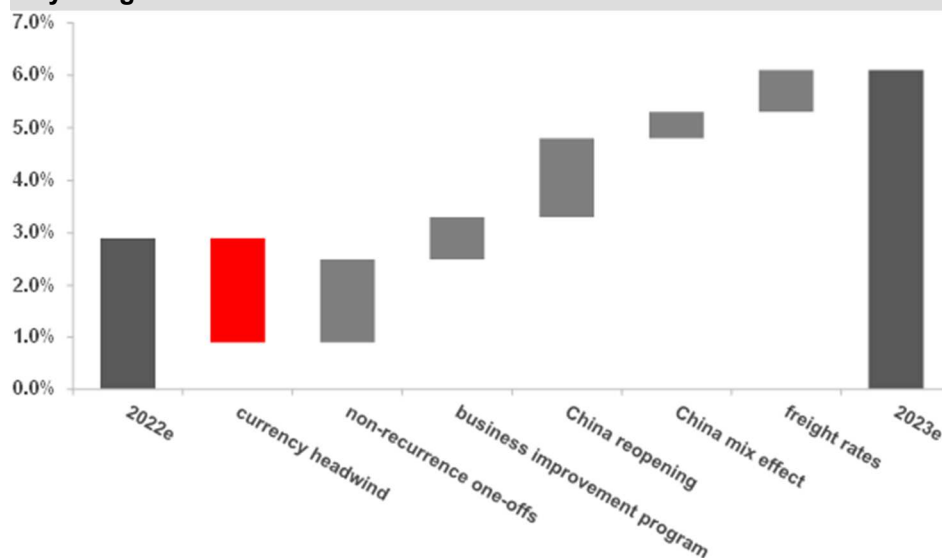
The big driver for 2023 sales growth, however, is China. By all accounts the reopening is now happening in earnest, as mobility data indicate a steep rise. Thus, we expect no meaningful restrictions as of Q2. While we still expect a weak Q1, we assume sales will quickly approach the pre-pandemic level as the lockdowns also led to excess savings in China and reopening should mimic the experience elsewhere. These assumptions lead us to 38% sales growth in China in 2023, i.e. China is to account for 5.3% sales growth on group level or 60% of the expected growth on group level (of 8.8%).

**Consensus is only looking for 5.2% EBIT margin, 100bp below our figures**

### Margin rebound underestimated

Consensus is looking for a 2023 EBIT margin of 5.2%, i.e. an increase of around 220bp compared to the 2022 margin of around 3%. This assumption does not look particularly challenging, in our view, and we expect adidas to deliver around 100bp more than current market expectations. The key building blocks for our optimism are:

#### Key margin drivers in 2023



Source: Warburg Research

Freight rates have collapsed and the Shanghai Containerized Freight Index is down around 80% from its peak. While this refers to spot rates and adidas' costs are based on contracts with undisclosed terms, we are assuming average savings of around USD 2000 per container starting as of H2 2023 (we assume H1 to still be on a higher contract). This represents savings of 160bp in H2, i.e. 80bp for the full year. The single largest margin driver, however, should be China. In 2022, Chinese margins were ca. 10pp below their usual levels as lockdowns burdened business. As China accounts for 15% of sales, the direct reopening effect should therefore be around 150bp. Furthermore, profitability in China should be more than 10pp above group average, with the China share of sales expected to increase by 4pp to 18%, this should lead to another 50bp in positive mix effects. In 2022, various one-offs, ranging from a lost lawsuit to the cost of a business improvement programme, burdened EBIT by EUR 400m. The non-recurrence of these factors lifts margins by another 160bp. Finally, the business improvement programme is expected to lead to savings of around EUR 200m, i.e. 80bp positive margin impact. Against these positive factors, we assume 200bp headwind from adverse currencies/higher USD-based sourcing costs. Altogether, we are therefore looking for a margin increase of 320bp in 2023 to 6.1% EBIT margin.

We did not list Yeezy as margin-negative, as Yeezy generated 40% of its profits in Q4 and as such a large portion of the negative impact is already included in the base. Furthermore, adidas will continue to sell these styles but simply without the Yeezy logo (which is rather easy to remove), and in the process will save around EUR 300m in royalties and marketing fees, which should, on balance, lead to a neutral impact on

earnings. While the elevated inventory level certainly looks concerning, adidas has been aggressive in clearance sales in H2 2022 and in cutting 2023 orders as well as purchases for factory outlets. Due the increasing sourcing costs for merchandise it makes sense to not overly discount the product as it can be redeployed. Overall, we expect sticker price increases and promotional activity to have a mutually neutralizing impact and thus don't expect this to burden margins.

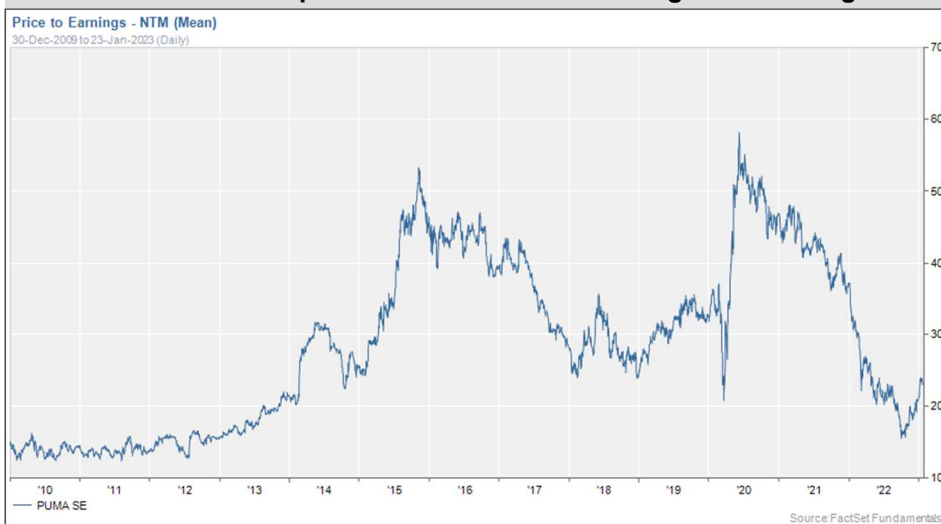
Are we seeing a replay  
of 2014 to 2016?

## Valuation

### Adidas could even move to valuation premium to Nike

The advantage of the new adidas CEO, Björn Gulden, is not only that he is an excellent manager, but also well known. Furthermore, when he was appointed Puma CEO, effective 1 July 2013, Puma's sales were declining, and its margin had already been steadily deteriorating for more than two years. It took time, i.e. five quarters, for Puma to return to mid-single-digit sales growth, 10 quarters to achieve double-digit sales growth again and only in 2017, i.e. Gulden's third year at Puma, was there a return to the point of significant margin upside again. In this whole period of investment in the brand, valuation multiples remained elevated, as Gulden successfully communicated the strategy and potential. In contrast to Puma, which had further margin declines in 2014/2015, the 2022 margin level of adidas should prove to be the low of the cycle.

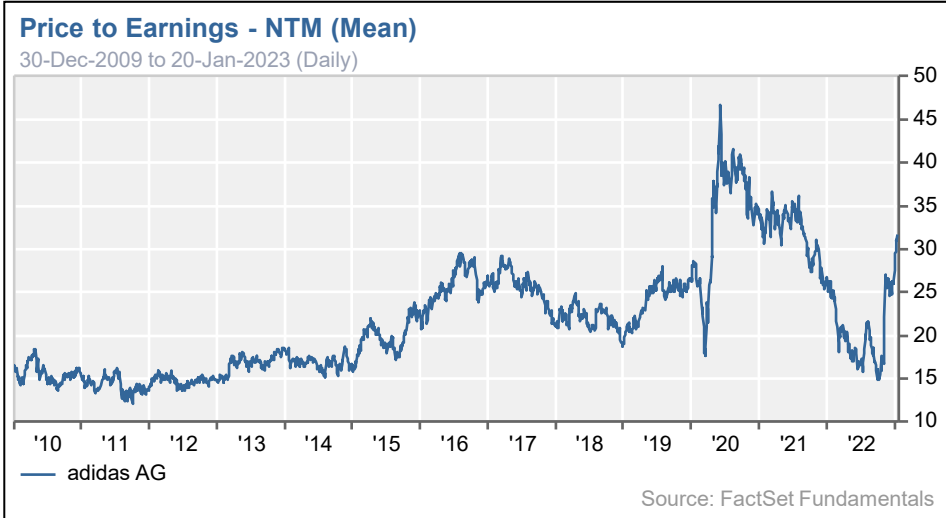
#### Puma's valuation multiples remained elevated during restructuring



Source: Factset

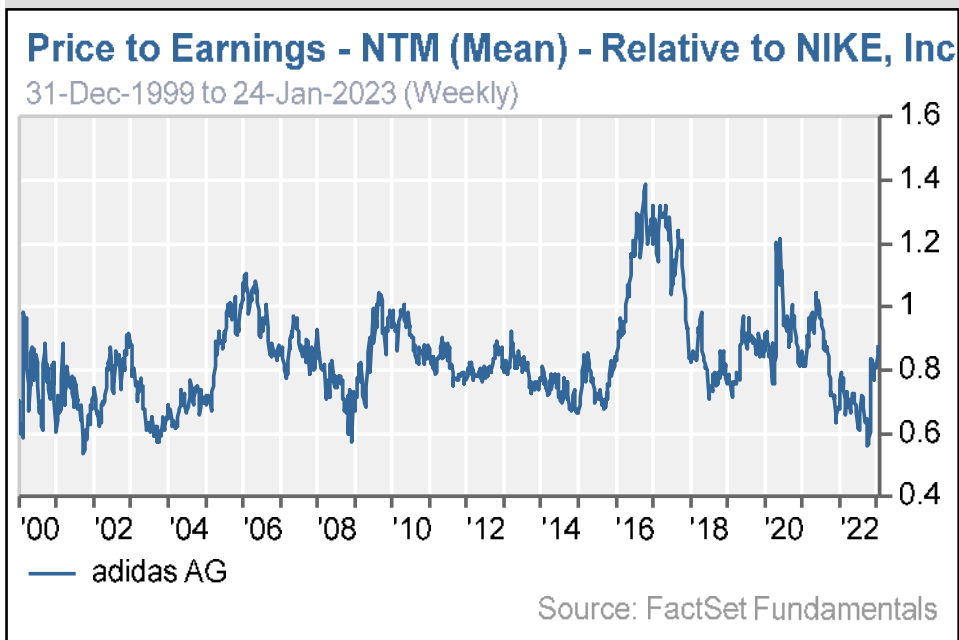
Our 2023 estimates are above consensus but, even based on our figures, adidas is trading at around 27 times next-twelve-month EPS. Thereby, not a bargain at first sight. That said, adidas is trading at just 0.8x Nike's multiples. Prima facie, that is not spectacular as it is close to the average relative valuation. However, the conditions are currently eerily similar to the last period when adidas was trading at a significant valuation premium to Nike. In 2014 adidas' underperformed strongly and its margin declined 24% (or 200bp) in 2014. By 2016 adidas' margin had again reached the prior level and this recovery led to strong earnings momentum. Consequently, adidas traded at a valuation premium of 40% to Nike in 2016. While in hindsight, we would have loved to have come earlier with our upgrade, the earnings outlook has fundamentally improved in the last couple of weeks, laying the ground for a strong earnings-rebound.

**Adidas: higher earnings multiple expected to be sustainable**



Source: Factset

**Adidas: Valuation relative to Nike**



Source: Factset

## DCF model

Figures in EUR m	Detailed forecast period			Transitional period										Term. Value
	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e	2032e	2033e	2034e	
Sales	22,775	24,378	26,084	27,910	29,864	31,955	34,191	36,243	38,055	39,958	41,956	44,053	46,256	1.5 %
Sales change	7.3 %	7.0 %	7.0 %	7.0 %	7.0 %	7.0 %	7.0 %	6.0 %	5.0 %	5.0 %	5.0 %	5.0 %	5.0 %	
EBIT	660	1,485	2,034	2,651	3,285	3,515	3,761	3,987	4,186	4,395	4,615	4,846	5,088	11.0 %
EBIT-margin	2.9 %	6.1 %	7.8 %	9.5 %	11.0 %	11.0 %	11.0 %	11.0 %	11.0 %	11.0 %	11.0 %	11.0 %	11.0 %	
Tax rate (EBT)	17.9 %	21.8 %	24.7 %	26.0 %	26.0 %	26.0 %	26.0 %	26.0 %	26.0 %	26.0 %	26.0 %	26.0 %	26.0 %	26.0 %
NOPAT	542	1,161	1,531	1,962	2,431	2,601	2,783	2,950	3,098	3,253	3,415	3,586	3,765	
Depreciation	1,295	1,300	1,320	1,451	806	863	992	1,051	1,104	1,159	1,217	1,278	1,341	2.9 %
in % of Sales	5.7 %	5.3 %	5.1 %	5.2 %	2.7 %	2.7 %	2.9 %	2.9 %	2.9 %	2.9 %	2.9 %	2.9 %	2.9 %	
Changes in provisions	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Change in Liquidity from														
- Working Capital	96	281	299	180	332	355	380	349	308	323	340	357	374	374
- Capex	700	720	740	837	896	959	1,026	1,087	1,142	1,199	1,259	1,322	1,388	
Capex in % of Sales	3.1 %	3.0 %	2.8 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %
- Other	600	600	600	600	168	0	0	0	0	0	0	0	0	
Free Cash Flow (WACC Model)	441	860	1,212	1,796	1,841	2,150	2,369	2,565	2,752	2,889	3,034	3,185	3,345	3,309
PV of FCF	451	809	1,048	1,428	1,346	1,446	1,465	1,459	1,439	1,389	1,341	1,295	1,251	17,077
share of PVs	6.94 %			41.69 %										51.37 %

## Model parameter

Derivation of WACC:		Derivation of Beta:	
Debt ratio	8.00 %	Financial Strength	1.00
Cost of debt (after tax)	1.8 %	Liquidity (share)	1.00
Market return	8.25 %	Cyclicalit	2.20
Risk free rate	2.75 %	Transparency	0.80
		Others	1.00
<b>WACC</b>	<b>8.75 %</b>	<b>Beta</b>	<b>1.20</b>

## Valuation (m)

Present values 2034e	16,167		
Terminal Value	17,077		
Financial liabilities	2,466		
Pension liabilities	267		
Hybrid capital	0		
Minority interest	50		
Market val. of investments	200		
Liquidity	3,828	No. of shares (m)	191.6
<b>Equity Value</b>	<b>34,488</b>	<b>Value per share (EUR)</b>	<b>180.01</b>

## Sensitivity Value per Share (EUR)

Beta	WACC	Terminal Growth							Beta	WACC	Delta EBIT-margin						
		0.75 %	1.00 %	1.25 %	1.50 %	1.75 %	2.00 %	2.25 %			-3.0 pp	-2.0 pp	-1.0 pp	+0.0 pp	+1.0 pp	+2.0 pp	+3.0 pp
1.40	9.7 %	150.70	152.54	154.49	156.56	158.76	161.10	163.60	1.40	9.7 %	104.25	121.69	139.12	156.56	174.00	191.44	208.88
1.30	9.2 %	160.53	162.72	165.04	167.51	170.14	172.96	175.98	1.30	9.2 %	111.74	130.33	148.92	167.51	186.10	204.69	223.28
1.25	9.0 %	165.91	168.30	170.84	173.54	176.44	179.54	182.87	1.25	9.0 %	115.87	135.09	154.32	173.54	192.77	211.99	231.22
1.20	8.7 %	171.65	174.25	177.03	180.01	183.19	186.61	190.30	1.20	8.7 %	120.29	140.20	160.10	180.01	199.91	219.82	239.72
1.15	8.5 %	177.76	180.62	183.67	186.95	190.46	194.25	198.33	1.15	8.5 %	125.04	145.67	166.31	186.95	207.58	228.22	248.85
1.10	8.2 %	184.30	187.44	190.80	194.41	198.30	202.50	207.05	1.10	8.2 %	130.15	151.57	172.99	194.41	215.83	237.25	258.67
1.00	7.7 %	198.83	202.64	206.75	211.18	215.99	221.21	226.91	1.00	7.7 %	141.63	164.81	188.00	211.18	234.36	257.55	280.73

- We assume 11.0% long term EBIT margin
- We assume 5.8% sales CAGR in the transitional period.
- In the "other" line we subtract the cash out for lease payments (i.e. store rents).

## Free Cash Flow Value Potential

Warburg Research's valuation tool "FCF Value Potential" reflects the ability of the company to generate sustainable free cash flows. It is based on the "FCF potential" - a FCF "ex growth" figure - which assumes unchanged working capital and pure maintenance capex. A value indication is derived via the perpetuity of a given year's "FCF potential" with consideration of the weighted costs of capital. The fluctuating value indications over time add a timing element to the DCF model (our preferred valuation tool).

in EUR m	2018	2019	2020	2021	2022e	2023e	2024e	
Net Income before minorities	1,709	1,918	429	461	1,492	242	981	
+ Depreciation + Amortisation	490	1,214	1,370	0	1,149	1,295	1,300	
- Net Interest Income	10	-102	-175	-167	-134	-300	-180	
- Maintenance Capex	235	250	270	290	310	330	350	
+ Other	0	0	0	-625	-600	-600	-600	
<b>= Free Cash Flow Potential</b>	<b>1,954</b>	<b>2,984</b>	<b>1,704</b>	<b>-287</b>	<b>1,865</b>	<b>907</b>	<b>1,511</b>	
FCF Potential Yield (on market EV)	5.1 %	6.1 %	3.5 %	-0.5 %	6.5 %	3.2 %	5.4 %	
WACC	8.75 %	8.75 %	8.75 %	8.75 %	8.75 %	8.75 %	8.75 %	
<b>= Enterprise Value (EV)</b>	<b>38,484</b>	<b>49,277</b>	<b>49,315</b>	<b>54,309</b>	<b>28,729</b>	<b>28,360</b>	<b>28,099</b>	
<b>= Fair Enterprise Value</b>	<b>22,342</b>	<b>34,118</b>	<b>19,483</b>	<b>n.a.</b>	<b>21,324</b>	<b>10,365</b>	<b>17,274</b>	
- Net Debt (Cash)	-484	-954	-582	1,978	-1,333	1,608	2,137	
- Pension Liabilities	273	273	273	273	355	298	246	
- Other	0	0	0	0	0	0	0	
- Market value of minorities	7	7	7	7	50	50	50	
+ Market value of investments	200	200	200	200	200	200	200	
<b>= Fair Market Capitalisation</b>	<b>22,746</b>	<b>34,992</b>	<b>19,985</b>	<b>n.a.</b>	<b>22,452</b>	<b>8,610</b>	<b>15,041</b>	
Number of shares, average	202	198	195	194	184	178	174	
<b>= Fair value per share (EUR)</b>	<b>112.74</b>	<b>177.08</b>	<b>102.41</b>	<b>n.a.</b>	<b>121.81</b>	<b>48.39</b>	<b>86.48</b>	
premium (-) / discount (+) in %					-16.2 %	-66.7 %	-40.5 %	
<b>Sensitivity Fair value per Share (EUR)</b>								
	11.75 %	81.45	125.62	71.75	n.a.	87.58	32.35	59.74
	10.75 %	88.85	136.92	78.20	n.a.	95.19	36.24	66.46
	9.75 %	97.77	150.54	85.98	n.a.	104.36	40.94	74.57
WACC	<b>8.75 %</b>	<b>112.74</b>	<b>177.08</b>	<b>102.41</b>	<b>n.a.</b>	<b>121.81</b>	<b>48.39</b>	<b>86.48</b>
	7.75 %	122.52	188.33	107.56	n.a.	129.81	53.97	97.06
	6.75 %	140.39	215.62	123.14	n.a.	148.19	63.38	113.31
	5.75 %	164.49	252.42	144.16	n.a.	172.97	76.07	135.22

▪ Business model is not very capital intensive. A large portion of capex is dedicated to the expansion of own retail.



Peer Group									
Company	Price	EV / Sales	EV / EBITDA		EV / EBIT		P / E		EPS CAGR
Prices in local currency									
		22e	22e	23e	22e	23e	22e	23e	(21-24e)
Asics	20.98	1.0	9.8	8.7	13.7	11.9	21.7	19.1	14.5 %
Columbia Sportswear	83.70	1.5	9.5	8.8	11.9	11.0	16.8	15.5	5.6 %
Li Ning	9.39	5.6	23.5	18.4	27.9	21.3	36.7	29.4	16.1 %
LuLuLemon Athletica	285.23	5.0	19.5	16.8	22.7	19.6	31.0	27.1	19.9 %
Nike	117.50	3.9	28.9	23.8	33.0	26.4	39.9	31.7	8.0 %
Under Armour	10.92	0.8	10.1	8.3	14.8	11.5	25.2	18.4	1.8 %
Average		3.0	16.9	14.1	20.7	16.9	28.6	23.6	11.0 %
Median		2.7	14.8	12.8	18.7	15.7	28.1	23.1	
<b>Adidas</b>	<b>145.28</b>	<b>1.3</b>	<b>14.7</b>	<b>10.2</b>	<b>43.5</b>	<b>19.1</b>	<b>43.4</b>	<b>27.7</b>	
Delta to median		-52.6 %	-0.8 %	-20.5 %	132.5 %	21.3 %	54.5 %	19.7 %	

- We consider Nike, the global market leader, to be the closest peer.
- Over the last decade both companies have been valued with the identical EV/EBIT multiples.

Valuation								
	2018	2019	2020	2021	2022e	2023e	2024e	
Price / Book	6.1 x	7.3 x	7.7 x	7.4 x	5.3 x	5.5 x	5.4 x	
Book value per share ex intangibles	20.28	22.14	21.75	30.59	18.78	17.77	17.92	
EV / Sales	1.8 x	2.1 x	2.5 x	2.6 x	1.3 x	1.2 x	1.1 x	
EV / EBITDA	13.5 x	12.7 x	23.3 x	17.3 x	14.7 x	10.2 x	8.4 x	
EV / EBIT	16.3 x	18.5 x	65.7 x	27.3 x	43.5 x	19.1 x	13.8 x	
EV / EBIT adj.*	16.3 x	18.5 x	65.7 x	27.3 x	43.5 x	19.1 x	13.8 x	
P / FCF	19.5 x	24.5 x	51.2 x	21.6 x	34.9 x	19.7 x	15.1 x	
P / E	23.1 x	25.1 x	115.4 x	26.2 x	43.4 x	27.7 x	19.2 x	
P / E adj.*	23.0 x	25.9 x	119.0 x	38.2 x	132.9 x	27.6 x	19.2 x	
Dividend Yield	1.7 %	n.a.	1.2 %	1.2 %	0.9 %	1.4 %	2.1 %	
FCF Potential Yield (on market EV)	5.1 %	6.1 %	3.5 %	-0.5 %	6.5 %	3.2 %	5.4 %	

\*Adjustments made for: -

Company Specific Items							
	2018	2019	2020	2021	2022e	2023e	2024e
c. c. growth	8.4 %	6.1 %	-14.0 %	16.0 %	2.0 %	8.8 %	7.0 %

## Consolidated profit and loss

In EUR m	2018	2019	2020	2021	2022e	2023e	2024e
<b>Sales</b>	<b>21,915</b>	<b>23,640</b>	<b>19,844</b>	<b>21,234</b>	<b>22,775</b>	<b>24,378</b>	<b>26,084</b>
Change Sales yoy	3.3 %	7.9 %	-16.1 %	7.0 %	7.3 %	7.0 %	7.0 %
COGS	10,552	11,347	9,989	10,469	11,977	12,798	13,303
<b>Gross profit</b>	<b>11,363</b>	<b>12,293</b>	<b>9,855</b>	<b>10,765</b>	<b>10,798</b>	<b>11,580</b>	<b>12,781</b>
<i>Gross margin</i>	<i>51.9 %</i>	<i>52.0 %</i>	<i>49.7 %</i>	<i>50.7 %</i>	<i>47.4 %</i>	<i>47.5 %</i>	<i>49.0 %</i>
Research and development	186	201	169	180	22,969	48,963	78,475
Sales and marketing	7,408	7,940	7,651	7,204	-36,917	-89,186	-147,651
Administration expenses	1,578	1,702	1,409	1,508	24,392	50,487	80,105
Other operating expenses	9,172	9,843	9,229	8,892	10,443	10,264	10,929
Other operating income	177	210	125	114	306	170	182
Unfrequent items	0	0	0	0	0	0	0
<b>EBITDA</b>	<b>2,858</b>	<b>3,874</b>	<b>2,121</b>	<b>3,136</b>	<b>1,955</b>	<b>2,785</b>	<b>3,354</b>
<i>Margin</i>	<i>13.0 %</i>	<i>16.4 %</i>	<i>10.7 %</i>	<i>14.8 %</i>	<i>8.6 %</i>	<i>11.4 %</i>	<i>12.9 %</i>
Depreciation of fixed assets	490	1,214	1,370	1,149	1,295	1,300	1,320
<b>EBITA</b>	<b>2,368</b>	<b>2,660</b>	<b>751</b>	<b>1,987</b>	<b>660</b>	<b>1,485</b>	<b>2,034</b>
Amortisation of intangible assets	0	0	0	0	0	0	0
Goodwill amortisation	0	0	0	0	0	0	0
<b>EBIT</b>	<b>2,368</b>	<b>2,660</b>	<b>751</b>	<b>1,987</b>	<b>660</b>	<b>1,485</b>	<b>2,034</b>
<i>Margin</i>	<i>10.8 %</i>	<i>11.3 %</i>	<i>3.8 %</i>	<i>9.4 %</i>	<i>2.9 %</i>	<i>6.1 %</i>	<i>7.8 %</i>
<b>EBIT adj.</b>	<b>2,368</b>	<b>2,660</b>	<b>751</b>	<b>1,987</b>	<b>660</b>	<b>1,485</b>	<b>2,034</b>
Interest income	24	50	23	19	35	30	25
Interest expenses	42	160	164	153	335	210	195
Other financial income (loss)	28	-8	-34	0	0	0	0
<b>EBT</b>	<b>2,378</b>	<b>2,558</b>	<b>576</b>	<b>1,853</b>	<b>360</b>	<b>1,305</b>	<b>1,864</b>
<i>Margin</i>	<i>10.9 %</i>	<i>10.8 %</i>	<i>2.9 %</i>	<i>8.7 %</i>	<i>1.6 %</i>	<i>5.4 %</i>	<i>7.1 %</i>
Total taxes	669	640	146	360	118	324	503
<b>Net income from continuing operations</b>	<b>1,709</b>	<b>1,918</b>	<b>429</b>	<b>1,492</b>	<b>242</b>	<b>981</b>	<b>1,361</b>
Income from discontinued operations (net of tax)	0	0	0	0	0	0	0
<b>Net income before minorities</b>	<b>1,709</b>	<b>1,918</b>	<b>429</b>	<b>1,492</b>	<b>242</b>	<b>981</b>	<b>1,361</b>
Minority interest	-3	-2	-11	-42	-40	-46	-48
<b>Net income</b>	<b>1,707</b>	<b>1,917</b>	<b>419</b>	<b>1,450</b>	<b>202</b>	<b>935</b>	<b>1,313</b>
<i>Margin</i>	<i>7.8 %</i>	<i>8.1 %</i>	<i>2.1 %</i>	<i>6.8 %</i>	<i>0.9 %</i>	<i>3.8 %</i>	<i>5.0 %</i>
Number of shares, average	202	198	195	194	184	178	174
<b>EPS</b>	<b>8.42</b>	<b>10.00</b>	<b>2.21</b>	<b>10.90</b>	<b>3.34</b>	<b>5.25</b>	<b>7.55</b>
EPS adj.	8.46	9.70	2.15	7.47	1.09	5.26	7.55

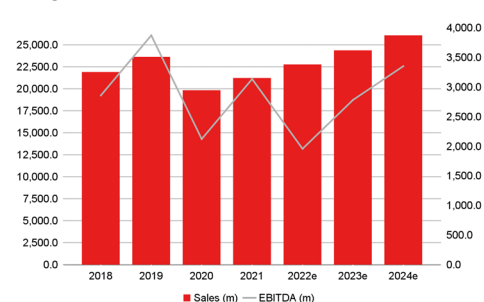
\*Adjustments made for:

**Guidance: low single digit sales growth, around 2.5% EBIT margin, EUR 0.25bn net income**

## Financial Ratios

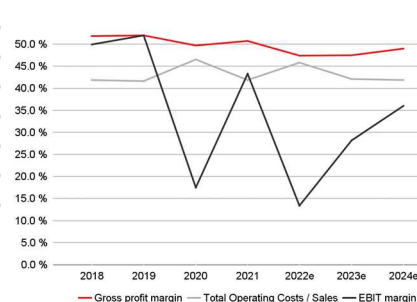
	2018	2019	2020	2021	2022e	2023e	2024e
Total Operating Costs / Sales	41.9 %	41.6 %	46.5 %	41.9 %	45.9 %	42.1 %	41.9 %
Operating Leverage	4.4 x	1.6 x	4.5 x	23.5 x	-9.2 x	17.8 x	5.3 x
EBITDA / Interest expenses	68.0 x	24.2 x	12.9 x	20.5 x	5.8 x	13.3 x	17.2 x
Tax rate (EBT)	28.1 %	25.0 %	25.3 %	19.4 %	32.9 %	24.9 %	27.0 %
Dividend Payout Ratio	39.5 %	0.0 %	136.5 %	42.9 %	102.6 %	37.9 %	39.1 %
Sales per Employee	384,366	362,610	318,600	345,825	353,259	360,117	366,977

### Sales, EBITDA in EUR m



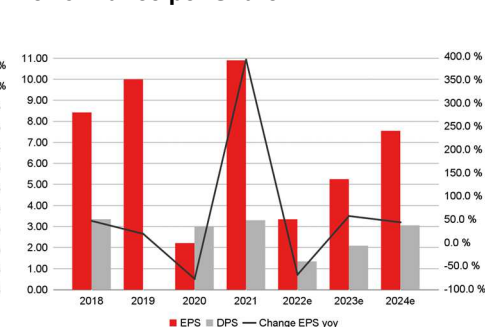
Source: Warburg Research

### Operating Performance in %



Source: Warburg Research

### Performance per Share



Source: Warburg Research

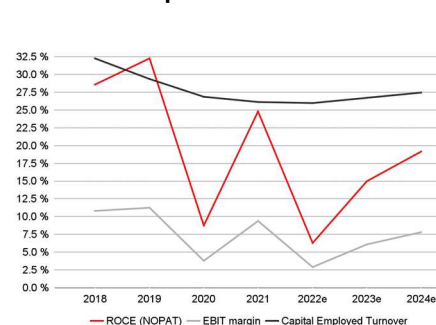
**Consolidated balance sheet**

In EUR m	2018	2019	2020	2021	2022e	2023e	2024e
<b>Assets</b>							
Goodwill and other intangible assets	2,285	2,421	2,210	1,580	1,575	1,570	1,565
thereof other intangible assets	1,040	1,164	1,002	352	347	342	337
thereof Goodwill	1,245	1,257	1,208	1,228	1,228	1,228	1,228
Property, plant and equipment	2,237	2,380	2,156	2,256	2,266	2,291	2,316
Financial assets	256	450	767	450	450	450	450
Other long-term assets	370	3,401	2,533	2,643	2,643	2,643	2,643
<b>Fixed assets</b>	<b>5,148</b>	<b>8,652</b>	<b>7,666</b>	<b>6,929</b>	<b>6,934</b>	<b>6,954</b>	<b>6,974</b>
Inventories	3,445	4,085	4,397	4,009	3,986	4,266	4,565
Accounts receivable	2,418	2,625	1,952	2,175	2,391	2,560	2,739
Liquid assets	2,629	2,220	3,994	3,828	887	358	70
Other short-term assets	1,273	2,005	1,811	3,931	3,931	3,931	3,931
<b>Current assets</b>	<b>9,765</b>	<b>10,935</b>	<b>12,154</b>	<b>13,943</b>	<b>11,195</b>	<b>11,115</b>	<b>11,304</b>
<b>Total Assets</b>	<b>15,612</b>	<b>20,680</b>	<b>21,053</b>	<b>22,137</b>	<b>19,807</b>	<b>19,747</b>	<b>19,956</b>
<b>Liabilities and shareholders' equity</b>							
Subscribed capital	199	196	195	192	192	192	192
Capital reserve	124	45	-474	69	69	69	69
Retained earnings	6,054	6,555	6,733	7,259	4,775	4,471	4,420
Other equity components	0	0	0	0	0	0	0
Shareholders' equity	6,377	6,796	6,454	7,520	5,036	4,732	4,681
Minority interest	-13	262	237	318	358	404	452
<b>Total equity</b>	<b>6,364</b>	<b>7,058</b>	<b>6,691</b>	<b>7,838</b>	<b>5,394</b>	<b>5,136</b>	<b>5,133</b>
Provisions	1,987	2,573	2,696	2,383	2,410	2,439	2,471
thereof provisions for pensions and similar obligations	246	229	284	267	294	323	355
Financial liabilities (total)	1,675	1,638	3,168	2,495	2,495	2,495	2,495
Short-term financial liabilities	0	7	7	7	7	7	7
Accounts payable	2,300	2,703	2,390	2,294	2,391	2,560	2,739
Other liabilities	3,286	6,708	6,108	7,127	7,117	7,117	7,118
<b>Liabilities</b>	<b>9,248</b>	<b>13,622</b>	<b>14,362</b>	<b>14,299</b>	<b>14,413</b>	<b>14,611</b>	<b>14,823</b>
<b>Total liabilities and shareholders' equity</b>	<b>15,612</b>	<b>20,680</b>	<b>21,053</b>	<b>22,137</b>	<b>19,807</b>	<b>19,747</b>	<b>19,956</b>

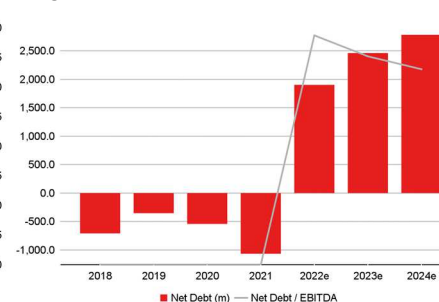
**Financial Ratios**

	2018	2019	2020	2021	2022e	2023e	2024e
<b>Efficiency of Capital Employment</b>							
Operating Assets Turnover	3.8 x	3.7 x	3.2 x	3.5 x	3.6 x	3.7 x	3.8 x
Capital Employed Turnover	3.9 x	3.5 x	3.2 x	3.1 x	3.1 x	3.2 x	3.3 x
ROA	33.1 %	22.2 %	5.5 %	20.9 %	2.9 %	13.4 %	18.8 %
<b>Return on Capital</b>							
ROCE (NOPAT)	28.6 %	32.3 %	8.7 %	24.8 %	6.3 %	15.0 %	19.1 %
ROE	26.6 %	29.1 %	6.3 %	20.8 %	3.2 %	19.1 %	27.9 %
Adj. ROE	26.6 %	29.1 %	6.3 %	20.8 %	3.2 %	19.1 %	27.9 %
<b>Balance sheet quality</b>							
Net Debt	-708	-353	-542	-1,066	1,901	2,460	2,781
Net Financial Debt	-954	-582	-826	-1,333	1,608	2,137	2,425
Net Gearing	-11.1 %	-5.0 %	-8.1 %	-13.6 %	35.2 %	47.9 %	54.2 %
Net Fin. Debt / EBITDA	n.a.	n.a.	n.a.	n.a.	82.2 %	76.7 %	72.3 %
Book Value / Share	31.6	34.4	33.1	38.7	27.3	26.6	26.9
Book value per share ex intangibles	20.3	22.1	21.7	30.6	18.8	17.8	17.9

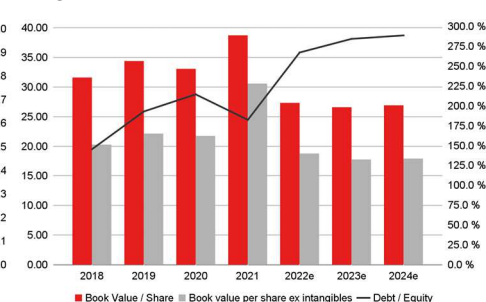
**ROCE Development**



**Net debt in EUR m**



**Book Value per Share in EUR**



Source: Warburg Research

Source: Warburg Research

Source: Warburg Research

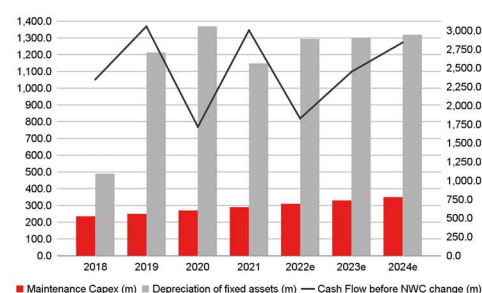
## Consolidated cash flow statement

In EUR m	2018	2019	2020	2021	2022e	2023e	2024e
Net income	1,707	1,917	419	1,450	202	935	1,313
Depreciation of fixed assets	490	1,214	1,370	1,149	1,295	1,300	1,320
Amortisation of goodwill	0	0	0	0	0	0	0
Amortisation of intangible assets	0	0	0	0	0	0	0
Increase/decrease in long-term provisions	302	-105	0	0	0	0	0
Other non-cash income and expenses	-152	32	-73	405	333	219	211
<b>Cash Flow before NWC change</b>	<b>2,347</b>	<b>3,057</b>	<b>1,716</b>	<b>3,004</b>	<b>1,830</b>	<b>2,454</b>	<b>2,844</b>
Increase / decrease in inventory	-180	505	503	-125	-23	281	299
Increase / decrease in accounts receivable	103	207	-394	170	216	168	179
Increase / decrease in accounts payable	325	403	-141	226	97	168	179
Increase / decrease in other working capital positions	0	7	7	7	7	7	7
Increase / decrease in working capital (total)	-402	302	243	-188	89	274	292
<b>Net cash provided by operating activities [1]</b>	<b>2,749</b>	<b>2,755</b>	<b>1,473</b>	<b>3,192</b>	<b>1,741</b>	<b>2,180</b>	<b>2,552</b>
Investments in intangible assets	96	110	64	173	80	80	80
Investments in property, plant and equipment	667	598	379	494	620	640	660
Payments for acquisitions	0	7	7	7	7	7	7
Financial investments	0	284	-240	-49	0	0	0
Income from asset disposals	104	95	63	191	0	0	0
<b>Net cash provided by investing activities [2]</b>	<b>-659</b>	<b>-897</b>	<b>-140</b>	<b>-427</b>	<b>-700</b>	<b>-720</b>	<b>-740</b>
Change in financial liabilities	582	-42	1,525	-600	0	0	0
Dividends paid	-529	-666	-17	-585	-608	-239	-364
Purchase of own shares	0	7	7	7	7	7	7
Capital measures	-1,003	-813	-261	-1,005	-2,500	-1,000	-1,000
Other	-80	-119	-120	-151	-273	-151	-138
<b>Net cash provided by financing activities [3]</b>	<b>-1,030</b>	<b>-1,633</b>	<b>1,134</b>	<b>-2,334</b>	<b>-3,375</b>	<b>-1,383</b>	<b>-1,494</b>
<b>Change in liquid funds [1]+[2]+[3]</b>	<b>1,031</b>	<b>-409</b>	<b>1,774</b>	<b>-165</b>	<b>-2,941</b>	<b>-530</b>	<b>-288</b>
Effects of exchange-rate changes on cash	-29	-30	-75	-17	0	0	1
Cash and cash equivalent at end of period	2,629	2,220	3,994	3,828	887	358	70

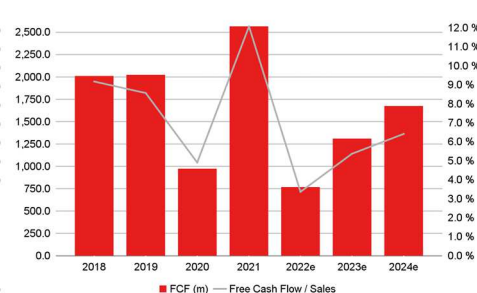
## Financial Ratios

	2018	2019	2020	2021	2022e	2023e	2024e
<b>Cash Flow</b>							
FCF	2,010	2,023	973	2,565	768	1,310	1,675
Free Cash Flow / Sales	9.2 %	8.6 %	4.9 %	12.1 %	3.4 %	5.4 %	6.4 %
Free Cash Flow Potential	1,954	2,984	1,704	-287	1,865	907	1,511
Free Cash Flow / Net Profit	117.8 %	105.6 %	232.5 %	176.9 %	380.9 %	140.1 %	127.5 %
Interest Received / Avg. Cash	1.1 %	2.1 %	0.7 %	0.5 %	1.5 %	4.8 %	11.7 %
Interest Paid / Avg. Debt	3.0 %	9.7 %	6.8 %	5.4 %	13.4 %	8.4 %	7.8 %
<b>Management of Funds</b>							
Investment ratio	3.5 %	3.0 %	2.2 %	3.1 %	3.1 %	3.0 %	2.8 %
Maint. Capex / Sales	1.1 %	1.1 %	1.4 %	1.4 %	1.4 %	1.4 %	1.3 %
Capex / Dep	155.7 %	58.3 %	32.3 %	58.1 %	54.1 %	55.4 %	56.1 %
Avg. Working Capital / Sales	17.3 %	16.0 %	20.0 %	18.4 %	17.3 %	16.9 %	16.9 %
Trade Debtors / Trade Creditors	105.1 %	97.1 %	81.7 %	94.8 %	100.0 %	100.0 %	100.0 %
Inventory Turnover	3.1 x	2.8 x	2.3 x	2.6 x	3.0 x	3.0 x	2.9 x
Receivables collection period (days)	40	41	36	37	38	38	38
Payables payment period (days)	80	87	87	80	73	73	75
Cash conversion cycle (Days)	80	85	109	97	87	87	88

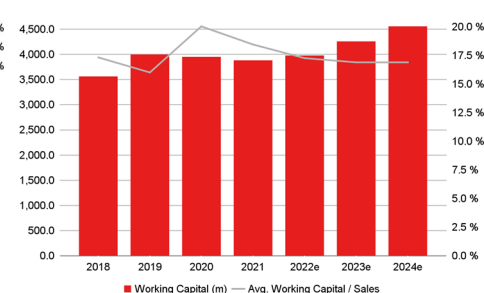
### CAPEX and Cash Flow in EUR m



### Free Cash Flow Generation



### Working Capital



Source: Warburg Research

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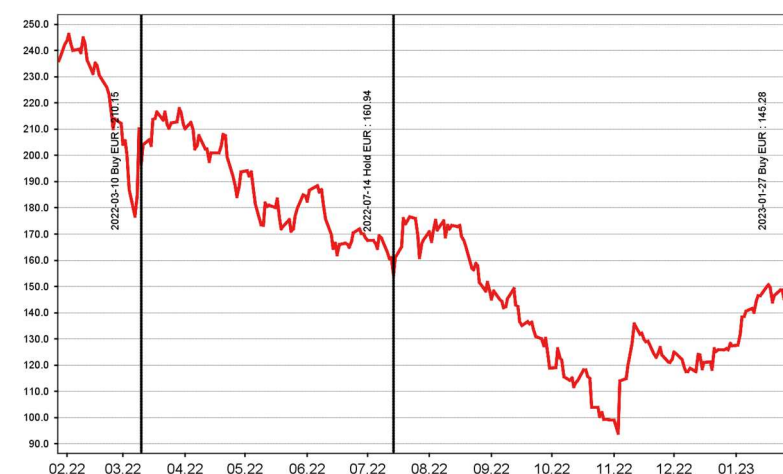
Rating	Number of stocks	% of Universe
Buy	160	75
Hold	45	21
Sell	6	3
Rating suspended	3	1
<b>Total</b>	<b>214</b>	<b>100</b>

**WARBURG RESEARCH GMBH – ANALYSED RESEARCH UNIVERSE BY RATING ...**

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Rating	Number of stocks	% of Universe
Buy	44	86
Hold	6	12
Sell	0	0
Rating suspended	1	2
<b>Total</b>	<b>51</b>	<b>100</b>

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