

This report is prepared for the Warsaw Stock Exchange SA within the framework of the Analytical Coverage Support Pilot Program. This is a translation of the Polish analytical report.

# Ferro

8/2021/GPW (47) May 10, 2021

Analyst: Sylwia Jaśkiewicz, CFA

Sector: Construction materials  
 Fundamental rating: Buy (→)  
 Market relative: Overweight (→)  
 Price: PLN 29.80  
 12M EFV: PLN 34.1 (↑)

Market Cap: US\$ 169 m  
 Bloomberg code: FRO PW  
 Av. daily turnover: US\$ 0.09 m  
 12M range: PLN 13.30-32.30  
 Free float: 67%

## Recommended action

We uphold our ST market relative Overweight rating and LT fundamental Buy recommendation for the Company. We expect good 1Q21 financials and hope for similar results in the future, at least with respect to 2Q21. Given still high demand we assume the Company will adjust their pricelist to costs of commodities and transportation. Efforts to expand the product offer towards the upper-shelf products coupled with consolidation of subsidiaries, Termet and Tester should support Ferro's financial results.

## 1Q21 preview

Despite various trade restrictions in the markets where the Company operates we expect good 1Q21 financials.

We forecast 1Q21 revenues at PLN 157 million (up 25% yoy) assuming a double/single-digit growth in Hungary and Romania/ Poland, Czechia and Slovakia paired with the consolidation of Termet and Tester from the beginning of March.

We continue assuming that no intense marketing campaigns were carried out in 1Q21 and costs of travel and sales were low while costs of salaries might have grown, mainly in connection with the strategy implementation (in 1H20 numerous projects were suspended due to big uncertainty on the market). Though costs of raw materials increased, the Group had the inventories bought earlier at lower prices. We expect some costs related to Termet's and Testers's integration and assume the subsidiaries delivered EBITDA below PLN 1 million in March. In consequence, we forecast 1Q21 EBIT at PLN 23 million (up 15% yoy). Net financial costs should reach PLN 1.2 million (impact of FX losses) vs PLN 0.2 million in 1Q20 and 4Q20 financial result close to 0. We forecast the Group's NI at PLN 18 million in the discussed period (up 8% yoy).

## Guide to adjusted profits

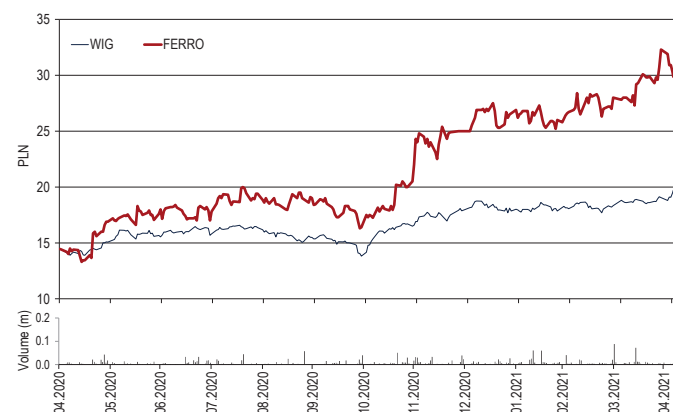
Income tax.

## Key data

IFRS consolidated		2020	2021E	2022E	2023E
Sales	PLN m	519.1	679.5	720.3	756.3
EBITDA	PLN m	83.2	94.3	100.0	106.5
EBIT	PLN m	75.8	84.2	88.7	93.8
Net income	PLN m	62.1	63.8	66.6	70.8
Adj EPS	PLN	2.9	3.0	3.1	3.3
Adj EPS yoy chg	%	45	3	4	6
Net debt	PLN m	31.8	87.8	72.9	50.8
P/E	x	10.2	9.9	9.5	8.9
EV/EBITDA	x	8.0	7.9	7.4	6.7
EV/EBIT	x	8.8	8.9	8.3	7.6
DPS	PLN	0.40	1.75	1.80	1.88
Gross dividend yield	%	1.3	5.9	6.0	6.3
Number of shares (eop)	m	21.2	21.2	21.2	21.2

\* excl. minority stake in Termet  
 Source: Company, DM BOS SA estimates

## Stock performance



Source: Bloomberg

## Upcoming events

1. Release of 1Q21 consolidated results: May 27
2. Release of 1H21 consolidated results: September 30
3. Release of 3Q21 consolidated results: November 29

## Risk factors

1. Economic slowdown in Europe
2. Falling demand for new flats
3. Falling frequency of renovations
4. Labor force shortage
5. Wage pressure
6. High/volatile raw materials prices (of copper and zinc, in particular)
7. Unfavorable/volatile FX rates (currency risk when PLN and CZK weaken against US\$ and EUR)
8. Own brands developed by shopping chains

## Catalysts

1. Continuous demand for new apartment flats
2. Development of the market for renovations
3. Expansion in European markets
4. Strengthening position on the existing markets
5. New products (expanding the product offer)
6. Repositioning of the Company's own brands (new upper segment brands)
7. Favorable/stable FX rates and raw materials prices
8. Brand promotion (intensifying the online activities)
9. Potential acquisitions (if beneficial from the Group's perspective)

**Fig. 1. Ferro; 1Q21 financials' forecasts**

IFRS consolidated (PLN m)	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21E	yoy chg
Sales	109.4	105.8	122.1	113.9	124.8	112.0	147.7	134.6	156.5	25%
EBITDA	18.7	14.4	21.5	12.3	21.8	17.3	29.4	14.7	25.2	16%
EBITDA margin	17.1%	13.6%	17.6%	10.8%	17.5%	15.4%	19.9%	10.9%	16.1%	-
EBIT	17.5	12.7	19.8	10.6	20.0	15.4	27.6	12.7	23.0	15%
EBIT margin	16.0%	12.0%	16.2%	9.3%	16.1%	13.8%	18.7%	9.4%	14.7%	-
Pre-tax profit	16.1	11.7	17.7	8.5	20.2	14.5	29.1	12.7	21.8	8%
Pre-tax profit margin	14.7%	11.1%	14.5%	7.4%	16.2%	12.9%	19.7%	9.4%	14.0%	-
Net profit	13.0	9.5	14.5	2.9	16.5	12.3	23.6	9.6	17.9	8%
Net profit margin	11.9%	9.0%	11.9%	2.6%	13.2%	11.0%	16.0%	7.1%	11.4%	-

Source: The Company, DM BOŚ SA

## Valuation

With the financial forecasts update and valuation horizon forward shift, our 12M EFV for the Company - representing a 50%-50% mix of the outcome of the

DCF FCFF and peer-relative valuations – increases by 11% to PLN 34.1 per share (from PLN 30.8 per share previously). The DCF/peer-relative valuation yields PLN 34.3/ 33.9 per share (previously 31.8/ PLN 29.9 per share).

**Fig. 2. Ferro; Peer-relative comparison**

Company	P/E			EV/EBITDA			EV/EBIT		
	2021E	2022E	2023E	2021E	2022E	2023E	2021E	2022E	2023E
Villeroy & Boch Ag-Pref	13.8	12.4	11.4	4.8	4.5	4.1	8.1	7.4	6.7
Fortune Brands Home & Securi	19.9	18.5	16.9	13.3	12.0	b.d.	15.7	14.0	b.d.
Nilfisk Holding	23.7	18.3	15.2	9.6	8.1	7.2	21.3	16.4	13.6
Tarkett	23.8	16.1	13.8	6.6	5.5	4.7	15.6	11.3	9.7
Nichiha	15.0	12.6	12.0	7.1	5.4	4.7	9.3	7.8	6.7
Norcros	11.5	10.2	9.1	6.1	5.7	5.2	8.6	7.7	6.8
Vestel Beyaz Esya Sanayi	6.3	5.4	4.6	5.5	4.9	4.2	7.0	6.1	5.0
Mercor	12.7	11.9	10.9	8.3	7.8	7.2	10.8	10.1	9.1
Lena Lighting	13.6	13.1	12.8	7.5	7.3	7.1	10.7	10.3	10.0
<b>Median</b>	<b>13.7</b>	<b>12.5</b>	<b>11.7</b>	<b>7.3</b>	<b>7.1</b>	<b>6.6</b>	<b>10.1</b>	<b>9.7</b>	<b>8.1</b>
Ferro*	9.9	9.5	8.9	7.9	7.4	6.7	8.9	8.3	7.6
Implied Ferro's price based on foreign peers* (PLN)	41.1	39.2	39.0	27.1	28.2	29.1	34.6	35.1	31.5
<b>Implied Ferro's price* (PLN)</b>	<b>33.9</b>								

\*excl. minority stake in Termet

Source: Bloomberg, DM BOŚ SA

Fig. 3. Ferro; DCF model

	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
<b>Cost of equity</b>									
Risk free	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Equity market premium	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
Unlevered beta	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Leveraged beta	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2
<b>Required rate of return</b>	<b>11.5%</b>	<b>11.2%</b>	<b>10.8%</b>	<b>10.5%</b>	<b>10.5%</b>	<b>10.5%</b>	<b>10.5%</b>	<b>10.5%</b>	<b>10.5%</b>
<b>Cost of debt</b>									
Pre-tax cost of debt	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%
Effective tax rate	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%
<b>After-tax cost of debt</b>	<b>3.8%</b>	<b>3.8%</b>	<b>3.8%</b>	<b>3.8%</b>	<b>3.8%</b>	<b>3.8%</b>	<b>3.8%</b>	<b>3.8%</b>	<b>3.8%</b>
<b>WACC</b>									
Equity share	80%	81%	81%	86%	89%	91%	93%	94%	95%
Debt share	20%	19%	19%	14%	11%	9%	7%	6%	5%
Cost of equity	11.5%	11.2%	10.8%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%
After tax cost of debt	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
<b>WACC</b>	<b>10.0%</b>	<b>9.7%</b>	<b>9.5%</b>	<b>9.5%</b>	<b>9.7%</b>	<b>9.9%</b>	<b>10.0%</b>	<b>10.1%</b>	<b>10.1%</b>
<b>Financial forecasts (PLN m)</b>									
Sales	720.3	756.3	794.1	818.0	842.5	867.8	893.8	920.6	948.2
EBIT	88.7	93.8	101.6	103.5	105.3	107.0	108.7	110.2	111.5
NOPLAT	71.8	75.9	82.3	83.8	85.3	86.7	88.0	89.2	90.3
Depreciation	11.3	12.7	14.1	15.7	17.4	19.4	21.5	23.9	26.6
NWC change	-13.8	-12.2	-12.8	-8.1	-8.3	-8.6	-8.8	-9.1	-9.4
Capex	-15.4	-13.8	-15.5	-17.0	-18.9	-21.0	-23.4	-26.0	-28.8
<b>FCFF</b>	<b>53.9</b>	<b>62.7</b>	<b>68.1</b>	<b>74.3</b>	<b>75.4</b>	<b>76.4</b>	<b>77.3</b>	<b>78.1</b>	<b>78.7</b>

Source: DM BOŚ SA estimates

Fig. 4. Ferro; DCF Valuation (PLN m)

FCFF terminal growth	1.0%
WACC in residual period	10.1%
Residual value	869.2
PV of residual value	388.4
PV of FCFF	422.6
<b>Enterprise value</b>	<b>810.9</b>
Net debt	87.8
Dividends (2021E)	37.2
Minorities	31.1
<b>Equity value</b>	<b>729.3</b>
Number of shares (million)	21.2
<b>12M EFV (PLN)</b>	<b>34.3</b>

Source: DM BOŚ SA estimates

## The Group's Strategy

The Company's strategy assumes such targets as (i) consolidated revenues and EBITDA at PLN 700 million and PLN 90 million, respectively in FY23, (ii) annual investment expenditures below PLN 10 million till 2023, and (iii) the Group's ND/EBITDA ratio below 2.5x in 2018-23. These assumptions did not cover acquisition plans.

## Financial forecasts

We modify our financial forecast for the Company and upgrade FY21 EBITDA and NI by 4% and 5% to PLN 94 million and 64 million, respectively. We believe the good market situation will be beneficial for the Group. Demand for the Company's goods and products is driven by the development of the residential market in the region (foreign markets

**Fig. 5. Ferro; Changes in DM BOŚ SA forecasts**

IFRS consolidated (PLN m)	2021E			2022E			2023E		
	current	previous	change	current	previous	change	current	previous	change
Sales	679.5	665.3	2%	720.3	705.2	2%	756.3	740.4	2%
EBITDA	94.3	90.8	4%	100.0	95.6	5%	106.5	101.8	5%
EBIT	84.2	80.8	4%	88.7	83.9	6%	93.8	88.9	5%
NP	63.8	60.5	5%	66.6	62.3	7%	70.8	66.6	6%
Net debt	87.8	88.2	0%	72.9	72.5	1%	50.8	52.4	-3%

Source: DM BOŚ SA estimates

contributed 65% of the Company's FY20 revenues; up 19% yoy). In the installation fittings segment, the replacement demand constitutes 55% with 45% delivered by new investments. In the section of batteries and accessories, 80% of demand results from renovations and 20% from new residential investments. The Company distributes its goods and products through traditional (66%) and modern (34%) channels. The Company benefits from a one-to-two year shift in demand with respect to the construction of apartments. Besides, both, the renovation cycle and product life cycle are shortened.

According to CSO, in 2020 in Poland (i) 224,000 dwellings were started, down 6% yoy, (ii) 222,000 dwellings were delivered, up 7% yoy, and (iii) 276,000 building permits were issued, up 3% yoy. In 1Q21 in Poland (i) 64,000 dwellings were started, up 21% yoy, (ii) 53,000 dwellings were delivered, up 7% yoy, and (iii) 84,000 building permits were issued, up 42% yoy. Besides, high demand prevails on the secondary market in Poland and housing markets in the neighboring countries prosper as well.

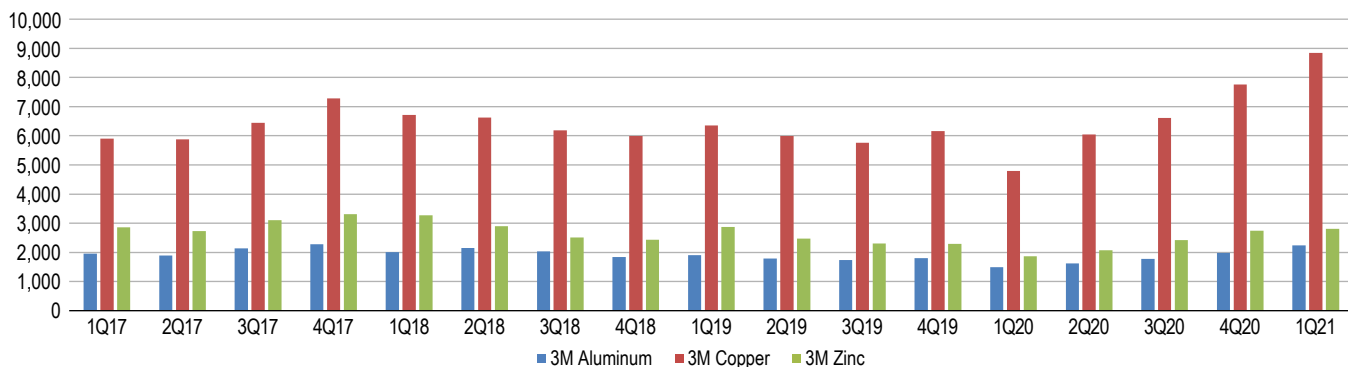
Thanks to the good market situation it is possible to introduce price hikes offsetting raw materials prices

growth (copper/zinc/aluminum prices growth by 84%/50%/50% yoy translating into a 76%/44%/44% price growth in PLN at the 1Q21 end). Moreover, clients are willing to buy high-end products which should also support Ferro's sales as the Group expands its offer to move upmarket.

Given the acceleration of the strategy implementation and recent acquisitions we assume the Company will revise its strategy in mid-year, after the first months with the acquired companies on board.

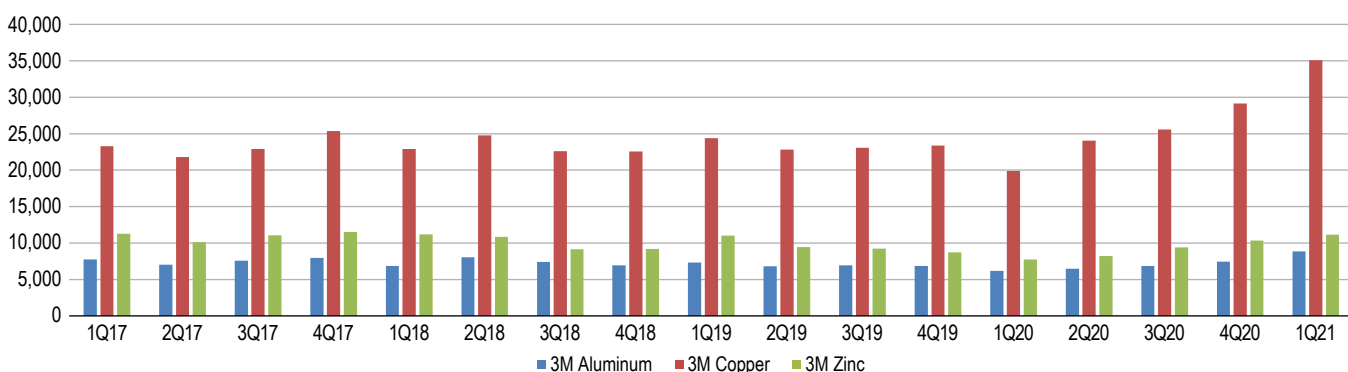
It is worth reminding that the Group's profitability is determined by (i) pricing, (ii) goods purchase prices/ production costs (pricing formulas for the merchandise from China are linked to copper and zinc (brass) quotations in Shanghai), and (iii) HR costs. Costs of commodities and prices of goods as well as transport prices are denominated mainly in US\$ (90%) and in EUR (10%) while revenues are generated mostly in PLN and CZK which ties the realized margins to FX rates. Ferro is able to flexibly adjust final prices to FX rates by the fine-tuning of discounts. The FX differences booked in financial costs arise from a time delay between the order placement and payment day.

**Fig. 6. Commodities prices (eop, US\$)**



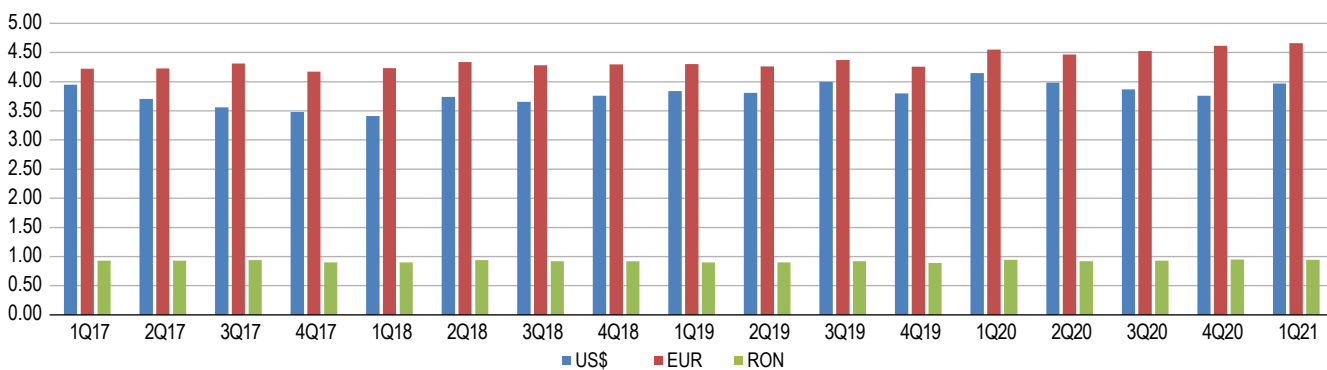
Source: Bloomberg, DM BOŚ SA

**Fig. 7. Commodities prices (eop, PLN)**



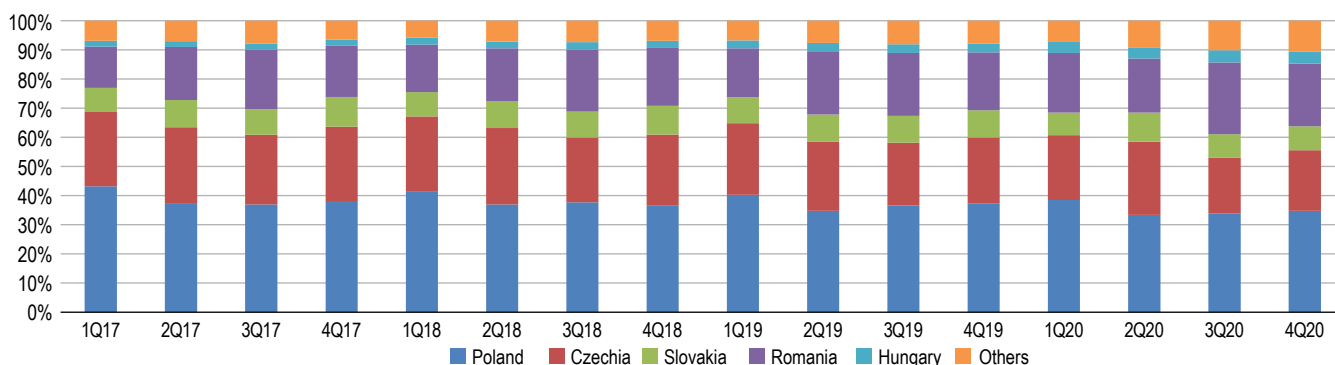
Source: Bloomberg, DM BOŚ SA

**Fig. 8. FX rates (eop, PLN)**



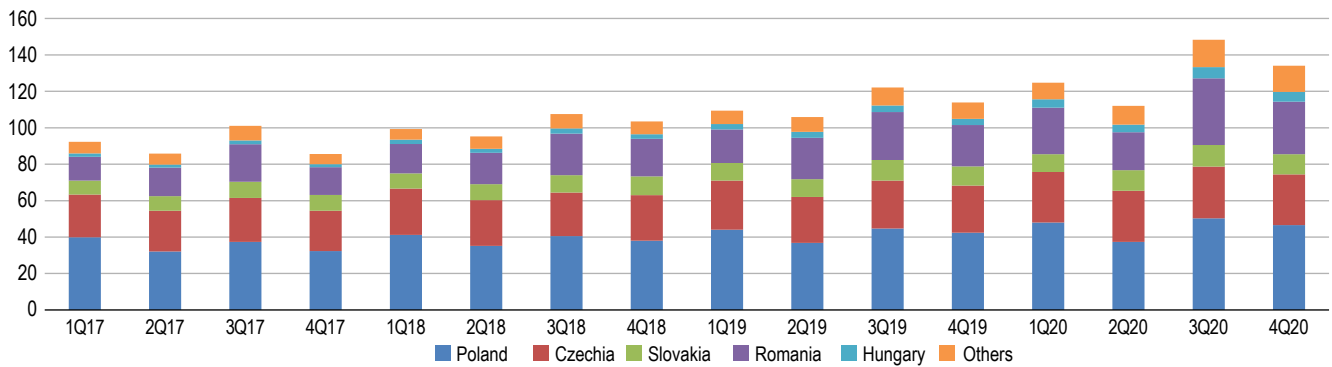
Source: Bloomberg, DM BOŚ SA

**Fig. 9. Ferro; Revenues – the geographical structure**



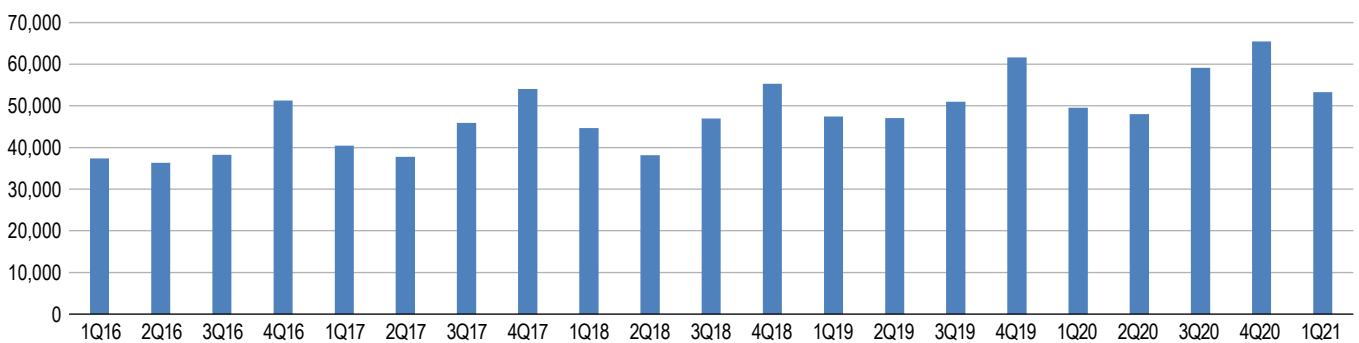
Source: Company, DM BOŚ SA

**Fig. 10.** *Ferro; Revenues by regions (PLN million)*



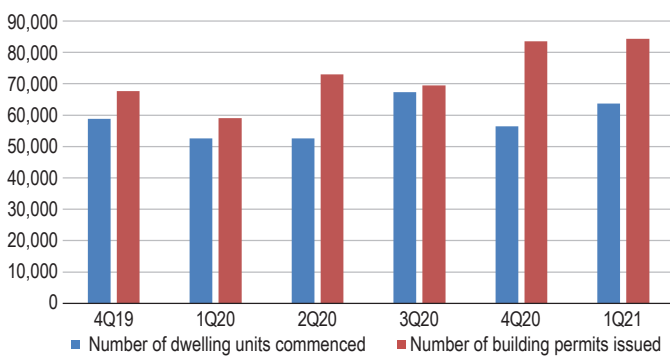
Source: Company, DM BOŚ SA

**Fig. 14.** *Poland; Dwellings delivered to clients*



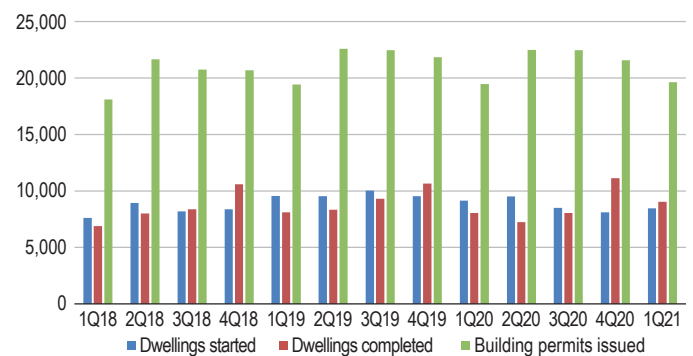
Source: CSO

**Fig. 11.** *Poland; Housing market*



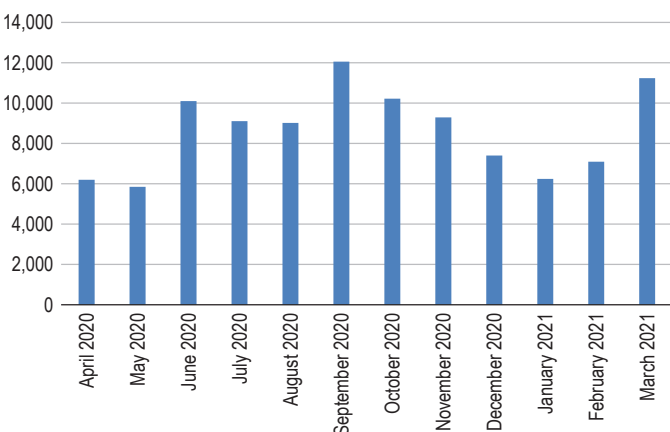
Source: CSO

**Fig. 13.** *Czechia; Number of dwellings*



Source: Czech Statistical Office

**Fig. 12.** *Romania; Building permits issued*



Source: CEICDATA

**Financial statements (IFRS consolidated)**
**Fig. 15. Ferro; Balance sheet**

(PLN m)	2017	2018	2019	2020	2021E	2022E	2023E
<b>Fixed assets</b>	<b>69.5</b>	<b>75.9</b>	<b>82.9</b>	<b>86.3</b>	<b>105.2</b>	<b>109.1</b>	<b>109.9</b>
Other fixed assets	118.3	121.3	122.1	128.8	143.9	144.1	144.3
Current trade assets	177.4	193.7	206.7	296.0	334.6	368.2	407.0
- inventory	106.7	119.0	125.5	143.0	215.3	228.2	239.6
- net trade receivables	51.8	57.1	60.7	76.0	98.4	104.3	109.5
Accruals	18.9	17.6	20.5	76.9	20.9	35.8	58.0
<b>Assets</b>	<b>365.2</b>	<b>390.9</b>	<b>411.6</b>	<b>511.1</b>	<b>583.8</b>	<b>621.5</b>	<b>661.3</b>
Shareholders' funds	198.3	233.2	250.3	313.2	362.9	394.5	428.8
Reserves	35.1	8.1	8.1	8.5	8.5	8.5	8.5
Liabilities	131.8	149.6	153.2	189.4	212.4	218.5	224.1
- interest bearing debt	65.6	109.1	89.2	102.0	102.0	102.0	102.0
- trading liabilities	59.7	34.7	47.2	64.5	84.0	89.0	93.4
- other	5.6	5.8	9.7	16.2	19.7	20.8	22.0
<b>Shareholders equity and liabilities</b>	<b>365.2</b>	<b>390.9</b>	<b>411.6</b>	<b>511.1</b>	<b>583.8</b>	<b>621.5</b>	<b>661.3</b>
<b>Ratios:</b>							
Debt/Equity	0.3	0.5	0.4	0.3	0.3	0.3	0.3
Net WC / Total assets	0.3	0.4	0.3	0.3	0.4	0.4	0.4
Current ratio	1.5	1.6	1.7	1.8	1.8	1.9	2.0
Quick ratio	0.6	0.6	0.7	0.9	0.6	0.7	0.8
Sales / Total assets	1.0	1.1	1.1	1.1	1.2	1.2	1.2
Sales / Net WC	3.5	3.4	3.2	3.5	3.5	3.0	3.0
Inventory turnover (days)*	104	102	99	94	96	112	113
Average receivable turnover (days)*	48	49	48	48	47	51	52
Average accounts payable period (days)*	49	42	33	39	40	44	44
Cash conversion cycle (days)	103	108	113	103	103	120	120
ROA	11.2%	10.2%	10.7%	13.5%	11.7%	11.1%	11.0%
ROE	19.2%	17.9%	17.7%	22.0%	18.9%	17.6%	17.2%

\*in relation to revenues

Source: Company, DM BOŚ SA estimates

Fig. 16. Ferro; Income statement

(PLN m)	2017	2018	2019	2020	2021E	2022E	2023E
<b>Net sales</b>	<b>364.7</b>	<b>405.6</b>	<b>451.3</b>	<b>519.1</b>	<b>679.5</b>	<b>720.3</b>	<b>756.3</b>
Costs of operating activities	-319.3	-353.9	-392.9	-446.1	-598.9	-635.4	-666.5
<b>EBITDA</b>	<b>51.6</b>	<b>57.3</b>	<b>66.9</b>	<b>83.2</b>	<b>94.3</b>	<b>100.0</b>	<b>106.5</b>
<b>EBIT</b>	<b>47.7</b>	<b>53.6</b>	<b>60.6</b>	<b>75.8</b>	<b>84.2</b>	<b>88.7</b>	<b>93.8</b>
Financial income	2.9	0.0	0.0	3.6	0.2	0.1	0.2
Financial costs	-10.1	-6.7	-6.6	-2.9	-2.8	-2.5	-2.3
<b>Pre-tax profit</b>	<b>40.5</b>	<b>46.8</b>	<b>54.0</b>	<b>76.5</b>	<b>81.6</b>	<b>86.3</b>	<b>91.7</b>
Income tax	-29.5	-9.1	-14.0	-14.4	-15.5	-16.4	-17.4
Minorities	0.0	0.0	0.0	0.0	-2.3	-3.3	-3.5
<b>NP</b>	<b>11.1</b>	<b>37.7</b>	<b>40.0</b>	<b>62.1</b>	<b>63.8</b>	<b>66.6</b>	<b>70.8</b>
<b>Adj NP</b>	<b>39.6</b>	<b>38.6</b>	<b>42.9</b>	<b>62.1</b>	<b>63.8</b>	<b>66.6</b>	<b>70.8</b>
<b>Margins:</b>							
EBITDA	14.2%	14.1%	14.8%	16.0%	13.9%	13.9%	14.1%
EBIT	13.1%	13.2%	13.4%	14.6%	12.4%	12.3%	12.4%
Pre-tax profit	11.1%	11.5%	12.0%	14.7%	12.0%	12.0%	12.1%
NP	3.0%	9.3%	8.9%	12.0%	9.4%	9.2%	9.4%
Adj NP	10.9%	9.5%	9.5%	12.0%	9.4%	9.2%	9.4%
<b>Nominal growth:</b>							
Sales	9.7%	11.2%	11.3%	15.0%	30.9%	6.0%	5.0%
EBITDA	12.4%	11.0%	16.7%	24.5%	13.3%	6.0%	6.5%
EBIT	16.1%	12.2%	13.2%	25.0%	11.1%	5.3%	5.8%
Pre-tax profit	11.1%	15.5%	15.4%	41.6%	6.7%	5.7%	6.3%
NP	-62.0%	240.8%	6.1%	55.2%	2.8%	4.4%	6.3%
Adj NP	36.2%	-2.6%	11.2%	44.7%	2.8%	4.4%	6.3%

Source: The Company, DM BOS SA estimates

Fig. 17. Ferro; Cash flow

(PLN m)	2017	2018	2019	2020	2021E	2022E	2023E
<b>Operating cash flow</b>	<b>61.4</b>	<b>-25.1</b>	<b>54.6</b>	<b>62.8</b>	<b>48.8</b>	<b>70.1</b>	<b>77.6</b>
Pre-tax profit	48.7	46.8	54.0	76.5	81.6	86.3	91.7
Depreciation	3.9	3.7	6.3	7.5	10.1	11.3	12.7
Change in working capital	8.2	-44.7	0.8	-16.6	-33.3	-13.8	-12.2
Other	0.7	-31.0	-6.5	-4.6	-9.6	-13.6	-14.6
<b>Net funds from investing activities</b>	<b>-4.3</b>	<b>-7.1</b>	<b>-4.4</b>	<b>-4.4</b>	<b>-65.9</b>	<b>-15.4</b>	<b>-13.8</b>
Capital expenditures	-4.4	-7.2	-4.6	-4.7	-65.9	-15.4	-13.8
Other	0.1	0.2	0.2	0.3	0.0	0.0	0.0
<b>Net funds from financial activities</b>	<b>-39.6</b>	<b>5.3</b>	<b>-51.9</b>	<b>6.9</b>	<b>-38.9</b>	<b>-39.9</b>	<b>-41.6</b>
Income from shares issue	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net change in debt	-12.4	15.0	-25.2	17.5	0.0	0.0	0.0
Dividends paid	-25.5	-7.4	-23.8	-8.5	-37.2	-38.3	-40.0
Other	-1.7	-2.3	-3.0	-2.1	-1.7	-1.7	-1.7
<b>Change in cash</b>	<b>17.6</b>	<b>-26.9</b>	<b>-1.8</b>	<b>65.3</b>	<b>-56.0</b>	<b>14.8</b>	<b>22.2</b>

Source: The Company, DM BOS SA estimates



## BASIC DEFINITIONS

**A/R turnover** (in days) =  $365/(\text{sales}/\text{average A/R})$   
**Inventory turnover** (in days) =  $365/(\text{COGS}/\text{average inventory})$   
**A/P turnover** (in days) =  $365/(\text{COGS}/\text{average A/P})$   
**Current ratio** =  $(\text{current assets} - \text{ST deferred assets})/\text{current liabilities}$   
**Quick ratio** =  $(\text{current assets} - \text{ST deferred assets} - \text{inventory})/\text{current liabilities}$   
**Interest coverage** =  $(\text{pre-tax profit before extraordinary items} + \text{interest payable})/\text{interest payable}$   
**Gross margin** =  $\text{gross profit on sales}/\text{sales}$   
**EBITDA margin** =  $\text{EBITDA}/\text{sales}$   
**EBIT margin** =  $\text{EBIT}/\text{sales}$   
**Pre-tax margin** =  $\text{pre-tax profit}/\text{sales}$   
**Net margin** =  $\text{net profit}/\text{sales}$   
**ROE** =  $\text{net profit}/\text{average equity}$   
**ROA** =  $(\text{net income} + \text{interest payable})/\text{average assets}$   
**EV** =  $\text{market capitalization} + \text{interest bearing debt} - \text{cash and equivalents}$   
**EPS** =  $\text{net profit}/\text{no. of shares outstanding}$   
**CE** =  $\text{net profit} + \text{depreciation}$   
**Dividend yield** (gross) =  $\text{pre-tax DPS}/\text{stock market price}$   
**Cash sales** =  $\text{accrual sales corrected for the change in A/R}$   
**Cash operating expenses** =  $\text{accrual operating expenses corrected for the changes in inventories and A/P, depreciation, cash taxes and changes in the deferred taxes}$

DM BOŠ S.A. generally values the covered non bank companies via two methods: comparative method and DCF method (discounted cash flows). The advantage of the former is the fact that it incorporates the current market assessment of the value of the company's peers. The weakness of the comparative method is the risk that the valuation benchmark may be mispriced. The advantage of the DCF method is its independence from the current market valuation of the comparable companies. The weakness of this method is its high sensitivity to undertaken assumptions, especially those related to the residual value calculation. Please note that we also resort to other valuation techniques (e.g. NAV-, DDM- or SOTP-based), should it prove appropriate in a given case.

## KEY TO INVESTMENT RANKINGS

This is a guide to expected price performance in absolute terms over the next 12 months:

**Buy** – fundamentally undervalued (upside to 12M EFV in excess of the cost of equity) + catalysts which should close the valuation gap identified;  
**Hold** – either (i) fairly priced, or (ii) fundamentally undervalued/overvalued but lacks catalysts which could close the valuation gap;  
**Sell** – fundamentally overvalued (12M EFV < current share price + 1-year cost of equity) + catalysts which should close the valuation gap identified.

This is a guide to expected relative price performance:

**Overweight** – expected to perform better than the benchmark (WIG) over the next quarter in relative terms  
**Neutral** – expected to perform in line with the benchmark (WIG) over the next quarter in relative terms  
**Underweight** – expected to perform worse than the benchmark (WIG) over the next quarter in relative terms

The recommendation tracker presents the performance of DM BOŠ S.A.'s recommendations. A recommendation expires on the day it is altered or on the day 12 months after its issuance, whichever comes first.

Relative performance compares the rate of return on a given recommended stock in the period of the recommendation's validity (i.e. from the date of issuance to the date of alteration or – in case of maintained recommendations – from the date of issuance to the current date) in a relation to the rate of return on the benchmark in this time period. The WIG index constitutes the benchmark. For recommendations that expire by an alteration or are maintained, the ending values used to calculate their absolute and relative performance are: the stock closing price on the day the recommendation expires/ is maintained and the closing value of the benchmark on that date. For recommendations that expire via a passage of time, the ending values used to calculate their absolute and relative performance are: the average of the stock closing prices for the day the recommendation elapses and four directly preceding sessions and the average of the benchmark's closing values for the day the recommendation expires and four directly preceding sessions.

### Distribution of DM BOŠ's current recommendations

	Buy	Hold	Sell	Suspended	Under revision
Numbers	44	26	5	9	0
Percentage	52%	31%	6%	11%	0%

## Banks

**Net Interest Margin (NIM)** =  $\text{net interest income}/\text{average assets}$   
**Non interest income** =  $\text{fees\&commissions} + \text{result on financial operations (trading gains)} + \text{FX gains}$   
**Interest Spread** =  $(\text{interest income}/\text{average interest earning assets})/(\text{interest cost}/\text{average interest bearing liabilities})$   
**Cost/Income** =  $(\text{general costs} + \text{depreciation})/(\text{profit on banking activity} + \text{other net operating income})$   
**ROE** =  $\text{net profit}/\text{average equity}$   
**ROA** =  $\text{net income}/\text{average assets}$   
**Non performing loans (NPL)** = loans in 'basket 3' category  
**NPL coverage ratio** =  $\text{loan loss provisions}/\text{NPL}$   
**Net provision charge** =  $\text{provisions created} - \text{provisions released}$

DM BOŠ S.A. generally values the covered banks via two methods: comparative method and fundamental target fair P/E and target fair P/BV multiples method. The advantage of the former is the fact that it incorporates the current market assessment of the value of the company's peers. The weakness of the comparative method is the risk that the valuation benchmark may be mispriced. The advantage of the fundamental target fair P/E and target fair P/BV multiples method is its independence of the current market valuation of the comparable companies. The weakness of this method is its high sensitivity to undertaken assumptions, especially those related to the residual value calculation. Assumptions used in valuation can change, influencing thereby the level of the valuation. Among the most important assumptions are: GDP growth, forecasted level of inflation, changes in interest rates and currency prices, employment level and change in wages, demand on the analysed company products, raw material prices, competition, standing of the main customers and suppliers, legislation changes, etc. Changes in the environment of the analysed company are monitored by analysts involved in the preparation of the recommendation, estimated, incorporated in valuation and published in the recommendation whenever needed.

### Distribution of DM BOŠ's current recommendations for the companies which DM BOŠ has supplied with material investment services within the last 12 months

	Buy	Hold	Sell	Suspended	Under revision
Numbers	8	3	0	1	0
Percentage	67%	25%	0%	8%	0%

### Distribution of DM BOŠ's current market relative recommended weightings

	Overweight	Neutral	Underweight	Suspended	Under revision
Numbers	37	28	10	9	0
Percentage	44%	33%	12%	11%	0%

### Distribution of DM BOŠ's current market relative recommended weightings for the companies which DM BOŠ has supplied with material investment services within the last 12 months

	Overweight	Neutral	Underweight	Suspended	Under revision
Numbers	5	6	0	1	0
Percentage	42%	50%	0%	8%	0%

LT fundamental recommendation tracker

Analyst	Recommendation		Report date	Reiteration date	Distribution date	Expiry date	Performance	Relative performance	Price at issue/reiteration*	EFV (12 months)	
<b>Ferro</b>											
Sylwia Jaśkiewicz	Hold	-	21.07.2019	-	22.07.2019	04.12.2019	11%	20%	13.70	17.10	-
Sylwia Jaśkiewicz	-	→	-	30.07.2019	31.07.2019	-	-	-	13.50	17.10	→
Sylwia Jaśkiewicz	-	→	-	01.09.2019	02.09.2019	-	-	-	12.05	17.10	→
Sylwia Jaśkiewicz	-	→	-	10.09.2019	11.09.2019	-	-	-	12.10	17.10	→
Sylwia Jaśkiewicz	-	→	-	15.09.2019	16.09.2019	-	-	-	12.65	17.10	→
Sylwia Jaśkiewicz	-	→	-	13.10.2019	14.10.2019	-	-	-	13.40	17.10	→
Sylwia Jaśkiewicz	-	→	-	24.10.2019	25.10.2019	-	-	-	13.00	17.10	→
Sylwia Jaśkiewicz	-	→	-	17.11.2019	18.11.2019	-	-	-	13.00	17.10	→
Sylwia Jaśkiewicz	-	→	-	18.11.2019	19.11.2019	-	-	-	13.00	17.10	→
Sylwia Jaśkiewicz	Buy	↑	04.12.2019	-	05.12.2019	28.01.2020	17%	15%	15.20	17.80	↑
Sylwia Jaśkiewicz	-	→	-	08.12.2019	09.12.2019	-	-	-	15.00	17.80	→
Sylwia Jaśkiewicz	-	→	-	09.01.2020	10.01.2020	-	-	-	16.30	17.80	→
Sylwia Jaśkiewicz	Hold	↓	28.01.2020	-	29.01.2020	22.07.2020	-4%	5%	17.80	18.50	↑
Sylwia Jaśkiewicz	-	→	-	04.02.2020	05.02.2020	-	-	-	17.90	18.50	→
Sylwia Jaśkiewicz	-	→	-	06.02.2020	07.02.2020	-	-	-	17.50	18.50	→
Sylwia Jaśkiewicz	-	→	-	03.03.2020	04.03.2020	-	-	-	15.20	18.50	→
Sylwia Jaśkiewicz	-	→	-	30.03.2020	31.03.2020	-	-	-	12.25	18.50	→
Sylwia Jaśkiewicz	-	→	-	22.04.2020	23.04.2020	-	-	-	14.00	18.50	→
Sylwia Jaśkiewicz	-	→	-	23.04.2020	24.04.2020	-	-	-	14.00	18.50	→
Sylwia Jaśkiewicz	-	→	-	19.05.2020	20.05.2020	-	-	-	13.65	18.50	→
Sylwia Jaśkiewicz	-	→	-	15.06.2020	16.06.2020	-	-	-	16.60	18.50	→
Sylwia Jaśkiewicz	-	→	-	13.07.2020	14.07.2020	-	-	-	17.90	18.50	→
Sylwia Jaśkiewicz	Buy	↑	22.07.2020	-	23.07.2020	16.04.2021	75%	51%	17.00	20.30	↑
Sylwia Jaśkiewicz	-	→	-	01.09.2020	02.09.2020	-	-	-	18.60	20.30	→
Sylwia Jaśkiewicz	-	→	-	17.09.2020	18.09.2020	-	-	-	18.90	20.30	→
Sylwia Jaśkiewicz	-	→	-	29.09.2020	30.09.2020	-	-	-	18.70	19.90	↓
Sylwia Jaśkiewicz	-	→	-	08.10.2020	09.10.2020	-	-	-	19.00	19.90	→
Sylwia Jaśkiewicz	-	→	-	03.11.2020	04.11.2020	-	-	-	17.30	22.00	↑
Sylwia Jaśkiewicz	-	→	-	08.11.2020	09.11.2020	-	-	-	17.25	22.00	→
Sylwia Jaśkiewicz	-	→	-	19.11.2020	20.11.2020	-	-	-	18.40	23.40	↑
Sylwia Jaśkiewicz	-	→	-	26.11.2020	27.11.2020	-	-	-	20.00	23.40	→
Sylwia Jaśkiewicz	-	→	-	06.12.2020	07.12.2020	-	-	-	24.80	25.70	↑
Sylwia Jaśkiewicz	-	→	-	05.01.2021	05.01.2021	-	-	-	25.50	25.70	→
Sylwia Jaśkiewicz	-	→	-	28.01.2021	29.01.2021	-	-	-	26.50	25.70	→
Sylwia Jaśkiewicz	-	→	-	09.02.2021	10.02.2021	-	-	-	25.70	30.80	↑
Sylwia Jaśkiewicz	-	→	-	28.02.2021	01.03.2021	-	-	-	26.10	30.80	→
Sylwia Jaśkiewicz	-	→	-	31.03.2021	01.04.2021	-	-	-	27.00	30.80	→
Sylwia Jaśkiewicz	Buy	→	16.04.2021	-	16.04.2021	Not later than 16.04.2022	2%	-3%	29.30	30.80	→
Sylwia Jaśkiewicz	-	→	-	10.05.2021	11.05.2021	-	-	-	29.80	34.10	↑

\* prices at issue/reiteration are the closing prices at the report or reiteration date

**Market-relative recommendation tracker**

Analyst	Relative Recommendation		Report date	Reiteration date	Distribution date	Expiry date	Price at issue/ reiteration*	Relative performance
<b>Ferro</b>								
Sylwia Jaśkiewicz	Neutral	→	21.07.2019	-	22.07.2019	18.11.2019	13.70	-2%
Sylwia Jaśkiewicz	-	→	-	30.07.2019	31.07.2019	-	13.50	-
Sylwia Jaśkiewicz	-	→	-	01.09.2019	02.09.2019	-	12.05	-
Sylwia Jaśkiewicz	-	→	-	10.09.2019	11.09.2019	-	12.10	-
Sylwia Jaśkiewicz	-	→	-	15.09.2019	16.09.2019	-	12.65	-
Sylwia Jaśkiewicz	-	→	-	13.10.2019	14.10.2019	-	13.40	-
Sylwia Jaśkiewicz	-	→	-	24.10.2019	25.10.2019	-	13.00	-
Sylwia Jaśkiewicz	-	→	-	17.11.2019	18.11.2019	-	13.00	-
Sylwia Jaśkiewicz	Overweight	↑	18.11.2019	-	19.11.2019	28.01.2020	13.00	41%
Sylwia Jaśkiewicz	-	→	-	04.12.2019	05.12.2019	-	15.20	-
Sylwia Jaśkiewicz	-	→	-	08.12.2019	09.12.2019	-	15.00	-
Sylwia Jaśkiewicz	-	→	-	09.01.2020	10.01.2020	-	16.30	-
Sylwia Jaśkiewicz	Neutral	↓	28.01.2020	-	29.01.2020	23.04.2020	17.80	-1%
Sylwia Jaśkiewicz	-	→	-	04.02.2020	05.02.2020	-	17.90	-
Sylwia Jaśkiewicz	-	→	-	06.02.2020	07.02.2020	-	17.50	-
Sylwia Jaśkiewicz	-	→	-	03.03.2020	04.03.2020	-	15.20	-
Sylwia Jaśkiewicz	-	→	-	30.03.2020	31.03.2020	-	12.25	-
Sylwia Jaśkiewicz	-	→	-	22.04.2020	23.04.2020	-	14.00	-
Sylwia Jaśkiewicz	Overweight	↑	23.04.2020	-	24.04.2020	16.04.2021	14.00	60%
Sylwia Jaśkiewicz	-	→	-	19.05.2020	20.05.2020	-	13.65	-
Sylwia Jaśkiewicz	-	→	-	15.06.2020	16.06.2020	-	16.60	-
Sylwia Jaśkiewicz	-	→	-	13.07.2020	14.07.2020	-	17.90	-
Sylwia Jaśkiewicz	-	→	-	22.07.2020	23.07.2020	-	17.00	-
Sylwia Jaśkiewicz	-	→	-	01.09.2020	02.09.2020	-	18.60	-
Sylwia Jaśkiewicz	-	→	-	17.09.2020	18.09.2020	-	18.90	-
Sylwia Jaśkiewicz	-	→	-	29.09.2020	30.09.2020	-	18.70	-
Sylwia Jaśkiewicz	-	→	-	08.10.2020	09.10.2020	-	19.00	-
Sylwia Jaśkiewicz	-	→	-	03.11.2020	04.11.2020	-	17.30	-
Sylwia Jaśkiewicz	-	→	-	08.11.2020	09.11.2020	-	17.25	-
Sylwia Jaśkiewicz	-	→	-	19.11.2020	20.11.2020	-	18.40	-
Sylwia Jaśkiewicz	-	→	-	26.11.2020	27.11.2020	-	20.00	-
Sylwia Jaśkiewicz	-	→	-	06.12.2020	07.12.2020	-	24.80	-
Sylwia Jaśkiewicz	-	→	-	05.01.2021	05.01.2021	-	25.50	-
Sylwia Jaśkiewicz	-	→	-	28.01.2021	29.01.2021	-	26.50	-
Sylwia Jaśkiewicz	-	→	-	09.02.2021	10.02.2021	-	25.70	-
Sylwia Jaśkiewicz	-	→	-	28.02.2021	01.03.2021	-	26.10	-
Sylwia Jaśkiewicz	-	→	-	31.03.2021	01.04.2021	-	27.00	-
Sylwia Jaśkiewicz	Overweight	→	16.04.2021	-	16.04.2021	Not later than 16.04.2022	29.30	-3%
Sylwia Jaśkiewicz	-	→	-	10.05.2021	11.05.2021	-	29.80	-

\* prices at issue/reiteration are the closing prices at the report or reiteration date

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This report was prepared with due diligence and scrutiny. The information used in the report is based on all public sources such as press and branch publications, company's financial statements, current and periodic reports, as well as meetings and telephone conversations with company's representatives prior to the date of report's release. We believe the above mentioned sources of information to be reliable, however we do not guarantee their accuracy and completeness. All estimates and opinions included herein represent our judgment as of the date of the issue. All opinions, forecasts, calculations and estimates herein constitute the author's subjective assessment as of the date of the issue and can be modified at any time without prior notice. DM BOŚ SA informs that this report will be updated in the manner as referred to in the Agreement, at least once a year.

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